Structural case on adjuncts

by

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ABSTRACT

This dissertation investigates how case is assigned to nominal adverbials dubbed *durative* and *multiplicative* in Korean. These adverbials express the duration of an event, or the number of times an event is repeated. In transitive, unergative, and unaccusative constructions, the adverbial is marked with accusative case. In psychological predicate constructions, the adverbial is marked with nominative case. Interestingly, in passive and inchoative constructions (grouped together under the term *nonactive*), the adverbial allows both nominative and accusative case.

I derive these patterns from a specific model of Voice, and a model of successive-cyclic Dependent Case. I first argue in favor of a Voice system that treats passive and inchoative constructions as syntactically equivalent: whether a nonactive construction is passive or inchoative is determined by the feature specification on Voice (Kallulli 2007). Furthermore, this nonactive Voice head introduces an implicit agent (for passives) or causer (for inchoatives), which can be optionally realized as a PP. This agent/causer at Spec, VoiceP competes with the theme argument to move to Spec, TP. Hence, there are two different structures that can arise in nonactive constructions. The other constructions that do not show case optionality lack this competition. In transitive, unergative, and unaccusative constructions, there is no implicit agent/causer at Spec, TP to compete with the theme argument. In psychological predicate constructions, the experiencer argument introduced at Spec, ApplP acts as an intervener and blocks the theme argument from competing with the implicit agent/causer.

My model of successive-cyclic Dependent Case explains how the different structures result in different case patterns. It is a revised version of Levin's (2017) original model, whereby case evaluation occurs not only at the end of the syntactic derivation but at the Spell-out of each phase. However, my version of the model involves a more relaxed locality constraint for dependent case assignment. I demonstrate how my model can not only derive the case marking patterns of durative and multiplicative adverbials, but can also account for other case phenomena in Korean such as case stacking and multiple nominative constructions.

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I have also learned so much from many faculty members outside of my committee. My biggest

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List of abbreviations

1, 2, 3	First/Second/Third Person		INS	Instrumental
ABS	Absolutive		INTERR	Interrogative
ACC	Accusative		LOC	Locative
ADN	Adnominal		MOD	Modal
CAUS	Causative		NACT	Nonactive
CLF	Classifier		NEG	Negation
COMP	Complementizer		NMLZ	Nominalizer
COND	Conditional		NOM	Nominative
CONN	Connective		OBL	Oblique
COP	Copula		PASS	Passive
DAT	Dative		PL	Plural
DECL	Declarative		PROG	Progressive
DEM	Demonstrative		PRS	Present
DIST	Distributive		PST	Past
ERG	Ergative		Q	Question
GEN	Genitive		REFL	Reflexive
HON	Honorific		RES	Resultative
HONS	Subject Honorification		SG	Singular
ILL	Illative		TOP	Topic
IMPER	Imperative		VBLZ	Verbalizer
INCL	Inclusive			

Chapter 1

Introduction

A prevalent idea about case is that it can be divided into two classes: structural case, and inherent case (see Zaenen, Maling & Thráinsson 1985; Yip, Maling & Jackendoff 1987; Woolford 2006; Maling 2009 among many others). Structural case is linked to argument NPs. Zaenen, Maling & Thráinsson (1985:465) describe it as "regular or 'default' case marking, which results in nominative subjects and accusative objects." As its name suggests, structural case is sensitive to the structural position of an NP. Consider the case on A-moved arguments. In transitive sentences of nominative-accusative languages, the theme argument merges at object position and bears accusative case. But when the theme is promoted to subject position in passive sentences, it now bears nominative case. Inherent case occurs on certain nominal adverbials or NP complements of prepositions or postpositions. Its assignment is more restricted by the thematic role of the NP or the lexical property of the preposition or postposition which selects for that NP.

However, there are adverbials that straddle the structural–inherent case divide and pose a challenge to this dichotomy. These adverbials, found in at least Russian, Finnish, German, and Korean, "quantify" the event (Wechsler & Lee 1996): they either express the duration of a single event, or the cardinality of a complex event which consists of multiple repeated events.[1] I call the former type of adverbial *durative*, and the latter *multiplicative*. Examples (1–4) show examples of durative and multiplicative adverbials. They all bear accusative case in transitive or unergative sentences. While I abstract over many specific details for each language, the four languages shown here are said to have a nominative-accusative case system (in contrast to an ergative-absolutive case system).

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[1]A third class of situation delimiters are what could be called *spatial adverbs*, which express the spatial span of an event that involves physical movement such as running or walking.

(i) Mina-ka **sampayk   mithe-lul** talli-ess-ta.   (*Korean*)
     Mina-NOM three.hundred meter-ACC run-PST-DECL
     'Mina ran for three hundred meters.'

In this dissertation, I mainly focus on durative and multiplicative adverbials, which have been discussed much more extensively than spatial adverbials.

(1) *Russian*

   a. On čital *Plennicu* **vsju noč′**. (Durative; Fowler & Yadroff 1993:255)
       he read *La prisonnière* all night.ACC
       'He read *La prisonnière* all night.

   b. Kardinal byl dva goda. (Durative; Pereltsvaig 2000:159)
       cardinal was ill two.ACC year.GEN
       'The cardinal was ill for two years.'

(2) *Finnish*

   a. Kansa   luotti   Kekkoseen **vuoden**. (Durative; Maling 1993:55)
       people.NOM trust.PST.3SG Kekkonen.ILL year.ACC
       'People trusted Kekkonen for a year.'

   b. Minä luen kirjan **kolmannen kerran**. (Multiplicative[2]; Maling 1993:58)
       I.NOM read book.ACC third   time.ACC
       'I read the book for a third time.

(3) *German*

   a. Der Metallurge spielte **den ganzen Tag**. (Durative; McFadden 2021:16)
       the metallurgist played **the whole day**.ACC
       'The metallurgist played the whole day.'

   b. Sie studierte **die ganze Nacht**. (Durative; Haider 1985:82)
       she studied the whole night.ACC
       'She studied the whole night.'

(4) *Korean*

   a. Mina-ka **han sikan-ul** chayk-ul ilk-ess-ta. (Durative)
       Mina-NOM one hour-ACC book-ACC read-PST-DECL
       'Mina read a book for one hour.'

   b. Mina-ka **sey pen-ul** kyengchal-ul pwull-ess-ta. (Multiplicative)
       Mina-NOM three times-ACC police-ACC call-PST-DECL
       'Mina called the police three times.'

Case-marked adverbials are not limited to nominative-accusative case systems, although the case marking appears on manner adverbs instead of durative/multiplicative adverbials. Warlpiri, a language with an ergative-absolutive case system, and Diyari, with a split ergative system, show ergative-marked adverbials as shown in (5–6).[3]

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[2]Maling (1993) translates the adverbial *kolmannen kerran* consistently as 'for a third time' instead of 'three times'. This suggests that the exact interpretation of this adverbial may differ from Korean multiplicative adverbials – perhaps regarding whether or not the denoted event has already occurred at least once. Nonetheless, Maling presents it alongside durative adverbials as an adverbial that gets structural case at least for some speakers.

[3]I was made aware of these examples by Baker (2015:218), although I cite the original sources for updated glosses. I refer the reader to his work for a more detailed discussion of these examples.

(5) *Diyari* (Austin 2021:112)

nhulu karna-li kira **parapara-li** wara-yi.
3sgNFA person-ERG boomerang.ABS energetic-ERG throw-PRES
'The man throws the boomerang energetically.'

(6) *Warlpiri* (Simpson 1991:204)

Yaruju-**rlu**-rlupa-nyanu pu-ngka!
quick-ERG-1PL.INCL.SUBJ.-REFL fight-IMPER
'Let's hurry up and fight each other.'

In the remainder of the section, I focus on data from nominative-accusative languages. I leave a full-fledged investigation of ergative-marked adverbials for future research, which will hopefully paint a broader picture of case-marked adverbials and shed light on the role of semantics (*i.e.*, situation delimiters versus manner adverbials) in their case-marking.

   An immediate question arises when faced with accusative-marked durative/multiplicative adverbials: Is the case on these adverbials the same structural case that also appears on arguments, or is it inherent case? As mentioned above, structural accusative case is replaced by nominative case when the theme argument is promoted in passive constructions. Therefore, it is not surprising that many of the previous researchers turned to passive constructions to answer the question at hand. What *is* surprising is the variety that languages demonstrate in this matter. Examples (7) and (8) show passive constructions in Russian and German. In Russian and German, the adverbials retain their accusative case. The adverbials *vsju noč′* 'all night' in Russian (7) and *ganzen Tag* 'all day' in German (8) are marked accusative.

(7) *Russian – Passivized counterpart of* (1a) (Fowler & Yadroff 1993:255)

Plennica čitalas' vsju noč′.
La prisonnière was.read all night.ACC
'*La prisonnière* was read all night.'

(8) *German – Passivized counterpart of* (3a) (McFadden 2021:16)

Den ganzen Tag wurde gespielt.
the whole day.ACC was played
roughly 'They/one played the whole day.'

Accusative case is maintained on *den ganzen Tag* in (8) even when the sentence contains an object of the verb *spielen*.

(9) Den ganzen Tag wurde Schach gespielt. (Paul Meisenbichler, *p.c.*)
the whole day.ACC was chess played
'Chess was played the whole day.'

The retention of accusative case on durative/multiplicative adverbials differentiates them from accusative-marked objects, which are true arguments and bear nominative case when promoted to subject position. Therefore, Fowler & Yadroff (1993) and McFadden (2021) conclude that the accusative case on these adverbials is of a different nature from the accusative case on objects.[4] Specifically, they analyze the accusative case on adverbials as some type of inherent case.

Finnish adverbials, on the other hand, change their case marking when the external argument is demoted. While the adverbial *vuoden* 'year.ACC' was accusative-marked in transitive (2a), the adverbial is now nominative-marked and realized as *vuosi* in the passive example (10). Based on this fact, Maling (1993, 2009) argues that the accusative case found on the object and on the adverbial is the same type of structural accusative case.

(10) *Finnish – Passivized counterpart of* (2a) (Maling 1993:55)

    Kekkoseen   luotettiin vuosi.
    Kekkonen.ILL trust.PASS year.**NOM**
    'Kekkonen was trusted for a year.'

The patterns reported in the literature for Russian, German, and Finnish seem relatively straightforward. Either accusative case on the adverbials behaves as inherent case, as in Russian or German, or it behaves as structural case as in Finnish. Applying the same diagnostic to Korean, however, yields three different patterns. For unaccusative constructions that denote a typically spontaneous or internally-caused event the accusative is preferred. Passive and inchoative constructions, which

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[4]A Russian example that is potentially problematic for Fowler and Yadroff's (1993) conclusion is the following.

(i) *Russian* (Pereltsvaig 2000:171)

    a. Maria ne ela   eto   pirožnoe i   minuty.
        Mary not eat.PST this.ACC cake.ACC even minute.**GEN**
        'Mary didn't eat this cake even for a minute.'
    b. Maria ne ela   etogo   pirožnogo celyj   god.
        Mary not eat.PST this.GEN cake.GEN whole.**ACC** year.**ACC**
        'Mary didn't eat this (kind of) cake for a whole year.'

Russian nominals can optionally appear in the genitive case in a sentence with preverbal negation. Pesetsky (1982) observes that the genitive tracks a structural position: it can appear on objects of transitive sentences and subjects of passive and unaccusative sentences. Since durative adverbials such as *i minuty* of (i)a can show genitive under negation, they may in fact be in a position to get structural case. Interestingly, Pereltsvaig observes that either the object or the durative adverbial can get genitive case in a transitive subject with negation (as shown in (i)a and (i)b), but not both.

(ii) *On ne čital knig   i   dvux   časov. (Pereltsvaig 2000:173)
    he not read book.GEN.PL even two.GEN hours
    'He did not read books even for two hours.'

Pereltsvaig concludes from the ungrammaticality of (ii) that the genitive case under negation targets a unique position in the structure. More investigation is needed for a theory that consolidates the fact that durative adverbials can get genitive under negation and the fact that they can retain accusative case under passivization. I leave this work for future research.

I group together and call *nonactive* constructions, introduce events with an implied agent or causer and allow both nominative and accusative case on the adverbial. Lastly, simplex psychological predicates only allow the nominative. In the next section I present the Korean case pattern in more detail.

The Korean judgments provided in this dissertation reflect my intuition as a native speaker, corroborated with judgments reported in previous works (Maling, Jun & Kim 2001; Kim & Sells 2010; Lee 2017). Judgments on some sentences were corroborated with other native speakers of Korean. Nine native speakers of Korean were consulted at least once, and five of them provided their judgments on more than one occasion. I refer the reader to Lee (2017) for a more controlled investigation, where she surveyed the intuition of twenty native speakers with twenty-four sentences.

1.1 The Puzzle: Case patterns of Korean durative/multiplicative adverbials

The sentences (11b) and (12b) are transitive sentences of Korean. As expected for durative/multiplicative adverbials in transitive sentences, the adverbials *ney pen* 'four times' and *ilkop sikan* 'seven hours' can only be marked accusative as in (11b) and (12b). When they are nominative-marked as in (11a) and (12a), the sentence is sharply ungrammatical.

(11) a. *DJ-ka   umak-ul   ilkop sikan-**i**   thul-ess-ta.
       DJ-NOM music-ACC seven hour-**NOM** play-PST-DECL

   b. DJ-ka   umak-ul   ilkop sikan-**ul** thul-ess-ta.
       DJ-NOM music-ACC seven hour-**ACC** play-PST-DECL
       'The DJ played the music for seven hours.'

(12) a. *Yolisa-ka naymbi-lul ney pen-**i**   talkwu-ess-ta.
       cook-NOM skillet-ACC four time-**NOM** heat-PST-DECL

   b. Yolisa-ka naymbi-lul ney pen-**ul**   talkwu-ess-ta.
       cook-NOM skillet-ACC four time-**ACC** heat-PST-DECL
       'The cook heated the skillet twice.'

Adverbials in unergative constructions show the same pattern. Nominative case marking on the adverbials in (13–14) leads to sharp ungrammaticality. The only available case marking for them is accusative.

(13) a. *Mina-ka   ney sikan-**i**   talli-ess-ta.
       Mina-NOM four hour-**NOM** run-PST-DECL

   b. Mina-ka   ney sikan-**ul** talli-ess-ta.
       Mina-NOM four hour-**ACC** run-PST-DECL
       'Mina ran for four hours.'

(14) a. *Mina-ka   tases pen-**i**   haphwumha-yess-ta.
      Mina-NOM five time-**NOM** yawn-PST-DECL

  b. Mina-ka   tases pen-**ul**   haphwumha-yess-ta.
      Mina-NOM five time-**ACC** yawn-PST-DECL
      'Mina yawned five times.'

Unaccusative constructions also pattern in this way. By *unaccusative*, I refer to verbs such as *nok* 'melt', *el* 'freeze', and *kkulh* 'boil' which typically denote spontaneous or internally caused events. For unaccusative constructions, accusative case is clearly preferred for the adverbial. Some speakers simply rule out the nominative, while others judge it to be marginal at best.

(15) a. %Elum-i sam pwun-**i**   nok-ass-ta.
      ice-NOM three minute-**NOM** melt-PST-DECL

  b. Elum-i sam pwun-**ul**   nok-ass-ta.
      ice-NOM three minute-**ACC** melt-PST-DECL
      'The ice melted for three minutes.'

(16) a. %Yongam-i   sip nyen-**i**   kkulh-ess-ta.
      magma-NOM ten year-**NOM** boil-PST-DECL

  b. Yongam-i   sip nyen-**ul** kkulh-ess-ta.
      magma-NOM ten year-**ACC** boil-PST-DECL
      'The magma boiled for ten years.'

The situation is quite different with passive and inchoative constructions, which allow both nominative and accusative case on the adverbial. Just like unaccusative constructions, passive and inchoative constructions lack an external argument NP. But passive and inchoative constructions of Korean contain an additional detransitivizing suffix such as *HI* (shown in (17b)) or *eci* (shown in (18b)).[5]

(17) a. Mina-ka   khethun-ul huntul-ess-ta.
      Mina-NOM curtain-ACC shake-PST-DECL
      'Mina shook the curtain.'

  b. Khethun-i   huntul-li-ess-ta.
      curtain-NOM shake-NACT-PST-DECL
      'The curtain was shaken.'

(18) a. DJ-ka   umak-ul   thul-ess-ta.
      DJ-NOM music-ACC play-PST-DECL
      'The DJ played the music.'

_____

[5]HI is a placeholder for the four allomorphs of this suffix, *i/hi/li/ki*. See chapter 4 for a detailed discussion.

b. Umak-i   thul-eci-ess-ta.
music-NOM play-NACT-PST-DECL
'Music was played.'

Borrowing from literature on Albanian and Modern Greek, I group passive and inchoative construc-
tions together under the term *nonactive* (Rivero 1990, Alexiadou & Doron 2011, Alexiadou 2012).
The suffixes *HI* and *eci* are glossed NACT to reflect this choice. In chapter 4, I explain the reasoning
for this choice, and discuss in depth the identity and distribution of *HI* and *eci*. But for the current
purpose of discussing case marking on durative/multiplicative adverbials, it suffices to state that
both *HI* and *eci* are nonactive suffixes. Therefore, I gloss both suffixes as NACT in examples unless
a more detailed distinction is necessary.

Examples (19–22) show nonactive constructions with a durative/multiplicative adverbial. Cru-
cially, *both* nominative and accusative case are available on the adverbial.

(19) *Nonactive* eci-*construction with durative adverbial*

    a. Umak-i   ilkop sikan-**i**   thul-eci-ess-ta.
        music-NOM seven hour-**NOM** play-NACT-PST-DECL

    b. Umak-i   ilkop sikan-**ul** thul-eci-ess-ta.
        music-NOM seven hour-**ACC** play-NACT-PST-DECL
        'The music was played for seven hours.'

(20) *Nonactive* HI-*construction with durative adverbial*

    a. Khethun-i   samsip pwun-**i**   huntul-li-ess-ta.
        curtain-NOM thirty   minute-**NOM** shake-NACT-PST-DECL

    b. Khethun-i   samsip pwun-**ul**   huntul-li-ess-ta.
        curtain-NOM thirty   minute-**ACC** shake-NACT-PST-DECL
        'The curtain was shaken for thirty minutes.'

(21) *Nonactive* eci-*construction with multiplicative adverbial*

    a. Naymbi-ka ney pen-**i**   talkwu-eci-ess-ta.
        skillet-NOM four time-**NOM** heat-NACT-PST-DECL

    b. Naymbi-ka ney pen-**ul**   talkwu-eci-ess-ta.
        skillet-NOM four time-**ACC** heat-NACT-PST-DECL
        'The skillet was heated four times.'

(22) *Nonactive* HI-*construction with multiplicative adverbial*

    a. Pica-ka   tases pen-**i**   twicip-hi-ess-ta.
        pizza-NOM five   time-**NOM** flip-NACT-PST-DECL

    b. Pica-ka   tases pen-**ul**   twicip-hi-ess-ta.
       pizza-NOM five   time-ACC flip-NACT-PST-DECL
       'The pizza was flipped five times.'

It should be mentioned that speakers' intuitions vary with regards to nonactive constructions. Among the speakers consulted, some prefer the nominative, others prefer the accusative, and still others allow both case markers. This speaker variation is also observed by Lee (2017) in her survey of twenty speakers. What is certain is that neither nominative or accusative case is completely ruled out in nonactive constructions, unlike in transitive/unergative constructions and psychological predicate constructions where one case is clearly preferred. Therefore, I treat both nominative and accusative case as grammatical options in nonactive constructions.

    Finally, we look at psychological predicates. There are two ways to form a psychological predicate construction, which I call *simplex* and *complex* following Maling, Jun & Kim (2001) and Kim & Sells (2010). I first explain the complex type. In complex psychological predicates, the verb root merges with the light verb *ha*, which roughly translates to 'do'. The case marking pattern of complex psychological predicates seem to behave just like regular transitive constructions. The experiencer subject is marked nominative, and the internal argument is marked accusative.

(23) Mina-ka   yehayng-ul culkep-eha-yess-ta.
      Mina-NOM travel-ACC enjoyable-do-PST-DECL
      'Mina enjoyed traveling.' (Lit. 'Mina found traveling enjoyable.')

(24) Inho-ka   swuhak-ul elyep-eha-yess-ta.
      Inho-NOM math-ACC difficult-do-PST-DECL
      'Inho found math difficult.'

Just as in transitive constructions, a durative/multiplicative adverbial can only be accusative.

(25) a. *Mina-ka yehayng-ul sey pen-**i**   culkep-eha-yess-ta.
        Mina-NOM travel-ACC three time-**NOM** enjoyable-do-PST-DECL

     b. Mina-ka yehayng-ul sey pen-**ul**   culkep-eha-yess-ta.
        Mina-NOM travel-ACC three time-**ACC** enjoyable-do-PST-DECL
        'Mina found traveling enjoyable three times.'

(26) a. *Inho-ka   swuhak-ul sip nyen-**i**   elyep-eha-yess-ta.
        Inho-NOM math-ACC ten year-**NOM** difficult-do-PST-DECL

     b. Inho-ka   swuhak-ul sip nyen-**ul** elyep-eha-yess-ta.
        Inho-NOM math-ACC ten year-**ACC** difficult-do-PST-DECL
        'Inho found math difficult for ten years.'

    Simplex psychological predicates show different morphosyntactic properties. They lack the light verb *ha*, and the verb root directly merges with inflectional suffixes. The experiencer subject

is marked with dative case.[6]

(27) Mina-eykey yehayng-i culkep-ess-ta.
 Mina-DAT   travel-NOM enjoyable-PST-DECL
 'For Mina, travel was enjoyable.'

(28) Inho-eykey swuhak-i elyep-ess-ta.
 Inho-DAT   math-NOM difficult-PST-DECL
 'For Inho, math was difficult.'

The case pattern of simplex psychological predicates is also different from that of complex ones. As reported by Maling, Jun & Kim (2001) and Kim & Sells (2010), the nominative case is strongly preferred on the durative/multiplicative adverbial.[7]

(29) a. Mina-eykey yehayng-i sey pen-**i**   culkep-ess-ta.
   Mina-DAT   travel-NOM three time-**NOM** enjoyable-PST-DECL
   'For Mina, travel was enjoyable three times.'

 b.??Mina-eykey yehayng-i sey pen-**ul**   culkep-ess-ta.
   Mina-DAT   travel-NOM three time-**ACC** enjoyable-PST-DECL
   'For Mina, travel was enjoyable three times.'

(30) a. Inho-eykey swuhak-i sip nyen-**i**   elyep-ess-ta.
   Inho-DAT   math-NOM ten year-**NOM** difficult-PST-DECL
   'For Inho, math was difficult for ten years.'

 b.??Inho-eykey swuhak-i sip nyen-**ul**   elyep-ess-ta.
   Inho-DAT   math-NOM ten year-**ACC** difficult-PST-DECL
   'For Inho, math was difficult for ten years.'

Table 1 summarizes the case patterns observed so far. Notice that the only environment which readily allows both nominative and accusative case is nonactive constructions. One of the main contributions of this dissertation is to derive the pattern in table 1 from independent facts of Korean grammar. The nonactive construction, which allows both nominative and accusative case on durative/multiplicative adverbials, is the key to achieving this goal. Nonactive constructions provide minimal pairs of sentences such as (19a) – (19b) and (21a) – (21b) which only differ in the case on the adverbial. By comparing the structure of the members in these minimal pairs, we are able to pinpoint which factors determine case marking on the adverbials.

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[6]Gerdts & Youn (2001) demonstrate that experiencer subjects meet all five of the subjecthood diagnostics put forth by Moore & Perlmutter (2000).

[7]In both of these works, the dative experiencer is topicalized and marked with the suffix *nun*. Unfortunately, *nun* masks morphological case marking – obligatorily for nominative and accusative case, and optionally for dative case. However, their reported judgments on these examples – that adverbs can only be marked with nominative case – are compatible with the facts discussed here.

Table 1: Case patterns on durative/multiplicative adverbials in various Korean constructions

	Nominative	Accusative
Transitive/Unergative	No	Yes
Unaccusative	Speaker variation	Yes
Nonactive	**Yes**	**Yes**
Psychological Predicate	Yes	No

1.2   Case on adverbials is determined by syntactic structure

Faced with the various case patterns in table 1, previous works have proposed different explanations which can be roughly classified into two camps. For one camp, the case on the adverbial is determined syntactically, just like case on argumental DPs. For the other camp, a syntactic theory of case is inadequate; the case on the adverbial reflects semantic properties of the subject or the event. I briefly introduce the two positions and explain my position in the context of these two camps, thereby previewing the general direction of the analysis pursued in this dissertation.

Cho (2000), Maling, Jun & Kim (2001), and Kim (2018, 2019) have pursued a syntactic explanation for the case on these adverbials. Cho, adopting a feature-checking view of case (Chomsky 1995), derives some of the case patterns in table 1 from the timing of movement and the checking of case features. Maling, Jun, and Kim, while not providing a full-fledged analysis, make the crucial suggestion that case on the adverbial is linked to subject position. They propose that in passive constructions, the subject undergoes "optional externalization". If the subject is externalized, the adverbial is marked accusative; if it is not, then the adverbial is marked nominative. Kim (2018, 2019) also presents a syntactic analysis, although she argues that the case on the adverbials is determined not by the position of the subject, but the position of the adverbial itself: a nominative adverbial merges outside the thematic domain, while an accusative adverbial merges inside the thematic domain.

For Kim & Sells (2010) and Lee (2017), a syntactic account is insufficient for explaining how durative and multiplicative adverbials get case. They point out that whether the case on the adverbial is nominative or accusative correlates with some semantic properties of the subject or the event denoted in the sentence. Kim & Sells (2010) point out that a sentence expresses a thetic judgment when the adverb is marked nominative, while the sentence expresses a categorical judgment when the adverb is marked accusative. Roughly speaking, a thetic judgment focuses the entire event denoted by the sentence, including the subject. A categorical judgment, on the other hand, shows a clear subject-predicate structure; it first acknowledges the existence of the subject, and either confirms or denies whether the predicate applies to the subject. (The terms categorical and thetic judgments are put forth by philosophers Franz Brentano and Anton Marty, later discussed in the context of theoretical linguistics by Kuroda 1972, 2005, Sasse 1987, von Fintel 1989, McNally

1998 among others.) Lee (2017), taking a similar position, argues that the case on the adverbials reflects the relative prominence of the subject and the event denoted by the sentence.

This dissertation provides a syntactic analysis that preserves the semantic insight of Kim & Sells (2010) and Lee (2017). Specifically, I argue with Maling, Jun & Kim (2001) that the case on the adverbial reflects the position of the subject. What differentiates my analysis from Maling, Jun, and Kim's is the motivation for movement of the subject in nonactive constructions. While this movement was simply optional for them, I provide a principled explanation for this optionality. I derive the optionality as the result of competition between the subject (the theme in nonactive constructions) and the implied agent/causer. Once a concrete explanation is established for optionality in nonactive constructions, this is extended to other constructions in table 1. Furthermore, as will be shown in section 3.1.3, this syntactic analysis also provides an explanation for the semantic observations about the relative prominence of the subject and the event made by Kim & Sells (2010) and Lee (2017).

1.3   Looking ahead

The rest of the dissertation is structured as follows. In chapter 2, I introduce the theoretical framework and lay out the foundation for discussion in subsequent chapters. In section 2.1, I introduce the Dependent Case framework (Marantz 1991; Yip, Maling & Jackendoff 1987) and the Cyclic Linearization view of Spell-out (Fox & Pesetsky 2005). Section 2.2 concerns the timing of movement and case evaluation. I argue that movement to the edge of a phase P occurs after P has been evaluated for case. This explains why some types of movement such as *wh*-movement, topicalization, and scrambling generally do not change the case on a nominal. Sections 2.3 and 2.4 discuss matters of argument structure. In section 2.3, I introduce the tripartite VoiceP system and argue that durative/multiplicative adverbials are indeed AdvPs that merge in vP. I then explain in 2.4 why the theme subject usually appears at the left edge of a clause.

Having set the stage, I present in chapter 3 an empirical generalization about nonactive constructions that is crucial in forming my analysis of case-marked durative/multiplicative adverbials. I show that the case marking on the adverbial correlates with where the theme subject of the nonactive construction is located. If the adverbial is nominative, this means that the subject is at Spec, VoiceP. On the other hand, an accusative adverbial signals that the subject has moved out of Spec, VoiceP and moved to Spec, TP. I provide evidence for this correlation in section 3.1 from three phenomena: predicate fronting, negative concord item intervention, and interpretation of the indefinite subject. In section 3.2, I argue against an alternative generalization put forth by Kim (2018, 2019) which states that case on the adverbial correlates with the position of the adverb, not the subject. While attractive on the surface, Kim's alternative generalization runs into problems as I

will demonstrate.

In chapter 4, I explain why nonactives show two different subject positions. After briefly introducing the nonactive suffixes *HI* and *eci* in section 4.1, I show in section 4.2 that both suffixes show properties of both passive and inchoative constructions under diagnostics put forth by Alexiadou, Anagnostopoulou & Schäfer (2006, 2015). Section 4.3 introduces the Voice system assumed in this dissertation, whereby a nonactive Voice head introduces either an implicit agent/causer or PP agent/causer in its specifier. Building on this system, I explain in section 4.4 that the theme subject and the agent/causer are both at Spec, VoiceP. The two elements at Spec, VoiceP compete against each other for movement to Spec, TP. This results in two possible structures for nonactive sentences. The two case options (nominative versus accusative) stem from the two different structures. In section 4.5, I confirm that the implicit agent/causer, despite being null, is indeed a syntactic unit that can compete with other phrases to undergo movement. In an Appendix to chapter 4, I sketch an analysis of *HI* and *eci* as v_{CAUSE} and v_{GO}, respectively.

Chapter 5 is where we derive the patterns in table 1 from the ideas laid out in preceding chapters, and the successive-cyclic Dependent Case model. In section 5.1, I present in detail the successive-cyclic Dependent Case model that I adopt. The model mostly aligns with the original model put forth by Levin (2017), but involves a more relaxed locality restriction on dependent case assignment. I then put the model to work in section 5.2. After deriving the simplest case patterns in section 5.2.1, I demonstrate how the patterns in table 1 can be explained with my model. I also show in section 5.2.3 that the model is compatible with the case stacking patterns highlighted by Levin (2017). Lastly, I apply the model to multiple nominative constructions in section 5.2.4.

Chapter 6 closes the dissertation with some concluding remarks.

Chapter 2

Background and theoretical framework

In this section, I present the theoretical frameworks adopted in this dissertation and argue in favor of specific viewpoints about argument structure and the grammar. This provides the background for the discussions that unfold in the following chapters. In section 2.1, I introduce the Dependent Case model and the Cyclic Linearization view of Spell-out, which I adopt in building my analysis. I then argue in section 2.2 that movement to the edge of a phase occurs *after* that phase has been evaluated for case. This explains why scrambling or Ā-movement does not, in most cases, change the case marking on NPs. In section 2.3, I establish the position and internal structure of durative/multiplicative adverbials in three steps. First, I introduce the tripartite argument structure adopted in this dissertation, which consists of the functional projections VoiceP, *v*P, and √P. Second, I argue that what I have been calling durative/multiplicative *adverbials* in chapter 1 are indeed AdvPs, consisting of an Adv head selecting for a durative/multiplicative NP. Third, these AdvPs merge as an adjunct to *v*P alongside manner adverbials; this locates the AdvP below the base position of the external argument subject but above the base position of the theme argument. In section 2.4, I explain why the theme argument is pronounced at the left edge of the sentence in nonactive constructions. In section 2.4.1, I demonstrate that the theme always moves from its external merge position to Spec, VoiceP, and propose that Voice bears the feature [●N●] which triggers this movement only in nonactive constructions. I conclude with a brief comment on object shift in section 2.4.2, which has been argued for Korean by Gould (2015). I do not commit to object shift being part of Korean grammar, but I show that the conclusions made in this section and the analyses laid out in later sections are not affected by it because it seems to target a very low landing site – presumably Spec, √P.

2.1 Dependent case, Cyclic Linearization, and successive-cyclic case

My analysis of case marking on durative/multiplicative adjuncts is couched within a Dependent Case model whereby case on nominals is determined by the relative syntactic position of caseless nominals (Marantz 1991; Yip, Maling & Jackendoff 1987). This is different from a theory where a nominal's case is determined by its relation to functional heads such as *v*, Voice, or T (Chomsky 2000, 2001). Marantz's version of the Dependent Case model distinguishes four types of case, which form a realization hierarchy. I present the hierarchy in (31), accompanied by Baker's (2015) explanation of each type of case in square brackets.

(31) **Case realization disjunctive hierarchy** (Marantz 1991:24; cited from Baker 2015:48)

    a. **Lexically governed case**
        [Case determined by the lexical properties of a particular item, such as quirky case-assigning verbs in Icelandic or adpositions in many languages]

    b. **"Dependent" case (accusative and ergative)**

    c. **Unmarked case (environment-sensitive)**
        [Nominative or absolutive case assigned to any NP in a clause; genitive case assigned to any NP inside a nominal]

    d. **Default case**
        [Assigned to any NP whatsoever not otherwise marked for case]

Case assignment proceeds down the hierarchy as follows. Any NP that is in a position to get (31a) does so first. NP complements of prepositions/postpositions, as well as quirky subjects in quirky case languages, are marked with this kind of case. Dative case on indirect objects and experiencers is considered an instance of (31a) for Korean, so it would be realized at this stage as well (Park & Whitman 2003). Any NP not marked with (31a) is evaluated for dependent case assignment, (31b). The specific algorithm assigning (31b) will be discussed right below in (33). NPs that remain caseless after evaluation for (31b) are evaluated for (31c). If the NP remains caseless inside a nominal, it gets genitive case. If it remains caseless inside a clause but not inside a nominal, it gets nominative case. As for default case (31d), I follow Schütze (2001) in considering it to be assigned in only in exceptional environments where a DP is unable to get case via any of the processes in (31a–c). These environments include appositive expressions (32a), elliptical utterances (32b), and gapped sentences (32c). The boldfaced pronoun in each example is getting default accusative case.

(32) *Examples of default accusative case in English* (Schütze 2001)

    a. The best athlete, **her**, should win.
    b. Q: Who wants to try this game?

A: **Me**.

c. She grew up in Jacksonville, **me** in Tallahassee.

These examples demonstrate that default case is given to nominals that are not fully incorporated as part of a clause, as in (32a–b), or located in some defective clause as in (32c). This leads Preminger (2011, 2014), Levin & Preminger (2015), and Levin (2017) to exclude default case assignment from the case assignment calculus in regular clauses. I also adopt this approach and consider only the first three cases in (31a–c) for case evaluation inside clauses.

As hinted in its name, the most distinct aspect of the Dependent Case model is the notion of dependent case. An NP gets dependent case if it is in a certain configuration with another NP in the same phase.[1] The specific algorithm that determines dependent case marking is presented in (33). Whether a language marks dependent case by following (33a) or (33b) is a language-specific parameter that determines whether the language has a nominative-accusative case system or an ergative-absolutive case system.

(33) Dependent case assignment algorithm (cited from Baker 2015:48–49)

   a. Downward dependent case:
      If there are two distinct NPs in the same phase such that NP1 c-commands NP2, then value the case feature of NP2 as accusative unless NP1 has already been marked for case.

   b. Upward dependent case:
      If there are two distinct NPs in the same phase such that NP1 c-commands NP2, then value the case feature of NP1 as ergative unless NP2 has already been marked for case.

A topic of debate within the Dependent Case literature concerns which module of the grammar the case calculus (application of (31)) occurs in. Earlier approaches, including Marantz's original conception, considered the case calculus a PF operation (Marantz 1991; McFadden 2004; Bobaljik 2008). As a response to this position, others have proposed a view where the case calculus occurs in the syntax (Legate 2008; Baker & Vinokurova 2010; Preminger 2014; Levin & Preminger 2015; Baker 2015). I follow the latter camp, and specifically assume with Baker (2015) that the case calculus is a process of valuing case features ([CASE: NOM], [CASE: ACC], [CASE: GEN], [CASE: DAT], etc.) borne by nominals. The realization of these features as case morphology occurs at PF.

The merit of adopting the Dependent Case model for Korean has been demonstrated by Levin (2017) and Hogan (2018) among others. Levin provides a Dependent Case model analysis of Korean case stacking constructions exemplified in (34). In (34), the NPs *sensayngnim* 'teacher' and

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[1]Marantz (1991) originally stipulated that the domain governed by V+I is the domain for case assignment evaluation. However, subsequent approaches to dependent case have reduced case assignment domains to phases.

Chelswu bear two case suffixes. This means that whichever mechanism assigns case to NPs, these NPs need to be able to undergo the mechanism more than once. Levin argues for a successive-cyclic system of evaluation for case, stated in (35).[2] Under (35), nominals that move from the VoiceP phase to the CP phase are evaluated again for case. This makes it possible for NPs, including those that already bear case, to be evaluated once again in a second cycle of case licensing.

(34) a. Sensayngnim-kkeyse-man-i ku saken-ul   kiekha-si-n-ta.
          teacher-NOM.HON-only-NOM DEM incident-ACC remember-HON$_S$-PRS-DECL
          'Only the teacher remembers that incident.' (Subject honorification on teacher)

      b. Mina-ka   Chelswu-eykey-lul ton-ul   cwu-ess-ta.
          Mina-NOM Chelswu-DAT-ACC   money-ACC give-PST-DECL
          'Mina gave Chelswu money.'

(35) Evaluate a nominal for case in every phase it occupies. (Levin 2017:456)

Hogan (2018) derives the case pattern in multiple nominative and multiple accusative constructions, exemplified in (36).

(36) a. Mina-ka   khi-ka   khu-Ø-ta.
          Mina-NOM height-NOM large-PRS-DECL
          'Mina is tall.' (Lit. 'Mina's height is large.')

      b. Mina-ka   Inho-lul phal-ul cap-ass-ta.
          Mina-NOM Inho-ACC arm-ACC hold-PST-DECL
          'Mina held Inho$_k$ by his$_k$ arm.'

Hogan's analysis of the constructions in (36) builds on the insight of Heycock (1993) and Yoon (2004, 2007) that the lower nominal and the verb in multiple nominative constructions such as (36a) form a sentential predicate. The higher nominal, or the *major subject*, is the subject of the sentential predicate. Given that these multiple nominative constructions express stative content such as inalienable possession or kinship relations, it is reasonable to consider the major subject as being assigned a non-agentive theta role. On the other hand, multiple accusative constructions do not show such semantic restrictions and allow non-stative verbs like *cap* 'hold' in (36b). Based on these observations, Hogan proposes a theta-sensitive dependent case assignment analysis of Korean multiple case constructions.

In addition to adopting a Dependent Case model, I follow Levin (2017) in viewing case assignment as a successive-cyclic process. Levin convincingly argues that in order to account for overt case stacking in Korean, case evaluation must happen successive-cyclically at spell-out of each phase. His theory of successive-cyclic case evaluation is couched in a *Cyclic Linearization* view

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[2]See Chen (2018) on multiple case assignment in Amis. Chen and Levin adopt different models of case, though: Chen treats case as the reflex of agreement, and links multiple case assignment with multiple agreement.

of spell-out (Fox & Pesetsky 2005). Under this view, the syntactic structure is built in a *bottom-up* manner and undergoes Spell-out (transfer to the syntax-phonology interface) at specific points in the derivation. Categories that trigger Spell-out are called *phases*; CP and VoiceP/*v*P (the projection where the transitive/unergative subject is introduced) are widely accepted to be phases.[3] This much is shared with Chomsky's views on Spell-out and phasehood (Chomsky 1995, 2000). However, unlike the Chomskyan framework, the Cyclic Linearization view does not stipulate "escape hatch" positions at the edge of each phase. For Fox and Pesetsky, Spell-out of a syntactic unit does not render the unit completely opaque for further syntactic operations but simply establishes a statement about the linear order of the elements inside the phase. Any phrase that will end up pronounced (*i.e.*, linearized) at a different position from its external merge position must move out so that the final linearization order does not conflict the linearization statement made at previous points in the derivation. Hence successive cyclic movement is derived from the needs of the syntax-phonology interface to establish linearization order, not by stipulation of a privileged position within the phase.

Another consequence of the Cyclic Linearization view of spell-out is that there is no "Spell-out domain" that is separate from the phase. For Chomsky (1995, 2000), the phase edge is an escape hatch that is not yet rendered opaque. Therefore, it cannot be that the entire phase that undergoes Spell-out, but a subconstituent of the phase. Many implementations of Chomsky's phase theory consider the complement of the phase head to be Spell-out domains. However, for Fox & Pesetsky (2005), there is no need to stipulate a separate Spell-out domain. The linearization statement made at Spell-out concerns the entire phase, so elements at Spec, *v*P are linearized at Spell-out of *v*P along with other elements within the *v*P.

I adopt the Cyclic Linearization view, and consider VoiceP and CP to be phases. I do not assign any special status to the complement of the phase head; the entire VoiceP and CP behave as a unit transferred to the interfaces. Along with Levin (2017), I consider case evaluation to be a process that occurs at each phase. In section 5.1, I present a reframing of (35) which preserves Levin's contributions while enabling a principled account of Korean case-marked durative/multiplicative adverbials.

2.2 The timing of movement and case evaluation

The Dependent Case model, in its essence, involves the grammar evaluating a snapshot of the syntactic derivation and determining the case of the NPs inside the structure. This is different from earlier models of case where an NP usually gets case immediately upon merge with a functional head that assigns case (Chomsky 2000, 2001). Depending on which step of the derivation the case

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[3]What Fox and Pesetsky call the *v*P phase, I call the VoiceP phase. See section 2.3.1 for clarification on my use of the terms VoiceP and *v*P.

evaluation occurs at, the result of the evaluation will turn out differently. Therefore, any model of Dependent Case must have a theory of the timing of case evaluation, especially in relation to movement. In this section, I argue that movement targeting the edge of a phase P occurs *after* case evaluation for P. Any movement to the specifier of P occurs after case evaluation.

In order to make this argument, I examine what groups together the types of movement that do not affect case. Let us first consider Ā-movement, which often targets Spec, CP or, in Rizzi's (1997) articulated CP system, projections at the clause periphery such as Spec, TopP or Spec, ForceP. In many languages, Ā-movement is observed to not affect case on a nominal (Legate 2008; Baker 2015). First consider English topicalization. In (37a), the object pronoun *him* is in a position c-commanded by the subject pronoun *she* and bears accusative case. In (37b), *him* has now moved to a position that c-commands the subject. However, the case on the two nominals remains the same. Switching the case on the nominals as in (37c) leads to ungrammaticality. This is evidence that case evaluation occurs on the structure *before* topicalization, not after.

(37)   a.   She likes **him**.
       b.   **Him**, she likes __.
       c.   *****He**, her likes __.

The same can be said for *wh*-movement, exemplified with German in (38). (38b) is the *wh*-question counterpart of (38a) where the object *ihren Bruder* 'her.ACC brother' has *wh*-moved. The relative position of the subject *Mina* and the object *ihren Bruder* in (38a) represents the structure at the timing of case evaluation: *Mina* merges in a position that c-commands *ihren Bruder*. This results in *ihren Bruder* being assigned dependent accusative case. Even after *wh*-movement of the object occurs in (38b), the case on the object remains accusative.

(38)   *German*[4]

       a.   Mina hat   **ihren**   **Bruder** getroffen.
           Mina have.3SG.PRS her.ACC brother   met
           'Mina met her brother.'

       b.   **Wen**   hat   Mina getroffen?
           who.ACC have.3SG.PRS Mina met
           'Who did Mina meet?'

Scrambling is another type of movement known not to affect case. (See Legate 2008 and Baker 2015:263ff for discussion of scrambling in the context of the Dependent Case model.) Scrambling in Korean and Japanese can target various categories such as NP/DP, PP, and CP, and it shows mixed A/Ā-properties. This complex property of scrambling has led to an active debate in the field

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[4]I thank Magdalena Lohninger for confirming the German data here.

of generative syntax (Saito 1989, 1992; Miyagawa 1997, 2001; Hiraiwa 2010; J.-H. Cho 1994a,b; Jung 2002; Ko 2005, 2007, 2014; see Ko 2018 for an overview of scrambling in Korean). However, one relatively reliable property of scrambling is that it does not affect case marking on the scrambled object. In (39a), the subject *kay* 'dog' precedes the object *koyangi* 'cat'; this is the unmarked word order. The subject and object are marked nominative and accusative respectively, as expected. In (39b), the object *koyangi* has scrambled over the subject *kay* to a position that c-commands *kay*. However, the case on these two nominals remains identical to that in (39a). If the case markers are switched as in (39c), which is to be expected if case evaluation had occurred after scrambling, the sentence can only mean that the cat saw the dog.

(39) a. Kay-ka   koyangi-lul po-ass-ta.
          dog-**NOM** cat-**ACC**   see-PST-DECL
          'The dog saw the cat.'

      b. Koyangi-lul kay-ka   __ po-ass-ta.
          cat-**ACC**   dog-**NOM**   see-PST-DECL
          'The dog saw the cat.'

      c. Koyangi-ka kay-lul   po-ass-ta.
          cat-NOM   dog-ACC see-PST-DECL
          Cannot mean: 'The dog saw the cat.' (Only available meaning: 'The cat saw the dog.')

I have introduced the Cyclic Linearization model of Spell-out in section 2.1. Under this view, Ko (2005, 2007, 2014) explains, VoiceP-internal phrases that end up linearized to the left of the subject must scramble to a position c-commanding the subject before spell-out of VoiceP. Since transitive/unergative subjects such as *kay* in (39) merge at Spec, VoiceP, this would mean that scrambling of any VoiceP-internal material that results in the material being linearized to the left of the subject must land at Spec, VoiceP.

At this point, we should consider what the movements shown in (37b), (38b), and (39b) have in common, and why the new c-command relations they form fail to feed case evaluation. I contend that it is the landing site of these movements that group them together. Topicalization in (37b) and *wh*-movement in (38b) both target the Spec, CP area, which is the edge of the CP phase.[5] Scrambling of the object in (39b) lands at Spec, VoiceP, the edge of the VoiceP phase.[6] I propose

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[5]Topicalization and *wh*-movement would target different specifiers in an articulated CP framework (Rizzi 1997, 1999): presumably Spec, TopicP for topicalization and Spec, ForceP for *wh*-movement. Therefore, if one adopts a Dependent Case model couched within the articulated CP framework, it would not be possible to say that movement only targeting the very edge of a phase occurs after case evaluation. However, the empirical fact at the end of the day is that Ā-movement in general fails to feed case evaluation. One possibility is that case evaluation occurs at a lower head such as FinP, while Ā-movement and subsequent spell-out of the domain occurs at a higher head. (See Carstens & Diercks 2013; Carstens 2016 for arguments that it is IntP, the projection introduced by Rizzi in his 1999 chapter that heads polar questions.) I simply mention this possibility here and leave the reconciliation of my approach and the articulated CP framework for future research.

[6]The object may move further if it becomes a goal for a higher probe in the CP phase. However, as Ko (2005, 2007,

that movement to the edge of the phase occurs after case evaluation of that phase. Specifically, I propose that case evaluation, movement, and linearization happen in the order presented in (40).

(40)   *Order of operations at the edge of a phase*

Merge of phase head and its complement and specifier (if any)

⇓

Case evaluation

⇓

Movement (if any) to specifier of phase head

⇓

Transfer to PF (Linearization statement)

In section 3.2, I demonstrate that the theme argument moves to Spec, VoiceP in nonactive constructions. Crucially, this movement occurs after case evaluation of VoiceP. Therefore the theme argument fails to trigger downward dependent case on the NP inside a durative/multiplicative adverbial, even though it turns up at a position that c-commands the adverbial by the end of the derivation.

Let us briefly turn to "VP-internal scrambling", also known as "short scrambling". This refers to the direct object in ditransitive constructions scrambling to a position that c-commands the indirect object. (Indirect objects are generally thought to merge in a position c-commanding the direct object; see Jung & Miyagawa 2004 and Kim 2015.) Since this type of scrambling does not target the edge of a phase, it occurs before case evaluation according to (40). However, due to independent reasons, this movement does not affect the case that ends up on the direct and indirect objects after spell-out of VoiceP. This is true regardless of whether the indirect object bears dative case as in (41), or accusative case as in (42).[7]

(41)   a.   Mina-ka   Inho-eykey senmwul-ul cwu-ess-ta.
            Mina-NOM Inho-DAT   gift-ACC   give-PST-DECL

       b.   Mina-ka   senmwul-ul Inho-eykey __ cwu-ess-ta.
            Mina-NOM gift-ACC   Inho-DAT   give-PST-DECL
            'Mina gave Inho a gift.'

(42)   a.   Mina-ka   Inho-lul   senmwul-ul cwu-ess-ta.
            Mina-NOM Inho-ACC gift-ACC   give-PST-DECL

2014) demonstrates, it must stop by at Spec, VoiceP even in those cases.

[7]Not all indirect objects can bear accusative case. Jung & Miyagawa (2004) argue that there is an affectedness condition for the indirect object to bear accusative case, virtually limiting accusative case to animate indirect objects.

b. Mina-ka   senmwul-ul Inho-lul __ cwu-ess-ta.
   Mina-NOM gift-ACC   Inho-DAT   give-PST-DECL
   'Mina gave Inho a gift.'
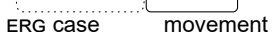
First consider (41b). Regardless of whether the direct object *senmwul* scrambles over the indirect object *Inho* before or after case evaluation, it will receive downward dependent case due to being c-commanded by the subject *Mina*. Similarly, in (42b), both *Inho* and *senmwul* will receive downward dependent case since they are both c-commanded by the subject – regardless of the timing of *senmwul* scrambling over *Inho*.

I conclude this section by emphasizing that movement to the edge of a phase P cannot affect case evaluation of P, but may still affect case evaluation of the phase above P depending on the specific configurations of case evaluation of a language. Abramovitz (2021) demonstrates that in Koryak, where ergative case is upwards dependent case, movement of an absolutive *wh*-word from the embedded clause to the matrix clause triggers ergative case on the matrix subject.

(43) *Koryak* (Abramovitz 2021:120)

   a. ɣəmmo t-ə-valom-ə-k,   [əno ʔewŋəto-na-k
      1SG.ABS 1SG.S/A-EP-hear-EP-1SG.S that Hewngyto-OBL.SG-ERG
      Ø-j-ə-t͡ɕim-aw-nin   kojŋ-o].
      2/3.S/A.IND-CAUS-EP-break-VBLZ-3SG.A>3.O cup-ABS.PL
      'I heard that Hewngyto broke cups.'

   b. jej-u$_i$ {ɣə-nan / *ɣət͡ɕet͡ɕi} Ø-valom-na-w,   [əno
      what-ABS.PL {2SG.ERG / *2SG.ABS} 2/3.S/A.IND-hear-3.O-3PL that
      ʔewŋəto-na-k   Ø-j-ə-t͡ɕim-aw-nin t_i]
      Hewngyto-OBL.SG-ERG 2/3.S/A.IND-CAUS-EP-break-VBLZ-3SG.A>3.O
      'What all did you hear that Hewngyto broke?'

In (43a), the matrix subject is absolutive as the only nominal in the matrix clause. In (43b), the absolutive argument *kojŋ-o* 'cup-ABS.PL' is replaced by an absolutive *wh*-word, *jej-u*. Importantly, the matrix subject of (43b) cannot be absolutive but ergative. Abramovitz explains that *jej-u*, in the course of successive-cyclic movement to matrix Spec, CP, stops by at Spec, VoiceP. Here, the object triggers ergative case (which is upwards dependent case in Koryak) on the matrix subject, which is at Spec, TP and thus c-commands the object.

(44)   [$_{CP}$ Subj [$_{VoiceP}$ *wh*-ABS [... *t* ...]]]
                                        ERG case   movement

I emphasize that (44) is not a counterargument against my proposal that movement to a phase edge P occurs after case evaluation of P. It is true that movement of the *wh*-word to the edge of VoiceP in (44) happens before the case evaluation step that triggers ergative case assignment on

the subject. However, that case evaluation is evaluation of the *CP phase*, not the VoiceP phase. In other words, movement to Spec, VoiceP does not affect case evaluation of the VoiceP phase, but it may affect case evaluation of the CP phase.

2.3 Argument structure and the category of durative/multiplicative adjuncts

In chapter 5, I will provide an analysis of how the case on durative/multiplicative adverbials is determined, based on a Dependent Case model. For such an account, it is important to determine the position of the arguments and the adverbials that act as "case competitors", and establish the relative c-command relation of these syntactic units at the timing when the case on these units is determined. To this end, I argue that the durative/multiplicative adverbials we saw in section 1.1 consist of a durative/multiplicative NP embedded inside an AdvP, which in turn merges as an adjunct to *v*P. I make this argument in three steps. In section 2.3.1, I introduce the tripartite structure of VoiceP assumed in this dissertation. I then argue in section 2.3.2 that the expressions I call durative/multiplicative *adverbials* are indeed of category AdvP, inside which the durative/multiplicative NP is embedded. Lastly, I demonstrate in section 2.3.3 that the durative/multiplicative AdvP merge at *v*P.

2.3.1 The tripartite structure of VoiceP

The structure of VoiceP assumed in the dissertation aligns with that argued for by Cuervo (2003) and Harley (2013). It consists of three functional projections: VoiceP, *v*P, and $\sqrt{P}$. Voice is the head proposed by Kratzer (1996) which introduces the external argument of the event (if there is one) denoted by the sentence. The syntactic unit which externally merges at Spec, VoiceP is recognized as the external argument of the event via a principle dubbed *Event Identification* by Kratzer (1996:122), which allows the grammar to make statements about the event. The completed VoiceP denotes a property of events.

This head is different from *v*, which I take to be a functional head that encodes two layers of information. First, it comes in one of a few "flavors" such as v_{DO}, v_{BECOME}, v_{CAUSE} and encodes information about the type of event (Cuervo 2003; Harley 2013, 2017 among many others). Second, it merges with a lexical root and categorizes it as a verb. This view of *v* is in line with the view of Distributed Morphology (Halle & Marantz 1993, 1994; see Marantz 1997 on roots) where a category-neutral root merges with a categorizing head such as *v* (for verbs), *n* (for nouns), *a* (for adjectives). Bobaljik & Harley (2017) and Harley (2014) argue (*pace* Borer 2003 and van Craenenbroeck 2014) that a root combines with its complement, just as other syntactic heads are thought to. The category-neutral root (expressed $\sqrt{}$) selects for a complement and projects a $\sqrt{P}$, which in turn is selected by a verbalizer such as $v_{DO}/v_{GO}/v_{CAUSE}$ or *n*. The internal structure of a VoiceP with

its functional projections is presented in the tree in (45).

(45) *Internal structure of VoiceP*

```
              VoiceP
             /      \
        Voice        vP
                    /   \
                   v     √P
                        /   \
                       √    (NP)
```
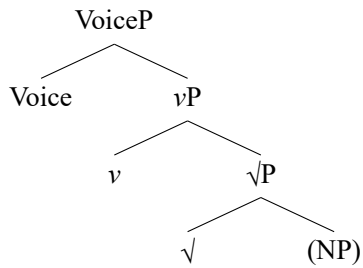
The distinction of Voice, *v*, and √ forms the basis of my analysis of the nonactive suffixes *HI* and *eci* presented in the appendix to Chapter 4. Building on arguments by Jung (2024) that *eci* is the realization of v_{GO}, I argue in the appendix that *eci* and *HI* are realizations of different flavors of *v*: *eci* realizes v_{GO}, and *HI* realizes v_{CAUSE}. Crucially, Jung argues that *eci* is not the realization of Voice since it can appear in what she calls *potential* constructions, which she argues lack VoiceP.

(46) Eccenci ku siktang-ey   cacwu ka-ci-n-ta.   (Jung 2024, her (32))
      somehow that restaurant-to often   go-ECI-PRS-DECL
      'One gets to go to that restaurant often somehow.'

HI and *eci* are functional suffixes that are morphologially distinct from the verb root and also independent from active/passive voice. Adopting the tripartite VoiceP system with two functional heads in the argument structure (Voice and *v*) allows for a theory that maintains this insight, and allows for an extension of Jung's theory to *HI*.

In section 2.3.3, I argue that durative/multiplicative NPs that behave as adjuncts are embedded inside an AdvP, and that the AdvP merges to *v*P. This argument in turn builds on evidence provided in section 2.3.2 that durative/multiplicative adjuncts are truly Adverb Phrases.

2.3.2 Durative/multiplicative adjuncts are AdvP

There are two different usages of durative/multiplicative NPs. In (47a), the expression *sey sikan-ul* 'three hours' is the object of the verb *nangpiha* 'waste' in (47a). The syntactic status of *sey sikan-ul* is equivalent to the NP object *welkup-ul* 'salary-ACC' in (47b). Since *nangpiha* is a transitive verb, it cannot appear without an object as shown in (47c) unless the object is *pro*-dropped.

(47) a. Mina-ka   sey sikan-ul nangpiha-yess-ta.
          Mina-NOM three hour-ACC waste-PST-DECL
          'Mina wasted three hours.'

      b. Mina-ka   welkup-ul nangpiha-yess-ta.
          Mina-NOM salary-ACC waste-PST-DECL
          'Mina wasted the salary.'

c. *Mina-ka   nangpiha-yess-ta.
   Mina-NOM waste-PST-DECL

In contrast, the same expression *sey sikan-ul* is an adjunct that expresses the duration of Mina's sleeping event in (48a). Since it is an adjunct, the sentence is perfectly grammatical without *sey sikan-ul* as in (48b). The grammaticality of (48b) is in contrast with (49c).

(48) a. Mina-ka   sey sikan-ul ca-ss-ta.
        Mina-NOM three hour-ACC sleep-PST-DECL
        'Mina slept for three hours.'

     b. Mina-ka   ca-ss-ta.
        Mina-NOM sleep-PST-DECL
        'Mina slept.'

The multiplicative expression *sey pen-ul* 'three time-ACC' similarly shows two different usages, with a caveat. The *pen* in *sey pen-ul* is not a full-fledged nominal but a classifier for situation- or event-denoting nominals such as *sihem* 'exam', *moim* 'gathering', or *kihoy* 'opportunity'. Therefore, an NP headed by *pen* cannot itself be an argument. It can, however, be a part of an argument NP headed by a full-fledged nominal such as *kihoy* in (49a). The NP *kihoy sey pen-ul* 'three opportunities-ACC' is of equivalent status to the NP object *towum-ul* 'help-ACC' in (49b). As expected, the transitive verb *et* 'obtain' cannot appear without an object, barring *pro*-drop.

(49) a. Mina-ka   keyim-eyse kihoy   sey pen-ul   et-ess-ta.
        Mina-NOM game-LOC   opportunity three time-ACC obtain-PST-DECL
        'Mina obtained three chances in the game.'

     b. Mina-ka   towum-ul et-ess-ta.
        Mina-NOM help-ACC obtain-PST-DECL
        'Mina obtained help.'

     c. *Mina-ka   keyim-eyse et-ess-ta.
        Mina-NOM game-LOC   obtain-PST-DECL

Compare (49) with (50). In (50a), the expression *sey pen-ul* appears without an additional NP like *kihoy*. It can be thought of as a classifier for Mina's shouting event denoted in the sentence. It is an adjunct, just as classifiers are optional modifiers for NPs. Hence (50b) without *sey pen-ul* is perfectly grammatical.

(50) a. Mina-ka   sey pen-ul   solichi-ess-ta.
        Mina-NOM three time-ACC shout-PST-DECL
        'Mina shouted three times.'

     b. Mina-ka   solichi-ess-ta.
        Mina-NOM shout-PST-DECL
        'Mina shouted.'

What is crucial to remember about (47–50) is that both the durative *sey sikan-ul* in (48a) and the multiplicative *sey pen-ul* in (50a) are adjuncts, not arguments.

When a durative/multiplicative expression is used as an argument, it patterns as a different category from its category when used as an adjunct. Korean adverbs can be conjoined with the conjunction *kuliko*, as shown in (51) and (52).

(51) Mina-ka   kiphi   kuliko olay   ca-ss-ta.
     Mina-NOM soundly and   for.a.long.time sleep-PST-DECL
     'Mina slept soundly and for a long time.'

(52) Mina-ka   sikkulepkey kuliko kyesok   solichi-ess-ta.
     Mina-NOM loudly   and   continuously shout-PST-DECL
     'Mina shouted loudly and continuously.'

Durative/multiplicative expressions used as adjuncts can conjoin with adverbs, which suggests that they behave as adverbs. The conjunctions are more natural when the durative/multiplicative expression is of a less specified quantity such as *manhun sikan* 'many hours' or *yele pen* 'several times' as in (53–54), but the expressions are relatively acceptable even with durative/multiplicative expressions that contain a numeral such as (55–56). Crucially, there is a clear contrast in acceptability between the numeral quantity expressions in (55–56) and the ungrammatical conjunctions in (57–58), as will be discussed below. The linear order of the durative/multiplicative expression and the other conjunct does not affect the acceptability of the sentence, as reflected in the equal grammaticality of the a- and b-examples in (53–56).

(53) *Conjunction of adverb and adjunct durative (less specified quantity)*

    a. Mina-ka   kiphi   kuliko manhun sikan-ul ca-ss-ta.
        Mina-NOM soundly and   many   hour-ACC sleep-PST-DECL
        'Mina slept soundly and for many hours.'

    b. Mina-ka   manhun sikan-ul kuliko kiphi ca-ss-ta.
        Mina-NOM many   hour-ACC and   deeply sleep-PST-DECL
        'Mina slept for many hours and soundly.'

(54) *Conjunction of adverb and adjunct multiplicative (less specified quantity)*

    a. Mina-ka   sikkulepkey kuliko yele   pen-ul   solichi-ess-ta.
        Mina-NOM loudly   and   several time-ACC shout-PST-DECL
        'Mina shouted loudly and several times.'

    b. Mina-ka   yele   pen-ul   kuliko sikkulepkey solichi-ess-ta.
        Mina-NOM several time-ACC and   loudly   shout-PST-DECL
        'Mina shouted several times and loudly.'

(55) *Conjunction of adverb and adjunct durative (numeral quantity)*

    a. ?Mina-ka   kiphi   kuliko yel sikan-ul   ca-ss-ta.
       Mina-NOM soundly and   ten hour-ACC sleep-PST-DECL
       'Mina slept soundly and for ten hours.'

    b. ?Mina-ka   yel sikan-ul   kuliko kiphi   ca-ss-ta.
       Mina-NOM ten hour-ACC and   deeply sleep-PST-DECL
       'Mina slept for ten hours and soundly.'

(56) *Conjunction of adverb and adjunct multiplicative (numeral quantity)*

    a. ?Mina-ka   sikkulepkey kuliko yel pen-ul   solichi-ess-ta.
       Mina-NOM loudly   and   ten time-ACC shout-PST-DECL
       'Mina shouted loudly and ten times.'

    b. ?Mina-ka   yel pen-ul   kuliko sikkulepkey solichi-ess-ta.
       Mina-NOM ten time-ACC and   loudly   shout-PST-DECL
       'Mina shouted ten times and loudly.'

As shown in (57–58), a durative/multiplicative expression cannot conjoin with an adverb when it is an argument of the sentence. In (57), the durative adverbial *twu sikan* 'two hours' is merging as an object of the verb *nangpiha* 'waste'. In this case, conjunction of *twu sikan* with *ppalli* 'quickly' results in ungrammaticality.

(57) *Conjunction of adverb and argument durative: Ungrammatical*

    a. *Mina-ka   ppalli   kuliko twu sikan-ul   nangpiha-yess-ta.
       Mina-NOM quickly and   two hour-ACC waste-PST-DECL
       * 'Mina wasted quickly and two hours.'

    b. *Mina-ka   twu sikan-ul   kuliko ppalli   nangpiha-yess-ta.
       Mina-NOM two hour-ACC and   quickly waste-PST-DECL
       * 'Mina wasted two hours and quickly.'

Similarly, the nominal *kihoy sey pen* is the object selected by the verb *et* 'obtain'. (Recall that *pen*, as a classifier, cannot itself be the head of an argument as discussed with regards to (49).) The object cannot conjoin with an adverb such as *cengtanghakey* 'fairly'.

(58) *Conjunction of adverb and argument multiplicative: Ungrammatical*

    a. *Mina-ka   cengtanghakey kuliko kihoy   sey   pen-ul   et-ess-ta.
       Mina-NOM fairly   and   opportunity three time-ACC obtain-PST-DECL
       * 'Mina obtained fairly and three chances.'

    b. *Mina-ka   kihoy   sey pen-ul   kuliko cengtanghakey et-ess-ta.
       Mina-NOM opportunity three time-ACC and   fairly   obtain-PST-DECL
       * 'Mina obtained fairly and three chances.'

These argumental durative/multiplicative NPs can, of course, conjoin with another nominal argu-

ment such as *ipayk-talle* 'two hundred dollars' in (59) or *chwukacemswu* 'extra points' in (60).

(59) *Conjunction of nominal and argument durative*

    a.   Mina-ka   ipayk-talle-lul   kuliko twu sikan-ul nangpiha-yess-ta.
        Mina-NOM two.hundred-dollar-ACC and   two hour-ACC waste-PST-DECL
        'Mina wasted two hundred dollars and two hours.'

    b.   Mina-ka   twu sikan-ul kuliko ipayk-talle-lul   nangpiha-yess-ta.
        Mina-NOM two hour-ACC and   two.hundred-dollar-ACC waste-PST-DECL
        'Mina wasted two hours and two hundred dollars.'

(60) *Conjunction of nominal and argument multiplicative*

    a.   Mina-ka   chwukacemswu kuliko kihoy   sey pen-ul   et-ess-ta.
        Mina-NOM extra.points   and   opportunity three time-ACC obtain-PST-DECL
        'Mina obtained extra points and three chances.'

    b.   Mina-ka   kihoy   sey pen-ul   kuliko chwukacemswu et-ess-ta.
        Mina-NOM opportunity three time-ACC and   extra.points   obtain-PST-DECL
        'Mina obtained three chances and extra points.'

Another piece of evidence suggesting that argumental durative/multiplicative expressions are NPs while adjunct durative/multiplicative expressions are AdvPs involve the availability of the conjunction *kwa*.[8] Unlike the conjunction *kuliko*, which is unrestricted in the types of categories it can conjoin, the suffixal conjunction *kwa* only conjoins nominals. If adjunct durative/multiplicative expressions are indeed AdvPs, we expect them to not be able to merge with *kwa*. On the other hand, if adjunct durative/multiplicative expressions are NPs, we expect them to be able to merge with *kwa*. This prediction is borne out, as reflected in the asymmetry between the a- and b-examples in (61–62).

(61)   a. *Mina-ka   manhun sikan-kwa kiphi   ca-ss-ta.
           Mina-NOM many   hour-and deeply sleep-PST-DECL
           Intended: 'Mina slept for many hours and deeply.' (Compare with (53b))

      b.   Mina-ka   manhun sikan-kwa ipayk-talle-lul   nangpiha-yess-ta.
           Mina-NOM many   hour-and two.hundred-dollars-ACC waste-PST-DECL
           'Mina wasted many hours and two hundred dollars.'

(62)   a. *Mina-ka   yele   pen-kwa sikkulepkey solichi-ess-ta.
           Mina-NOM several time-and loudly   shout-PST-DECL
           Intended: 'Mina shouted several times and loudly.' (Compare with (54b))

      b.   Mina-ka   kihoy   yele   pen-kwa chwukacemswu-lul et-ess-ta.
           Mina-NOM opportunity several time-and extra.points-ACC   obtain-PST-DECL
           'Mina obtained several chances and extra points.'

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[8]I thank Norvin Richards for making me aware of this argument.

34

Up to now, I have provided evidence that adjunct durative/multiplicative expressions are of category Adv. I analyze their structure and position as in (63). I propose that they consist of a silent Adv head which selects for a durative/multiplicative NP and projects an AdvP. Argumental durative/multiplicative expressions, on the other hand, merge directly with the verb just as any other nominal argument. The durative/multiplicative NPs are represented as $NP_{Dur/Multi}$.

(63) *Position of $NP_{Dur/Multi}$ in argument and adjunct usages*
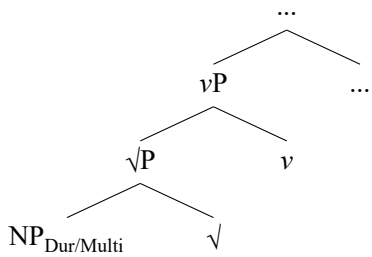
    a. $NP_{Dur/Multi}$ is an argument   b. $NP_{Dur/Multi}$ is an adjunct
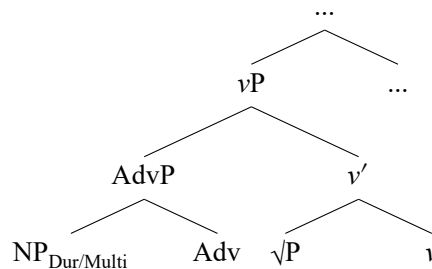
If this characterization is accurate, we expect a contrast in c-command possibilities between $NP_{Dur/Multi}$ as an argument and $NP_{Dur/Multi}$ as an adjunct. If $NP_{Dur/Multi}$ is an argument, the NP itself directly merges with the verbal structure. Therefore, if there happens to be another element that merges in a position lower than argumental $NP_{Dur/Multi}$, the NP would be able to c-command that element. On the other hand, the adjunct $NP_{Dur/Multi}$ is embedded inside an AdvP, so it does not c-command anything other than the Adv head. This contrast is important for my account of case patterns on adverbial $NP_{Dur/Multi}$. It will be shown in chapter 5 that adverbial $NP_{Dur/Multi}$ cannot trigger dependent case assignment to another NP within the same case assignment domain. This inability to trigger dependent case is expected if it is not actually the $NP_{Dur/Multi}$ that c-commands the other NP, but the AdvP that contains the $NP_{Dur/Multi}$. The NP itself is embedded inside the AdvP, so it does not c-command any other NP.

I conclude this section by providing evidence for this contrast from variable binding. When $NP_{Dur/Multi}$ is an argument, it can be an antecedent that binds a variable pronoun. However, when $NP_{Dur/Multi}$ is an adjunct, it cannot bind another NP. In (64a), the universally quantified expression *motun hyuka* 'every holiday' is the object of the verb *culki* 'enjoy'. As shown in (65a), this means that the NP *motun hyuka* directly merges with *v*P and thus can bind the variable pronoun *kukes*.[9] On the other hand, *motun hyuka* is an adjunct in (64b); the object of the verb *mek* 'eat' is *pap* 'meal',

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[9]The object *motun hyuka* would have scrambled from the complement position of the √ head to a position c-commanding the adjunct clause. Clause-internal scrambling of a *wh*-operator or quantified expression over a variable pronoun does not yield weak crossover (WCO) effects, as shown below (J.-H. Cho 1994b:18).

(i)   Nwukwuna₁-lul ku₁-uy apeci-ka   __ cohaha-n-ta.
       everyone-ACC he-GEN father-NOM   like-PRS-DECL
       'Everyone₁, his₁ father likes.'

not *motun hyuka*. Therefore, *motun hyuka* is embedded inside AdvP and cannot c-command the pronoun – as schematized in (65b).

(64) a. Mina-nun motun hyuka$_1$-lul [PRO kukes$_1$-uy yeysan-ul kolyeha-mye]
Mina-TOP every holiday-ACC PRO it-GEN   budget-ACC consider-CONJ
culki-n-ta.
enjoy-PRS-DECL
'Mina enjoys every holiday$_1$ with its$_1$ budget in mind.'
(Lit. 'Mina enjoys every holiday$_1$ while she considers its$_1$ budget.')

  b. *Mina-nun motun hyuka$_1$-lul [PRO kukes$_1$-uy yeysan-ul kolyeha-mye] pap-ul
Mina-TOP every holiday-ACC PRO it-GEN   budget-ACC consider-CONJ meal-ACC
mek-nun-ta.
eat-PRS-DECL
Intended: 'On every holiday$_1$, Mina eats meals with its$_1$ budget in mind.'
(Lit. 'Mina eats meals on every holiday$_1$ while she considers its$_1$ budget.')

(65) a. Partial structure of (64a)   b. Partial structure of (64b)
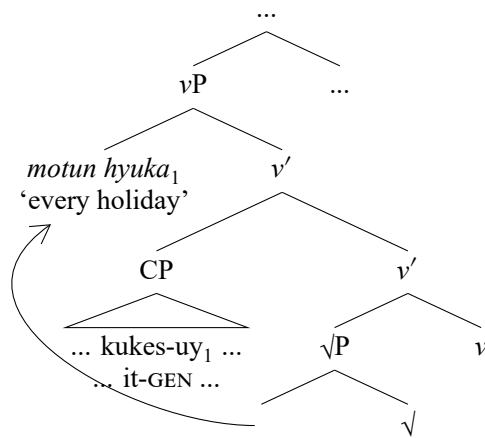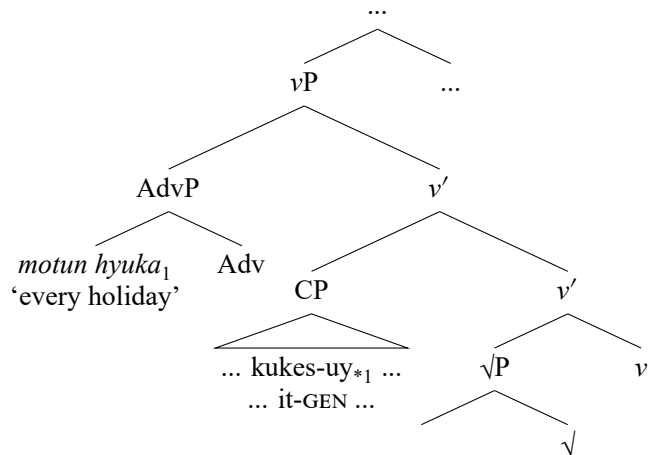
The inability of NP$_{\text{Dur/Multi}}$ to be a binder is irrelevant of whether its external merge position is an "A-position" or an "Ā-position". One might wonder whether the reason *motun hyuka* cannot be a binder is not because it is embedded inside an AdvP, but because it has merged into an Ā-position. However, externally merging into an Ā-position does not seem to interfere with binding possibilities. "Hanging" or "gapless" topics are expressions that externally merge at the left periphery of the clause and whose referents are in an aboutness relation with the rest of the clause. These types of topics, unlike ones that appear at the left periphery through movement, are not associated with any gap or theta position in the clause and is externally merged in their left peripheral position (Huang, Li & Li 2009). In (66), *kwail* 'fruit' and *panghak* 'holidays' are in an aboutness relation with the rest of the clause and is externally merged at the left periphery.

(66) a. Kwail-un nay-ka sakwa-lul cohaha-n-ta.
fruit-TOP I-NOM apple-ACC like-PRS-DECL
'(As for) fruits, I like apples most.'

b. Panghak-un ai-tul-i nuccam-ul ca-n-ta.
holidays-TOP child-PL-NOM late.sleep-ACC sleep-PRS-DECL
'(As for) holidays, children sleep late.'

The NP *i ai-tul-un* 'these children' is also a hanging topic in (67). Notice that the hanging topic can bind the reciprocal *selo* downstairs. This suggests that an element that externally merges at an Ā-position is able to bind an element it c-commands. Therefore, even if the adjunct $NP_{Dur/Multi}$ is merging in an Ā-position, it should be able to bind the variable pronoun downstairs had it not been embedded inside an AdvP. The inability of $NP_{Dur/Multi}$ to be a binder is evidence that the NP in indeed embedded inside an AdvP as the complement of the Adv head.

(67) a. I $ai\text{-}tul_1$-un $selo_1$-ka $selo_1$-lul cohaha-n-ta.
these child-PL-TOP each.other-NOM each.other-ACC like-PRS-DECL
'(As for) these children$_1$, each other$_1$ likes each other$_1$.'

b. I $ai\text{-}tul_1$-un $selo_1$-uy pwumo-ka (kutul-uy) elkwul-ul po-ass-ta.
these child-PL-TOP each.other-GEN parent-NOM them-GEN face-ACC see-PST-DECL
'(As for) these children$_1$, each other's$_1$ parents saw their$_1$ faces.'

In this section, I argued that $NP_{Dur/Multi}$ is embedded inside an AdvP when it is interpreted as an adjunct. In the next section, I argue that this AdvP merges as a *v*P-level adjunct where it c-commands the base position of the object but is c-commanded by the base position of the external argument subject.

2.3.3 Durative/multiplicative AdvP merges at *v*P

My argument that durative/multiplicative AdvPs merge at *v*P is couched in a view of syntax where the syntactic position of adverbs is restricted by their semantics. This view is not uncontroversial because at first glance, adverbs seem to be much less restricted compared to arguments regarding where they can appear in the syntax. The English adverb *cleverly* can grammatically appear in three different places as shown in (68a–c).

(68) a. *Cleverly*, John dropped his cup of coffee. (Jackendoff 1972:49)
b. John *cleverly* dropped his cup of coffee.
c. John dropped his cup of coffee *cleverly*.

However, on closer inspection, adverb placement is not purely optional. Jackendoff observes that (68a) and (68c) have different meanings, and that (68b) is ambiguous between the two meanings. (69a) and (69b) are paraphrases of (68a) and (68c), respectively.

(69) a. It was clever of John to drop his cup of coffee.   (Jackendoff 1972:49)

     b. The manner in which John dropped his cup of coffee was clever.

The semantic differences between (68a), (68b), and (68c) suggest that adverb position can affect the interpretation of the adverb and the overall structure. The correlation also works in the opposite direction: the semantic properties of an adverb affect the position where the adverb merges. For example, it has been observed that adverbs that modify the manner in which an event occurred (*e.g.*, *quickly*, *thoroughly*) merge in a lower syntactic position compared to speaker-oriented adverbs that express either the speaker's evaluation of the content of the uttered sentence (*e.g.*, *unfortunately*, *thankfully*), or the speaker's level of commitment to the truthfulness of the content (*e.g.*, *probably*, *likely*). Flipping the linear order between a manner adverb and a speaker-oriented adverb leads to ungrammaticality in many unrelated languages. This fact is hard to explain under a theory that precludes any restriction on the merge position of adverbs.

(70) *English* (Jackendoff 1972:89)

     a. Probably Max carefully was climbing the walls of the garden.

     b. *Carefully Max probably was climbing the walls of the garden.

(71) *Dutch* (Koster 1978:206)

     a. Het is zo   dat hij helaas   waarschijnlijk ziek is.
         it   is the.case that he unfortunately probably   sick is
         'It is the case that unfortunately he is probably sick.'

     b. *Het is zo   dat hij waarschijnlijk helaas   ziek is.
         it   is the.case that he probably   unfortunately sick is

(72) *Korean*

     a. Kyengchal-i tahaynghi ppalli ai-lul   chac-ass-ta.
         police-NOM fortunately quickly child-ACC find-PST-DECL
         'Fortunately, the police quickly found the child.'

     b. *Kyengchal-i ppalli   tahaynghi ai-lul   chac-ass-ta.
         police-NOM quickly fortunately child-ACC find-PST-DECL

In a broader sense, I assume with Alexiadou (1997), Cinque (1999), Frey (2000), Tenny (2000), Ernst (2001), and Svenonius (2002) that the syntactic position of adverbs is not independent of their meaning.[10] In other words, adverbs of different meaning classes merge at different positions

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[10]While these authors all agree that there is some correlation between the meaning of the adverb and its syntactic position, the specifics of their theories are far from homogeneous. As Ernst (2001:11–12) aptly puts it in his brief overview, the theories can be placed on a spectrum of which one end attributes the positional restriction exclusively to syntax, and the other end pursues a purely semantic explanation for the restriction. Near the syntactic end of the spectrum are Alexiadou (1997) and Cinque (1999), who argue that adverbs can only merge as a specifier to a designated functional head. Cinque, for example, proposes that the English adverb *frankly* is the specifier of the head Mood$_{speech\ act}$;

by virtue of their meaning.

    With this general approach to adverb position in mind, I argue that the durative/multiplicative adverbial patterns as a *manner adverb* in the sense of Jackendoff (1972) or *event-internal adverb* in the sense of Frey (2000) and Ernst (2001). (I use the term *event-internal adverb* throughout the rest of the dissertation.) More specifically, I argue that the AdvP proposed in section 2.3.2 merges in a position lower than the base position of the external argument (Spec, VoiceP) and higher than the base position of the theme argument (complement of √) – which is the position where event-internal adverbs usually merge. For concreteness, I locate the AdvP as an adjunct to *v*P.

(73)

                        VoiceP

          NP$_{\text{Ext. Arg.}}$ Voice$'$

                  *v*P   Voice

         AdvP   *v*$'$

    NP$_{\text{Dur/Multi}}$ **Adv** √P   *v*

              (NP$_{\text{Theme}}$)   √
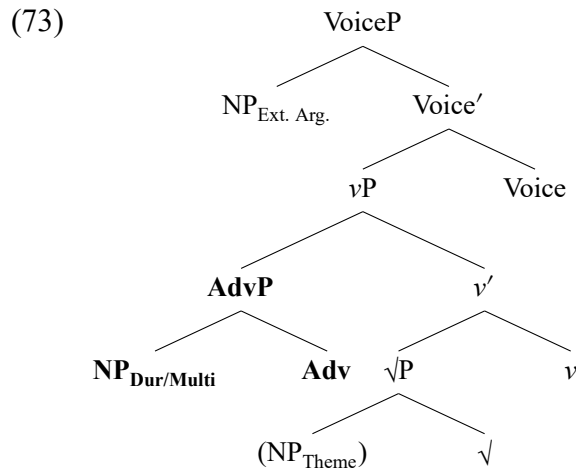
I provide two arguments in favor of this merge position. The first argument extends the conjunction tests presented in section 2.3.2. I demonstrate that the AdvP can conjoin with event-internal adverbs but not with structurally higher adverbs such as subject-oriented and speaker-oriented adverbs. Second, I show that the AdvP cannot linearly intervene between a subject and its associated numeral quantifier. Ko (2005, 2007) shows that VoiceP-external adverbs but not VoiceP-internal adverbs can linearly intervene between a subject and its floated numeral quantifier. She derives this asymmetry from a Cyclic Linearization view of spell-out, introduced in section 2.1. I demonstrate

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fortunately merges as the specifier of Mood$_{\text{evaluative}}$ and *allegedly* as specifier of Mood$_{\text{evidential}}$. In the middle of the spectrum lie the theories developed by Frey (2000) and Tenny (2000), who entertain a more flexible relation between adverbs instead of tying the adverb to a specific head. Tenny proposes a system of semantic zones such as *point of view modality*, *truth value modality*, and *middle aspect* anchored in the syntax. Frey similarly proposes certain c-command requirements between argument theta positions and adjuncts of different semantic classes, which restrict the position of adjuncts to a certain zone but not to the specifier of a dedicated head. For Ernst (2001) and Svenonius (2002), the positional restriction on the adverb is an epiphenomenon that follows from semantic restrictions on what type of linguistic expression an adverb can modify. I do not declare my position in this spectrum, but simply agree with Ernst that either extreme end of the spectrum is untenable given the facts presented in (68–72). A theory that treats all adverbs equally as freely moving adjuncts without considering their semantic classification cannot account for the ordering restrictions shown in (70–72). A theory that does not grant adverbs some degree of syntactic freedom and views the position of adverbs as fully determined by their semantics cannot accommodate for the varying word orders in (68).

that durative/multiplicative AdvPs align with VoiceP-internal adverbs.

With regards to the conjunction argument, let us first study adverbs in English. Event-internal adverbs such as *quickly* and *quietly* can be conjoined, as in (74a). Similarly, speaker-oriented adverbs such as *sadly* and *unsurprisingly* which express the speaker's evaluation of the uttered content can also be conjoined as in (74b). However, conjoining an event-internal adverb and a speaker-oriented adverb as shown in (74c) results in sharp ungrammaticality.

(74) a. John quickly and quietly walked away.
     b. The villain sadly and unsurprisingly did not help his friend.
     c. *John unsurprisingly and quickly walked away.

The same pattern is observed for Korean. I demonstrated in section 2.3.2 through example (51), repeated below as (75a), that Korean adverbs can be conjoined. The adverbs *sikkulepkey* and *kyesok*, used in this example, are both event-internal adverbs. Speaker-oriented verbs such as *anthakkapkey* 'regrettably' and *sulphukey* 'sadly' in (75b) can also form a conjunction. But conjoining a speaker-oriented adverb and an event-internal adverb as in (74c) results in an ungrammatical sentence.

(75) a. Mina-ka   sikkulepkey kuliko kyesok   solichi-ess-ta.
          Mina-NOM loudly   and   continuously shout-PST-DECL
          'Mina shouted loudly and continuously.' (= (51))
     b. Mina-ka   anthakkapkey kuliko sulphukey sihem-ey thallakha-yess-ta.
          Mina-NOM regrettably   and   sadly   exam-LOC fail-PST-DECL
          'Mina regrettably and sadly failed the exam.'
     c. Mina-ka   anthakkapkey kuliko kyesok   solichi-ess-ta.
          Mina-NOM regrettably   and   continuously shout-PST-DECL
          * 'Mina regrettably and continuously shouted.'

Durative/multiplicative AdvPs behave like event-internal adverbs in this regard. Examples (53a) and (54a), repeated below in (76), show that durative/multiplicative AdvPs can conjoin with event-internal adverbs such as *kiphi* 'soundly' and *sikkulepkey* 'loudly'.

(76) a. Mina-ka   kiphi kuliko manhun sikan-ul ca-ss-ta.
          Mina-NOM deeply and   many   hour-ACC sleep-PST-DECL
          'Mina slept deeply and for many hours.' (= (53a))
     b. Mina-ka   sikkulepkey kuliko yele   pen-ul   solichi-ess-ta.
          Mina-NOM loudly   and   several time-ACC shout-PST-DECL
          'Mina shouted loudly and several times.' (= (54a))

In contrast, conjoining durative/multiplicative adjuncts with speaker-oriented adverbs like *anthakkapkey* 'regrettably' and *pwunmyenghi* 'evidently' results in ungrammaticality.

(77) a. *Mina-ka   anthakkapkey kuliko yel sikan-ul   ca-ss-ta.
          Mina-NOM anthakkapkey and   ten hour-ACC sleep-PST-DECL
          * 'Mina slept regrettably and for ten hours.'

      b. *Mina-ka   pwunmyenghi kuliko yel pen-ul   solichi-ess-ta.
          Mina-NOM evidently   and   ten time-ACC shout-PST-DECL
          * 'Mina shouted evidently and ten times.'

The asymmetry between (76) and (77) suggests that durative/multiplicative AdvPs are event-internal adverbs, which merge at a VoiceP-internal position c-commanded by the subject. The status of durative/multiplicative AdvPs is readily compatible with the *v*P merge position proposed in (73).

    The second argument I provide in support of a VoiceP-internal merge position of these AdvPs comes from linearization. Ko (2005, 2007) points out a puzzling restriction on the subject stranding a numeral quantifier. (78a) shows a transitive sentence with a subject quantified by a numeral quantifier, *sey myeng* 'three CLF'. (The classifier *myeng* quantifies human-denoting NPs.) In principle, the subject can strand its quantifier and scramble to a higher position as in (78b). However, when the object has scrambled over the external merge position of the subject as in (78c), the subject cannot strand the numeral quantifier below the object.

(78) *Korean scrambling and numeral quantifier stranding* (Ko 2007:50–51)

      a. Haksayng-tul-i sey myeng maykcwu-lul masi-ess-ta.
          student-PL-NOM 3   CLF   beer-ACC   drink-PST-DECL
          'Three students drank beer.'

      b. Haksayng-tul-i$_1$ pwunmyenghi t_1 sey myeng   maykcwu-lul   masi-ess-ta.
          student-PL-NOM evidently   three CLF beer-ACC drink-PST-DECL
          'Evidently, three students drank beer.'

      c.?*Haksayng-tul-i$_2$ maykcwu-lul$_1$ t_2 sey   myeng t_1 masi-ess-ta.
          student-PL-NOM beer-ACC   three CLF   drink-PST-DECL
          Intended: 'Three students drank beer.'

Ko derives this asymmetry as well as many other puzzling patterns in Korean scrambling from two components: Cyclic Linearization, and the unavailability of movement from the specifier of a head X to another specifier of the same head X. The latter is a natural consequence of limiting the search domain of a head to its c-command domain. An element YP at Spec, XP is not in the search domain of X, so any movement triggered by a feature on X cannot target YP. Under a Cyclic Linearization view of spell-out, a linearization statement made at spell-out of VoiceP cannot be contradicted by a linearization statement made at a later spell-out.

    Consider two linearization possibilities at VoiceP of a sentence that contains the subject and a subject-associated numeral quantifier as in (78a). In (79a), no scrambling has occurred; the subject, the subject-associated numeral quantifier, the object, and the root (plus the verbalizer) maintain

their external merge position. Hence the linearization statement made at spell-out of VoiceP is $S <$ $NQ_{Subj} < O < \sqrt{}$, where "X < Y" means "X linearly precedes Y". In (79b), the object has scrambled over the subject to Spec, VoiceP. The linearization in this case would be $O < S < NQ_{Subj} < \sqrt{}$.

(79) a. [$_{VoiceP}$ [$_{NP}$ haksayng-tul-i sey   myeng] [$_{vP}$ maykcwu-lul masi]]
                  student-PL-NOM three CLF   beer-ACC   drink
           Linearization: $S < NQ_{Subj} < O < \sqrt{} < v < Voice$
           (S: Subject, NQ_{Subj}: Subject-associated numeral quantifier, O: Object)

     b. [$_{VoiceP}$ *maykcwu-lul*$_1$ [$_{NP}$ haksayng-tul-i sey   myeng] [$_{vP}$ t_1 masi]]
                  beer-ACC   student-PL-NOM three CLF   drink
           Linearization: $O < S < NQ_{Subj} < \sqrt{} < v < Voice$

Crucially, it is impossible to achieve the linear order $S < O < NQ_{Subj}$, where the object intervenes between the subject and its associated numeral quantifier. Because the subject and the numeral quantifier form a constituent, the object cannot scramble to a position that intervenes between the two.

(80) [$_{VoiceP}$ [$_{NP}$ S NQ$_{Subj}$] O $\sqrt{}$+v+Voice]

Another possibility to achieve the order $S < O < NQ_{Subj}$ could be for S to scramble out of the NP constituent and to a position that c-commands O. However, this involves a movement from Spec, VoiceP to Spec, VoiceP, which is ruled out by the search domain restriction cited above.

(81) [$_{VoiceP}$ O$_1$ [$_{NP}$ S NQ$_{Subj}$] t_1 $\sqrt{}$+v+Voice]

Therefore, the object is unable to linearly intervene between the subject and sentences such as (78c) are ruled out. (78b), on the other hand, shows the subject scrambling over a VoiceP-external adverb. This entails the subject moving to a position that is not Spec, VoiceP, which is licit.

(82) Adv [$_{VoiceP}$ [$_{NP}$ S NQ$_{Subj}$] O $\sqrt{}$+v+Voice]

   Notice that the ungrammaticality of (78c) does not stem from any idiosyncrasies of the object, but instead from general restrictions about movement and linearization. Therefore, any syntactic unit that merges below the subject in a VoiceP-internal position is expected to behave just like the object. In other words, the inability of the object to intervene between the subject and the numeral quantifier is expected to be replicated in any VoiceP-internal element. If an adverb is an event-internal one that merges VoiceP-internally, it should not be able to linearly intervene between the subject and its associated numeral quantifier. This is indeed the case for an event-internal adverb such as *ppalli*, and crucially for the durative/multiplicative AdvP as well.

(83) a. Haksayngtul-i sey myeng ppalli maykcwu-lul masi-ess-ta.
students-NOM three CLF quickly beer-ACC drink-PST-DECL
'Three students drank beer quickly.'

b. *Haksayngtul-i ppalli sey myeng maykcwu-lul masi-ess-ta.
students-NOM quickly three CLF beer-ACC drink-PST-DECL

(84) a. Haksayngtul-i sey myeng twu sikan-ul maykcwu-lul masi-ess-ta.
students-NOM three CLF two hour-ACC beer-ACC drink-PST-DECL
'Three students drank beer for two hours.'

b. *Haksayngtul-i twu sikan-ul sey myeng maykcwu-lul masi-ess-ta.
students-NOM two hour-ACC three CLF beer-ACC drink-PST-DECL

(85) a. Haksayngtul-i sey myeng twu pen-ul maykcwu-lul masi-ess-ta.
students-NOM three CLF two time-ACC beer-ACC drink-PST-DECL
'Three students drank beer twice.'

b. *Haksayngtul-i twu pen-ul sey myeng maykcwu-lul masi-ess-ta.
students-NOM two time-ACC three CLF beer-ACC drink-PST-DECL

Hence the ungrammaticality of (84b) and (85a) provides another argument in support of the event-internal status of durative and multiplicative AdvP.

2.4 The position of the theme argument in nonactive constructions

Despite merging as the complement of √ (the root), the theme argument is pronounced in a position higher than √P. In this section, I provide an explanation for this fact. In section 2.4.1, I demonstrate that the theme always moves to Spec, VoiceP in nonactive constructions. To capture this movement, I propose that the Voice head bears [●N●], a feature that requires an overt NP in its specifier. In section 2.4.2, I briefly discuss object shift in active constructions, which has been suggested to be part of Korean grammar (Hagstrom 2002; Han, Lidz & Musolino 2007; Gould 2015). Object shift – if it occurs at all – seems to happen very locally and crucially does not move to a position higher than *v*P, where the durative/multiplicative adverbial merges.

2.4.1 The theme moves to Spec, VoiceP

In section 2.3.1, I stated that the theme merges as the complement of √. But the theme is pronounced in a position that is higher than its merge position. The word order between the theme and event-internal adverb demonstrates this point. The theme appears to the left of manner adverbs (86), durative adverbials (87), and multiplicative adverbials (88). This is true regardless of the case marking on the adverbials in (87–88). The b-sentences where the adverb appears to the left of the subject is not outright ungrammatical, but is odd to be uttered out-of-the-blue; they can only be

43

uttered in a context whose information structure warrants the adverb-initial word order.

(86) a. Totwuk-i ppali cap-hi-ess-ta.
thief-NOM quickly capture-NACT-PST-DECL
'A thief was caught quickly.'

b.??Ppali totwuk-i cap-hi-ess-ta.
quickly thief-NOM capture-NACT-PST-DECL
'It is quickly that the thief was caught.' (Odd to be uttered out of the blue)

(87) a. Umak-i sey sikan-{i/ul} thul-eci-ess-ta.
music-NOM three hour-{NOM/ACC} play-NACT-PST-DECL
'Music was played for three hours.'

b.??Sey sikan-{i/ul} umak-i thul-eci-ess-ta.
three hour-{NOM/ACC} music-NOM play-NACT-PST-DECL
'It was for three hours that music was played.' (Odd to be uttered out of the blue)

(88) a. Totwuk-i sey pen-{i/ul} cap-hi-ess-ta.
thief-NOM three time-{NOM/ACC} capture-NACT-PST-DECL
'A thief was caught three times.'

b.??Sey pen-{i/ul} totwuk-i cap-hi-ess-ta.
three time-{NOM/ACC} thief-NOM capture-NACT-PST-DECL
'It was three times that a thief was caught.' (Odd to be uttered out of the blue)

This suggests that the theme always undergoes movement in nonactive sentences. I make two arguments that the theme always moves to Spec, VoiceP. The first is a conceptual one. The theme is linearized to the left of event-internal adverbials in (86a), (87a), and (88a), which merge at vP. Under the Cyclic Linearization view of Spell-out introduced in section 2.1, this means that the theme must linearly precede vP by the time VoiceP undergoes Spell-out. Hence the theme should always move to a position higher than vP. The only projection higher than vP within VoiceP is the VoiceP itself, barring optional projections such as ApplP which only project when there is an applicative argument in the structure. Therefore, it is reasonable to analyze the theme as moving to Spec, VoiceP.

The second argument shows that the theme appears at the left edge of VoiceP-sized small clauses. In a resultative small clause headed by *key* or *tolok*, the theme is again preferred to appear to the left of manner adverbials just as in the matrix clause in (86–88).[11] This resultative small clause often has a modal meaning roughly translated as "to the extent that".

(89) a. Mina-ka [pay-ka ccic-eci-key] pap-ul mek-ess-ta.
Mina-NOM stomach-NOM rip-NACT-KEY meal-ACC eat-PST-DECL
'Mina ate the meal (so much) to the extent that her stomach would burst.'

---

[11]The resultative clauses discussed here are deverbal. See Ko (2015) for discussion of deadjectival resultative clauses.

b. Swuni-ka [mok-i swuy-key] solichi-ess-ta.
Swuni-NOM throat-NOM turn.hoarse-KEY shout-PST-DECL
'Swuni shouted to the extent her throat would turn hoarse.'

c. Kwuk-i [naympi(-uy) patak-i po-i-key] col-ass-ta.
soup-NOM pot(-GEN) bottom-NOM see-NACT-KEY boil.down-PST-DECL
'The soup boiled down to the extent that the bottom of the pot would be seen.'

As Yeo (2006) points out, the *key*-clause cannot contain an NP agent or causer. The resultative small clause in (90b) is very similar in meaning to (89c), but is ungrammatical.

(90) a. Naymbi-ka patak-ul tulenay-ess-ta.
pot-NOM bottom-ACC reveal-PST-DECL
'The pot revealed its bottom.'

b. *Kwuk-i [naymbi-ka patak-ul tulenay-key] col-ass-ta.
soup-NOM pot-NOM bottom-ACC reveal-KEY boil.down-PST-DECL
Intended: 'The soup boiled down to the extent that the pot would reveal its bottom.'

Furthermore, the *key*-clause cannot include aspect or tense markers.

(91) Kwuk-i [naymbi(-uy) patak-i po-i-(*ko.iss)-(*ess)-key] col-ass-ta.
soup-NOM pot(-GEN) bottom-NOM see-NACT-(*PROG)-*PST-KEY boil.down-PST-DECL

Therefore, I conclude that *key* is an Adverbial head that selects for a nonactive VoiceP.

(92)

AdvP
├── VoiceP_NACT
│   ├── vP
│   │   ├── AdvP
│   │   │   ├── NP_Dur/Multi
│   │   │   └── Adv
│   │   └── v′
│   │   └── ...
│   └── Voice
└── Adv
    key
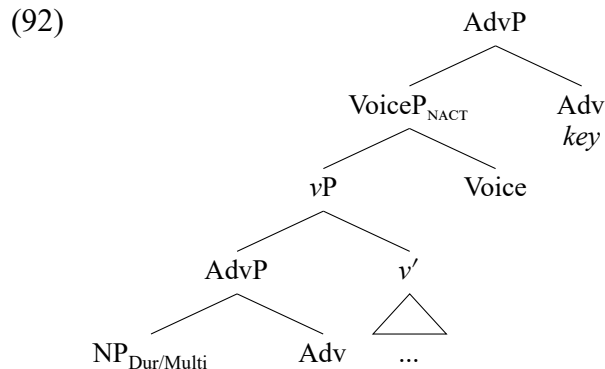
In this environment, the subject must appear to the left of event-internal adverbs. Example (93) presents a resultative small clause containing an *eci*-construction, while (94) presents a small clause containing a *HI*-construction. The scenarios are provided to facilitate judgment. In both examples, the theme subject is preferred to appear to the left of the event-internal adverb as in (93a) and (94a). When the adverb precedes the subject as in (93b) and (94b), the sentence sounds odd just as the adverb-initial order in (86–88) is odd.

(93) *Ciho enjoys jogging, and also enjoys wearing makeup. One day, he decides to jog while wearing makeup on. But the day is warm, so his makeup was erased from the sweat.*

a. Ciho-ka [hwacang-i wancenhi ciwu-eci-key] ttuy-ess-ta.
   Ciho-NOM makeup-NOM completely erase-NACT-KEY run-PST-DECL
   'Ciho ran to the extent that his makeup was completely erased.'

b.??Ciho-ka [wancenhi hwacang-i ciwu-eci-key] ttuy-ess-ta.
    Ciho-NOM completely makeup-NOM erase-NACT-KEY run-PST-DECL

(94) *There are children running around in the garden. They are wearing sturdy shoes, and the*
     ground consists of soft dirt. The children's shoes cause the soft ground to be dug up.

a. Ai-tul-i [ttang-i kiphi pha-i-key] ttuye.tani-ess-ta.
   child-PL-NOM ground-NOM deeply dig-NACT-KEY run.roam-PST-DECL
   'The children ran around to the extent that the ground was dug up deeply.'

b.??Ai-tul-i [kiphi ttang-i pha-i-key] ttuye.tani-ess-ta.
    child-PL-NOM deeply ground-NOM dig-NACT-KEY run.roam-PST-DECL

The contrasts presented in (93–94) suggest that the theme moves to a position higher than *v*P. The only projection that is reliably present in all resultative small clauses and is higher than *v*P is VoiceP. Therefore, the theme must be moving to Spec, VoiceP in these sentences.

In order to formally capture the theme moving to Spec, VoiceP, I propose that the Voice head bears a feature [●N●]. A head bearing this feature is required to project an overt specifier of category N. (See Müller 2010 for his original proposal of [●F●] features, and Longenbaugh 2019; Newman 2021 for similar ideas and notations.) In an active construction, the Voice head introduces an external argument specifier. Therefore, the requirement of [●N●] is always satisfied without any movement to Spec, VoiceP. On the other hand, nonactive Voice does not introduce an NP specifier.[12] Therefore, Voice triggers movement of the theme to Spec, VoiceP.

(95)

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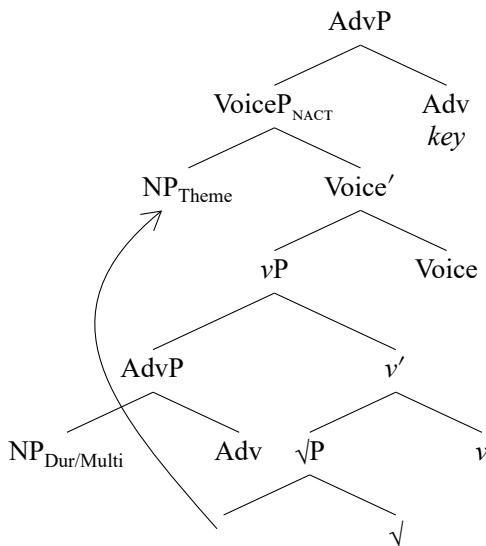
[12]It does introduce an agent/causer either implicitly or as a PP, as will be shown in chapter 4. But neither are overt NP specifiers, and thus cannot fulfill the requirement of [●N●].

One might ask why NP$_{Dur/Multi}$, instead of the theme, cannot move to Spec, VoiceP. There are two potential ways to explain this restriction. Recall the discussion from section 2.3.2 that NP$_{Dur/Multi}$ is embedded inside an AdvP when it is an adjunct. Moving the NP$_{Dur/Multi}$ out of an AdvP could be a violation of an adjunct island constraint. Another way to view the restriction against movement of NP$_{Dur/Multi}$ is to view it as a pied-piping constraint. In other words, the only way for NP$_{Dur/Multi}$ to move is to move the entire AdvP. But moving the entire AdvP to Spec, VoiceP would not satisfy the requirement of [●N●], so there is no need for this movement to occur. A relevant observation is that overt adverbializing heads such as *i/li* or *key* are all suffixes that attach to an adjective or nominal.

(96)   a.   Pang-i   kkaykkus-ha-ta.
            room-NOM clean-do-DECL
            'The room is clean.'

       b.   Mina-ka   kulus-ul   kkaykkus-**i** takk-ess-ta.
            Mina-NOM bowl-ACC clean-ADV   wipe-PST-DECL
            'Mina wiped the bowl clean.'

(97)   a.   Chitha-nun   ppalu-Ø-ta.
            cheetah-TOP fast-PRS-DECL
            'Cheetahs are fast.'

       b.   Chitha-ka   ppal-**li**   talli-n-ta.
            cheetah-NOM fast-ADV run-PRS-DECL
            'A cheetah is running quickly.'

(98)   a.   Mina-ka   sulphu-Ø-ta.
            Mina-NOM sad-PRS-DECL
            'Mina is sad.'

       b.   Mina-ka   sulphu-key wul-ess-ta.
            Mina-NOM sad-ADV   cry-PST-DECL
            'Mina cried sadly.'

(99)   a.   Inho-ka   ttokttokha-Ø-ta.
            Inho-NOM clever-PRS-DECL
            'Inho is clever.'

       b.   Inho-ka   ttokttokha-key sanghwang-ey taycheha-yess-ta.
            Inho-NOM clever-ADV   situation-DAT   deal-PST-DECL
            'Inho dealt with the situation cleverly.'

Wh-scrambling the adverbial itself is possible, but it is impossible to scramble the adjective out of an AdvP.

(100) a. Ettehkey chitha-ka   ttuy-ess-ni?
        how   cheetah-NOM run-PST-DECL
        'How did the cheetah run?'

    b. *{Etten/ettehkey}   chitha-ka   __-li ttuy-ess-ni?
        how.ADN/how.ADV cheetah-NOM -ADV run-PST-Q

    c. Ettehkey Mina-ka   wul-ess-ni?
        how   Mina-NOM cry-PST-DECL
        'How did Mina cry?'

    d. *{Etten/ettehkey}   Mina-ka   __-key wul-ess-ni?
        how.ADN/how.ADV Mina-NOM -ADV   cry-PST-Q

I propose that Adv heads are suffixal in general, and that they cannot be separated from their complements. Hence, there are at least two reasons to believe that NP$_{Dur/Multi}$ (or any complement of Adv) cannot move out of an AdvP. Therefore, I rule out the possibility that NP$_{Dur/Multi}$ moves to Spec, VoiceP.

2.4.2 A brief note on object shift

As we are discussing the position of the theme argument, it would be helpful here to clarify my position on what has been called *object shift*. Object shift, if it had targeted a sufficiently high position, could have potentially changed the relative position of the theme and durative/multiplicative adverbial; this would have posed a problem for my analysis in chapter 5. But I demonstrate that object shift, even if it occurs, targets a very low position and therefore does not affect the relative position between the theme and the durative/multiplicative adverbial.

Gould (2015), building on Hagstrom (2002) and Han, Lidz & Musolino (2007), argues that the theme merges as the complement of the verb root but raises and adjoins to a higher position. His argument is a response to the fact that certain adverbs like *cal* 'well' or short-form negation *an* almost always linearly intervenes between the object and the verb.

(101) a. Mina-ka   (*an) pap-ul   (an) mek-ess-ta.
        Mina-NOM (*not) meal-ACC (not) eat-PST-DECL
        'Mina did not eat the meal.'

    b. Mina-ka   (*cal) pap-ul   (cal) mek-ess-ta.
        Mina-NOM (*well) meal-ACC (well) eat-PST-DECL
        'Mina ate the meal well.'

Notice that the sentences in (101) are active. Object shift in Korean has been discussed mainly for active constructions, and is thus independent from the theme's movement to Spec, VoiceP in nonactive constructions that we have just seen in section 2.4.1.

What object shift *does* potentially affect is my analysis presented in chapter 5, which builds on

the idea that the durative/multiplicative AdvP and the theme argument do not c-command each other in active constructions. For my analysis to stand in the face of (101), object shift (if it occurs at all) should not target a position higher than Spec, *v*P. If it does, the theme would end up c-commanding the AdvP as shown in (102).

(102)
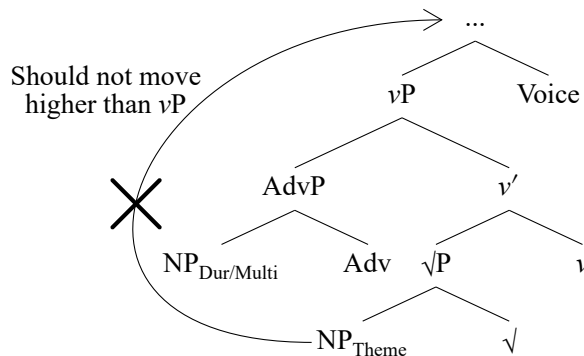
Indeed, an object raising past *cal* or *an* does not necessarily entail movement up to Spec, *v*P. This is because *cal* and *an* show a much more tightly-bound, local behavior to the root compared to other adverbs. The linear order is much freer between the object and the event-internal adverbs *ppalli* and *han sikan-ul*.

(103) a. Mina-ka   (ppalli) pap-ul   (ppalli) mek-ess-ta.
           Mina-NOM (quickly) meal-ACC (quickly) eat-PST-DECL
           'Mina ate the meal (quickly).'

       b. Mina-ka   (han sikan-ul) pap-ul   (han sikan-ul) mek-ess-ta.
           Mina-NOM (one hour-ACC) meal-ACC (one hour-ACC) eat-PST-DECL
           'Mina ate the meal (for one hour).'

Furthermore, numeral quantifiers associated with the object can intervene between the verb and *ppalli* or *cal* as shown in (104b) and (105b). Presumably, the quantifier is stranded there while the object has moved further past the adverb. In contrast, the quantifier cannot intervene between the verb and *cal* or *an* as shown by the ungrammaticality of (106b). This suggests again that *cal* and *an* are more local to the root and cannot be separated from it.

(104) *Stranding a numeral quantifier behind manner adverbial* ppalli*: grammatical*

       a. Mina-ka   sakwa(-lul) sey kay-lul ppalli   mek-ess-ta.
           Mina-NOM apple(-ACC) three CLF-ACC quickly eat-PST-DECL
           'Mina ate three apples quickly.'

       b. Mina-ka   sakwa-lul ppalli   sey kay-lul mek-ess-ta.
           Mina-NOM apple-ACC quickly three CLF-ACC eat-PST-DECL
           'Mina ate three apples quickly.'

(105) *Stranding a numeral quantifier behind durative adverbial* han tal-ul*: grammatical*[13]

    a. Mina-ka nolay(-lul) sey kok-ul han tal-ul   panpokhay tul-ess-ta.
       Mina-NOM song(-ACC) three CLF-ACC one month-ACC repeatedly listen-PST-DECL
       'Mina listened to three songs repeatedly for a month.'

    b. Mina-ka nolay-lul han tal-ul   sey kok-ul panpokhay tul-ess-ta.
       Mina-NOM song-ACC one month-ACC three CLF-ACC repeatedly listen-PST-DECL
       'Mina listened to three songs repeatedly for a month.'

(106) *Stranding a numeral quantifier behind* an *or* cal*: ungrammatical*

    a. Mina-ka sakwa(-lul) sey kay-lul {an/cal}   mek-ess-ta.
       Mina-NOM apple(-ACC) three CLF-ACC {not/well} eat-PST-DECL
       'Mina did not eat three apples.' / 'Mina ate three apples well.'

    b. *Mina-ka sakwa-lul {an/cal} sey kay-lul mek-ess-ta.
       Mina-NOM apple-ACC {not/well} three CLF-ACC eat-PST-DECL

Based on the contrast between (101) and (106) on the one hand, and (103), (104–105) on the other, I conclude that the adverbs *cal* and *an* (which show object shift effects) merge at a position much lower than *ppalli* or *han sikan-ul* – inside √P. *An* has been considered either a prefix to the verb root (J.-B. Kim 1999) or a Neg head that forms a complex head with the root (Sells 2015); perhaps *cal* is of a similar nature. Object shift, which obligatorily places the object to the left of *cal*/*an* but not necessarily to the left of *ppalli* or *han sikan-ul*, should target a position higher than *cal*/*an* but lower than *ppalli*/*han sikan-ul*.[14] A good candidate for this landing site is Spec, √P.

(107) *Potential landing site for "object shift" is Spec, √P (but see paragraph below)*
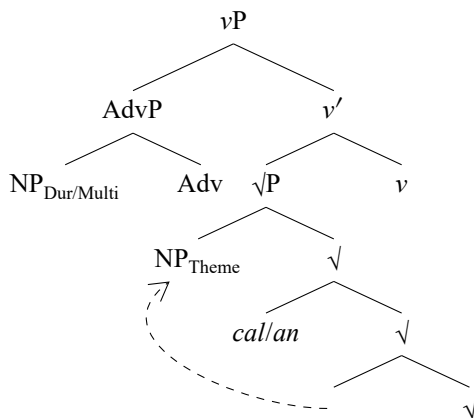
The proposed tree in (107) is but a cursory explanation for why the object can follow event-

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[13]Co-occurrence of a numeral quantifier and a durative adverbial is semantically odd since both delimit the event (Wechsler & Lee 1996; Kiparsky 1998; Pereltsvaig 2000), but the presence of the adverb *panpokhay* 'repeatedly' suppresses the delimiting semantics of the numeral quantifier (*i.e.*, the event is not an event of listening to three songs, but a continuous event of listening to the same three songs over and over) and allows for the co-occurrence.

[14]Structures where the theme is pronounced to the left of *ppalli* or *han sikan-ul* would involve scrambling of the theme, or possibly scrambling of both the theme and the adverbial to the CP phase.

internal adverbs but not *cal* or *an*. I leave a more rigorous investigation of the position and category of *cal*/*an* for future research. Crucially, whether the theme moves to Spec, √P or remains as the complement of √ does not affect the discussions in other chapters. Therefore, I do not represent object shift in the trees in this dissertation.

Chapter 3

Case alternation in nonactives correlates with subject position

In chapter 1, I showed that durative/multiplicative adverbials can either bear nominative or accusative case in nonactive constructions. In this section, I demonstrate that the case on the adverbial correlates with the position of the theme subject. More specifically, accusative case on the adverbial signals that the subject has raised out of Spec, VoiceP while nominative case signals that the subject remains at Spec, VoiceP. Because Korean is a head-final language that allows scrambling, detecting the height of the subject is not a straightforward task. But I present in section 3.1 arguments in support of this correlation from three different phenomena: predicate fronting, negative concord item intervention effects, and the interpretation of indefinite subjects. I then address an alternative theory in section 3.2. Kim (2018, 2019) argues that it is the syntactic position of the adverb, and not the subject, that underlies the case alternation. I present syntactic and semantic arguments that pose a difficulty for Kim's alternative theory.

3.1 Arguments for the correlation[1]

3.1.1 No nominative adverbial inside fronted predicates

Korean and Japanese show constructions where the verb and any internal arguments in a sentence undergo fronting to the exclusion of the subject. Hoji, Miyagawa & Tada (1989) have made earlier observations on Japanese. In (108), the predicate *sushi-o tabe* undergoes A-bar fronting to the left edge of the clause.

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[1] Parts of this section are based on my proceedings paper (Jou, to appear) from my presentation at the 17th Workshop on Altaic Formal Linguistics (WAFL 17), held in Ulaanbaatar, Mongolia.

(108) *Japanese* (Hoji, Miyagawa & Tada 1989, their (10))

[Sushi-o   tabe]-sae_j John-ga   t_j sita.
 sushi-ACC eat-even   John-NOM   did
'Even eat sushi, John did.'

The Korean counterpart of (108) has been studied by Ahn (1991), Bae (2022), Ahn & Cho (2023) among others. [2] The empirical landscape is more complicated for Korean, because there are two types of predicate-fronting constructions as shown in (109b–c). I follow Bae (2022) in calling the (109b) construction *do-support* predicate fronting, and the (109c) construction *verb-doubling* predicate fronting.[3] As the name suggests, the main clause predicate of (109b) undergoes a *do*-support-like insertion of the light verb *ha*. This is similar to insertion of the Japanese verb *suru* in (108). On the other hand, the main clause verb of (109c) shows doubling of the verb of the fronted predicate *mek* 'eat'.

(109) *Korean*

   a. *Baseline*

   Mina-ka   sakwa-lul mek-ess-ta.
   Mina-NOM apple-ACC eat-PST-DECL
   'Mina ate an apple.'

   b. *Do-support predicate fronting*[4]

   [Sakwa-lul mek-ki]-nun   Mina-ka   __ ha-yess-ta.
    apple-ACC eat-NMLZ-TOP Mina-NOM   do-PST-DECL
   'As for eating an apple, Mina did do that.'

   c. *Verb-doubling predicate fronting*

   [Sakwa-lul mek-ki]-nun   Mina-ka   __ mek-ess-ta.
    apple-ACC eat-NMLZ-TOP Mina-NOM   eat-PST-DECL
   'As for eating an apple, Mina did do that.'

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[2]This construction is to be distinguished from examples like (i), which has been called (somewhat confusingly) the *VP focus construction* (Choi 2000) or the *VP-topicalization* construction (Bae 2022).

(i)   Mina-ka   sakwa-lul mek-ki-nun   mek-ess-ta.
      Mina-NOM apple-ACC eat-NMLZ-TOP eat-PST-DECL
      'Mina did eat an apple.'

I remain agnostic about the structure of (i) here and focus on the predicate fronting construction.

[3]Korean fronting has a topicalization effect, while the Japanese translation suggests some focus effect. I do not comment on this difference.

[4]Bae reports that unergative constructions but not transitive constructions can undergo *do*-support predicate fronting. In other words, she reports that an unergative verb such as *ket* 'walk' can undergo fronting but an internal argument like *sakwa-lul* of (109b) cannot be fronted along with the verb. On the other hand, Ahn & Cho (2023) report that internal arguments of transitive and ditransitive constructions can undergo *do*-support fronting with the verb, as long as the fronting does not break constituent structure. (They do not discuss verb-doubling predicate fronting.) My judgment aligns with Ahn and Cho's: I find *do*-support fronting of transitive constructions such as (109b) gram-

Bae (2022) argues that the size of the fronted predicate is different in *do*-support predicate fronting and verb-doubling predicate fronting. The former involves movement of VP, while the latter involves movement of the larger VoiceP. In *do*-support predicate fronting, the VP undergoes cyclic movement to the nearest phase edge to avoid being spelled out. (In transitive/unergative constructions, the nearest phase edge would be Spec, VoiceP.) Upon merge of the subsequent phase head C, the VP undergoes A-bar movement to C. In contrast, in verb-doubling predicate fronting constructions, the entire VoiceP undergoes Ā-fronting. Upon merge of T, the subject moves from Spec, VoiceP to Spec, TP. The remnant VoiceP undergoes A-bar movement to Spec, CP upon merge of C. The derivation of (109b) and (109c) are schematically presented in the trees (110a) and (110b), respectively.[5]

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matical. No aspect of Bae's analysis adopted in this dissertation predicts a difference between unergative and transitive constructions, and she herself does not provide an explanation for her asymmetric judgments. Therefore, I adopt Bae's analysis despite our different grammaticality judgments.

[5]This analysis could be problematic under the strictest version of the Proper Binding Condition (PBC; Fiengo 1977), since the trace or lower copy of the subject at Spec, VoiceP would be c-commanding the (higher copy of) the subject at Spec, TP. However, it has been observed that movement of a remnant containing a trace/copy of a subject as in (109b–c) is less constrained than moving a remnant containing the trace/copy of an internal argument. This leads Müller (1996) and Saito (2002) to argue for a weakened version of the PBC. For Müller, the PBC only applies to traces of the same movement type. If we accept that movement of the subject *Mina-ka* in (110b) is A-movement and topicalization of VoiceP is A-bar movement, (110b) is not ruled out by the PBC since the trace of the subject and the trace of VoiceP result from different types of movement. Similarly, Saito argues with Lasnik (1999) that A-movement does not leave a trace. Since there is no trace within the moved VoiceP, no PBC violation occurs.

Hiraiwa (2003, 2010) reduces the PBC to restrictions in cyclic spell-out. He proposes that remnant movement of an XP after extraction of YP is ruled out under the PBC only if extraction of YP targets a phase edge. If the extracted YP is an internal argument, its scrambling out of VoiceP would have to stop by the edge of the VoiceP phase due to cyclicity. Hence remnant movement after internal argument extraction is ruled out. Meanwhile, the subject is already located at Spec, VoiceP. Its initial movement to Spec, TP as in (110b) does not target a phase edge. Hence, (110b) is correctly ruled in under Hiraiwa's theory as well.

(110) Structure of predicate fronting constructions, adopted from Bae (2022:133-134)

        a. *Do*-support predicate fronting   b. Verb-doubling predicate fronting
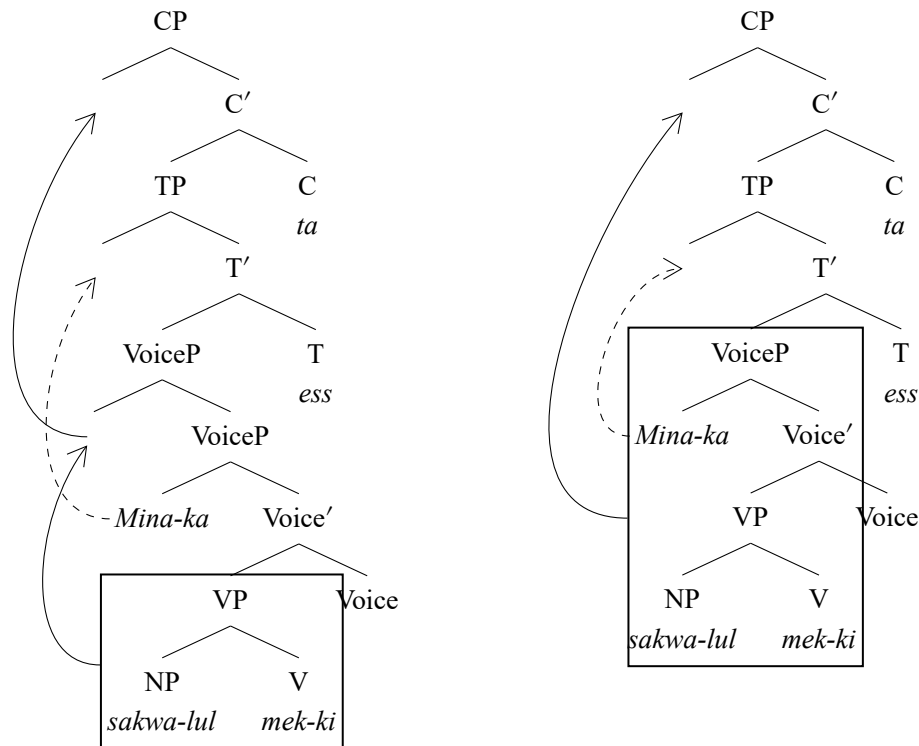
Notice that the subject always moves from Spec, VoiceP to Spec, TP. In section 2.4.1, I argued that the theme subject in a nonactive construction moves to Spec, VoiceP. Nonactive constructions can undergo predicate fronting, too, as shown in (111) with verb-doubling predicate-fronting. (111b) shows the predicate-fronting counterpart of the baseline sentence (111a).

(111) a. Namwusiph-i ttang-ey   ttel-eci-ess-ta.
        leaf-NOM   ground-LOC drop-NACT-PST-DECL
        'The leaf fell to the ground.'

     b. [Ttang-ey   ttel-eci-ki]-nun   namwusiph-i ttel-eci-ess-ta.
        ground-LOC fall-NACT-NMLZ-TOP leaf-NOM   fall-NACT-PST-DECL
        'As for falling to the ground, the leaf did do that.'

This suggests that the theme subject in nonactive constructions also moves to Spec, TP as shown in (110).

    Recall now the generalization from the beginning of the chapter: a subject outside VoiceP correlates with accusative case on the adverbial, while a subject remaining inside VoiceP correlates with nominative case on the adverbial. While nonactive constructions usually allow both nominative and accusative case on the adverbial, we expect predicate-fronted nonactive constructions to only allow accusative adverbials since the subject has moved out of VoiceP. This prediction is borne out. In the baseline unfronted sentence (112a), both nominative and accusative case is available on the

multiplicative adverbial *sey pen*, as we expect for all passive sentences. However, once the VoiceP is fronted, the sentence is grammatical with accusative case (112b) but degraded with nominative case on the adverbial (112c).

(112) a. Kispal-i sey pen-{ul/i} ccic-eci-ess-ta.
        flag-NOM three time-{ACC/NOM} rip-NACT-PST-DECL
        'A/The flag was ripped three times.'

    b. [sey pen-ul ccic-eci-ki]-nun kispal-i ccic-eci-ess-ta.
        three time-ACC rip-PASS-NMLZ-TOP flag-NOM rip-NACT-PST-DECL
        'As for being ripped three times, the flag did do that.'

    c. *[sey pen-i ccic-eci-ki]-nun kispal-i ccic-eci-ess-ta.
        three time-NOM rip-PASS-NMLZ-TOP flag-NOM rip-NACT-PST-DECL

3.1.2 Intervention effects only with nominative adverbial[6]

Another argument for the correlation between adverb case marking and subject position comes from intervention effects that involve negative concord items (NCIs). A scope-bearing subject in a nonactive construction can co-occur with an NCI and NegP when the durative/multiplicative adverbial in the sentence is accusative, but not when it is nominative. This contrast is expected under our correlation. When the adverbial is nominative and the scope-bearing subject at Spec, VoiceP, the subject intervenes between the NCI and Neg; when the adverbial is accusative, the subject raises to a position above Neg and stops intervening. I briefly introduce NCIs and the intervention effect before laying out this argument in more detail.

Korean nominals of the form *amwu-X-to* are characterized as NCIs by Giannakidou & Yoon (2016) and Giannakidou (2020). *X* can be a full-fledged nominal such as *tokwu* 'tool' in (113a) or a light noun such as *tey* 'place' in (113b). Interestingly, if *X* is null as in (113c), it ranges over humans. Hence (113c) means *anyone*. Also note that non-structural case marking (*i.e.*, any case other than nominative or accusative) on *X* appears immediately to the right of *X* and to the left of *to*. In (113a), the instrumental case marker *lo* appears in this spot.

(113) a. amwu-tokwu-lo-to
        AMWU-tool-INS-TO
        'with any tool'

    b. amwu-tey-to
        AMWU-place-TO
        'anywhere'

    c. *amwu-Ø-to*
        AMWU-Ø-TO
        'anyone'

As NCIs, these expressions must be licensed by clausemate negation. However, they do not have to be c-commanded by negation. Subject NCIs such as *amwu-Ø-to* in (114) can c-command short-form negation, which is very local to the verb root. The short-form negation marker *an* in (114) is considered either a prefix to the verb (J.-B. Kim 1999) or a Neg head that forms a complex head with V (Sells 2015).[7]

(114) Amwu-Ø-to cip-ey   an   o-ass-ta.
      AMWU-Ø-TO home-LOC NEG come-PST-DECL
      'Nobody came home.'

However, a scope-bearing element such as the adverb *hangsang* 'always' cannot intervene between an NCI and negation. In (115a), *hangsang* is in a position that c-commands short form negation and is c-commanded by the NCI, hence acting as an intervener. (115a) is ungrammatical due to this intervention effect. On the other hand, (115b) shows long form negation. I follow Sohn (2001) and Sells (2015) in analyzing Korean long-form negation as consisting of a nominalized clause headed by the nominalizer *ci*, which is selected by the Neg head *anh*.[8] Unlike short-form negation, which is considered to be quite low as a prefix or a head, the *anh* of long-form negation is considered to be in a structure similar to NegP of other well-studied languages. Therefore, I locate *anh* at NegP, between VoiceP and TP. Since *hangsang* does not intervene between Neg and the NCI, (115b) is judged grammatical.

(115) (Adapted from Sells & Kim 2006, their (26))

    a. *Amwu-Ø-to hangsang cip-ey   an   o-ass-ta.
       AMWU-Ø-TO always   home-LOC NEG come-PST-DECL
       Intended: 'Nobody always came home.'

    b. Amwu-Ø-to hangsang cip-ey   o-ci   anh-ass-ta.
       AMWU-Ø-TO always   home-LOC come-NMLZ NEG-PST-DECL
       'Nobody always came home.'

The trees presented in (116a) and (116b) are visual representations of the structure of (115a) and (115b), respectively. In (116a), the adverb *hangsang* (boxed) acts as an intervener between the subject NCI and low negation. In (116b), negation is high enough at NegP. As a result, the structure does not suffer from intervention effects by the adverb.[9]

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[7]See also my discussion on object shift in short-form negation sentences in section 2.4.2.

[8]Whether *anh* projects a full NegP or is a Neg head that adjoins to the verb seems to be contested. See Kang (1988), Choi (1993), Sohn (1995), Hong (1998), Lee (2002) among others for various proposals. However, as Choi (2006:fn 16) observes, many researchers agree that the relative hierarchical position of the negated predicate, nominalizer *ci*, and the main clause verb is as shown in (116b).

[9]In (116), I locate the subject *amwu-Ø-to* at Spec, VoiceP. But the point that I make does not hinge on this decision; the subject may as well be at Spec, TP in both trees. The intervention effect holds in (115a) and is absent in (115b) regardless of subject position. This will not be the case in later examples, where I solely discuss long-form negation.

(116) a. *Structure of* (115a)   b. *Structure of* (115b)
  (hangsang *intervenes*)   (*no intervention*)

VoiceP
- NP
  - *amwu-Ø-to*
- Voice′
  - vP
    - AdvP
      - **hangsang*
    - v′
      - NP
        - *cip-ey*
      - v′
        - √P
          - Neg *an*
          - √ *o*
        - v
    - Voice

NegP
- NP
  - VoiceP
    - NP
      - *amwu-Ø-to*
    - Voice′
      - vP
        - AdvP
          - *hangsang*
        - v′
          - NP
            - *cip-ey*
          - v′
            - √P
              - √ *o*
            - v
      - Voice
  - NMLZ *ci*
- Neg *anh*
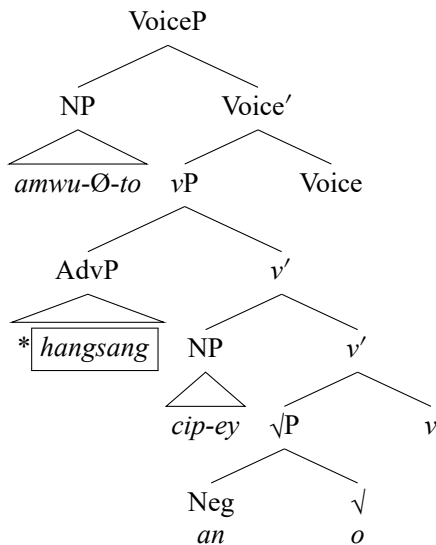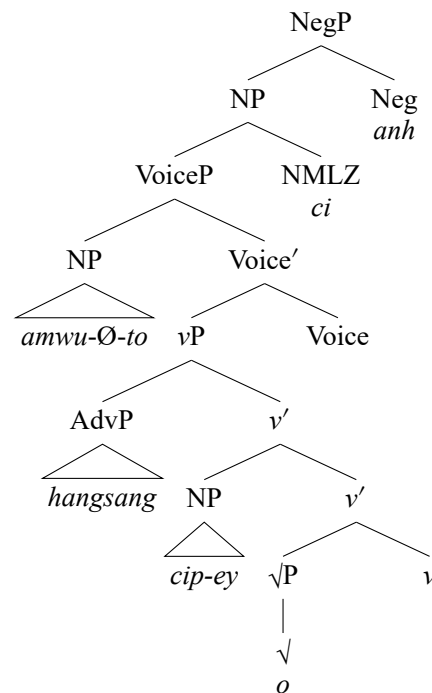
Note that the intervention effect is independent of the structural difference between short-form and long-form negation. Both (117a) and (117b) are ditransitive sentences, where the indirect object merges higher than the direct object.[10] Both sentences also include long-form negation, an NCI, and the scope-bearing universal quantifier *motun* 'every'. In (117a), the indirect object is the NCI and the direct object contains *motun*. Therefore, *motun* does not intervene between negation and the NCI and the sentence is grammatical. On the other hand, in (117b) the direct object is the NCI and the indirect object contains *motun*. Hence, the indirect object acts as an intervener between the NCI and negation.

(117) a. Mina-ka   amwu-Ø-eykey-to caki-uy motun pimil-ul   malha-ci anh-ass-ta.
     Mina-NOM AMWU-Ø-DAT-TO   self-GEN every secret-ACC say-NMLZ NEG-PST-DECL
     'There is no person x such that Mina told x all of her secrets.'
   b. *Mina-ka   caki-uy motun chinkwu-eykey amwu-pimil-to   malha-ci anh-ass-ta.
     Mina-NOM self-GEN every friend-DAT   AMWU-secret-TO say-NMLZ NEG-PST-DECL
     Intended: 'No secret is such that Mina told it to all of her friends.'

In explaining the intervention effect, Sells & Kim (2006) adopt Kwang-sup Kim's (1999) *Generalized Immediate Scope Constraint* (GISC), which in turn is an extension of Linebarger's (1987) *Immediate Scope Constraint*. I adopt Sells and Kim's version of the GISC which I have cited in

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[10]See footnote 7, chapter 2.

(118), only replacing their terminology *NPI* with *NCI*.

(118) *Generalized Immediate Scope Constraint* (Sells & Kim 2006:278)
  An NCI and negation are in an immediate scope relation with each other.

The ungrammaticality of (115a) follows from (118): the NCI *amwu-Ø-to* and negation *an* are not in an immediate scope relation since *hangsang*, a scope-bearing element, intervenes between the two.

  Now let us return to durative/multiplicative adverbials. Example (119) contains the scope-bearing object *motun kulim* and the durative adverbial *sam nyen-ul* 'three years.ACC'. Since the sentence is transitive, the adverbial can only be marked accusative.

(119) Khyuleyithe-ka motun kulim-ul sam nyen-ul senpoi-ess-ta.
   curator-NOM every painting-ACC three year-ACC display-PST-DECL
   'The curator displayed every painting for three years.'

(120) shows the nonactive counterpart sentences of (119). As expected for Korean nonactive sentences, the adverbial *sam nyen* can either be nominative-marked as in (120a) or accusative-marked as in (120b).

(120) a. Motun kulim-i sam nyen-**i** senpoi-eci-ess-ta.
     every painting-NOM three year-**NOM** display-NACT-PST-DECL

   b. Motun kulim-i sam nyen-**ul** senpoi-eci-ess-ta.
     every painting-NOM three year-**ACC** display-NACT-PST-DECL
     'Every painting was displayed for three years.'

Example (121) is the negated counterpart of (119). Since there is negation in the sentence, it can license the NCI *amwu-tey-to*. The durative adverbial *sam nyen* can only get accusative case since the sentence is active.

(121) Khyuleyithe-ka amwu-tey-to motun kulim-ul sam nyen-ul senpoi-ci
   curator-NOM anywhere every painting-ACC three year-ACC display-NMLZ
   anh-ass-ta.
   NEG-PST-DECL
   'There is no place x such that the curator displayed every painting for three years in x.'

Example (122) shows the nonactive counterpart of (121). Recall that in (120), both case options were equally possible due to the sentence being nonactive. In contrast, (121) is more acceptable with the accusative-marked adverbial as in (122b). Out of five native speakers I consulted, four of them prefer (122b) over (122a) to varying degrees.

(122) a. %Motun kulim-i   amwu-tey-to sam nyen-**i**   senpoi-eci-ci   anh-ass-ta.
       every painting-NOM anywhere   three year-**NOM** display-PASS-NMLZ NEG-PST-DECL

    b. Motun kulim-i   amwu-tey-to sam nyen-**ul**   senpoi-eci-ci   anh-ass-ta.
       every painting-NOM anywhere   three year-**ACC** display-PASS-NMLZ -NEG-PST-DECL
       'Every painting is such that they weren't displayed anywhere for three years.'

The contrast between (122a) and (122b) can be explained if the subject of (122a) is at Spec, VoiceP while the subject of (122b) is at Spec, TP. The trees in (123a, b) show the structures of (122a, b) respectively. In (123a), the theme subject *motun kulim* 'every painting' at Spec, VoiceP is in a position to intervene between the NCI, adjoined to VP, and long-form negation at Neg. This intervention leads to degraded judgment of (122a). In (123b), the subject has moved further to Spec, TP, which is a position higher than NegP. Therefore, the subject does not intervene anymore between the NCI and negation. With the intervention effect gone, the sentence is judged grammatical.

(123) a. *Structure of* (122a)   b. *Structure of* (122b)
      (*Intervention occurs*)   (*No intervention*)
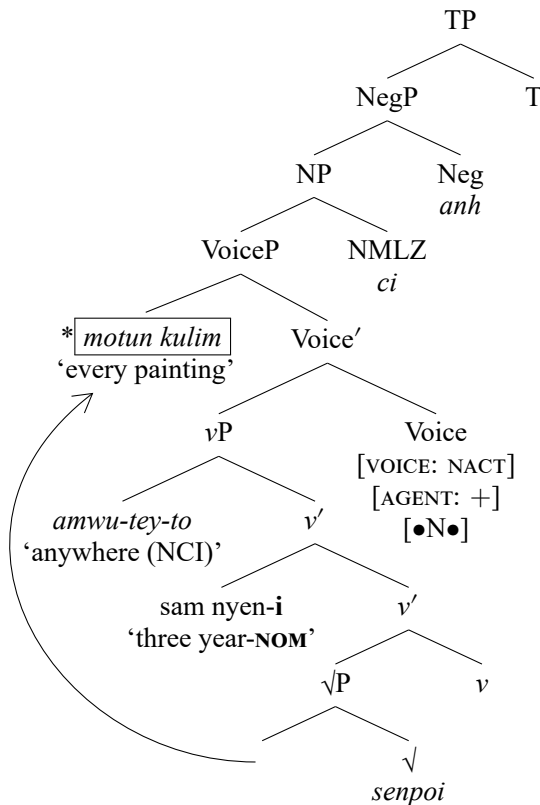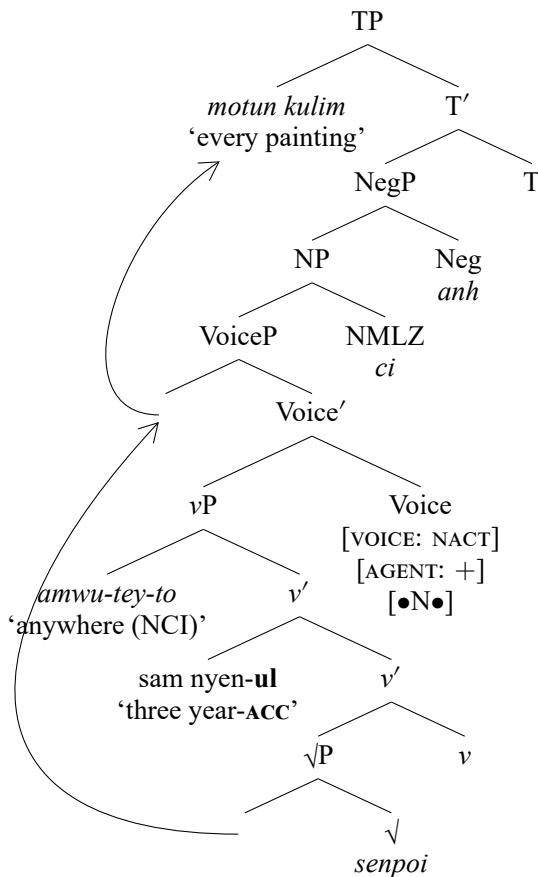
Hence, the position of the theme subject is crucial in explaining the contrast between (122a) and (122b). The two sentences minimally differ in case marking on the adverbial. Therefore, this

contrast provides another argument for the correlation between case on the adverbial and position of the subject. In (123a), the adverbial is nominative and the scope-bearing theme subject at Spec, VoiceP. In (123b), the adverbial is accusative and the theme subject has moved out of Spec, VoiceP to Spec, TP.

3.1.3 Relative scope of indefinite subject and multiplicative adverbials

The last argument in support of the correlation comes from a semantic contrast in the interpretation of subjects in sentences with multiplicative adverbials. Compare the translation of (124a) and (124b). (See Lee 2017; Kim 2018, 2019 for earlier discussion of similar examples.)

(124) a. Totwuk-i khameyla-ey twu pen-**i** pichwu-eci-ess-ta.
thief-NOM camera-LOC two time-NOM film-NACT-PST-DECL
'It happened twice that a thief was filmed on camera.'

b. Totwuk-i khameyla-ey twu pen-**ul** pichwu-eci-ess-ta.
thief-NOM camera-LOC two time-ACC film-NACT-PST-DECL
'A certain thief was filmed twice on camera.'

These sentences minimally differ in the case marking of the adverbial *twu pen* 'two times'. However, utterance of (124a) is felicitous in a situation where two different thieves were each filmed once or in a situation where the same thief was filmed twice.

Building on Lee's (2017) analysis of similar examples, I present a rough sketch of the logical forms of (124a) and (124b) as (125a) and (125b), respectively.[11] The predicate *event** here states that its argument is a semi-lattice on events in the sense of Link (1983).

(125) (*Adapted from* Lee 2017:10)

a. $\exists y(|y| = 2 \land \text{event*}(y) \land \forall e'(e' \subseteq y \to (\exists x(\text{thief}(x) \land \text{filmed-on-camera}(e', x)))))$
b. $\exists x(\text{thief}(x) \land \exists y(|y| = 2 \land \text{event*}(y) \land \forall e'(e' \subseteq y \to \text{filmed-on-camera}(e', x))))$

In (125a), introduction of the thief ($\exists x(\text{thief}(x) \dots)$) is part of the description of the sub-event e' that makes up the complex event y (whose cardinality is 2). Hence, (124a) can be true either when two different thieves were filmed on camera, or when the same thief is filmed on camera twice. On the other hand, the thief is introduced as an individual independent of the event description in (125b). (125b) is true only if there exists a thief x who is a participant of a complex event of being filmed twice on camera, thereby limiting the truth conditions of the sentence to situations where the same thief is filmed twice.

For Lee, the fact that case marking on the adverbial *twu pen* is sensitive to such semantic con-

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[11]While Lee is not explicit about her theoretical assumptions about event semantics, her LF representations are suggestive of Davidsonian event semantics (Davidson 1967); I also adopt a Davidsonian representation.

trasts is an argument against a syntactic analysis of case marking on durative/multiplicative adverbials. She proposes that the case marking reflects semantic properties of the subject such as prominence or animacy. In this section, I demonstrate that a syntactic analysis is in fact possible. I argue that the (124a) and (124b) have different interpretations because the theme subject *totwuk* 'thief' occupies different syntactic positions in these sentences. Evidence will come from the fact that the subject of (124a) gets an existential interpretation while the subject of (124b) gets a presupposed interpretation; I diagnose the two readings with tests originally put forth by von Fintel (1998).

The crucial link which connects the semantics and the syntax is Diesing's (1992) Mapping Hypothesis, which is a syntactic implementation of Heim's (1982) restricted quantifier analysis of indefinites.[12] (See Kamp (1981) for a similar analysis; I follow Heim's terminology here.) Heim views sentences with indefinite subjects as comprising of three parts: an unselective quantifier, the restrictive clause which the quantifier ranges over, and the nuclear scope. The rule of *Existential Closure* states that there is an existential quantifier that scopes over the nuclear scope. Any indefinite NP that remains within the nuclear scope is bound by this existential quantifier and receives an *existential interpretation*. Meanwhile, NPs that raise out of the nuclear scope to form the restrictive clause escape the scope of the existential quantifier and is understood to receive a *presupposed interpretation*.

Diesing maps Heim's nuclear scope to what would nowadays be called VoiceP in the syntax.[13] An indefinite NP that remains within VoiceP remains within the nuclear scope, and hence receives an existential interpretation. An indefinite NP that moves out of VoiceP escapes the nuclear scope and receives a presupposed interpretation.

I contend that the subject of (124a) is receiving an existential interpretation as the result of remaining within VoiceP, while the subject of (124b) is receiving a presupposed interpretation after moving out of VoiceP. In making this argument, I borrow von Fintel's (1998) arguments for similar examples of English. He points out that the existence of mistakes is presupposed when uttering (126b) but not when uttering (126a).

(126)   (von Fintel 1998:1)

    a.   There are some major mistakes in this manuscript.

    b.   Some mistakes in this manuscript are major.

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[12]Chung (2016) has made a similar connection between the position of nominative-marked NPs (VoiceP-internal versus VoiceP-external) and their interpretation by building on Diesing's Mapping Hypothesis. I refer the reader to his dissertation for arguments that VoiceP-external NPs show an exhaustive and specific reading.

[13]Diesing actually maps the nuclear scope to "VP". But in fact, she is mapping the nuclear scope to the projection where the external argument subject is introduced, if the structure includes such a subject. Therefore, I understand Diesing to be mapping the nuclear scope to the thematic domain, where all event participants are introduced.

He demonstrates that the presupposition projects from environments such as the antecedent of conditionals and polar questions, which are known to be presupposition-projecting environments. First consider the antecedent of conditionals, presented in (127). (127a) and (127b) contain (126a) and (126b) inside the antecedent of a conditional, respectively. The context sentence explicitly states the speakers' ignorance about whether there are mistakes in the manuscript, thereby precluding the speaker from assuming the existence of mistakes. (127a) is a felicitous continuation in this context while (127b) leads to awkwardness.

(127)   (von Fintel 1998:9–10)
        I'm not sure yet whether there are any mistakes at all in this book manuscript, but we can definitely not publish it...
        a.   if there turn out to be {some/more than a few/a significant number of} major mistakes in there.
        b.   #if {some/more than a few/a significant number of} mistakes are major.

The awkwardness can be attributed to the clash between the speaker's asserted ignorance of whether there are mistakes and the implication of the existence of mistakes triggered in (127b). Hence the existential implication projects from the antecedent of a conditional, an environment where presupposition is known to project from.

    Example (128) presents a similar test based on polar questions. Consider (128a) and (128b) in the same context as (127). The former, but not the latter, is a felicitous question in this context. The infelicity of (128b) again stems from the clash between the existence presupposition projected from the polar question and the asserted ignorance of the speaker of the context sentence.

(128)   (von Fintel 1998:8)
        a.   Are there {any/more than a few/a significant number of} major mistakes in this manuscript?
        b.   Are {some/more than a few/a significant number of} mistakes in this manuscript major?

    I apply these two tests to Korean (124). By doing so, I argue that the existence of a thief is presupposed when uttering (124b), but not when uttering (124a). Consider the following scenario in (129), and John's potential utterances in this situation shown in (130–131). (131a) and (131b) are two possible continuations of (130), and contains (124a) and (124b) inside the antecedent of a conditional respectively. In this situation, John can felicitously utter (131a) but not (131b) after (130).

(129)   *A bank's high-tech security camera sends an email alert to John if it films a person twice inside the building during closed hours. One morning, John comes to the bank and finds signs of intrusion. He is surprised, because he didn't receive any alert.*

(130) Ecey   totwuk-i   kenmwul-ey tul-ess-nunci molu-ciman   ...
      yesterday thief-NOM building-LOC enter-PST-Q   not.know-but ...
      'I don't know whether a thief entered the building yesterday, but ...'

(131) a. Khameyla-ey totwuk-i   twu pen-**i**   pichwu-eci-ess-ta-myen   alim-i
          camera-LOC   thief-NOM two time-**NOM** film-PASS-PST-DECL-COND alert-NOM
          o-ass-ulkesi-ta.
          come-PST-MOD-DECL
          'If it happened that a thief was filmed twice on camera, an alert would have arrived.'

      b. #Khameyla-ey totwuk-i   twu pen-**ul**   pichwu-eci-ess-ta-myen   alim-i
          camera-LOC   thief-NOM two time-**ACC** film-PASS-PST-DECL-COND alert-NOM
          o-ass-ulkesi-ta.
          come-PST-MOD-DECL
          'If a certain thief was filmed twice on camera, an alert would have arrived.'

(130), like the context sentence of (127), asserts John's ignorance about whether there exists a thief that entered the building yesterday. This asserted ignorance clashes with the presupposition that there exists a thief, projected from the antecedent of (131b).

Now consider polar questions presented in (132). In the situation depicted in (129), it would be natural for John to ask (132a) but not (132b). Again, the projected presupposition of the existence of a thief in (132b) clashes with John's ignorance.

(132) a. Khameyla-ey totwuk-i   twu pen-**i**   pichwu-eci-ess-ni?
          camera-LOC   thief-NOM two time-**NOM** film-PASS-PST-INT
          'Did it happen twice that a thief was filmed on camera?'

      b. #Khameyla-ey totwuk-i   twu pen-**ul**   pichwu-eci-ess-ni?
          camera-LOC   thief-NOM two time-**ACC** film-PASS-PST-INT
          'Was a certain thief filmed twice on camera?'

A different scenario is presented in (133). Unlike in (129), where John is uncertain about the existence of thieves, John is aware of the existence of a locking device in the bank.

(133) *In addition to the security camera, there is also a locking device that locks safes in the bank that John works for. The device being turned off three times is another trigger for an email alert to John. John is aware of the existence of this locking device.*

In this situation, John can felicitously utter either (134a) or (134b). The presupposed existence of the locking device projected from the antecedent of (134b) does not clash with the situation described in (133). (134a) is also compatible, since it simply lacks the presupposition.

(134) a. Camkum cangchi-ka sey pen-**i**   kku-eci-ess-ta-myen   alim-i
          locking   device-NOM three time-**NOM** turn.off-PASS-PST-DECL-COND alert-NOM

o-ass-ulkesi-ta.
come-PST-MOD-DECL
'If it happened three times that a locking device is turned off, an alert would have arrived.'

b. Camkum cangchi-ka sey pen-**ul** kku-eci-ess-ta-myen alim-i
locking device-NOM three time-**ACC** turn.off-PASS-PST-DECL-COND alert-NOM
o-ass-ulkesi-ta.
come-PST-MOD-DECL
'If a locking device was turned off three times, an alert would have arrived.'

Similarly, it is natural for John to ask either (135a) or (135b) to a colleague.

(135) a. Camkum cangchi-ka sey pen-**i** kku-eci-ess-ni?
locking device-NOM three time-**NOM** turn.off-PASS-PST-DECL
'Did it happen three times that a locking device was turned off?'

b. Camkum cangchi-ka sey pen-**ul** kku-eci-ess-ni?
locking device-NOM three time-**ACC** turn.off-PASS-PST-DECL
'Was a locking device turned off three times?'

To summarize the findings shown by (129–135), an indefinite subject of a sentence that contains a nominative-marked multiplicative adverbial receives an existential reading which does not trigger any presupposition. Meanwhile, an indefinite subject of a sentence that contains an accusative-marked multiplicative adverbial receives a presupposed reading. Under the Mapping Hypothesis, this would mean that the former remains within VoiceP while the latter moves out of VoiceP.

Let us return to the semantic contrast highlighted in the beginning of this section. (125a) and (125b) were presented as the logical forms of (124a) and (124b), repeated below. The two different truth conditions of the sentences were attributed to introduction of the thief ($\exists x(\text{thief}(x)\,...)$) being in different positions relative to the event description.

(124) a. Totwuk-i khameyla-ey twu pen-i pichwu-eci-ess-ta.
thief-NOM camera-LOC two time-NOM film-PASS-PST-DECL
'It happened twice that a thief was filmed on camera.'

b. Totwuk-i khameyla-ey twu pen-ul pichwu-eci-ess-ta.
thief-NOM camera-LOC two time-ACC film-PASS-PST-DECL
'A certain thief was filmed twice on camera.'

(125) (*Adapted from* Lee 2017:10)

a. $\exists y(|y| = 2 \wedge \text{event*}(y) \wedge \forall e'(e' \subseteq y \rightarrow (\exists x(\text{thief}(x) \wedge \text{filmed-on-camera}(e', x)))))$
b. $\exists x(\text{thief}(x) \wedge \exists y(|y| = 2 \wedge \text{event*}(y) \wedge \forall e'(e' \subseteq y \rightarrow \text{filmed-on-camera}(e', x))))$

The expression $\exists x(\text{thief}(x)\,...)$ being introduced in different positions is expected under my analysis. In Kratzer's (1996) widely accepted framework of argument structure, the VoiceP denotes a

property of events. For the sentences in (124), y is the (complex) event denoted by the VoiceP. If an indefinite subject remains within VoiceP until the syntactic structure is spelled out to LF, it would be interpreted within the scope of the denotation of VoiceP; hence, the subject *thief* is introduced within the event description in (125a). In contrast, a subject that moves out of VoiceP is expected to be interpreted outside of the scope of the event description, as shown in (125b).

I conclude this section by highlighting a striking fact about transitive and unergative sentences which follows from my analysis. A durative/multiplicative adverbial in a transitive or unergative sentence is always marked accusative. If my analysis is on the right track, this would mean that the subject in these sentences always escapes the nuclear scope and receives a presupposed reading. This would also mean that the subject would show wide scope in relation to the adverbial. This expectation is indeed borne out, as shown in (136). The subjects here can only scope over the multiplicative adverbials, which is surprising given the unlikeliness of their truth conditions.

(136) a. Sonnim-i   kwaca-lul yel pen-ul   sa-ss-ta.
            customer-NOM snack-ACC ten time-ACC buy-PST-DECL
            'A (specific) customer bought snacks ten times.'

       b. Sungkayk-i   yel pen-ul   hanguyha-yess-ta.
            passenger-NOM ten time-ACC complain-PST-DECL
            'A (specific) passenger complained ten times.'

Example (136a) is true if and only if the same customer bought snacks ten times. It cannot mean that more than one customer bought snacks multiple times, resulting in a total of ten snack-buying events (*e.g.,* if two customers bought snacks four times each, and a third customer bought snacks twice.) Similarly, (136b) is true if and only if the same passenger complained ten times. It cannot simply mean that there were a total of ten complaining events, potentially by different passengers.

I conclude this section by addressing the view of Lee (2017) and Kim & Sells (2010), who take scope effects like that shown in (124) as an indication that a syntactic analysis is insufficient for case on durative/multiplicative adverbials. As mentioned in section 1.2, Lee (2017) argues that the case on the adverbial reflects whether the subject is more or less prominent than the event. Similarly, Kim & Sells (2010) argue against a purely syntactic analysis of case on adverbials because case seems to be sensitive to eventual properties of the sentence. For them, a sentence with a nominative adverbial like (124a) expresses a *thetic judgment* while (124b) expresses a *categorical judgment*. A thetic judgment puts the entire event under focus, including the subject. A categorical judgment consists of two parts: it first acknowledges the existence of the reference of the subject, and then either confirms or denies the predicate as it applies to the subject (Kuroda 1972).[14]

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[14]The original use of the terms *thetic* and *categorical* are credited to the philosophers Franz Brentano and Anton Marty. Kuroda (1972, 2005), Sasse (1987), von Fintel (1989) and McNally (1998) among others have discussed these concepts within the framework of theoretical linguistics.

While the observations made by these authors are very important, their discoveries do not necessarily entail that a syntactic analysis is insufficient. As we have seen in this section, theories about the syntax-semantics interface allow us to capture the correlation between case on adverbials and certain semantic properties with a syntactic theory. With Diesing's (1992) Mapping Hypothesis, we were able to derive the contrast in (125) from the position of the subject. Similarly, von Fintel (1989) has suggested that the subject in a thetic judgment remains as a "VP-internal subject" while the subject of a categorical judgment escapes VP and moves to a higher position in the TP area. Once we take into consideration these theories of the syntax-semantics interface, the semantic observations by Lee (2017) and Kim & Sells (2010) are not counterarguments against a syntactic case analysis but arguments in favor of it.

3.1.4   Interim summary

I have presented evidence from predicate fronting, NCI intervention, and the contrast between presupposed and existential readings of indefinite subjects that the case marking on the durative/multiplicative adverbial correlates with position of the subject. If the adverbial is marked accusative, this means that the subject has moved out of VoiceP. If the adverbial is marked nominative, the subject has remained inside VoiceP.

Kim (2018, 2019) has argued in favor of a different generalization. For her, an accusative-marked adverbial merges inside VoiceP while a nominative-marked adverbial merges outside VoiceP. I provide arguments against this alternative generalization in section 3.2 below.

3.2   The adverb stays put: Against an alternative theory

I have established in section 3.1 that the position of the theme subject varies in correlation with the case marking on the durative/multiplicative adverbial. The syntactic position of the adverbial, on the other hand, is held constant. As I argued in section 2.3, durative/multiplicative adverbials are event-internal adverbials that merge at the *v*P level, below Voice. However, Kim (2019) argues that the *adverbial* externally merges in different positions depending on its case marking. More specifically, she argues that the nominative adverbial merges above VoiceP while the accusative adverbial merges below VoiceP.[15] Her proposal builds on that by Zhang (2017), who identifies two different tiers of Mandarin verbal classifiers: event-counting, and occasion-counting.[16] Zhang explains that

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[15]In her earlier work (Kim 2018), Kim proposed that the adverbial merges below the subject but raises to Spec, VoiceP to have its accusative case licensed by Voice. She does not reference this proposal in her 2019 paper. Since my counterarguments show that the adverb merges below VoiceP and remains there (modulo optional scrambling), my counterarguments against Kim (2019) also constitute counterarguments against Kim (2018).

[16]I am borrowing the terms *event-counting* and *occasion-counting* from Guo & Ye (2023). Zhang's original terminology is *event-internal* instead of event-counting, and *event-external* instead of occasion-counting. Since I adopt the

event-counting classifiers count how many times an action was repeated within a single occasion, while occasion-counting classifiers count the repetition of events across multiple occasions. She proposes that event-counting verbal classifiers externally merge below the subject, while occasion-counting classifiers externally merge above the subject. Kim equates Korean nominative adverbials with Mandarin occasion-counting classifiers and Korean accusative adverbials with event-counting classifiers, as schematically represented in (137).

(137)   *Kim's alternative theory* (Adapted from Kim 2019:145 and Zhang 2017)

  a. *Nominative adverbial / Occasion-counting classifier*

   [... [UnitP^{external} **Adverbial** [$_{VoiceP}$ Subject ... [vP ...]]]]

  b. *Accusative adverbial / Event-counting classifier*

   [... [$_{VoiceP}$ Subject [UnitP^{internal} **Adverbial** [vP ...]]]]

In this section, I present four arguments that pose a challenge for Kim's alternative theory. The first three arguments highlight facts that cannot be straightforwardly explained under Kim's theory. The last argument identifies three semantic predictions that arise from Kim's theory, and demonstrates that these predictions are not met. Kim treats nominative adverbials on a par with occasion-counting classifiers, and accusative adverbials on a par with event-counting classifiers. If Kim's approach was on the right track, we would expect nominative adverbials to behave as Mandarin occasion-counting classifiers do, and accusative adverbials to behave as event-counting classifiers do. I will demonstrate that these predictions are not met, which casts doubt on Kim's parallelism between the occasion-counting/event-counting divide and the nominative/accusative divide.

3.2.1 Nominative adverbials behave as event-internal adverbials

In section 2.3.3, I argued that durative/multiplicative adverbials are event-internal. One of the arguments made in that section was that these adverbials can conjoin with other event-internal adverbs such as manner adverbs as in (76), but not with event-external adverbs as in (77). The examples are repeated below.

(76) a. Mina-ka kiphi kuliko manhun sikan-ul ca-ss-ta.
    Mina-NOM deeply and many hour-ACC sleep-PST-DECL
    'Mina slept deeply and for many hours.'

  b. Mina-ka sikkulepkey kuliko yele pen-ul solichi-ess-ta.
    Mina-NOM loudly   and several time-ACC shout-PST-DECL
    'Mina shouted loudly and several times.'

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phrase *event-internal adverb* from Frey (2000) to refer to VoiceP-internal adverbs such as manner adverbs, I replaced Zhang's terminologies with Guo and Ye's.

(77) a. *Mina-ka   anthakkapkey kuliko yel sikan-ul   ca-ss-ta.
      Mina-NOM anthakkapkey and   ten hour-ACC sleep-PST-DECL
      * 'Mina slept regretfully and for ten hours.'

   b. *Mina-ka   pwunmyenghi kuliko yel pen-ul   solichi-ess-ta.
      Mina-NOM evidently   and   ten time-ACC shout-PST-DECL
      'Mina shouted evidently and ten times.'

The examples involved all featured accusative adverbials simply because the examples were unergative sentences which only allow the accusative adverbial. But this argument readily applies to nominative adverbials, too. In (138), we see two nonactive sentences. (138a) features the durative adverbial *han sikan* 'one hour', and (138b) features the multiplicative adverbial *tases pen* 'five times'. The adverbs can conjoin with manner adverbs such as *cilwuhakey* 'tediously' or *sikkulepkey* 'loudly', regardless of whether they bear nominative or accusative case.

(138) a. Yensel-i   cilwuhakey kuliko han sikan-{i/ul}   is-eci-ess-ta.
         speech-NOM tediously   and   one hour-{NOM/ACC} continue-NACT-PST-DECL
         'The speech was continued tediously and for one hour.'

   b. Saileyn-i   sikkulepkey kuliko tases pen-{i/ul}   thul-eci-ess-ta.
      siren-NOM loudly   and   five time-{NOM/ACC} play-NACT-PST-DECL
      'Sirens were played loudly and five times.'

The sentences in (139) minimally differ from those in (138) by featuring event-external, evaluative adverbs such as *anthakkapkey* 'regrettably' and *tahaynghi* 'fortunately' instead of event-internal ones. This difference makes the sentences in (139) ungrammatical.

(139) a. *Yensel-i   anthakkapkey kuliko han sikan-{i/ul}   is-eci-ess-ta.
         speech-NOM regretfully   and   one hour-{NOM/ACC} continue-NACT-PST-DECL
         * 'The speech was continued regretfully and for one hour.'

   b. *Saileyn-i   tahaynghi kuliko tases pen-{i/ul}   thul-eci-ess-ta.
      siren-NOM fortunately and   five time-{NOM/ACC} play-NACT-PST-DECL
      * 'Sirens were played fortunately and five times.'

In section 2.3.3, we have seen that event-internal adverbs and event-external adverbs cannot be conjoined. The contrast of (138) and (139) show that durative/multiplicative adverbials in nonactive sentences can only be conjoined with event-internal adverbs. Thus, we conclude once again that the durative/multiplicative adverbials are event-internal – even the nominative-marked ones that appear in nonactive sentences.

The fact that nominative-marked durative/multiplicative adverbials behave as event-internal adverbs is not compatible with Kim's theory that nominative-marked adverbials merge above VoiceP. Speaker-oriented evaluative adverbs such as *anthakkapkey* and *tahaynghi* of (139) are understood to merge at a position that c-commands "the base positions of all arguments and of all other adjuncts

(except of discourse-oriented adjuncts)" (Frey 2000:110). Therefore, if the nominative adverbials did truly merge above VoiceP, it would have probably been of the same category as these evaluative adverbs and would have been able to conjoin with these adverbs. But the behavior of the nominative adverbials suggest that they are of the same status as the accusative adverbials: merging inside VoiceP as event-internal adverbs.

3.2.2 Intervention of negative concord item licensing

In section 3.1.2, I explained why an intervention effect arises in (122a) but not in (122b) (repeated below). Recall that the NCI *amwu-tey-to* must be in the immediate scope of negation, its licensor. If a scope-bearing element intervenes between the NCI and negation, this results in ungrammaticality.

(122) a. %Motun kulim-i   amwu-tey-to sam nyen-**i**   senpoi-eci-ci   anh-ass-ta.
           every painting-NOM anywhere   three year-**NOM** display-PASS-NMLZ NEG-PST-DECL

       b. Motun kulim-i   amwu-tey-to sam nyen-**ul** senpoi-eci-ci   anh-ass-ta.
          every painting-NOM anywhere   three year-**ACC** display-PASS-NMLZ NEG-PST-DECL
          'Every painting is such that they weren't displayed anywhere for three years.'

As shown in (123), Spec, VoiceP is a position that c-commands *amwu-tey-to* and is c-commanded by the Neg head. In other words, if a scope-bearing element such as *motun kulim* is at Spec, VoiceP, it will behave as an intervener and trigger intervention effects. In (122a), where the adverbial is nominative, *motun kulim* is indeed at Spec, VoiceP; therefore, the sentence is judged marginal by four out of five native speakers consulted. In (122b), where the adverbial is accusative, *motun kulim* has moved further to Spec, TP and is not in a position to intervene anymore. Therefore, the sentence is acceptable.

If the difference between (122a) and (122b) was the position of the adverbial and not the position of the subject, the contrast between (122a) and (122b) would be very difficult to explain since the position of the adverbial does not affect NCI licensing at all. Of course, Kim's theory does not preclude movement of the subject.[17] Even if Kim's theory was correct, it is possible for the subject to be at Spec, VoiceP in (122a) and at Spec, TP in (122b).

But her theory does not predict a reliable correlation between the case on the adverbial and the acceptability of the sentence. Under Kim's theory, it is not expected that the subject *always* be at Spec, VoiceP in (122a); the subject could be at Spec, VoiceP or Spec, TP depending on other independent factors in the structure. Had this been the case, we would not expect (122a) to reliably show intervention effects. Similarly, nothing about Kim's theory predicts that the subject will reliably be at a non-intervening position in (122b). Therefore, it is not guaranteed that the sentence would be fully grammatical. In short, it is difficult to explain with Kim's alternative theory the fact

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[17]In fact, she alludes to an EPP requirement on T similar to my proposal in section 3.1.4.

that NCI intervention occurs when the adverbial is nominative-marked but does not occur when the adverbial is accusative-marked.

3.2.3 Internal arguments scope over nominative (and accusative) adverbials

According to (137), a nominative adverbial merges at a position higher than VoiceP. Subsequently, a nominative adverbial is expected to outscope any VoiceP-internal arguments and adjuncts. In order to test the prediction, I consulted two native speakers about their judgments on the truth conditions of minimal pairs of sentences. The speakers' judgments converged and suggested that neither nominative adverbial nor accusative adverbial outscopes internal arguments, in contradiction with Kim's predictions. Furthermore, the speakers' judgments provided additional confirmation for my conclusion from section 3.1.3: an indefinite subject outscopes the event when the adverb is accusative, and scopes under the event when the adverb is nominative.

Example (140) shows two nonactive ditransitive sentences with the goal argument *sey haksayng-eykey* 'three students-DAT'. (140a) features the nominative adverbial *twu pen-i* 'two times-NOM', while the (140a) features the accusative adverbial 'two times-ACC'.

(140) a. Kulim-i   sey haksayng-eykey twu pen-i   poi-eci-ess-ta.
        painting-NOM three student-DAT   two time-NOM show-NACT-PST-DECL
        'A painting was shown to three students twice.'
      b. Kulim-i   sey haksayng-eykey twu pen-ul   poi-eci-ess-ta.
        painting-NOM three student-DAT   two time-NOM show-NACT-PST-DECL
        'A painting was shown to three students twice.'

According to Kim's prediction, 'two times-NOM' should outscope phrases that merge inside VoiceP. (141) shows that 'three students' can appear inside the resultative *key*-clause, a VoiceP-sized small clause. This suggests that 'three students' indeed merge inside VoiceP.

(141) Mina-ka [pang-i   sey haksayng-eykey poi-eci-key]   mwun-ul yel-ess-ta.
      Mina-NOM room-NOM three student-DAT   show-NACT-KEY door-ACC open-PST-DECL
      'Mina opened the door to the extent that the room would be visible to the three students.'

Given that 'three students' is VoiceP-internal, it is expected under Kim's theory to be outscoped by 'two times-NOM'. (As for 'two times-ACC', Kim and I both expect it to be able to scope under VoiceP-internal elements.) In order to test this prediction, I consulted two native speakers of Korean. I asked them whether (140a) and (140b) can be true in the following four situations listed in (142). The semantic configurations reflected in each situation is explained in parentheses.

(142) *Four possible situations for* (140):
      There are two paintings, P_1 and P_2. There are six students, $S_1, S_2, S_3, S_4, S_5, S_6$.

a. P_1 was shown twice to S_1, S_2, S_3.
   (*three students* > *two times*; *painting* does not necessarily scope under the event)
b. P_1 was shown once to S_1, S_2, S_3, and P_2 was shown once to S_1, S_2, S_3.
   (*three students* > *two times*; *painting* scopes under the event)
c. P_1 was shown once to S_1, S_2, S_3, and was shown once to S_4, S_5, S_6.
   (*two times* > *three students*; *painting* does not necessarily scope under the event)
d. P_1 was shown once to S_1, S_2, S_3, and P_2 was shown once to S_4, S_5, S_6.
   (*two times* > *three students*; *painting* scopes under the event)

Two predictions can be tested with the set of four situations. The first prediction to be tested concerns our main question at hand: Does 'two times' outscope 'three students'? If 'two times' can outscope 'three students', we expect a sentence to be true when six different students saw a painting. In other words, we expect the two painting-showing events to be able to involve two different groups of three students. (142c) and (142d) are the situations that correspond to this reading. On the other hand, if 'three students' can outscope 'two times', we expect a sentence to be true when the same group of three students saw a painting twice. (142a) and (142b) are the situations that correspond to this reading. The second prediction to be tested is related to the presupposed versus existential reading of indefinite subjects discussed in section 3.1.3. If the subject escapes Existential Closure (Diesing 1992b), it is expected to outscope the event. (142a) and (142c) are the situations that reflect this: the same painting participates in both events. In contrast, if the subject does not escape Existential Closure, there would be no restriction on the interpretation of the subject. (Note that it *is* possible, although not necessary, for the same painting to be shown in both events even if the subject scopes under the event.)

My judgments as well as that of the two native speaker consultants converged regarding both predictions. Regarding the first prediction, we all ruled out (142c) and (142d) for both sentences (140a) and (140b). In other words, the only reading available to us was one where 'three students' outscope 'two times' regardless of the case marking on 'two times'. This judgment is expected under my theory, but difficult to explain under Kim's theory. In section 2.3, I argued that both nominative and accusative adverbials merge as adjuncts to vP, a projection lower than ApplP. Therefore, it is not surprising that both nominative and accusative adverbials scope under an argument at Spec, ApplP. For Kim, who locates accusative adverbials inside VoiceP, the fact that 'three students' outscopes accusative 'two times-ACC' in (140b) could be unexpected but not too surprising. What is most problematic for Kim's theory is the fact that 'two times-NOM' in (140a) *also* scopes under 'three students.' For Kim, 'two times-NOM' is expected to scope over the event denoted by VoiceP as well as any VoiceP-internal argument. But the judgments of native speakers suggest not only that 'two times-NOM' *can* scope under 'three students' (as evidenced by acceptance of (142a)) and (142b)) but that it *must* scope under 'three students' (as evidenced by rejection of (142c)) and (142d)). These facts are incompatible with Kim's theory that nominative adverbials merge above

VoiceP and accusative adverbials merge inside VoiceP.

Regarding the second prediction, we preferred (142a) over (142b) for (140b), the accusative adverbial sentence, while we equally accepted (142a) and (142b) for (140a), the nominative adverbial sentence. This means that the subject outscopes the event when the adverb is accusative, while the subject does not outscope the event when the adverb is nominative. Kim's theory does not concern the scope relation between the subject and the event, so I am not aware of concrete predictions her theory would make with regards to the second prediction. Under my analysis, these facts are fully expected. In section 3.1.3, I explained that the subject escapes Existential Closure (and hence VoiceP) only when the adverb is accusative. (See discussion of (125).) Therefore, it is expected that the subject scopes inside the event when the adverb is nominative and scopes outside the event when the adverb is accusative.

In order to verify that the facts laid out in (140–142) do not stem from idiosyncrasies of goal arguments of ditransitives, I consulted the same two speakers with the sentences in (143), which feature a locative adjunct marked with the locative case marker *eyse* instead of a goal argument. (144) shows that just like goal arguments, the locative adjunct merges inside VoiceP and thus can appear inside the VoiceP-sized *key*-clause.

(143) a. Kamyempyeng-i   sey kos-eyse   twu pen-i   phe-eci-ess-ta.
           contagious.disease-NOM three location-LOC two time-NOM spread-PASS-PST-DECL
           'A contagious disease was spread in three locations twice.'

       b. Kamyempyeng-i   sey kos-eyse   twu pen-ul   phe-eci-ess-ta.
           contagious.disease-NOM three location-LOC two time-ACC spread-PASS-PST-DECL
           'A contagious disease was spread in three locations twice.'

(144) Mina-ka   [menci-ka sey kos-eyse   phe-eci-key]   piscalwu-lul hwitwull-ess-ta.
       Mina-NOM dust-NOM three locations-LOC spread-NACT-KEY broom-ACC   swing-PST-DECL
       'Mina swung her broom to the extent that dust was spread in three locations.'

Since the locative adjunct merges at a position inside VoiceP, Kim's theory predicts 'two times-NOM' to scope over 'three locations-LOC' in (143a). However, native speaker judgments again suggest otherwise. (145) shows the four situations used to consult the judgments of the two native speakers. The judgments for (143) were identical to that for (140). Speakers rejected (145c) and (145d), the readings compatible with 'two times' outscoping 'three locations'. Also, the speakers again preferred (145a) over (145b) for (143b) while they equally accepted both for (143a).

(145) *Four possible situations for* (143):
       There are two diseases D_1 and D_2. There are six locations, $L_1, L_2, L_3, L_4, L_5, L_6$.
       a. D_1 spread twice in L_1, L_2, L_3.
           (*three locations* > *two times*, *disease* does not necessarily scope under the event)
       b. D_1 spread once in L_1, L_2, L_3, and D_2 spread once in L_1, L_2, L_3.

(*three locations* > *two times*, *disease* scopes under the event)

   c. D_1 spread once in L_1, L_2, L_3, and spread once in L_4, L_5, L_6.
      (*two times* > *three locations*, *disease* does not necessarily scope under the event)

   d. D_1 spread once in L_1, L_2, L_3, and D_2 spread once in L_4, L_5, L_6.
      (*two times* > *three locations*, *disease* scopes under the event)

To summarize, I demonstrated that neither the nominative adverbial nor the accusative adverbial scopes over the entire event. This contradicts Kim's theory, which predicts the nominative adverbial to scope over the event.

3.2.4   Case is orthogonal to the event/occasion divide

Kim's alternative theory treats Korean nominative adverbials on a par with Mandarin occasion-counting verbal classifiers, and Korean accusative adverbials on a par with Mandarin event-counting verbal classifiers. If her approach was on the right track, we expect the Korean adverbials to show the properties of their Mandarin counterparts as described by Zhang (2017). This expectation is not borne out, as will be demonstrated in this section.

According to Zhang, *quán* is an event-counting classifier while *cì* is an occasion-counting classifier. Event-counting classifiers count the number of times an action or situation was repeated within a single occasion, while occasion-counting classifiers count events across multiple occasions. In essence, event-counting classifiers can be considered to count smaller units (a sub-occasion or part of an occasion) while occasion-counting classifiers count larger units (the entire occasion). (146) demonstrates this: an occasion counted with *cì* can contain multiple units counted with *quán* as in (146a), but not vice versa.

(146)   *Mandarin (Adapted from* Zhang 2017:270)

   a.   Dàlín dǎ-le   Yùrú sān cì. Měi cì   dōu dǎ-le   sān quán.
       Dalin beat-PRF Yuru three CLF each time all   beat-PRF three CLF[fist]
       'Dalin beat Yuru three times. Each time he punched him three times.

   b.   #Dàlín dǎ-le   Yùrú sān quán. Měi quán dōu dǎ-le   sān cì.
       Dalin beat-PRF Yuru three CLF[fist] each time all   beat-PRF three CLF
       'Dalin beat Yuru three times. Each time he punched him three times.

Kim proposes that Korean accusative adverbials are event-counting, and nominative adverbials are occasion-counting. However, it is impossible to express a meaning like (146a) by using the two kinds of adverbials. (147) shows a Korean counterpart of the Mandarin example (146), where two bell-ringing occasions each consist of three repeated instances of individual bell-ringing actions. (I use a nonactive sentence, where both nominative and accusative adverbials are available in principle.) Replacing *quán* and *cì* with the accusative and nominative adverbials as in (147a) results in an ungrammatical sentence. A grammatical alternative to (147a) is to use a different classifier such

as *chalyey* as the occasion-counting adverbial.[18]

(147) a. *Cong-i twu pen-i chi-eci-ess-ta. May pen-i sey pen-ul
         bell-NOM two time-NOM ring-NACT-PST-DECL each time-NOM three time-ACC
         chi-eci-ess-ta.
         ring-NACT-PST-DECL

       b. Cong-i twu chalyey-{ka/lul} chi-eci-ess-ta. May chalyey sey
         bell-NOM two occasion-{NOM/ACC} ring-NACT-PST-DECL each occasion three
         pen-{i/ul} chi-eci-ess-ta.
         time-{NOM/ACC} ring-NACT-PST-DECL
         'The bell was rung on two occasions. On each occasion she rang the bell three times.'

It is possible to express a meaning similar to (147b) only using the classifier *pen*, but the event-counting *pen* is marked with the distributive suffix *ssik* and not case-marked.[19]

(148) Cong-i sey pen-**ssik** twu pen-{i/ul} chi-eci-ess-ta.
       bell-NOM three time-**DIST** two time-{NOM/ACC} ring-NACT-PST-DECL
       'The bell was rung on two occasions, three times per occasion.'

Just as in Mandarin, it seems that there are semantically two tiers of event- or situation-counting. But given the ungrammaticality of (147a), case marking does not seem to be what distinguishes the two tiers.

Furthermore, Zhang points out that occasion-counting classifiers and event-counting classifiers behave differently in at least two aspects. If nominative and accusative adverbials correspond to occasion- and event-counting classifiers, they would also show corresponding differences in behavior. I demonstrate that this expectation is not met. First, actions counted with occasion-counting *cì* can be discontinuous or spread across multiple occasions as in (149a). On the other hand, actions counted with event-counting *quán* must occur continuously within a single occasion. They cannot be spread out as in (149b).

(149) *Mandarin* (Zhang 2017:271)

       a. Tā dǎ-le wǒ liǎng cì. (Zuótiān dǎ-le yí cì, jīntiān dǎ-le yí cì.)
         3SG beat-PRF 1SG two CLF yesterday beat-PRF one CLF today beat-PRF one CLF
         'He beat me two times. (He beat me once yesterday and once today.)'

       b. Tā dǎ-le wǒ liǎng quán. (# Zuótiān dǎ-le yí quán, jīntiān dǎ-le yí
         3SG beat-PRF 1SG two CLF^fist yesterday beat-PRF one CLF^fist today beat-PRF one
         quán.)
         CLF^fist
         'He punched me two times. (# He punched me yesterday and today.)'

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[18]*Chalyey* is not case-marked when it appears with the distributive quantifier *may* 'each' as in the second sentence. I do not comment on this restriction here.

[19]I thank Yiyang Guo for discussion of these facts.

(150) shows the Korean counterpart of (149). The bell-ringing action described in (150) can be spread across multiple occasions, regardless of the case on the adverbial.[20]

(150) a. Cong-i twu pen-**i** chi-eci-ess-ta. Ecey han pen-**i** chi-eci-ko,
bell-NOM two time-**NOM** ring-NACT-PST-DECL yesterday one time-**NOM** ring-NACT-and
onul han pen-**i** chi-eci-ess-ta.
today one time-**NOM** ring-NACT-PST-DECL
'The bell was rung twice. It was rung once yesterday, and once today.'

b. Cong-i twu pen-**ul** chi-eci-ess-ta. Ecey han pen-**ul** chi-eci-ko,
bell-NOM two time-**ACC** ring-NACT-PST-DECL yesterday one time-**ACC** ring-NACT-and
onul han pen-**ul** chi-eci-ess-ta.
today one time-**ACC** ring-NACT-PST-DECL

This is another indication that the factors responsible for determining the case on the adverbials seems orthogonal to the two tiers of event counting since different case marking does not lead to the different behaviors of event-counting and occasion-counting classifiers.

Zhang's second diagnostic for differentiating event- and occasion-counting classifiers is their compatibility with event types. Occasion-counting classifiers are compatible with various event types while event-counting ones are only compatible with semelfactive events, or events that occur very quickly and do not result in permanent change (Smith 1997). Hence the occasion-counting classifier *cì* but not the event-counting classifier *xià* can appear with *dú* 'read', an activity verb.

(151) Lìlì dú-le nà běn shū sān {cì/*xià}. (Zhang 2017:271–272)
Lili read-PRF that CLF book three {CLF/CLF}
'Lili read that book three times.'

Had Kim's theory been on the right track, we would expect nominative adverbials but not accusative adverbials to be able to modify activities or achievements/accomplishments. However, both nominative and accusative adverbials can occur with an activity verb such as *ilk* 'read' or an accomplishment verb such as *kwup* 'bake, cook'.

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[20]It is possible for case in the first and second sentences to mismatch as in (i)a. The only two restrictions are that the case of the two conjuncts match in the second sentence, and that accusative case in the first sentence not be followed by nominative case in the second sentence, as in (i)b.

(i) a. Cong-i twu pen-**i** chi-eci-ess-ta. Ecey han pen-**ul** chi-eci-ko onul han pen-**ul** ...
bell-NOM two time-**NOM** ring-NACT-PST-DECL yesterday one time-**ACC** ring-NACT-and today one time-**ACC**
b. #Cong-i twu pen-**ul** chi-eci-ess-ta. Ecey han pen-**i** chi-eci-ko onul han pen-**i** ...
bell-NOM two time-**ACC** ring-NACT-PST-DECL yesterday one time-**NOM** ring-NACT-and today one time-**NOM**

I attribute the unacceptability of (i)b to pragmatic factors. As I explained in section 3.1.3, a nonactive subject outscopes the event and receives a presupposed reading when the clausemate multiplicative adverbial is accusative. When the multiplicative adverbial in the following sentence is nominative as in (i)b, the *pro*-dropped subject gets the existential reading. Roughly speaking, the presupposed reading of *cong-i* in the first sentence is infelicitously "cancelled" in the second sentence.

(152) a. Ku chayk-i   sey pen-{i/ul}   ilk-hi-ess-ta.
          that book-NOM three time-{NOM/ACC} read-NACT-PST-DECL
          'That book was read three times.'

      b. Koki-ka   sey pen-{i/ul}   kwup-eci-ess-ta.
          meat-NOM three time-{NOM/ACC} cook-NACT-PST-DECL
          'The meat was cooked three times.'

The availability of accusative case in (152) constitutes counterevidence against Kim's predictions that the accusative case marker would behave like the Mandarin event-counting classifier.

　　To summarize this section, I provided semantic arguments against Kim's theory that nominative adverbials are occasion-counting classifiers and that accusative adverbials are event-counting classifiers. The behavior and distribution of Korean multiplicative adverbials do not align with that of either event-counting adverbials or occasion-counting adverbials. More importantly, the accusative and the nominative behave alike in all areas where the event-counting and occasion-counting classifiers behave differently. The facts discussed in this section argue against theories that locate the nominative adverbial and the accusative adverbial in different syntactic positions.

Chapter 4

Why do nonactives have two subject positions?

In section 1.1, I have showed that the nonactive construction allows both nominative and accusative case on the adverbial. Subsequently, in chapter 3, I demonstrated that the case marking on the adverbial correlates with subject position. When the adverbial is nominative, the subject is located at Spec, VoiceP. When the adverbial is accusative, the subject is located at a position higher than Spec, VoiceP. This generalization raises the following question: Why do nonactive constructions show two different subject positions?

In this section, I explain the two different subject positions as the result of competition between two elements at Spec, VoiceP. In section 2.4, I argued that the theme argument always moves to Spec, VoiceP in nonactive constructions. In this chapter, I will argue that there is another element always present at the specifier of nonactive Voice: an implicit agent or causer, which can optionally be realized as a PP. As a result, a nonactive VoiceP always has two specifiers. I will propose in section 4.4 that either one of the two specifiers can move to Spec, TP in order to satisfy the needs of the feature [●ϕ●] on T, which requires a specifier bearing ϕ-features. If the agent/causer moves, the subject remains at Spec, VoiceP and the adverbial gets nominative case. If the theme subject moves, the adverbial gets accusative case.

In addition to proposing the precise structure of nonactive constructions and deriving the two subject positions, this chapter sheds light on a long-standing issue in Korean morphosyntax. We have seen the suffixes *HI* and *eci*, which appear in nonactive constructions. (From now on I use the term *HI*-construction to refer to nonactive constructions with *HI*, and the term *eci*-construction to refer to nonactive constructions with *eci*.) While they show clear morphological differences, they seem to play a very similar syntactic and semantic role. The two suffixes show a complex array of similarities and differences, which lead to many efforts in characterizing and comparing them (Yeon 1991; Kim 2001; Kim 2009; Nam 2011; Jung 2014a, 2024; Song 2016; Lim 2021). One fact

that has not been discussed is that both *HI*- and *eci*-constructions allow case optionality on durative and multiplicative adverbials.

(153) a. Kispal-i   twu pen-{i/ul}   ccic-eci-ess-ta.
           flag-NOM two time-{NOM/ACC} rip-NACT-PST-DECL
           'The flag was ripped twice.'

      b. Mwun-i   twu pen-{i/ul}   tat-hi-ess-ta.
           door-NOM two time-{NOM/ACC} close-NACT-PST-DECL
           'The door was closed twice.'

As mentioned above, I will derive the two subject positions (and hence the case optionality) in nonactive constructions from the presence of an implicit agent or causer at Spec, VoiceP. Therefore, I take this commonality as an indication that both *HI*- and *eci*-constructions contain the functional head which introduces the implicit agent or causer. More specifically, I argue that both *HI*- and *eci*-constructions are nonactive constructions, whose Voice head always projects an implicit external argument specifier. Crucially, since the concept of *nonactive* subsumes passive and inchoative constructions, *HI* and *eci* always project the implicit specifier regardless of whether they are passive or inchoative.

The chapter is structured as follows. In section 4.1, I provide a brief description of the suffixes *HI* and *eci*. I then present in section 4.2 my argument that both *HI* and *eci* constructions can both license implicit agents and causers. In section 4.3, I propose a nonactive Voice system which subsumes passive and inchoative constructions. I analyze both *HI* and *eci* constructions as projecting a nonactive VoiceP, introducing an implicit agent or causer at the specifier of this VoiceP. In section 4.4, I explain that the theme subject competes with the implicit or PP agent/causer at Spec, VoiceP to raise to Spec, TP. Depending on which of the two raises to Spec, TP, the structure ends up with the theme subject at Spec, VoiceP or at Spec, TP. This difference in turn determines the case marking on the adverbial. Lastly, section 4.5 I make the argument that the implicit agents and causers modified by the PPs are truly present in the syntax as a null pronoun, and not as existentially bound variables introduced by the semantics of Voice$_{\text{NACT}}$. In the appendix to chapter 4, I investigate the precise morphological identity of the suffixes *HI* and *eci*. I propose that *HI* and *eci* are best understood as v_{CAUSE} and v_{GO}, respectively.

4.1   The *HI*-construction and the *eci*-construction

The *HI*-construction involves a suffix to the right of the verb root that can surface as *i*, *hi*, *li*, or *ki*. The distribution of the allomorphs can be roughly characterized by the phonological property of the roots, although there are many exceptions (Ahn 1996). Roots ending in a liquid such as *mil* [mil] 'push', *mal* [mal] 'roll', *kkul* [k'il] 'drag' often appear with *li*, and *hi* often appears after

roots that end in obstruents such as *mak* [mak˺] 'block', *ppop* [p'op˺] 'pluck', *mayc* [mætɕ] 'bear (fruits)/form (droplets)'.[1] The suffix *ki* seems to appear after coronal consonants, as it attaches to roots such as *an* [an] 'hug', *ppayas* [p'ɛas] 'take away', *wus* [us] 'laugh'. Ahn (1996) calls *i* the elsewhere morpheme. (154–157) show some active-nonactive sentence pairs where the nonactive counterpart includes *HI*.

(154) a. Mina-ka   maktay-lul kkekk-ess-ta.
       Mina-NOM stick-ACC   snap-PST-DECL
       'Mina snapped the stick.'

   b. Maktay-ka kkekk-i-ess-ta.
      stick-NOM   snap-NACT-PST-DECL
      'The stick was snapped.'

(155) a. Inho-ka   phwungsen-ul cap-ass-ta.
       Inho-NOM balloon-ACC   catch-PST-DECL
       'Inho caught the balloon.'

   b. Phwungsen-i cap-hi-ess-ta.
      balloon-NOM catch-NACT-PST-DECL
      'The balloon was caught.'

(156) a. Mina-ka   Inho-uy ton-ul   ppayas-ass-ta.
       Mina-NOM Inho-GEN money-ACC take.away-PST-DECL
       'Mina took away Inho's money.'

   b. Inho-uy   ton-i   ppayas-ki-ess-ta.
      Inho-GEN money-NOM take.away-NACT-PST-DECL
      'Inho's money was taken away.'

(157) a. Inho-ka   namwu-lul pey-ess-ta.
       Inho-NOM tree-ACC   cut-PST-DECL
       'Inho cut the tree.'

   b. Namwu-ka pey-i-ess-ta.
      tree-NOM   cut-NACT-PST-DECL
      'The tree was cut.'

   Eci is another suffix that forms nonactive constructions. Unlike *HI*, *eci* does not show root-sensitive allomorphy.[2] As is the case with *HI*, not all verbs can combine with *eci*. While there has been an active debate in characterizing the semantics of *eci* and its selectional restriction, many

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[1]There are seven consonants that can be codas in Korean: [p, t, k, l, m, n, ŋ]. However, roots can underlyingly end in other consonants including fricatives and affricates. [s, tɕ, tɕʰ, tʰ] all neutralize to [t˺] preconsonantally or at the end of a word, but resurface as their own forms prevocalically.

[2]It does show phonologically conditioned allomorphy, whereby it surfaces as *aci* after syllables with the vowels [a, o] and *eci* otherwise. But this is a general vowel harmony alternation that appears across many Korean verbal suffixes (Sohn 2001; see M.-H. Cho 1994 on Korean vowel harmony).

researchers agree that *eci* introduces some type of change-of-state or initiation of change (Kim 2001, Nam 2011, Lim 2021, Jung 2024). (158–159) show some examples of active-nonactive sentence pairs where the nonactive counterpart contains *eci*.

(158) a. Yenghi-ka ppang-ul kwuw-ess-ta.
Yenghi-NOM bread-ACC bake-PST-DECL
'Yenghi baked the bread.'

b. Ppang-i kwuw-eci-ess-ta.
bread-NOM bake-NACT-PST-DECL
'The bread was baked.'

(159) a. Yolisa-ka mwul-ul ssot-ass-ta.
cook-NOM water-ACC spill-PST-DECL
'The cook spilled the water.'

b. Mwul-i ssot-aci-ess-ta.
water-NOM NACT-PST-DECL
'The water was spilled.'

(160) a. Inho-ka Mina-eykey senmwul-ul cwu-ess-ta.
Inho-NOM Mina-DAT gift-ACC give-PST-DECL
'Inho gave Mina a gift.'

b. Senmwul-i Mina-eykey cwu-eci-ess-ta.
gift-NOM Mina-DAT give-NACT-PST-DECL
'A gift was given to Mina.'

4.2 Both *HI* and *eci* constructions can be passive or inchoative

The status of the suffixes *HI* and *eci* have been the topic of active debate. Kim (2009), Jung (2014a, 2024), Song (2016), and Lim (2021) focus on characterizing these suffixes as either passive, inchoative, or ambiguous between the two. This debate is based on an understanding of the term *passive* and *inchoative* as put forth by Alexiadou, Anagnostopoulou & Schäfer (2006, 2015; henceforth AAS 2006 and AAS 2015).[3] The authors provide a suite of diagnostics on differentiating passive and inchoative constructions from relevant literature. I summarize them in table 2.

Based on these diagnostics, authors have debated on the status of *HI* and *eci*. For *HI*, both Kim (2009) and Jung (2014a) argue that it can be either passive or inchoative depending on the lexical root that it combines with. The status of *eci* has been more debated. Jung (2014a) argued that *eci* is exclusively passive, although she has recently argued against her earlier view and views it as inchoative, along with Lim (2021).

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[3]The authors use the term *anticausative*, and introduce it as being used interchangeably with *inchoative*. Since earlier works on Korean *HI* and *eci* use the latter term, I also use the term *inchoative* throughout.

Table 2: Diagnostics for differentiating passive and inchoative constructions

	Inchoative	Passive
Agent-oriented adverbs	No	Yes
Allows agent PPs (*e.g., by Mary*)	No	Yes
Allows causer PPs (*e.g., from the storm*)	Yes	No

I demonstrate that *HI* and *eci* are both ambiguous under the diagnostics put forth by AAS. The ambiguity is prevalent enough to be considered the norm, and not a handful of exceptions (*pace* Kim 2009). I contend that earlier attempts to classify *HI* and *eci* as exclusively passive or inchoative are misguided, and that these approaches stemmed from an incorrect application of the causer PP diagnostic. I apply the three diagnostics of table 2 and show that *HI* and *eci* constructions display the property of both passive and inchoative constructions.[4]

The first diagnostic in table 2 is the availability of agent-oriented adverbs. Adverbs such as *deliberately*, *carefully*, or *carelessly* can modify passive constructions, and express the manner of the action performed by the implicit agent. For example, the adverb *deliberately* in (161a) expresses that the agent who caused the boat to sank did so deliberately. Similarly, (161b) expresses that the entity who popped the balloon did so in a careless manner. Crucially, these adverbs do not express deliberateness on the part of the boat, or carelessness on the part of the balloon.

(161)   a.   The boat was sunk deliberately. (Alexiadou, Anagnostopoulou & Schäfer 2015:20)

      b.   The balloon was popped carelessly.

The same adverbs in inchoative constructions such as (162a–b) fail to describe the actions of the agent, since there is no agent implied in these constructions. As a result, the only interpretations

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[4]Another diagnostic put forth by AAS is modification by the expression *by itself*. I did not include this diagnostic table 2 for two reasons. First, it is better characterized as an *unaccusativity* diagnostic rather than an *inchoativity* diagnostic under the terminology used in this dissertation. For AAS, inchoative constructions can lack an external argument altogether. Modification by *by itself* correlates with this lack of external argument – it signals the absence of an obvious external argument that is responsible for making the event happen. In this dissertation, the term *inchoative* describes constructions that introduce a causer as an implied or oblique external argument at Spec, VoiceP. I use the term *unaccusative* to refer to constructions that express typically spontaneous or internally-caused events.

The second reason I exclude the *by itself* diagnostic in this section is because its status is unclear with regards to Korean. The most natural translation of *by itself* into Korean is the adverb *cecello*. Kim (2009) and Jung (2014a) have argued that *HI*-constructions can be *unaccusative* or *zero inchoative* because they can be modified by *cecello*. However, *cecello* can co-occur with a causer-denoting PP as shown in the following examples. According to the intuition of three native speakers consulted as well as my own, the sentences in (i) are acceptable. The grammaticality of (i) suggests that *cecello* may not be the unaccusativity diagnostic that it is purported to be.

(i)   a.   Namwuskaci-ka thayphwung-ulo inhay cecello huntul-li-ess-ta.
        branch-NOM   storm-INS   due.to by.itself shake-NACT-PST-DECL
        'The branch shook by itself from the storm.'
    b.   Moca-ka palam-ulo inhay cecello pes-ki-eci-ess-ta.
        hat-NOM wind-INS   due.to by.itself remove-CAUS-NACT-PST-DECL
        'The hat was removed by itself from the wind.'

available for these sentences are ones where the adverb modifies the manner of the theme subject: the boat in (162a), and the balloon in (162b). These interpretations are quite odd, as reflected in the reported judgments below.

(162) a. #The boat sank deliberately. (Alexiadou, Anagnostopoulou & Schäfer 2015:20)
　　　 b. #The balloon popped carelessly.

Both *HI*- and *eci*-constructions can be modified by agent-oriented adverbs which describe the action of the implicit agent.[5] This shows that the constructions behave like passive constructions. (Compare with the English example (161).)

(163) a. Changmwun-i cosimsulepkey yel-li-ess-ta.
　　　　 window-NOM　carefully　　 open-NACT-PST-DECL
　　　　 'The window was opened carefully.'

　　　 b. Maytup-i　kkomkkomhi mukk-i-ess-ta.
　　　　 knot-NOM meticulously　tie-NACT-PST-DECL
　　　　 'The knot was tied meticulously.'

(164) a. Cokaksang-i　cosimsulepkey nayli-eci-ess-ta.
　　　　 sculpture-NOM carefully　　 descend-NACT-PST-DECL
　　　　 'The sculpture was lowered carefully.'

　　　 b. Kapo-ka　　　sayngkakepsi peli-eci-ess-ta.
　　　　 heirloom-NOM carelessly　 throw.away-NACT-PST-DECL
　　　　 'The heirloom was thrown away carelessly.'

The second diagnostic is to see whether an agent-denoting PP can be licensed. In English, passive sentences can include a *by*-PP which contributes semantic information about the agent of the described event. Inchoative sentences, on the other hand, cannot host the *by*-PP.

(165) a. The boat was sunk.
　　　 b. The boat was sunk by the owner.
　　　 c. The boat sank.
　　　 d. *The boat sank by the owner.

(166) a. The balloon was popped.
　　　 b. The balloon was popped by the child.
　　　 c. The balloon popped.
　　　 d. *The balloon popped by the child.

---

[5]Manner adverbs such as *cosimsulepkey* 'carefully', *sayngkakepsi* 'carelessly', and *kkomkkomhi* 'meticulously' seem to fare better than adverbs such as *ilpwule* 'purposefully' or *silswulo* 'by mistake' which express the intent of the implicit agent. This asymmetry holds for both *HI*- and *eci*-constructions.

The expression that introduces an agent in *HI-* and *eci*-constructions is *NP-ey uyhay*, where the NP denotes the agent. It consists of the inanimate dative case marker *ey* and an inflected form of the Sino-Korean light verb *uyha* (依하-) 'depend on'. The inflected form is realized as either *uyhaye* or *uyhay*; I use *uyhay* in the examples below.

(167) a. Changmwun-i Mina-ey uyhay   yel-li-ess-ta.
           window-NOM Mina-DAT depend.on open-NACT-PST-DECL
           'The window was opened by Mina.'

       b. Namwuskaci-ka mokswu-ey   uyhay   kkek-i-ess-ta.
           branch-NOM   carpenter-DAT depend.on snap-NACT-PST-DECL
           'The branch was snapped by the carpenter.'

(168) a. Kispal-i Inho-ey uyhay   ccic-eci-ess-ta.
           flag-NOM Inho-DAT depend.on rip-NACT-PST-DECL
           'The flag was ripped by Inho.'

       b. Sengpyek-i   siwitay-ey uyhay   mwune-eci-ess-ta.[6]
           castle.walls-NOM rioters-DAT depend.on topple-NACT-PST-DECL
           'The castle walls were toppled by the rioters.'

For concreteness, I analyze NP-*ey uyhay* as a PP where the postposition *uyhay(e)* selects for an NP complement and assigns it lexical dative case.[7]

---

[6]Some verb roots such as *ccic* 'rip', *kwup* 'bake', and *mantul* 'make' express a causative meaning by themselves, and combine with the suffix *eci* to express a detransitivized, inchoative meaning. For other roots, the directionality of derivation is less clear. Roots such as *mwune* 'topple', *ttele* 'drop/fall', *nwukule* 'soften' combine with *eci* to express a passive/inchoative meaning, but also combine with another suffix *ttuli* to express a causative meaning.

Root	Causative	Meaning	Inchoative	Meaning
ccic	*ccic*	'rip (transitive)'	*ccic-eci*	'rip (intransitive)'
kwup	*kwup*	'bake'	*kwup-eci*	'be baked'
mantul	*mantul*	'make'	*mantul-eci*	'be made'
mwune	*mwune-**ttuli***	'cause to topple; tear down'	*mwune-eci*	'topple down'
ttele	*ttele-**ttuli***	'drop; cause to fall'	*ttele-eci*	'fall down'
nwukule	*nwukule-**ttuli***	'alleviate; cause to soften'	*nwukule-eci*	'soften; become mellow'

I do not present a full-fledged analysis of *ttuli* and why only some roots require the presence of *ttuli* in its causative counterpart. Given that *eci* plays the same role regardless of whether the causative bears *ttuli*, I treat all *eci* constructions as the same type of inchoative construction.

[7]While dative makes an animacy distinction in Korean (*eykey* for animate NPs, *ey* for inanimate NPs), this distinction is lost in the *ey uyhay* construction.

(169) *Structure of the agent-denoting* NP-ey uyhay

```
                PP
              /    \
       NP-DAT       P
        /  \     uyhay(e)
      NP-ey
```
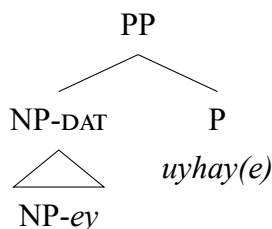
The analysis of *uyhay(e)* as a postposition may be surprising, given that it is an inflected form of a verb. However, it is safe to say that this specific inflection has grammaticalized into a postposition-like usage. A search for all instances of *uyhay* and *uyhaye* in the Korean National Corpus (untagged written text, 63,632,472 words) distributed by the National Institute of Korean Language (2011) yields 16,655 results, of which 16,629 (99.8%) shows the verb immediately preceded by an *ey*-marked NP. This is unexpected if NP-*ey uyhay* is a regular adverbial phrase. This search result also supports my analysis that the dative case is lexical case assigned by *uyhay*. Indeed, assigning a case marker other than *ey* results in sharp ungrammaticality.

(170) *Kispal-i Inho-{ka/lul/lo/eyse}   uyhay   ccic-eci-ess-ta.
        flag-NOM Inho-{NOM/ACC/INS/LOC} depend.on rip-NACT-PST-DECL

Among the 26 exceptions out of 16,655 search results, only three instances show truly unexpected behavior in terms of case: the NP is marked with genitive, instrumental, and animate dative case in each instance. These sentences were judged completely ungrammatical under my own intuition. The remaining 23 either have a focus marker attached to NP-*ey* such as *man* 'only', or are suspected typos (confusion with a different verb, *wihay*, which is typographically very similar to *uyhay* and takes an accusative-marked object).

The last diagnostic presented in table 2 is licensing of causer-denoting PPs. Earlier views of inchoative constructions treated them as qualitatively different from passive constructions in lacking an external argument altogether (Manzini 1983; Roeper 1987; Levin & Rappaport Hovav 1995). However, recent approaches have argued for a more symmetrical view of passives and inchoatives (Alexiadou, Anagnostopoulou & Schäfer 2006, 2015; Kallulli 2007; Angelopoulos, Collins & Terzi 2020). These approaches highlight that inchoative constructions can also license a PP denoting an external cause that forced the change-of-state event to happen. In English, this is realized as a *from*-PP.

(171) a. The boat sank from the storm.
       b. The balloon popped from the pressure.

In German, it is a *durch*-PP; in Greek, it is a PP introduced by *apo* or *me*. In Korean, causers are introduced by the expression *NP-lo inhay*. Both *HI-* and *eci*-constructions can host *NP-lo inhay*.

(172) a. Changmwun-i palam-ulo inhay yel-li-ess-ta.
           window-NOM wind-INS due.to open-NACT-PST-DECL
           'The window opened from the wind.'

       b. Namwuskaci-ka poksel-lo   inhay kkek-i-ess-ta.
           branch-NOM   snowstorm-INS due.to snap-NACT-PST-DECL
           'The branch snapped from the snowstorm.'

(173) a. Kispal-i sako-lo   inhay ccic-eci-ess-ta.
           flag-NOM accident-INS due.to rip-NACT-PST-DECL
           'The flag ripped from the accident.'

       b. Sengpyek-i   thayphwung-ulo inhay mwune-eci-ess-ta.
           castle.walls-NOM storm-INS   due.to topple-PASS-PST-DECL
           'The castle walls toppled from the storm.'

Previous discussions related to this topic did not consider *lo inhay* as the counterpart of the English *from*-PP. Instead, researchers tested the *from*-PP diagnostic with the inanimate dative *ey*. For instance, Kim (2009) argues that the verb *cap-hi* 'catch-NACT' cannot be inchoative because (174) is ungrammatical with *hwacay-ey* 'fire-DAT', which is intended to be the causer-denoting expression.

(174) *Totwuk-i hwacay-ey cap-hi-ess-ta.   (Adapted from Kim 2009:235)
       thief-NOM fire-DAT   catch-NACT-PST-DECL
       'The thief was caught from the fire.'

However, the NP *hwacay* can be introduced by *lo inhay* without problem.

(175) Totwuk-i hwacay-lo inhay cap-hi-ess-ta.
        thief-NOM fire-INS   due.to catch-NACT-PST-DECL
        'The thief was caught due to the fire.'

Kim does not provide explicit reasons for considering dative NPs to be the correct way to introduce the causer. I present below two reasons to consider *lo inhay*, and not *ey*, as the causer-denoting expression. First, its selectional restriction is quite similar to English *from* in terms of introducing causes. The reader may be wondering at this point whether *lo inhay* is indeed the right counterpart of English *from*-PPs. Even passive sentences can introduce a general "cause" or "reason" with expressions such as *because of*. One would have to verify that *lo inhay* is indeed the expression that introduces causers, as opposed to general reasons. A good test here is to see whether *lo inhay* can introduce motivations for making an event happen, like monetary gain. Monetary gain that occurs at the culmination of some event (like insurance gained after insurance fraud or subsidies for sustainable energy) can be the *reason* for an agent to make the event happen, but cannot be the direct *cause* of that event. These can be introduced with *because of* as shown in (176a) and (177a), but not with *from* as shown in ungrammatical (176b) and (177b).

(176) a. The boat was burned by Mary because of insurance.

b. *The boat was burned by Mary from insurance.

(177) a. Solar panels were built by the mayor because of climate policy subsidies.

b. *Solar panels were built by the mayor from climate policy subsidies.

In Korean, *lo inhay* behaves like *from* and not *because of*. It cannot introduce general reasons or indirect causes: (178a–b) are ungrammatical (regardless of whether the agent-denoting PP is present.)

(178) a. *Pay-ka   pohemkum-**ulo inhay** (Mina-ey uyhay)   thaywu-eci-ess-ta.
boat-NOM insurance-INS   **due.to** (Mina-DAT depend.on) burn-PASS-PST-DECL
Intended: 'The boat was burned (by Mina) because of insurance.'

b. *Thayyangkwang palcenki-ka   kihwu cengchayk pocokum-**ulo inhay** (sicang-ey
sunlight   generator-NOM climate policy   subsidy-INS   due.to (mayor-DAT
uyhay)   sewu-eci-ess-ta.
depend.on) build-PASS-PST-DECL
Intended: 'Solar panels were built (by the mayor) because of climate policy subsidies.'

What corresponds to English *because of* is *ttaymwuney*. (179a–b) are grammatical regardless of whether the agent-denoting PP is present or not.

(179) a. Pay-ka   pohemkum-**ttaymwuney** (Mina-ey uyhay)   thaywu-eci-ess-ta.
boat-NOM insurance-because.of   (Mina-DAT depend.on) burn-PASS-PST-DECL
'The boat was burned (by Mina) because of insurance.'

b. Thayyangkwang palcenki-ka   kihwu cengchayk pocokum **ttaymwuney**
sunlight   generator-NOM climate policy   subsidy because.of
(sicang-ey uyhay)   sewu-eci-ess-ta.
mayor-DAT depend.on build-PASS-PST-DECL
'Solar panels were built by the mayor because of climate policy subsidies.'

The second argument that *lo inhay* is the true counterpart of English *from*-PPs comes from its parallelism with *ey uyhay*. The Korean expressions *lo inhay* and *ey uyhay* have very similar structures. As explained with regards to (172–173), *ey uyhay* consists of the inanimate dative case marker *ey* and the Sino-Korean light verb *uyhay*. *Lo inhay* consists of the instrumental case marker *lo* and another Sino-Korean light verb, *inha* (因하−) 'be due to; be caused by'. On a par with my analysis of *ey uyhay* in (169), I analyze the structure of *NP-lo inhay* as in (180). The postposition *inhay(e)* selects for an NP complement and assigns it lexical instrumental case.

(180)

```
           PP
          /  \
    NP-INS     P
      /\     inhay(e)
   NP-lo
```
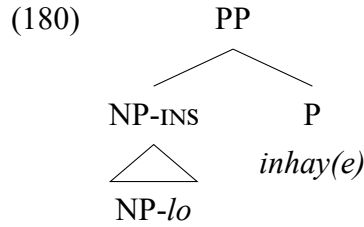
Similarly to NP-*ey uyhay*, search results in the Korean National Corpus (National Institute of Korean Language 2011) for all usages of *inhay*/*inhaye* suggest that the verb has grammaticalized into a postpositional usage. Out of 5,801 instances of *inhay*/*inhaye*, 5,723 (98.6%) are immediately preceded by NP-*lo*. 57 of the 78 exceptions show a completely different, conjunction usage (synonymous to "therefore") in historical texts. The remaining 23 were the truly surprising cases where an NP marked with nominative or accusative case preceded *inhay(e)*, but these all seem to be quoted material from 19th to early 20th century texts. Given that the overwhelming majority of contemporary usage of *inhay*/*inhay(e)* are of the format NP-*lo inhay(e)*, I treat it as a PP analogously to NP-*ey uyhay(e)*.

I summarize the result of applying AAS's three diagnostics in table 3. Both *HI*-constructions and *eci*-constructions show properties of both passive and inchoative constructions. These results suggest *eci* and *HI* are argument structure-altering heads that are independent of the passive/inchoative divide, instead of classifying either of them on one side of the divide. In section 4.3 I propose a Voice system that subsumes passive and inchoative constructions as *nonactive*, which underlies both *HI* and *eci*-constructions.

Table 3: Diagnostics for differentiating passive and inchoative constructions

		HI	*eci*
Passive Diagnostics	Agent-oriented adverbs	Yes	Yes
	Allows agent PPs	Yes	Yes
Inchoative Diagnostics	Allows causer PPs	Yes	Yes

4.3 A parallel Voice system for passive and inchoative constructions

The existence of constructions that show properties of both passive and inchoative constructions calls for a shared syntactic structure between the two constructions, at least for Korean. In attaining this objective, I argue in favor of a Voice system with two properties. First, it encodes the passive–inchoative distinction not as a difference in syntactic structure, but as different featural specifications of the Voice head (Kallulli 2006, 2007). Second, it postulates implicit agents/causers and PP agent/causers to all be licensed at Spec, VoiceP. In the previous section, I have discussed

how both *HI* and *eci* constructions can license PPs that denote the agent (in the case of passives) as well as PPs that denote the causer (in the case of inchoatives). Maintaining the insight of Kratzer (1996) that Voice is the functional head that introduces external arguments, a natural candidate for the functional head hosting these implicit agent/causers is the same Voice head. The general idea is that the agent/causer is not "demoted" in the more classical sense (Perlmutter & Postal 1977) but is simply realized in the same position either as an implicit argument or a PP.

In order to formalize this idea, I implement a Voice system that bears these properties. My proposed system aligns most closely with that of Kallulli's (2006; 2007). We diverge in the specific implementation of the features since she uses a privative feature system while I adopt an attribute-value system, but our systems share the same spirit and capture the same contrasts. I postulate two features on Voice: the eponymous VOICE, and AGENT. The feature VOICE determines whether Voice is active or nonactive. An active Voice head, which bears [VOICE: ACT], is present in transitive/unergative constructions and introduces an overt DP agent or causer in its specifier. A nonactive Voice head, bearing [VOICE: NACT], is present in passive and inchoative constructions and introduces either an implicit agent/causer or the corresponding PP. In Kallulli's terms, the distinction of [VOICE: ACT] versus [VOICE: NACT] corresponds to the presence versus absence of the feature [+act] on Voice. The second feature, AGENT, concerns the agentivity of the argument introduced at Spec, VoiceP. The argument introduced at Spec, VoiceP, whether it be a DP or implicit/PP, can be either an agent (which is agentive) or a causer (which is non-agentive). If Voice bears the feature [AGENT: +], it introduces an agent; if it bears [AGENT: −], it introduces a cause. Translated to Kallulli's system, the latter bears the feature [-external argument] while the former lacks it. My typology of Voice is summarized below in table 4.

Table 4: Typology of Voice and corresponding constructions

	[VOICE: ACT]	[VOICE: NACT]
[AGENT: +]	Active/Causative	Passive
[AGENT: −]	Causative	Inchoative

Note that causativization does not align with the agentivity divide. Causativization is understood as the relation between two events: a causing event and a caused event (Levin & Rappaport Hovav 1995; Pylkkänen 2002, 2008). In some sentences such as English (181a) and Korean (182a), the agent making the causing event happen is realized as the subject. In other sentences such as (181b) and (182b) the causing event itself is realized as the subject.

(181)   *English*

    a.   The enemy killed 500 people.

    b.   The war killed 500 people.

(182) *Korean*

    a. Totwuk-i namwu-lul ssule-ttuli-ess-ta.
        thief-NOM tree-ACC   topple-CAUS-PST-DECL
        'The thief toppled the tree.'

    b. Hongswu-ka namwu-lul ssule-ttuli-ess-ta.
        thief-NOM   tree-ACC   topple-CAUS-PST-DECL
        'The flood toppled the tree.'

Kallulli's system captures this system by positing a separate feature, [+cause], which can co-occur either with or without the [+act] feature.

What is important about the system presented in table 4 is that both passive and inchoative constructions can project a VoiceP. In both constructions, Voice bears [VOICE: NACT]. The only difference between the two is whether in addition to [VOICE: NACT], Voice bears [AGENT: +] or [AGENT: −].

(183) *Structure of passive and inchoative VoiceP*

a. *Passive VoiceP*

```
          VoiceP
         /      \
    e or PP    Voice′
              /      \
            vP        Voice
           /  \     [VOICE: NACT]
         √P    v    [AGENT: +]
```

b. *Inchoative VoiceP*

```
          VoiceP
         /      \
    e or PP    Voice′
              /      \
            vP        Voice
           /  \     [VOICE: NACT]
         √P    v    [AGENT: −]
```
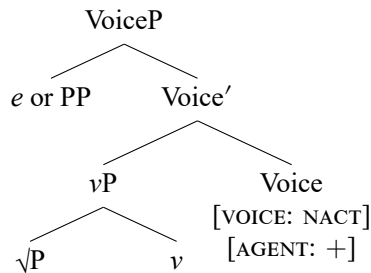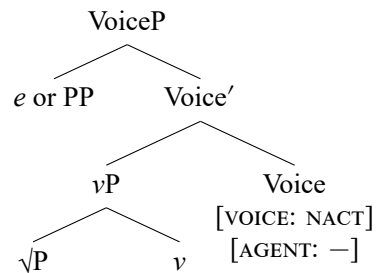
Internally caused events such as melting, freezing, or growing of crops can occur without an external cause. In the Korean literature, these verbs have been dubbed *zero inchoatives* (Kim 2009) or simply *unaccusatives* (Jung 2014a). This label most likely stems from the fact that these verbs are morphologically simplex: unlike verbs that denote external causation, verbs such as *el* 'freeze', *nok* 'melt', *cala* 'grow' do not appear with *HI* or *eci*. As will be discussed in section 5.2.2, there seems to be speaker variation on whether unaccusative project VoiceP. This variation is not too surprising given that the "spontaneity" of the event denoted by the verb root does not follow a discrete divide but a continuous scale (Haspelmath 2016). I propose that the two following structures in (184) are both possible parses of unaccusative constructions.

(184) *Two possible structures of unaccusative constructions*

```
            VoiceP                                      vP
           /      \                                    /    \
      e or PP     Voice′                            √P        v
                 /      \                          /   \
               vP     Voice_NACT                 NP     √
              /  \    [VOICE: NACT]
            √P    v   [AGENT: −]
           /  \
         NP    √
```
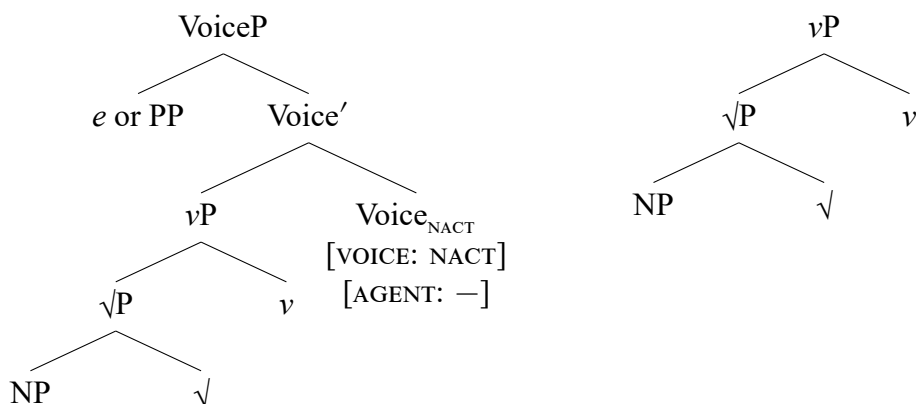
My Voice system relies on two premises. First, passive and inchoative constructions only differ in the featural specification of the Voice system. Second, PP agents and causers are overt counterparts of implicit agents and causers. In the remainder of this section, I examine some arguments in relation to these premises and argue that they are correct.

My view that passive and inchoative constructions only differ in featural specification aligns most closely with that of Kallulli (2006, 2007). As she demonstrates, this view is well equipped to capture the fact that in Albanian, both agents and causers can be introduced by the same preposition.

(185) a. Dritar-ja   u   kris   **nga**   presion-i.
           window-the NACT crack.AOR.3SG from/by pressure-the
           'The window cracked from the pressure.'

       b. Dritar-ja   u   kris   **nga**   Xhon-i/libr-i.
           window-the NACT crack.AOR.3SG from/by John-the/book-the
           'The window was cracked by John/by the book.'

AAS (2006) also have a similarly parallel view of passive and inchoative constructions, and argue for representing an implicit causer in inchoative constructions as the nonagentive counterpart to implicit agents in passive constructions.[8]

The treatment of PP agents/causers as overt counterparts of implicit agents/causers is more contested. AAS (2006, 2015), who argue in favor of implicit causers, do not treat them as equivalent to PP causers. For them, implicit agents, implicit causers, and PP agents are all licensed by Voice while the PP causer is licensed by CAUS, the head which contributes causative semantics. Their argument stems from the asymmetry presented in (186).

(186) a. The flowers wilted from the heat.   (AAS 2006:30)
       b. *The heat wilted the flowers.

---

[8]They take on a different view in their later work (AAS 2015), where they do not postulate an implicit causer in inchoative constructions.

Verbs like *wilt* or *blossom*, they say, denote internally-caused events and does not project a VoiceP. Therefore, they do not license an external argument causer. This underlies the reported ungrammaticality of (186b). However, the same verb still licenses a causer-denoting PP as in (186a). This, the authors say, is evidence that implicit/explicit causers and causer-denoting PPs are licensed by different heads. The native speakers of English that I have consulted actually find (186b) to be quite acceptable. On the other hand, a verb like *grow* does not allow an external argument nor a causer-denoting PP.

(187)   a. *The warmth grew the mushroom.
        b. *The mushroom grew from the warmth.

If external argument causers and causer-denoting PPs do in fact pattern together unlike what is claimed by AAS, this may be indicative of the causer-denoting PP being licensed by Voice even in English.

Adding support to my view, Angelopoulos, Collins & Terzi (2020) have recently argued for treating external arguments and agent-denoting PPs as of having equal syntactic status. In making this argument, they point out that Greek and English agent-denoting PPs can bind reflexives just as external arguments can bind reflexive. Nominals embedded in true adjunct PPs, on the other hand, cannot bind the same reflexives.

(188)   *English* (Angelopoulos, Collins & Terzi 2020:11)

        a. The packages were sent by the children$_k$ to themselves$_k$.
        b. *The packages were sent for the children$_k$ to themselves$_k$

(189)   *Greek* (Angelopoulos, Collins & Terzi 2020:9)

        a. Aftes i   lisis   prota-thik-an   apo tus psichotherapeftes$_k$ ja ton
            these the solutions suggest-NACT.PST-3PL by the psychotherapists   for the
            eafto   tus$_k$.
            self.ACC.SG their.GEN
            'The solutions were suggested by the psychotherapists for themselves.'
        b. *Aftes i   lisis   prota-thik-an   choris tus psichotherapeftes$_k$ ja ton
            these the solutions suggest-NACT.PST-3PL without the psychotherapists   for the
            eafto   tus$_k$.
            self.ACC.SG their.GEN
            Intended: 'The solutions were suggested without the psychotherapists for themselves.'
        c. Aftes i   bluzes epilech-tik-an   apo ta phedhja$_k$ ja ton eafto   tus$_k$.
            these the t-shirts select-NACT.PST-3PL by the kids   for the self.ACC.SG their.GEN
            'These t-shirts were selected by the kids for themselves.'
        d. *Aftes i   bluzes epilech-tik-an   brosta/koda s-ta phedhja$_k$ ja ton eafto
            these the t-shirts select-NACT.PST-3PL in.front/near at-the kids   for the self.ACC.SG

tus$_k$.
their.GEN
Intended: These t-shirts were selected in front/near the kids for themselves.'

Jung (2024) has recently shown that the same holds for Korean.

(190)   *Korean* (Jung 2024; a and b are cited from her (37) and (39))

    a. Ku kulim-i   haksayng-tul$_k$-ey uyhay   casin-tul$_k$-ul wihay
        DEM painting-NOM student-PL-DAT   depend.on self-PL-ACC for
        kuli-eci-ess-ta.
        paint-NACT-PST-DECL
        'The painting was drawn by the students for themselves.'

    b. *Ku kulim-i   haksayng-tul$_k$-taysin   casin-tul$_k$-ul wihay kuli-eci-ess-ta.
        DEM painting-NOM student-PL-on.behalf.of self-PL-ACC for   paint-NACT-PST-DECL
        Intended: 'The painting was drawn on behalf of the students for themselves.'

    c. Cokaksang-i Inho$_k$-ey uyhay   casin$_k$-uy cip-ey   noh-i-ess-ta.[9]
        statue-NOM Inho-DAT depend.on self-GEN home-LOC place-NACT-PST-DECL
        'The statue was placed by Inho in self's home.'

    d. *Cokaksang-i Inho$_k$-lul wihay casin$_k$-uy cip-ey   noh-i-ess-ta.
        statue-NOM Inho-ACC for   self-GEN home-LOC place-NACT-PST-DECL
        Intended: 'The statue was placed for Inho in self's home.'

I replicate the argument in Korean inchoative constructions. While causers are often inanimate entities and cannot easily bind anaphors, it is possible to facilitate such constructions with verbs that denote unintentional actions and causers that denote mass/plural entities. In (191a) and (191c), the causer (*cwi* 'mouse' and *yekayk* 'passenger', respectively) can bind the anaphor *casin* c-commanded by the causer-denoting PP. On the other hand, the same NPs cannot bind *casin* if they are embedded inside a true adjunct PP as in (191b) and (191d).

(191)   a. ?Ssias-i   cwi-tul$_k$-lo   inhay casin-tul$_k$-uy sesikci-ey tuli-eci-ess-ta.
        seed-NOM mouse-PL-INS due.to self-PL-GEN   nest-LOC bring-NACT-PST-DECL
        'The seed was brought from mice to self's nest.'

    b. *Ssias-i   cwi-tul$_k$-kwa   hamkkey casin-tul$_k$-uy sesikci-ey tuli-eci-ess-ta.
        seed-NOM mouse-PL-with together self-PL-GEN nest-LOC bring-NACT-PST-DECL
        Intended: 'The seed was brought with mice to self's nest.'

    c. ?Pailesu-ka yekayk-tul$_k$-lo   inhay casin-tul$_k$-uy kokwuk-ey
        virus-NOM passenger-PL-INS due.to self-PL-GEN   home.country-LOC
        phe-eci-ess-ta.
        spread-NACT-PST-DECL
        'The virus spread from passengers to self's home country.'

---

[9]The suffix *ey* on *cip* 'home' is locative, and is simply homophonic to the dative case *ey* on *Inho*.

d. *Pailesu-ka yekayk-tul$_k$-lopwuthe casin-tul$_k$-uy kokwuk-ey
virus-NOM passenger-PL-from   self-PL-GEN   home.country-LOC
phe-eci-ess-ta.
spread-NACT-PST-DECL
Intended: 'The virus spread out of passengers to self's home country.'

Based on the facts reported in (187–191), I conclude that agent/causer-denoting PPs are of equal status to the implicit agent/causer: both are realizations of the agent/causer theta role at Spec, VoiceP.[10]

4.4   Deriving the two subject positions in nonactive constructions

In section 4.2, I demonstrated that Korean nonactive *HI-* and *eci*-constructions show properties of both passive and inchoative constructions. I then proposed in section 4.3 a Voice system that subsumes the passive and inchoative distinction as featural specifications on Voice. In this system, either an implicit agent or PP agent is present in the specifier of passive Voice; similarly, either an implicit causer or PP causer is present in the specifier of inchoative Voice.

We are now in a position to explain the two subject positions in nonactive constructions. Recall that in section 2.4, I explained that the theme always moves to Spec, VoiceP. I proposed that Voice bears the feature [●N●], which requires an overt NP in its specifier. For active Voice, the external argument subject always merges in its specifier; therefore, no movement is triggered to Spec, VoiceP. For nonactive Voice, we now know that an implicit agent/causer or a PP agent/causer is in its specifier. But none are of category N. The implicit agent/causer is not overt (and arguably not of category N); the PP agent/causer is not of category N. Therefore, the theme is triggered to move to Spec, VoiceP.

Examples (93–94), repeated below, were provided as evidence for this claim. The theme subject – *hwacang* in (93) and *ttang* in (94) – needs to appear at the left edge of resultative clauses headed by *key*.

(93)   *Ciho enjoys jogging, and also enjoys wearing makeup. One day, he decides to jog while wearing makeup on. But the day is warm, so his makeup was erased from the sweat.*

a.   Ciho-ka   [hwacang-i   wancenhi   ciwu-eci-key]   ttuy-ess-ta.
Ciho-NOM makeup-NOM completely erase-NACT-KEY run-PST-DECL
'Ciho ran to the extent that his makeup was completely erased.'

---

[10]Angelopoulos, Collins & Terzi (2020) actually locate the PPs and implicit agents/causers at Spec, *v*P instead of Spec, VoiceP. They are assuming a grammar where the head that encodes the agentivity of an event (Voice) is separate from the head that introduces an external argument, contra Kratzer (1996). I do not adopt this view for Korean, and maintain that Voice is the head that encodes the agentivity (or lack thereof) of the event and introduces the corresponding external argument.

b.??Ciho-ka [wancenhi hwacang-i   ciwu-eci-key] ttuy-ess-ta.
Ciho-NOM completely makeup-NOM erase-NACT-KEY run-PST-DECL

(94) *There are children running around in the garden. They are wearing sturdy shoes, and the*
     ground consists of soft dirt. The children's shoes cause the soft ground to be dug up.

   a. Ai-tul-i   [ttang-i   kiphi pha-i-key]   ttuye.tani-ess-ta.
       child-PL-NOM ground-NOM deeply dig-NACT-KEY run.roam-PST-DECL
       'The children ran around to the extent that the ground was dug up deeply.'

   b.??Ai-tul-i   [kiphi ttang-i   pha-i-key]   ttuye.tani-ess-ta.
       child-PL-NOM deeply ground-NOM dig-NACT-KEY run.roam-PST-DECL

The resultative clauses are nonactive VoicePs. Therefore, the fact that the theme must appear at
the left edge of resultative clauses suggests that the theme must move to the left edge of nonactive
VoiceP. (See section 2.4.1 for arguments that resultative clauses are nonactive VoicePs.)

   Let us now observe how the linear order between the theme and the agent/causer turns out.
The examples below add an agent/causer-denoting PP to the sentences in (93–94). In (192), *ttam-*
ulo inhay 'from the sweat' is introduced as a causer-denoting PP. In (193), *sinpal-ey uyhay* 'by
the shoes' is introduced as an agent-denoting PP. In both examples, the theme subject can either
precede or follow the PP. Both a- and b-sentences are of equal acceptability.

(192) a. Ciho-ka [**ttam-ulo inhay** hwacang-i   wancenhi ciwu-eci-key] ttuy-ess-ta.
           Ciho-NOM sweat-INS due.to makeup-NOM completely erase-NACT-KEY run-PST-DECL
           'Ciho ran to the extent that his makeup was completely erased from the sweat.'

       b. Ciho-ka [hwacang-i   **ttam-ulo inhay** wancenhi ciwu-eci-key] ttuy-ess-ta.
           Ciho-NOM makeup-NOM sweat-INS due.to completely erase-NACT-KEY run-PST-DECL

(193) a. Ai-tul-i   [**sinpal-ey uyhay** ttang-i   pha-i-key]   ttuyetani-ess-ta
           child-PL-NOM shoe-DAT depend.on ground-NOM dig-NACT-KEY run.around-PST-DECL
           'The children ran around so much that the ground was dug up by (their) shoes.'

       b. Ai-tul-i   [ttang-i   **sinpal-ey uyhay**   pha-i-key]   ttuyetani-ess-ta.
           child-PL-NOM ground-NOM shoe-DAT depend.on dig-NACT-KEY run.around-PST-DECL

In the tree in (194), I explain how the two word orders are achieved. If the theme moves to the lower
specifier of VoiceP, the agent/causer precedes the theme and we achieve the word order of the a-
sentences. If the theme moves to the higher specifier of VoiceP, the theme precedes the agent/causer
and we achieve the word order of the b-sentences.

(194) a. *Theme moves to the lower specifier*   b. *Theme moves to the higher specifier*

```
        VoiceP                                              VoiceP
       /     \                                             /      \
     PP      Voice′                                              Voice′
    /  \     /    \                                             /     \
NP        P      Voice′                                      PP        Voice′
Agent/Causer    /     \                                    /   \       /     \
             vP       Voice                         NP         P    vP       Voice
            /  \    [VOICE: NACT]                   Agent/Causer       /  \  [VOICE: NACT]
         AdvP   v′  [AGENT: ±]                                      AdvP   v′ [AGENT: ±]
        /  \   / \    [●N●]                                        /  \   / \   [●N●]
    NP    Adv √P  v                                           NP    Adv √P  v
    Dur/Multi  / \                                            Dur/Multi  / \
          NP      √                                                 NP      √
          Theme                                                    Theme
```
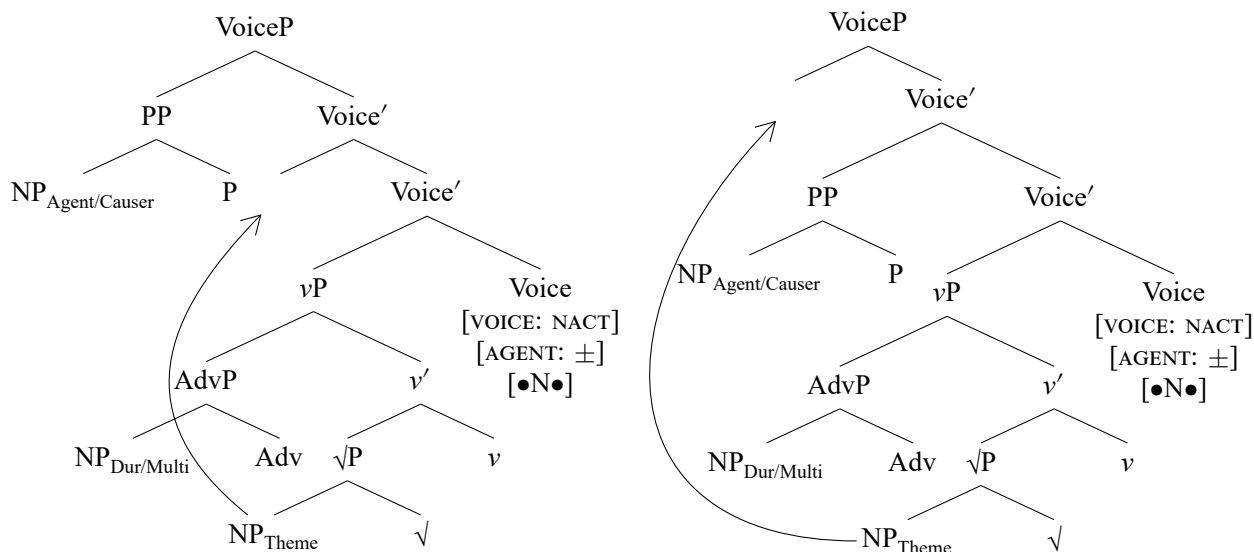
The two potential landing sites of the theme is what underlies two different structures of nonac-
tive constructions. I propose that whichever specifier is higher in a nonactive construction moves
to Spec, TP. I formalize this movement by positing the feature [●φ●] in the CP phase. Similar to the
feature [●N●] on Voice, the feature [●φ●] requires a specifier that bears a φ-feature in its specifier.
In essence, [●φ●] triggers movement of the most local syntactic unit that bears a φ-feature (such
as NPs or certain PPs) to the specifier of the head bearing [●φ●]. Unlike the category feature N,
which by definition is strictly limited to NPs, I view φ-features to have a wider distribution across
different categories. Specifically, I view implicit agent/causers and PP agent/causers to bear φ al-
though they do not bear the category feature N. These agents and causers can bind anaphora, as
we have seen in (190–191). Korean has a rich system of anaphora, and one of them is of the form
pronoun-casin where the φ-feature of the pronoun matches that of the antecedent. (*Mina* is used as
a female name in (195a).)

(195) a. Mina-ka   {✓kunye/*ku}-casin-ul salangha-n-ta.
           Mina-NOM {✓her/*him}-self-ACC   love-PRS-DECL
           'Mina loves herself/*himself.'

       b. Ai-tul-i   {✓kutul/*ku}-casin-ul   salangha-n-ta.
           child-PL-NOM {✓them/*him}-self-ACC love-PRS-DECL
           'The children love themselves/*himself.'

In the nonactive examples in (196), the agent-denoting PP controls the φ-features of the anaphor
just like the NP subjects do in (195). Since implicit agents and causers are equal counterparts of
PP agents and causers, I consider implicit agents and causers to also bear φ-features.

(196) a. Mina-ey uyhay   {✓kunye/*ku}-casin-ul wihay kulim-i
         Mina-DAT depend.on {✓her/*him}-self-ACC for   painting-NOM
         kuli-eci-ess-ta.
         paint-NACT-PST-DECL
         'The painting was drawn by Mina for herself/*himself.'

   b. Ai-tul-ey   uyhay   {✓kutul/*ku}-casin-ul   wihay kulim-i
         child-PL-DAT depend.on {✓them/*him}-self-ACC for   painting-NOM
         kuli-eci-ess-ta.
         paint-NACT-PST-DECL
         'The painting was drawn by the children for themselves/*himself.'

Therefore, I consider agents and causers in nonactive constructions to bear ϕ-features. This qualifies them as the goal of the feature [●ϕ●] on T, alongside the NP theme subject.

It is simply for concreteness that I locate [●ϕ●] on T, although my analysis does not necessarily hinge on this decision. As long as the feature bearing [●ϕ●] is within the CP phase and not the edge of that domain, the analysis holds.[11]

4.5   Implicit agents and causers are in the syntax

In this section, I present an argument from obligatory control that the implicit agents and causers in *HI*- and *eci*-constructions are present and active in the syntactic structure. In doing so, I join Roeper (1987), Bhatt & Pancheva (2006), and more recently Jung (2024), who argue in favor of a syntactically present implicit argument. Pointing to sentences such as (197), Roeper argues that implicit agents in English passive constructions are syntactically active because it can be a controller in a control construction.

(197)   The boat was sunk to collect the insurance.   (Roeper 1987:268)

I demonstrate that the same holds for *HI*- and *eci*-constructions which embed a CP with the modal *keyss*.

(198) a. Inho$_k$-ka [PRO$_k$ cakicasin$_{k/*j}$-uy kacok-ul   cikhi-keyss-ta-ko]
         Inho-NOM PRO   self-GEN   family-ACC protect-MOD-DECL-COMP
         tacimha-yess-ta.
         VOW-PST-DECL
         'Inho vowed to protect self's family.'   (Adapted from Madigan 2008:17)

---

[11]In section 2.2, I argued that movement to the edge of a phase occurs after case evaluation of that phase. Since the movement induced by [●ϕ●] affects case on the adverbial, it must occur before evaluation of the CP phase for case. Therefore, [●ϕ●] cannot be borne by the highest head in the CP phase.

b. Mina-to   kuliha-yess-ta.
Mina-also do.so-PST-DECL
'Mina did so, too.' (Can only mean Mina vowed to protect her own family, not Inho's)

First, the fact that the reflexive *cakicasin* is licensed inside the clause signals that there is a syntactically real licensor (PRO). Unlike *caki*, which can be licensed cross-clausally, *cakicasin* is primarily licensed clause-internally.[12] Furthermore, the PRO subject in (198a) can only get a *de se* reading, since the sentence is true only when Inho's intention is to protect his own family. It cannot be true when Inho vows to protect some family which, unbeknownst to him, turns out to be his own. Lastly, the fact that only a bound variable reading of PRO is available under ellipsis also supports an obligatory control analysis of the *keyss* clause.

Example (199a) shows a construction similar to (198a), except that the matrix clause now contains a nominal object, *kewul*. Also, the embedded control clause is selected by the light verb *ha* 'do/say', which can be null. The embedded clause expresses the matrix subject's intention or reason in performing the action portrayed in the matrix clause.

(199) a. Inho$_k$-ka [PRO$_k$ cakicasin$_{k/*j}$-uy elkwul-ul po-keyss-ta-ko]   (ha-myense)
Inho-NOM PRO self-GEN   face-ACC see-MOD-DECL-COMP (say-while)
kewul-ul   kkenay-ess-ta.
mirror-ACC take.out-PST-DECL
'Inho took out a mirror to see self's face.' (Lit. 'Inho took out a mirror, saying to see self's face.')

b. Mina-to   kulihe-yess-ta.
Mina-also do.so-PST-DECL
'Mina did so, too.' (Can only mean Mina intended to see her own face, not Inho's)

The PRO in (199a) behaves in the same way as the PRO of (198a). It can bind the reflexive *cakicasin*, and can only get a *de se* reading. (199b) is only true when Mina took out a mirror intending to see her own face; it cannot mean that Mina took out a mirror to see Inho's face.

Having established that (199a) is an obligatory control construction, I argue that *HI* and *eci*-constructions have a syntactically realized implicit agent that can act as a controller. The a-sentences in (200–203) are active sentences with a structure analogous to (199a). Here, the controller of PRO is the matrix subject. The b-sentences and c-sentences are passive counterparts of the a-sentences. In the b-sentences, the implicit agent is expressed as the PP expression *NP-ey uyhay*. In the c-sentences, the implicit agent is null.[13] (200c) and (201c) passivize with *HI*, while (202c) and

[12]But see Kim & Yoon (2009) for experimental evidence that *cakicasin* can be bound cross-clausally as an exempt anaphor.

[13](200–203) all show passive examples, and not inchoative ones, because agents more readily become controllers than causers. Causers, which are often natural phenomena or an event, are often incompatible with the *de se* requirement of obligatory control. See also the discussion at the end of this section.

(203c) passivize with *eci*.

(200) a. Mina-ka   [PRO kakwu-lul   tuli-keyss-ta-ko]   mwun-ul ttut-ess-ta.
       Mina-NOM PRO furniture-ACC bring.in-MOD-DECL-COMP door-ACC detach-PST-DECL
       'Mina detached the door to bring in the furniture.'

   b. [PRO kakwu-lul   tul-i-keyss-ta-ko]   Mina-ey uyhay   mwun-i
       PRO furniture-ACC enter-CAUS-MOD-DECL-COMP Mina-DAT depend.on door-NOM
      ttut-ki-ess-ta.
      detach-NACT-PST-DECL
      'The door was detached by Mina to bring in the furniture.'

   c. [PRO kakwu-lul   tul-i-keyss-ta-ko]   mwun-i ttut-ki-ess-ta.
       PRO furniture-ACC enter-CAUS-MOD-DECL-COMP door-NOM detach-NACT-PST-DECL
      'The door was detached to bring in the furniture.'

(201) a. Hoysa-ka   [PRO caykaypal-ul ha-keyss-ta-ko]   cwumin-tul-ul
       company-NOM PRO redevelop-ACC do-MOD-DECL-COMP resident-PL-ACC
      nayccoch-ass-ta.
      kick.out-PST-DECL
      'The company kicked out the residents to redevelop the area.'

   b. [PRO caykaypal-ul ha-keyss-ta-ko]   hoysa-ey   uyhay   cwumin-tul-i
       PRO redevelop-ACC do-MOD-DECL-COMP company-DAT depend.on resident-PL-NOM
      nayccoch-ki-ess-ta.
      kick.out-NACT-PST-DECL
      'The residents were kicked out by the company to redevelop the area.'

   c. [PRO caykaypal-ul ha-keyss-ta-ko]   cwumin-tul-i   nayccoch-ki-ess-ta.
       PRO redevelop-ACC do-MOD-DECL-COMP resident-PL-NOM kick.out-NACT-PST-DECL
      'The residents were kicked out to redevelop the area.'

(202) a. Ai-tul-i   [PRO cim-ul   cwuli-keyss-ta-ko]   oskaci-lul peli-ess-ta.
       child-PL-NOM PRO load-ACC lighten-MOD-DECL-COMP clothes-ACC discard-PST-DECL
      'The children discarded the clothes to lighten the load.'

   b. [PRO cim-ul   cwuli-keyss-ta-ko]   ai-tul-ey   uyhay   oskaci-ka
       PRO load-ACC lighten-MOD-DECL-COMP child-PL-DAT depend.on clothes-NOM
      peli-eci-ess-ta.
      discard-NACT-PST-DECL
      'Clothes were discarded by the children to lighten the load.'

   c. [PRO cim-ul   cwuli-keyss-ta-ko]   oskaci-ka peli-eci-ess-ta.
       PRO load-ACC lighten-MOD-DECL-COMP clothes-NOM discard-NACT-PST-DECL
      'Clothes were discarded to lighten the load.'

(203) a. Kyengchal-i [PRO solan-ul   mak-keyss-ta-ko]   siwitay-lul
       police-NOM   PRO commotion-ACC prevent-MOD-DECL-COMP protestors-ACC

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nayponay-ess-ta.
send.out-PST-DECL
'The police sent out the protestors to prevent a commotion.'

b. [PRO solan-ul mak-keyss-ta-ko] kyengchal-ey uyhay
  PRO commotion-ACC prevent-MOD-DECL-COMP police-DAT depend.on
siwitay-ka nayponay-eci-ess-ta.
protestors-NOM send.out-NACT-PST-DECL
'The protesters were sent out by the police to prevent a commotion.'

c. [PRO solan-ul mak-keyss-ta-ko] siwitay-ka
  PRO commotion-ACC prevent-MOD-DECL-COMP protestors-NOM
nayponay-eci-ess-ta.
send.out-NACT-PST-DECL
'The protesters were sent out to prevent a commotion.'

All the sentences in (200–203) are grammatical, and the PRO refers to the agent of the event denoted in the matrix clause. Crucially, the PRO cannot refer to the internal argument or the patient of the matrix clause event. This is especially striking for (201c) and (203c), where the internal argument denotes people and therefore is semantically compatible with being the agent of the embedded predicate. However, such interpretations are ruled out. These facts indicate that there must be some other controller of PRO in the syntactic structure of the b-sentences, and that this controller must be coreferent with the agent of the matrix event. Therefore, I conclude that an implicit agent is syntactically present as a null element.

Examples (204–205) show that the local anaphor *cakicasin* is licensed inside the embedded clause, just as it is licensed in (198). *Cakicasin* is incompatible with inanimate or group-denoting antecedents such as *hoysa* 'company' or *kyengchal* 'police' (Kim & Yoon 2009), so I demonstrate only with (204) and (205). Let us first observe the active sentences ((204a) and (205a)) and non-active sentences with an overt agent PP ((204b) and (205b)).

(204) a. Mina$_1$-ka [PRO$_1$ kakwu-lul **cakicasin$_1$-uy** pang-ey tuli-keyss-ta-ko]
Mina-NOM PRO furniture-ACC **self-GEN** room-LOC bring.in-MOD-DECL-COMP
mwun-ul ttut-ess-ta.
door-ACC detach-PST-DECL
'Mina$_1$ detached the door to bring in the furniture in self's$_1$ room.'

b. [PRO kakwu-lul **cakicasin-uy** pang-ey tul-i-keyss-ta-ko] Mina-ey
  PRO furniture-ACC **self-GEN** room-LOC enter-CAUS-MOD-DECL-COMP Mina-DAT
uyhay mwun-i ttut-ki-ess-ta.
depend.on door-NOM detach-NACT-PST-DECL
'The door was detached by Mina$_1$ to bring in the furniture in self's$_1$ room.'

(205) a. ai-tul$_1$-i [PRO$_1$ **cakicasin-tul$_1$-uy** kapang-eyse cim-ul
child-PL-NOM PRO **self-PL-GEN** bag-LOC load-ACC

cwuli-keyss-ta-ko]　　oskaci-lul　peli-ess-ta.
lighten-MOD-DECL-COMP clothes-ACC discard-PST-DECL
'The children discarded the clothes to lighten the load from self's₁ bag.'

　　b.　[PRO₁ **cakicasin₁-tul-uy** kapang-eyse cim-ul　　cwuli-keyss-ta-ko]　　　Mina₁-ey
　　　　 PRO　**self-PL-GEN**　　　bag-LOC　　load-ACC lighten-MOD-DECL-COMP Mina-DAT
　　　　uyhay　　oskaci-ka　　peli-eci-ess-ta.
　　　　depend.on clothes-NOM discard-NACT-PST-DECL
　　　　'Clothes were discarded by the children to lighten the load from self's₁ bag.'

Here, the local anaphor *cakicasin* can be contained inside the embedded clause. This suggests that a PRO is present inside the embedded clause to bind *cakicasin*. The PRO is controlled by the matrix subject in the a-sentences, and by the agent PP in the b-sentences.

　　Cakicasin is also available inside the embedded clause of nonactive sentences with a *null* implicit agent. (206b) and (207b) show the nonactive sentences (200c) and (202c) containing a *cakicasin* inside the embedded clause. These sentences are rather awkward when uttered out-of-the-blue, potentially due to the referent of its antecedent being unspecified. But they are natural and grammatical when preceded by an adequate context sentence that provides a referent for PRO and *cakicasin*, such as the a-sentences below.

(206)　a.　*Context*: Mina-ka　　cip-ul　　　san ihwu cip-i　　　manhi pakwu-i-ess-ta.
　　　　　　　　　　Mina-NOM house-ACC buy since house-NOM much　change-NACT-PST-DECL
　　　　　　　　　　'Since Mina bought the house, it was changed in many ways.'

　　b.　[PRO₁ kakwu-lul　　**cakicasin₁-uy** pang-ey　　tul-i-keyss-ta-ko]
　　　　 PRO　furniture-ACC **self-GEN**　　　room-LOC enter-CAUS-MOD-DECL-COMP
　　　　mwun-i　　ttut-ki-ess-ta.
　　　　door-NOM detach-NACT-PST-DECL
　　　　'The door was detached to bring in the furniture in self's room.'

(207)　a.　*Context*: Ai-tul-i　　　kapang-i mwukewe-se himtuleha-yess-ta.
　　　　　　　　　　child-PL-NOM bag-NOM heavy-CONN　struggle-PST-DECL
　　　　　　　　　　'The children struggled because (their) bag was heavy.'

　　b.　[PRO₁ **cakicasin-tul₁-uy** kapang-eyse cim-ul　　cwuli-keyss-ta-ko]
　　　　 PRO　**self-PL-GEN**　　　bag-LOC　　load-ACC lighten-MOD-DECL-COMP
　　　　oskaci-ka　　peli-eci-ess-ta.
　　　　clothes-NOM discard-NACT-PST-DECL
　　　　'Clothes were discarded to lighten the load from self's bag.'

I summarize what has been discussed in this section. We have seen in examples (200–202) that implicit agents can be the controller in an obligatory control relationship, whether they be null or realized as a PP. The local binding examples in (206–207) confirm the presence of the controlee, PRO, in these sentences. It is especially important that null implicit agents can be a controller,

since this entails that they are truly a syntactic element, and not built in the semantics of the Voice head as suggested by AAS 2015. The syntactic presence of these implicit agents is important in my analysis of case alternation in nonactive sentences, where the implicit agent competes with the nonactive subject to be the goal of the [●ϕ●] feature on T. This competition is what leads to two different positions of the nonactive subject.

I conclude with a brief note on implicit causers. The control diagnostics put forth here for implicit agents are difficult to apply to implicit causers because the diagnostics of obligatory control is *de se* interpretation of the PRO. This requires a sentient individual as its controller, but implicit causers are often events or natural phenomena. However, implicit agents and causers show various similarities on morphosyntactic fronts. They are both null elements that can optionally be realized as PPs. The PPs themselves show striking similarities in their structure, consisting of a lexically case-marked NP and a postposition grammaticalized from a light verb. The two PPs (NP-*ey uyhay* and NP-*lo inhay*) cannot co-occur, which adds weight to the view that they are introduced in the same syntactic position – namely as Spec, VoiceP. Based on these similarities, I extend my analysis of implicit agents as syntactically realized null pronouns to implicit causers.

Appendix: An analysis of *HI* and *eci* as different flavors of *v*

In this section, I build on a recent proposal by Jung (2024) to provide a concrete analysis of the structure of *HI* and *eci* constructions. I propose that both *HI* and *eci* are realizations of *v*, but that they realize different flavors of *v*. In A.1, I provide arguments in favor of treating *HI* as v_{CAUSE}. A.2 discusses arguments for treat *eci* as the realization of v_{GO}. Lastly, in A.3 I comment on the nonactive causative construction, where *HI* and *eci* co-occur.

A.1   *HI* is v_{CAUSE}

I explain how *HI* behaves both as a nonactive suffix and a causative suffix, and argue that this duality of *HI* is best captured by identifying *HI* as v_{CAUSE}. As introduced in section 4.1, the suffix *HI* is a set of four allomorphs (*i*/*hi*/*li*/*ki*) which contributes a meaning that can be roughly characterized as nonactive.

(208)   a.   Mina-ka   maktay-lul kkekk-ess-ta.
            Mina-NOM stick-ACC   snap-PST-DECL
            'Mina snapped the stick.'

         b.   Maktay-ka Mina-ey   uyhay   kkekk-i-ess-ta.
            stick-NOM   Mina-DAT depend.on snap-NACT-PST-DECL
            'The stick was snapped by Mina.'

(209)   a.   Inho-ka   phwungsen-ul cap-ass-ta.
            Inho-NOM balloon-ACC   catch-PST-DECL
            'Inho caught the balloon.'

         b.   Phwungsen-i Inho-ey   uyhay   cap-hi-ess-ta.
            balloon-NOM Inho-DAT depend.on catch-NACT-PST-DECL
            'The balloon was caught by Inho.'

Arguably, *HI* lives a double life as a causativizing suffix. In (210–212), the a-examples show run-of-the-mill transitive constructions. The b-examples introduce an additional external argument that makes the event denoted in the a-examples happen: *Inho* in (210b), *emeni* 'mother' in (211b), and *sangin* 'merchant' in (212b). The transitive subjects of the a-examples, which correspond to the "causee" or the agent of the caused example in the b-examples, are introduced as dative arguments. Furthermore, the verbs in the b-examples contain the additional suffix *HI* that was absent in the a-examples. In addition to the allomorphs *i*, *hi*, *li*, *ki*, the causative variant of *HI* can also be realized as *wu*, *kwu*, *chwu*. But the overlap of the *i*/*hi*/*li*/*ki* forms, and their identical syntactic distribution suggest that nonactive *HI* and causative *HI* are "the same morpheme": they are more closely interrelated than by an accidental homophony (Yeon 1991).

(210) a. Ai-ka   os-ul   ip-ess-ta.
       child-NOM clothes-ACC wear-PST-DECL
       'The child wore the clothes.'

  b. Inho-ka   ai-eykey os-lul   ip-**hi**-ess-ta.
     Father-NOM child-DAT clothes-ACC wear-CAUS-PST-DECL
     'The father made the child wear clothes.'

(211) a. Mina-ka   ton-ul   math-ass-ta.
       Mina-NOM money-ACC take.on-PST-DECL
       'Mina took on the money.'

  b. Emeni-ka   Mina-eykey ton-ul   math-**ki**-ess-ta.
     mother-NOM Mina-DAT   money-ACC take.on-CAUS-PST-DECL
     'Mother entrusted the money to Mina.' (Lit. 'Inho made Mina take on the money.')

(212) a. Nakwi-ka   cim-ul   ci-ess-ta.
       donkey-NOM load-ACC carry-PST-DECL
       'The donkey carried the load.'

  b. Sangin-i   nakwi-eykey cim-ul   ci-**wu**-ess-ta.
     merchant-NOM donkey-DAT   load-ACC carry-caus-PST-DECL
     'The merchant made the donkey carry the load.'

Some roots can only form nonactive constructions with *HI*, and others only form active causative constructions with it. Still others, such as *mek* 'eat', *ilk* 'read', *tul* 'hold', and *wul* 'cry, ring', can combine with *HI* to form either a nonactive or causative construction. I do not comment here on what determines which roots show which behavior.[14]

Interestingly, one cannot form a nonactive causative construction by doubling *HI*. The a-examples in (213–214) show the causative usage of *HI*, while the b-examples show the nonactive usage of *HI* with the same root. One cannot form a nonactive causative construction by attaching two *HI*s on the root.[15] This suggests that the causative *HI* and the nonactive *HI* are realizations of the same syntactic head, or at least originate from the same syntactic position. If they were instances of two independent heads that happened to sound the same, the ungrammaticality of (213c) and (214c)

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[14]Jeong (2018) proposes a semantic analysis that predicts the behavior shown by roots based on their semantics. She observes that many of the verbs that form active causative *HI*-constructions, such as *ssek* 'rot', *el* 'freeze', *malu* 'dry' express internally-caused events. On the other hand, verbs that form nonactive *HI*-constructions such as *yel* 'open', *pakkwu* 'change', *tat* 'close' often express externally-caused events. Based on this observation, she proposes *HI* is an operator that picks out from the set of events denoted by a verb only the events whose causation pattern is marked or non-canonical. *HI* picks out externally-caused events when combining with verbs that canonically express internally-caused events, and picks out internally-caused events when combining with verbs that canonically express externally-caused events. While this analysis is attractive and elegant, it faces difficulties with regards to roots such as *mek* and *ilk* which can form both causative and nonactive constructions with *HI*.

[15]Replacing the second instance of *HI* with a different allomorph does not ameliorate the structure. The *HI-HI* sequence is not degraded due to PF constraints such as the Obligatory Contour Principle, but is truly a syntactically ill-formed expression.

would be much harder to explain.

(213) a. *Active causative construction*

   Sensayngnim-i haksayng-tul-eykey kyokwase-lul ilk-**hi**-ess-ta.
   teacher-NOM   student-PL-DAT   textbook-ACC read-CAUS-PST-DECL
   'The teacher made the students read the textbook.'

   b. *Nonactive construction*

   Kyokwase-ka ilk-**hi**-ess-ta.
   textbook-NOM read-NACT-PST-DECL
   'The textbook was read.'

   c. *Kyokwase-ka haksayng-tul-ey uyhay   ilk-**hi-hi**-ess-ta.
   textbook-NOM student-PL-DAT   depend.on read-CAUS-NACT-PST-DECL
   Intended: 'The textbook was made to be read by the students.'

(214) a. *Active causative construction*

   Inho-ka   Mina-eykey swupak-ul   tul-li-ess-ta.
   Inho-NOM Mina-DAT   watermelon-ACC hold-CAUS-PST-DECL
   'Inho made Mina hold a watermelon.'

   b. *Nonactive construction*

   Swupak-i   tul-li-ess-ta.
   watermelon-NOM hold-NACT-PST-DECL
   'The watermelon was held.'

   c. *Swupak-i   Mina-eykey tul-li-li-ess-ta.
   watermelon-NOM Mina-DAT   hold-CAUS-NACT-PST-DECL
   Intended: 'The watermelon was made to be held by Mina.'

The grammatical way to form a nonactive causative is, in fact, to attach *HI* and *eci* as shown in (215). I elaborate on the *HI-eci* construction in A.3.

(215) a. *Nonactive causative counterpart of* (213)

   Kyokwase-ka haksayng-tul-eykey ilk-**hi-eci**-ess-ta.
   textbook-NOM student-PL-DAT   read-CAUS-NACT-PST-DECL
   'The textbook was made to be read by the students.'

   b. *Nonactive causative counterpart of* (214)

   Swupak-i   Mina-eykey tul-**li-eci**-ess-ta.
   watermelon-NOM Mina-DAT   hold-CAUS-NACT-PST-DECL
   'The watermelon was made to be held by Mina.'

   Based on the ungrammaticality of (213c) and (214c), I propose that nonactive *HI* and causative *HI* are instances of the same syntactic head – namely v_{CAUSE}. In section 2.3.1, I have introduced the tripartite argument/event structure which consists of the projections √P, *v*P, and VoiceP. I adopt the approach put forth by Harley (1995, 2013), Folli & Harley (2005) and Cuervo (2003) which

recognizes different *flavors* of the verbalizing head *v*. While the specific implementation of this intuition varies among authors, they agree that there is a small closed set of flavors of *v* such as v_{DO}, v_{CAUSE}, or $v_{\text{GO/BECOME}}$. The restrictions on syntactic structure determined by the verb are derived from the choice of *v* and sometimes, especially for Cuervo, the combination of multiple *v*s.

I specifically identify *HI* as what Folli & Harley (2005) calls v_{CAUSE}, which introduces a resultant state caused by an external argument which initiates the resultant state. Unlike v_{DO}, the verbalizer that introduces an agentive activity, the external argument of a v_{CAUSE} event is not necessarily agentive or acts with intention; it simply needs to initiate the event introduced by v_{CAUSE}. This is true for nonactive *HI* as well as causative *HI*. I have already discussed that nonactive *HI*-constructions license both the agentive PP (NP-*ey uyhay*) as in (216a) and the causer PP (NP-*lo inhay*) as in (216b). The same holds for causative *HI*: the external argument can either be an agent with intention such as *sacang* 'CEO' of (217a) or a causer like *cenglihayko* 'layoff' of (217b).

(216) a. Maktay-ka Mina-ey uyhay kkekk-**i**-ess-ta.
   stick-NOM Mina-DAT depend.on snap-NACT-PST-DECL
   'The stick was snapped by Mina.'

   b. Maktay-ka phoksel-lo inhay kkekk-**i**-ess-ta.
   stick-NOM snowstorm-INS due.to snap-NACT-PST-DECL
   'The stick snapped from the snowstorm.'

(217) a. Sacang-i cikwen-tul-eykey cim-ul ci-**wu**-ess-ta.
   CEO-NOM employee-PL-DAT load-ACC carry-CAUS-PST-DECL
   'The CEO made the employees carry the load.'

   b. Cenglihayko-ka namun cikwen-tul-eykey cim-ul ci-**wu**-ess-ta.
   layoff-NOM remaining employee-PL-DAT load-ACC carry-CAUS-PST-DECL
   'The recession made the remaining employees carry the load/burden.'

The existence of idiomatic expressions that only maintain their meaning with *HI* is evidence that *HI* is a head local to the root, and not a higher head related to the external argument such as Voice (Marantz 1984; Kratzer 1996). Jung (2014b) points to causative expressions like *nwun-ul pwut-i* 'eyes-ACC stick.to-CAUS', which retain the idiomatic reading only with *HI*. Such idioms can also be found with nonactive *HI*, exemplified in (218).

(218) a. Totwuk-tul-i kyelkwuk kkoli-ka palp-hi-ess-ta.
   thief-PL-NOM eventually tail-NOM step.on-NACT-PST-DECL
   'The thieves were eventually caught.' (Lit. 'The thieves eventually had their tail stepped on.')

   b. #Kyengchal-i kyelkwuk totwuk-tul-ul kkoli-lul palp-ass-ta.
   police-NOM eventually thief-PL-ACC tail-ACC step.on-PST-DECL
   'The police eventually stepped on the thieves' tails.' (No idiomatic reading)

(219) a.   Mina-ka   nwun-ul pwut-i-ess-ta.
           Mina-NOM eyes-PL   stick.to-CAUS-PST-DECL
           'Mina slept.' (Lit. 'Mina made her eyes stick together.')

      b.   Mina-uy nwun-i   pwut-ess-ta.
           Mina-GEN eyes-NOM stick.to-PST-DECL
           'Mina's eyes stuck together.' (No idiomatic reading)

I refer the reader to Jung (2014b) for additional arguments that *HI* is v_{CAUSE}.[16] Based on the similarities of causative *HI* and nonactive *HI*, and the fact that both show strong locality to the root, I conclude that both are realizations of v_{CAUSE}.

What, then, determines whether a *HI*-construction is interpreted as nonactive or causative? I propose that it is the feature specification of Voice. If Voice bears the feature [VOICE: ACT], it introduces an NP external argument and is interpreted as a causative construction. If Voice bears [VOICE: NACT], the external argument that initiates the event is either underspecified as the null pronominal *e* or expressed overtly as a PP. I present the structure of the causative and nonactive *HI*-constructions in (220) below. (220a) shows the argument structure of (216a), a nonactive *HI*-construction. This is the type of construction discussed in chapter 4 as allowing case alternation on durative/multiplicative adverbials. (220b) shows the argument structure of (217a), a causative *HI*-construction.
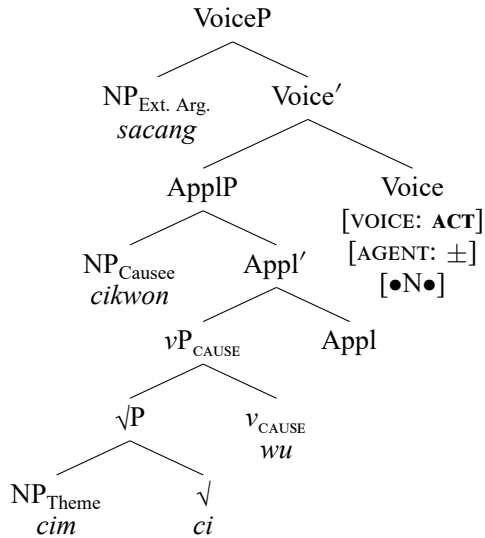
(220) a.   *Argument structure of a nonactive* HI-*construction*

           Maktay-ka Mina-ey   uyhay   kkekk-i-ess-ta.   (= 216a)
           stick-NOM   Mina-DAT depend.on snap-NACT-PST-DECL
           'The stick was snapped by Mina.'

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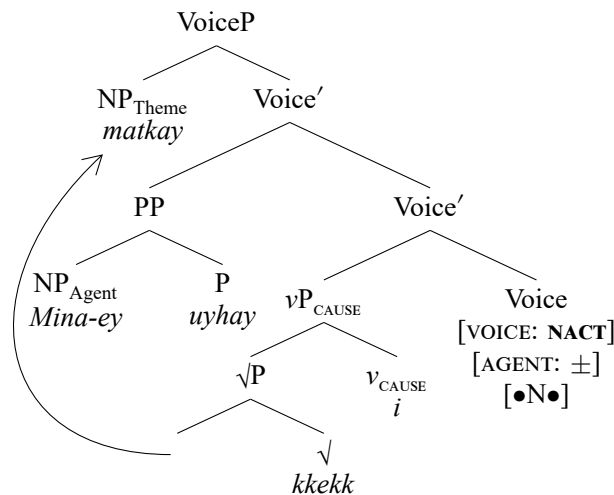
[16] Jung actually distinguishes *HI* that causativizes transitive verbs and *HI* that causativizes intransitive events. She identifies the former as v_{CAUSE} and the latter as v_{DO}. Here, I simply treat *HI* in both transitive and intransitive causativization as v_{CAUSE}.

b. *Argument structure of a causative* HI-*construction*

Sacang-i   cikwen-eykey cim-ul   ci-wu-ess-ta.   (= 217a)
CEO-NOM employee-DAT load-ACC carry-CAUS-PST-DECL
'The CEO made the employee carry the load.'

```
                          VoiceP
                  ┌─────────┴─────────┐
              NP_Ext. Arg.         Voice′
               sacang        ┌────────┴────────┐
                          ApplP              Voice
                    ┌───────┴───────┐    [VOICE: ACT]
                NP_Causee        Appl′    [AGENT: ±]
                 cikwon      ┌─────┴─────┐    [•N•]
                         vP_CAUSE      Appl
                      ┌──────┴──────┐
                     √P          v_CAUSE
                 ┌────┴────┐        wu
             NP_Theme      √
                cim        ci
```

A.2   *eci* is v_{GO}

Let us now turn to the other nonactive construction, the *eci*-construction. Just like nonactive *HI*, *eci* also contributes a similar passive/inchoative meaning when attached to the verb root. Recall that nonactive *eci*-constructions license both agent-PPs and causer-PPs, just like nonactive *HI*-constructions.

(221) a. Yenghi-ka   kyelan-ul kwuw-ess-ta.
        Yenghi-NOM egg-ACC   cook-PST-DECL
        'Yenghi cooked the egg.'

    b. Kyelan-i Yenghi-ey uyhay   kwuw-eci-ess-ta.
       egg-NOM Yenghi-DAT depend.on cook-NACT-PST-DECL
       'The egg was cooked by Yenghi.'

    c. Kyelan-i yelki-lo inhay kwuw-eci-ess-ta.
       egg-NOM heat-INS due.to cook-NACT-PST-DECL
       'The egg cooked from the heat.'

(222) a. Yolisa-ka mwul-ul   ssot-ass-ta.
        cook-NOM water-ACC spill-PST-DECL
        'The cooked spilled the water.'

    b. Mwul-i   yolisa-ey uyhay   ssot-aci-ess-ta.
       water-NOM cook-DAT depend.on spill-NACT-PST-DECL
       'The water was spilled by the cook.'

    c. Mwul-i   cicin-ulo   inhay ssot-aci-ess-ta.
       water-NOM earthquake-INS due.to spill-NACT-PST-DECL
       'The water spilled from the earthquake.'

Unlike *HI*, *eci* does not show a causativizing usage. Furthermore, an *eci*-construction does not license an NP external argument. The nominative subject of an *eci*-construction is always the theme, and the external argument that initiates the denoted event is either null or introduced as a PP.

(223) a. *Yenghi-ka   kyelan-ul kwuw-eci-ess-ta.
          Yenghi-NOM egg-ACC cook-NACT-PST-DECL

      b. *Yolisa-ka mwul-ul   ssot-aci-ess-ta.
          cook-NOM water-ACC spill-NACT-PST-DECL

We can make two conclusions from this fact. First, *eci* realizes a different head from *HI* since the two suffixes impose different restrictions on the syntactic structure. Second, *eci* is only compatible with nonactive Voice. In other words, the Voice head of an *eci*-construction always bears [VOICE: NACT]; it cannot bear [VOICE: ACT].

    I adopt a recent proposal by Jung (2024) that *eci* is the realization of v_{GO}. As mentioned in section 4.1, *eci* introduces a change-of-state event. Cuervo (2003) introduces v_{GO} as part of her system of verbalizers to analyze the structure of Spanish inchoative constructions. Jung (2024) identifies the similarities between the inchoative constructions discussed by Cuervo and the Korean *eci*-construction, and proposes that *eci* is the realization of v_{GO}.[17] Linking *eci* with the change-of-state verbalizer readily accounts for the fact that *eci* does not license an active NP subject. Change-of-state events, linked with anticausativity or inchoativity, are observed in many languages to suppress an active agentive subject and instead appear with either an implied or oblique external argument. (Haspelmath 1990; Alexiadou, Anagnostopoulou & Schäfer 2015).

    As Jung points out, the existence of the *potential* construction is another strong argument in favor of identifying *eci* as an instance of *v*, not Voice. Unlike the nonactive *eci*-constructions discussed up to now, the potential *eci*-construction can be formed not only with transitive verbs but also unergative verbs such as *talli* 'run'. This difference in selectional restriction strongly suggests that the potential construction is significantly distinct from the nonactive (passive/inchoative) construction.

(224) a. Wuntonghwa-lul sin-ese   talli-eci-n-ta.
          sneakers-ACC   wear-CONN run-NACT-PRS-DECL
          'One is able to run due to wearing sneakers.'

---

[17]v_{BECOME} is a similar verbalizer introduced by Folli & Harley (2005), which they say introduces a change-of-state event. Jung (2024) chooses v_{GO} over v_{BECOME} since *eci* does not necessarily entail the resultant state, but simply that a change of the state of the theme argument has been initiated.

b. Chayk-i   swipkey ilk-eci-n-ta.
   book-NOM easily   read-NACT-PRS-DECL
   'The book reads easily. (One is able to read the book easily.)'

The potential construction asserts that the event denoted by the construction can indeed occur, especially without any causer or initiator of the event. Hence researchers have described it as expressing a spontaneous change-of-state, or a circumstantial modal meaning expressing the possibility of the denoted event (Kim 2001; Lim 2015; Nam 2011). The spontaneous nature of the potential event, Jung argues, stems from the potential construction lacking a VoiceP altogether. The fact that the potential construction outright bans any agent/causer-PP is evidence in favor of this analysis. Since there is no VoiceP, the agent/causer-PPs which are introduced at Spec, VoiceP cannot appear.

(225) a. *Onul {na/Mina}-ey uyhay   chayk-i   cal ilk-eci-n-ta.
         today {I/Mina}-DAT depend.on book-NOM well read-NACT-PRS-DECL
         Intended: 'The book reads well by me/Mina.'

      b. *Chinswukham-ulo inhay chayk-i   cal ilk-eci-n-ta.
         familiarity-INS   due.to book-NOM well read-NACT-PRS-DECL
   Intended: 'The book reads well from familiarity.'

Also note that the English translations of (224b) and (225) are middle constructions. As a native speaker of Korean, the English middle comes as a fairly faithful translation of the potential *eci*-construction formed from transitive verbs. If there is indeed a significant link between English middles and the Korean potential *eci*-constructions, Newman's (2020) view that (English) middles lack VoiceP is also pertinent. Crucially, if *eci* was the realization of Voice and not *v*, we would not expect the sentences in (224) to be available in Korean. The fact that *eci* is available in constructions which arguably lack VoiceP supports the analysis of *eci* as the realization of v_{GO}.

(226a) shows the argument structure of (221b), a nonactive *eci*-construction. This is the *eci*-construction which allows for case alternation on the durative/multiplicative adverbial. It contains a full-fledged VoiceP and can license the agent NP. (226b), on the other hand, shows the argument structure of a potential *eci*-construction. It lacks a VoiceP projection altogether. The theme argument appears to the left of the adverbial because it moves to Spec, TP, not because it moves to Spec, VoiceP.

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(226) a. *Argument structure of a nonactive* eci-*construction*

Kyelan-i Yenghi-ey uyhay   kwuw-eci-ess-ta.   (= 221b)
egg-NOM Yenghi-DAT depend.on cook-NACT-PST-DECL
'The egg was cooked by Yenghi.'
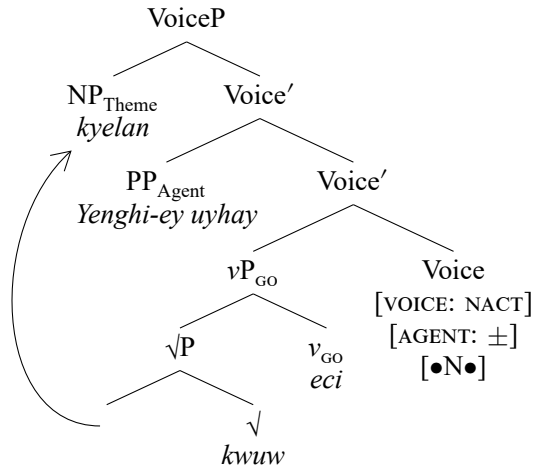
b. *Argument structure of a potential* eci-*construction*

Chayk-i   swipkey ilk-eci-n-ta.   (= 224b)
book-NOM easily   read-NACT-PRS-DECL
'The book reads easily.'
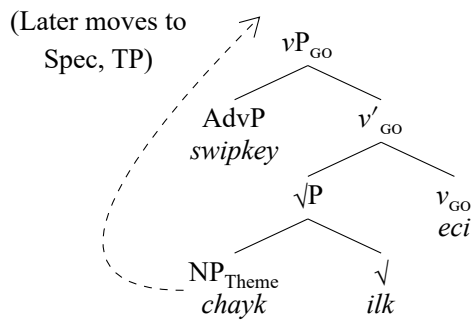
A.3   A comment on the *HI-eci* construction

As I have explained in section A.1, *HI* can either create a causative construction or a nonactive construction. But it is impossible to create a nonactive causative construction by attaching two instances of *HI* to the root. In order to express such a meaning, one attaches the causative *HI* and nonactive *eci* to the verb; I repeat examples of the *HI-eci* constructions below.

(215) a. Kyokwase-ka haksayng-tul-eykey ilk-**hi-eci**-ess-ta.
           textbook-NOM student-PL-DAT   read-CAUS-NACT-PST-DECL
           'The textbook was made to be read by the students.'

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    b. Swupak-i   Mina-eykey tul-**li-eci**-ess-ta.
         watermelon-NOM Mina-DAT   hold-CAUS-NACT-PST-DECL
         'The watermelon was made to be held by Mina.'

Since both *HI* and *eci* are realizations of *v*, this suggests that a structure can include multiple instances of *v*. When these verbalizers come together, there seems to be a hierarchy restriction among verbalizers. Reversing the order of *HI* and *eci* as in (227) results in ungrammaticality.

(227) a. *Kyokwase-ka haksayng-tul-eykey ilk-**eci-hi**-ess-ta.
         textbook-NOM student-PL-DAT   read-NACT-CAUS-PST-DECL

      b. *Swupak-i   Mina-eykey tul-**eci-li**-ess-ta.
         watermelon-NOM Mina-DAT   hold-NACT-CAUS-PST-DECL

The contrast between (215) and (227) suggests that there is a selectional restriction: v_{GO} can select for v_{CAUSE} but v_{CAUSE} cannot select for v_{GO}. The behaviors observed in and (215) (227) are expected under the verbalizer system I adopt from Cuervo (2003), although we differ in the specific inventory of verbalizers we assume. This is a system where verbalizers combine to create structure that represents complex events. Inchoatives for Cuervo are represented as a combination of $v_{GO}+v_{BE}$. Causatives are also further decomposed for her: instead of v_{CAUSE}, she represents causative events as $v_{DO}+v_{GO}$ (Cuervo 2015). While I differ from Cuervo by postulating a dedicated v_{CAUSE} head, I decompose complex events like nonactive causatives in (215) as $v_{GO}+v_{CAUSE}$. Selectional restrictions among verbalizers are also built into this system. v_{BE}, for example, is unable to select for the dynamic verbalizers v_{GO} and v_{DO}. I similarly assume a selectional restriction against v_{CAUSE} selecting for v_{GO}.[18] The fact that v_{CAUSE} but not v_{GO} shows (downward) root-sensitive allomorphy, and that v_{GO} but not v_{CAUSE} shows (upwards) selectional restriction for Voice, is another argument suggesting that v_{GO} occupies a higher position than v_{CAUSE}.

    A question that arises in the face of (215) is how *HI* can be understood as causative and not nonactive despite being embedded under nonactive Voice. In section A.1, I have argued that the semantics of HI as v_{CAUSE} is underspecified as an event introducer that introduces a potentially agent-less event (*i.e.*, an event whose external argument can either be an agent or causer). What differentiates

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    [18]Cuervo (2003:19, fn 3) provides some semantic motivations for the selectional restrictions, but these are rather brief and informal. For example, v_{BE} cannot select for v_{DO} or v_{GO} because statives cannot take as arguments dynamic events. A similar semantic argument won't hold for v_{CAUSE} and v_{GO} since v_{GO} *can* undergo causativization: not via v_{CAUSE}, but via the Voice-selecting causativization construction *key ha*.

(i)   Mina-ka   sengpyek-ul   ssul-eci-**key**   **ha**-yess-ta.
      Mina-NOM castle.walls-ACC topple-NACT-RES do-PST-DECL
      'Mina made the castle walls topple.'

Therefore, a functional or semantic argument against causativization selecting for v_{GO} is difficult to make. In the absence of rigorous formal motivations for Cuervo's selectional restrictions, I assume that the selectional restrictions among verbalizers are morphosyntactic.

causative *HI* from nonactive *HI* is whether Voice bears [VOICE: ACT] or [VOICE: NACT]. However, *HI* in (215) is clearly contributing a causative meaning despite Voice being nonactive. *HI-eci*-constructions only license a PP external argument and never an NP external argument, which is expected if Voice bears [VOICE: NACT].

(228) a. Kyokwase-ka sensayngnim-ey uyhay   haksayng-tul-eykey
           textbook-NOM teacher-DAT   depend.on student-PL-DAT
           ilk-hi-eci-ess-ta.
           read-CAUS-NACT-PST-DECL
           'The textbook was made by the teacher to be read by the students.'

       b. *Sensayngnim-kkeyse kyokwase-ka haksayng-tul-eykey ilk-hi-eci-ess-ta.
           teacher-NOM.HON   textbook-NOM student-PL-DAT   read-CAUS-NACT-PST-DECL

I leave a full-fledged solution to this problem for future research, but simply point here to the possibility of contextual allosemy (Wood 2012; Marantz 2013). Perhaps my proposal in section A.1 should be revised: *HI* is interpreted as causative in the immediate context of [VOICE: ACT], and is otherwise interpreted as nonactive (*i.e.*, in the context of [VOICE: NACT] or v_{GO}).

Chapter 5

A successive-cyclic dependent case analysis of durative/multiplicative adverbials

In this chapter, I provide an analysis of the case patterns on Korean durative/multiplicative adverbials based on a successive-cyclic Dependent Case model. In section 5.1 I present the specific version of the successive-cyclic Dependent Case model adopted in this dissertation. It builds on a proposal by Levin (2017), but explicitly states some assumptions that were implicit in Levin's original proposal and is reformulated to be more compatible with the Cyclic Linearization view of spell-out (Fox & Pesetsky 2005). Section 5.2 is the main contribution of the chapter, where I derive the case patterns of Korean with the proposed model. After demonstrating how my version of the Dependent Case model works with simple sentences (section 5.2.1), I provide an analysis for the case pattern on durative/multiplicative adverbials (section 5.2.2), as well as previously observed case phenomena such as case stacking and multiple nominative constructions (sections section 5.2.3 and 5.2.4).

5.1 A successive-cyclic Dependent Case model

In this section, I introduce the model of Dependent Case that I adopt to explain the case patterns shown in section 1.1. The model is a formalization of the successive-cyclic Dependent Case model put forth by Levin (2017). In section 5.1.1, I present the model. Then, in section 5.1.2, I provide three remarks that clarify some of the details about how this model works.

5.1.1 Refined formalization of Levin's (2017) model

In section 2.1, I introduced the Dependent Case model (Yip, Maling & Jackendoff 1987; Marantz 1991) and the case hierarchy it assumes. I repeat the case hierarchy and the dependent case assign-

ment algorithm below as (229) and (230), respectively.[1]

(229) *Case realization disjunctive hierarchy* (Marantz 1991:24; cited from Baker 2015:48)

    a. *Lexically governed case*
       [Case determined by the lexical properties of a particular item, such as quirky case-assigning verbs in Icelandic or adpositions in many languages]

    b. *"Dependent" case (accusative and ergative)*

    c. *Unmarked case (environment-sensitive)*
       [Nominative or absolutive case assigned to any NP in a clause; genitive case assigned to any NP inside a nominal]

(230) Dependent case assignment algorithm (cited from Baker 2015:48–49)

    a. Downward dependent case:
       If there are two distinct NPs in the same phase such that NP1 c-commands NP2, then value the case feature of NP2 as accusative unless NP1 has already been marked for case.

    b. Upward dependent case:
       If there are two distinct NPs in the same phase such that NP1 c-commands NP2, then value the case feature of NP1 as ergative unless NP2 has already been marked for case.

I also discussed the case-stacking pattern of Korean, and how adopting Levin's (2017) successive-cyclic view of the Dependent Case model is advantageous in explaining this pattern. I repeat Levin's statement of successive-cyclic case assignment in (231).

(231) Evaluate a nominal for case in every phase it occupies. (Levin 2017:456)

Notice that the expression "evaluate a nominal" in (231) is somewhat underspecified, especially against the backdrop of the case assignment algorithm stated in (230) – the spirit of which Levin also adopts. (230) is stated in a *pairwise* fashion: the algorithm looks at two NPs in a c-command relation, and assigns dependent case to one member of the pair. "Evaluating a nominal" seems to be implicitly understood as checking whether the nominal of interest is a valid target for dependent case – in other words, whether it can be "NP2" in the statements of (230). However, nothing in the current understanding of the Dependent Case model necessarily entails this understanding.

I propose a restatement of (231) to (233), based on definitions provided in (232). Under (233), every *pair* of NPs that are viable targets of case assignment (via bearing an unvalued case feature)

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[1]Since all case evaluations considered in this dissertation occur inside clauses, default case is excluded from (229). See discussion of (32) in section 2.1.

are evaluated at the spell-out of each phase.

(232) *Definitions*

    a.   A *case target* is an NP that bears an unvalued case feature ([CASE: __]).

    b.   A *case target pair* is a pair of two distinct case targets.

    c.   A pair of NPs is **associated with a phase** if **at least one** member of the pair is located in the phase.

(233) *Successive-cyclic dependent case assignment*
       For each phase, take the following steps in order to evaluate for case.

    a.   *Lexical case evaluation*
        Evaluate every case target in the phase for lexical case. Any NP that is assigned a lexical case at this stage is excluded from the following steps.

    b.   *Dependent case evaluation*
        Evaluate every case target pair that is associated with the current phase for dependent case as per (230). Any NP that is assigned a dependent case at this stage is excluded from the following steps.

    c.   *Unmarked case evaluation*
        Evaluate every remaining case target in the sentence for unmarked case. Nominative is the unmarked case in CP.
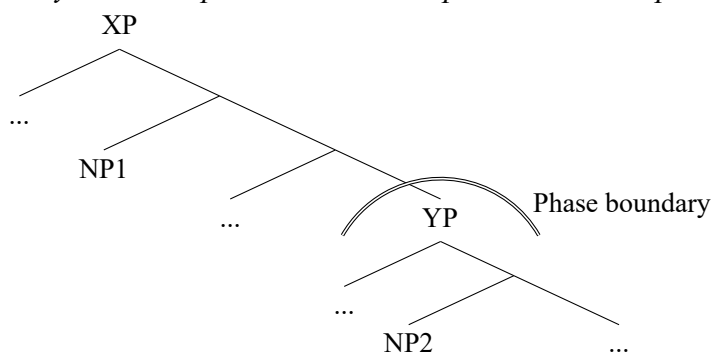
Special mention is due of (232c), which is a deviation from Levin's previous implementation of dependent case and which derives the crucial case patterns discussed in this dissertation. For Levin, only NPs that occupy the current phase are case targets. If an NP fails to get case by spell-out of the previous domain and does not undergo movement out of the domain, it does not get a second chance at case evaluation and is always expected to get nominative case. My version of the dependent case model makes a different prediction. Dependent case evaluation in a phase, as stated in (233b), targets all and only case pairs that are associated with the phase. Per (232c), a case target pair is associated with a phase if *at least one* member is located in the phase. Therefore, case evaluation of a phase can target not only case target pairs of which both members occupy a phase, but ones where only one of the two members occupy the phase. More specifically, dependent case evaluation can target the case target pair <NP1, NP2> in a structure like (234b) where NP1 occupies the current phase, but NP2 occupies the lower phase. The double arc in (234b) marks the boundary of the YP phase.

(234) *Two ways a case target pair <NP1, NP2> can be associated with phase XP*

    a. *Both NP1 and NP2 occupy XP*

```
        XP
       /  \
     ...   \
          / \
        NP1  \
            / \
          ...  \
              / \
            NP2  ...
```
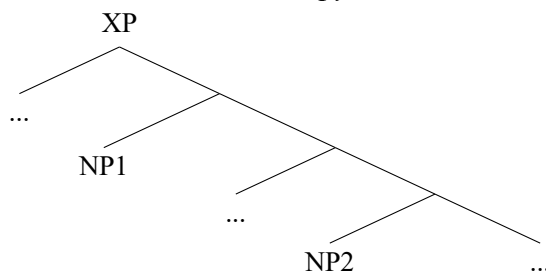
    b. *Only NP1 occupies XP; NP2 occupies YP, a lower phase*

```
        XP
       /  \
     ...   \
          / \
        NP1  \
            / \
          ...  \
              YP      Phase boundary
             / \
           ...  \
               / \
             NP2  ...
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    Hence the concept of *association* with a phase as defined in (232c) widens the range of NPs that can be assigned dependent case from a given case evaluation process. More specifically, an NP that failed to get case by spell-out of a case domain YP can potentially undergo dependent case evaluation a second time at spell-out of XP, the phase that dominates YP.[2] This prediction is crucial in explaining how the NP embedded inside a durative/multiplicative AdvP, which fails to get case at evaluation of VoiceP, can be assigned dependent accusative case at evaluation of CP by forming a case target pair with the subject which occupies the CP phase.

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[2]See Baker (2015) for a similar approach, where he stipulates a language-specific parameter that determines whether the VoiceP phase is a *hard* phase or a *soft* phase. VoiceP (or *v*P for him) is a hard phase in languages like Sakha and Koryak where an NP inside VoiceP is completely excluded from future case evaluations once VoiceP is spelled out. In Korean, he says, VoiceP is a soft phase: elements inside a soft phase is still available for case evaluation that occurs in the higher phase. This does not mean that VoiceP is completely transparent in soft-phase languages, though: VoiceP is, after all, still a kind of locality domain in these languages. C-command relations that were already established before spell-out of VoiceP is not re-considered for case evaluation after spell-out of VoiceP. Only "new" relations formed after spell-out of VoiceP (either through movement or through external merge) are considered for case evaluation in the CP phase. His idea is comparable, although not identical, to my proposal that only case target pairs associated with the CP phase are considered for dependent case evaluation.

5.1.2 Three clarifying remarks

Before applying my successive-cyclic Dependent Case model to the Korean data in section 5.2, I provide three remarks that clarify some of the details about how the model works.

My first remark concerns how NPs that have been assigned case in a lower phase can become a case target again upon movement to the higher phase. As mentioned in section 2.1, I follow Preminger (2011, 2014), Baker (2015), and Levin (2017) among others in viewing case assignment as a syntactic operation that values case features on NPs. Since morphological case is a realization of the case features valued in the syntax, NPs that show case stacking must be bearing multiple case features. To capture this insight, I propose the following.

(235) Insert an unvalued case feature ([CASE: __]) to every NP that moves to a non-edge position of a higher phase.

Notice that insertion of [CASE: __] must co-occur only with movement to phase-internal positions, and not movement to the edge of a phase. This is because, as demonstrated in section 2.2, movement to the edge of a phase does not affect case evaluation.[3] Also note that assuming (235) does not entail the assumption that an NP bearing multiple case features always shows overt case stacking. Nominative–nominative and accusative–accusative stacks are unattested in Korean, with the exception of the sequence *kkeyse-ka* (honorific nominative – non-honorific nominative).[4] Cho & Sells (1995) and Schütze (2001) propose a morphological restriction against pronouncing these sequences. Baker & Vinokurova (2010) and Richards (2013) also propose similar restrictions in pronouncing stacked case in Sakha and Lardil, respectively. Admittedly, (235) is currently stipulated as a rule. But it is clear that some operation or process of this spirit is necessary in order to capture the fact that case stacking and case alternation correlates with movement to a higher phase in Korean. The effects achieved by (235) may be derived from more general principles, or implemented by means of more primitive operations. I leave this pursuit to future research.

My second remark concerns the environment for assigning unmarked case. (229c) states that unmarked case is the case given to a caseless NP in a *clause*. Along with Baker (2015) and Levin (2017), I interpret the term *clause* as referring to the CP phase and restate (229c) accordingly as (236).[5]

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[3]What I distinguish as movement to a phase-internal position versus movement to a phase edge, Levin (2017) distinguishes as A-scrambling versus Ā-scrambling. He proposes that any NP that A-scrambles to the next phase up gets another case in its "stack". Ā-scrambling, he says, is ignored by the case calculus. While we use different terminologies, we are capturing the same distinction. I use my own terms which remain theory-neutral in terms of what underlies the A/Ā distinction.

[4]Even the *honorific nominative–non-honorific nominative* sequence is ruled out for many speakers; see section 5.2.3. Also, there is no honorified variant of the accusative case marker.

[5]To be precise, Baker (2015) and Levin (2017) have different definitions of what constitutes a spell-out domain. Baker takes on the more conventional view that *v*/Voice and C are phase heads and that it is their complement (VP and

(236)   Case realization disjunctive hierarchy (Marantz 1991:24; cited from Baker 2015:48)

      c.   Unmarked case (environment-sensitive) – restated from (229c)
           [Nominative or absolutive case assigned to any NP in a **CP phase**; genitive case assigned to any NP inside a nominal]

Crucially, unmarked case cannot be assigned at spell-out of VoiceP since there is no unmarked case defined for VoiceP. Therefore, it is not an environment that triggers unmarked case assignment. At spell-out of a VoiceP phase, (233c) would still apply to any remaining case target within the phase. However, this would not trigger any valuation of [CASE: __] to [CASE: NOM]. The feature [CASE: __] remains unvalued until completion and spell-out of the CP phase, whereby it will be valued as [CASE: NOM] if it fails to be valued otherwise per (233a) or (233b). This means that an NP which failed to get case in the VoiceP phase remains caseless (and thus not marked with nominative case) until completion of the CP phase above it.

This is crucial in explaining how dependent case assignment can be triggered in the CP phase. Consider a ditransitive sentence as in (237), where both the subject *Kim-kyoswunim* 'professor Kim' and the indirect object *Cheli* show case stacking.[6,7]

(237)   Kim-kyoswunim-kkeyse-man-i   Cheli-hanthey-lul kkoch-ul   cwu-si-ess-ta.
       Kim-professor-NOM.HON-only-NOM Cheli-DAT-ACC   flower-ACC give-HON$_S$-PST-DECL
       'Only professor Kim gave Cheli flowers.' (Levin 2017:459)

The case stacking on *Kim-kyoswunim* and *Cheli* signal that both NPs have undergone movement to the CP phase. The outermost accusative case on *Cheli* is assigned in this CP phase. The only NP c-commanding *Cheli* in the CP phase is *Kim-kyoswunim*, so *Kim-kyoswunim* must have been the case target that triggered dependent case assignment on *Cheli*. But this entails that *Kim-kyoswunim* was caseless at the time of evaluation for dependent case at the CP phase. Had its case feature been valued as [CASE: NOM] at spell-out of VoiceP, it would not have qualified as a caseless NP in the higher phase and would have failed to trigger dependent case. For dependent case to be successfully assigned to *Cheli*, both instances of [CASE: __] borne by *Kim-kyoswunim* (one inserted at external merge, the other inserted upon movement out of VoiceP) must have remained unvalued until spell-out of CP. When case evaluation for the CP phase occurs, both are valued as nominative via (233c).

Notice that by specifying the domain of unmarked case assignment, I impose an upper limit

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TP, respectively) that are transferred to the interfaces (Chomsky 2000, 2001). Levin, on the other hand, assumes the entire *v*P/VoiceP and CP to be spelled out to the interfaces.

    [6]I do not comment here on where and how the focus marker *man* attaches to the subject. As Levin points out, the presence of *man* in the sequence *kkeyse-man-i* 'NOM.HON-only-NOM' significantly improves grammaticality for many speakers including myself, compared to *kkeyse-ka* 'NOM.HON-NOM'.

    [7]Instead of the dative case suffix *eykey* used throughout this dissertation, Levin uses *hanthey*. I have cited Levin's example as presented in his article. The two suffixes both express dative case, but *eykey* is used in a slightly formal register compared to *hanthey* (Sohn 2001). Both behave identically with regards to case stacking.

on how long an NP may remain caseless. This allows my version of the dependent case model to circumvent locality issues that potentially arise with an *association*-based algorithm of dependent case evaluation. In theory, association weakens the locality restrictions that are in place in earlier versions of the dependent case model where dependent case only looks at two NPs within the *same* case assignment domain (however that domain may be defined). An NP occupying the current phase could potentially form a case target pair with another caseless NP that is embedded deep down under many phases, triggering a very long-distance dependent case assignment. However, in reality, an NP cannot remain caseless beyond spell-out of the CP that immediately dominates it. Right before the CP is spelled out, unmarked case evaluation triggers assignment of unmarked (nominative) case to any NP that remains caseless by that point. Therefore, any NP that is inside a spelled-out CP bears a valued case feature and cannot be a case target. This effectively limits the locality domain of case assignment to CP, while allowing case target pairs straddling the VoiceP boundary to be involved in dependent case licensing.

My third and last remark distinguishes the status of being *caseless* from that of being a *case target*. As stated in (230) and demonstrated in (237), dependent case is triggered by *caseless* NPs, or NPs that are not marked for case. An NP which already got case in a lower phase and subsequently becomes a case target upon movement to a higher phase is not caseless, and therefore cannot trigger dependent case to any case target it c-commands. This distinction is especially relevant for dative subjects like *Mina* in (238).[8] In (238), both *Mina* and *ton* 'money' are located in the CP phase. This is demonstrated by case stacking on *Mina* as well as their linear position to the left of *hwaksilhi* 'surely', a speaker-oriented adverb.

(238) a. ?Mina-eykey-ka ton-i   hwaksilhi iss-Ø-ta.
           Mina-DAT-NOM money-NOM surely   COP-PRS-DECL
           'The money is surely with Mina.'

       b. *Mina-eykey-ka ton-ul   hwaksilhi iss-Ø-ta.
           Mina-DAT-NOM money-ACC surely   COP-PRS-DECL

The NP *ton* is c-commanded by *Mina* in both the VoiceP phase and the CP phase, but fails to be assigned dependent case in either phase. In the lower phase, *Mina* is in a position to get lexical dative case – presumably at Spec, ApplP. By the time (233b) applies to evaluate for dependent case, *ton* is the only case target in the structure and hence fails to get its case feature valued. When both NPs move to the CP phase, they are both inserted an additional instance of [CASE: __] per (235). Since there is no functional head that assigns lexical case in the higher phase, both NPs are case targets by the time (233b) applies again. However, since *Mina* already bears [CASE: DAT] from

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[8]Dative-nominative stacking is reported to be grammatical by Yoon (2004) and Levin (2017); the latter reports judgments from ten native speakers of Korean. While my personal intuition judges it as marginal, there is crucially a strong contrast between (238a) and (238b).

the lower phase, it is not caseless. Therefore, evaluation of the pair *<Mina, ton>* fails to trigger dependent case on *ton*.

To summarize, I have presented my reformulation of the successive-cyclic Dependent Case model originally proposed by Levin (2017). In most part, my reformulation is not so much an amendment as it is an explicit declaration of what has been implicitly assumed in Levin's proposal. My proposal in (231) that NPs which move to the higher phase bear an additional case feature, as well as the idea that unmarked nominative case is not assigned until completion of the CP phase, are necessary for Levin's theory to be successfully applied in explaining Korean. The only part of my reformulation that makes different predictions from Levin's is the idea that evaluation for dependent case works on case target pairs that are *associated with* a phase. In (232c), I defined a pair associated with a phase as having at least one member being located in that phase. This means that a case target pair can occupy a CP phase with one of its members remaining within the VoiceP phase as long as the other member is located in the CP phase. In other words, an NP that bears [CASE: __] and remains within the VoiceP phase can be evaluated for case again at spell-out of the CP phase if it is c-commanded by another caseless NP that moved to the CP phase.

By contrast, for Levin, an NP that remains caseless by spell-out of VoiceP does not get a second chance at case evaluation unless it moves out of VoiceP. It remains caseless until completion and spell-out of CP and is assigned unmarked case by the end of the derivation. I contend that my version of the model is more compatible with Fox and Pesetsky's (2005) cyclic linearization approach to spell-out which both Levin and I adopt. Under the cyclic linearization view, spell-out to PF registers information about the relative linear order of syntactic elements but does not render the spelled-out elements inaccessible for future syntactic operations. A model of case assignment that is compatible with this view would treat NPs in an already spelled-out domain as still available for case evaluation as long as the NP is a viable case target (*i.e.*, bears an unvalued case feature).

5.2 Putting it altogether

In this section, I put the model to work and show that the reformulated model maintains Levin's previous contributions in explaining the Korean case stacking pattern while also enabling a principled account of how case is determined on multiplicative and durative adverbials. In section 5.2.1, I derive the basic case patterns of Korean to show how the model works. section 5.2.2 is the main contribution of this section, as it derives the puzzling patterns introduced in section 1.1. I demonstrate in section 5.2.3 that my model can account for the case stacking patterns explained by Levin (2017). Lastly, in section 5.2.4 I comment on how multiple nominative constructions can be accounted for under my model. I repeat my reformulated case evaluation algorithm and relevant definitions below for ease of reference.

(232) *Definitions*

    a.   A *case target* is an NP that bears an unvalued case feature ([CASE: __]).

    b.   A *case target pair* is a pair of two distinct case targets.

    c.   A pair of NPs *occupies a phase* if at least one member of the pair is located in the phase.

(233) *Successive-cyclic dependent case assignment*
For each phase, take the following steps in order to evaluate for case.

    a.   *Lexical case evaluation*
Evaluate every case target in the phase for lexical case. Any NP that is assigned a lexical case at this stage is excluded from the following steps.

    b.   *Dependent case evaluation*
Evaluate every case target pair that is associated with the current phase for dependent case as per (230). Any NP that is assigned a dependent case at this stage is excluded from the following steps.

    c.   *Unmarked case evaluation*
Evaluate every remaining case target in the sentence for unmarked case. Nominative is the unmarked case in CP.

Also recall from section 2.2 that movement to the edge of a phase P occurs after P has been evaluated for case. I repeat below the order of operations I provided in that section.

(40) *Order of operations at the edge of a phase*

Merge of phase head and its complement and specifier (if any)

$\Downarrow$

Case evaluation

$\Downarrow$

Movement (if any) to specifier of phase head

$\Downarrow$

Transfer to PF (Linearization statement)

5.2.1 Deriving the basic case patterns

I first derive the case patterns of the simplest structures without any durative/multiplicative adverbial, to demonstrate how my reformulation of the successive-cyclic dependent case model works.

5.2.1.1 Constructions with only one NP

Let us first consider the sentences in (239) which contain only one NP. The unique NP in these constructions is always nominative.

(239) a. Mina-ka ttuy-ess-ta. (*Unergative*)
Mina-NOM run-PST-DECL
'Mina ran.'

b. Sengpyek-i mwune-eci-ess-ta. (Eci-*nonactive*)
castle.walls-NOM topple-NACT-PST-DECL
'The castle walls toppled.'

c. Changmwun-i yel-li-ess-ta. (Eci-*nonactive*)
window-NOM open-NACT-PST-DECL
'The window was opened.'

Mwul-i el-ess-ta. (*Unaccusative*)
water-NOM freeze-PST -DECL
'The water froze.'

Since the sentences in (239) do not include any head that assigns lexical case to an NP, lexical case evaluation fails to trigger any lexical case assignment. Since there are not enough NPs to form any case target pair, dependent case evaluation fails to trigger any dependent case assignment either. Hence the NPs in these sentences all have their feature [CASE: __] unvalued until they are assigned unmarked case at spell-out of CP.
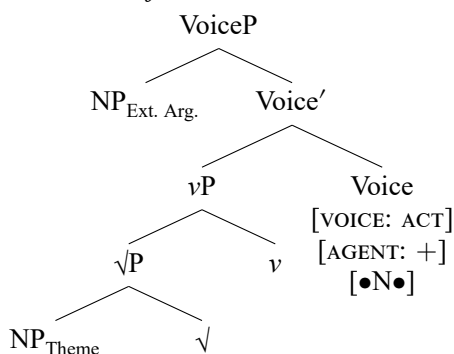
5.2.1.2 Constructions with two or more NPs

Let us now turn to constructions that contain more than one NPs: transitive, ditransitive, and psychological predicate constructions. First consider transitive constructions.

(240) Mina-ka phyenci-lul ilk-ess-ta.
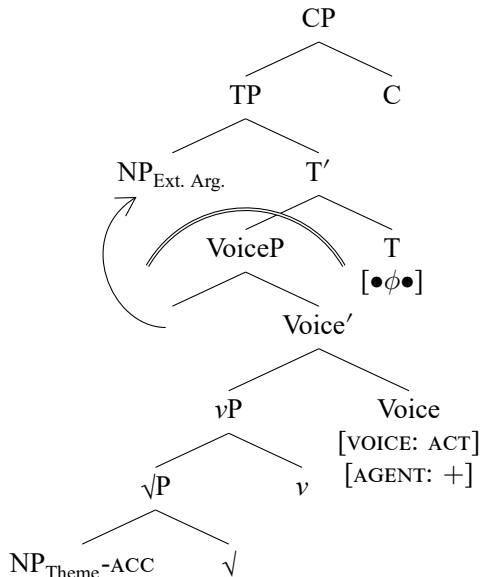Mina-NOM letter-ACC read-PST-DECL
'Mina read the letter.'

(241) shows the structure of a transitive construction at case evaluation of VoiceP. Voice bears the feature [●N●], which requires Voice to project an NP specifier. This requirement is immediately satisfied upon external merge of the external argument, $NP_{Ext. Arg}$.

(241) *Structure of a transitive construction at case evaluation of VoiceP*

```
                    VoiceP
                   /      \
        NP_Ext. Arg.      Voice′
                         /      \
                       vP        Voice
                      /  \       [VOICE: ACT]
                   √P     v      [AGENT: +]
                  /  \           [●N●]
         NP_Theme    √
```

Since there is no head assigning lexical case, lexical case evaluation applies vacuously and does not result in any assignment of lexical case. Dependent case evaluation applies next. The caseless NPs, the NP$_{Ext. Arg.}$ and NP$_{Theme}$, form a case target pair: <NP$_{Ext. Arg.}$, NP$_{Theme}$>. Since NP$_{Theme}$ is c-commanded by NP$_{Ext. Arg.}$, it is assigned dependent accusative case via (233b). NP$_{Ext. Arg.}$ is now the only remaining caseless NP. Since there is no unmarked case defined for VoiceP, NP$_{Ext. Arg.}$ remains caseless. Since it is the highest ϕ-feature bearing element, it moves to Spec, TP. The tree in (242) shows the structure of (240) at case evaluation of the CP phase. The double arc in (242) and subsequent trees mark the boundary of the VoiceP phase.

(242) *Structure of a transitive construction at case evaluation of CP*

```
                         CP
                        /  \
                      TP    C
                     /  \
          NP_Ext. Arg.   T′
                        /  \
                  VoiceP    T
                   /        [●φ●]
               Voice′
               /    \
             vP      Voice
            /  \     [VOICE: ACT]
          √P    v    [AGENT: +]
         /  \
  NP_Theme-ACC  √
```

No lexical case is assigned, due to the absence of a head assigning lexical case. Because NP$_{Ext. Arg.}$ is the only NP that has moved to the CP phase, it is the only case target (*i.e.*, the only NP that bears an unvalued case feature). The unique case feature that NP$_{Theme}$ bears is already valued ([CASE: ACC]). Since there is no case target pair that occupies the CP phase, no dependent case assignment occurs. Lastly, unmarked case evaluation occurs. Since the environment under

evaluation is a CP, and nominative is the unmarked case for CPs, the case feature on NP$_{\text{Ext. Arg.}}$ is valued as [CASE: NOM].

Case assignment works in a parallel fashion in ditransitive constructions, exemplified in (243). The external argument (*Mina*) is marked nominative and the theme (*phyenci*) is marked accusative, just as in (240). The only difference between (240) and (243) is the presence of the goal argument *Inho* in the latter, marked with dative case.

(243)   Mina-ka   Inho-eykey phyenci-lul ponay-ess-ta.
        Mina-NOM Inho-DAT   letter-ACC   send-PST-DECL
        'Mina sent the letter to Inho.'

I follow Kim (2011) and Jung (2014b) in treating dative case as lexical case assigned to an NP at Spec, ApplP (see Pylkkänen 2002, 2008 on the Applicative Phrase; Park & Whitman 2003 on dative case as lexical (non-structural) case in Korean).

(244)   *Structure of a ditransitive construction at case evaluation of VoiceP*
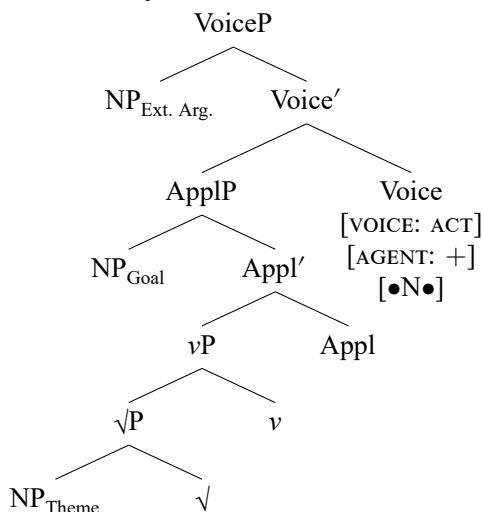
Upon case evaluation of VoiceP, lexical case evaluation occurs first. This time, there *is* a head that assigns lexical case: Appl assigns lexical dative case to its specifier. Dependent case evaluation lists all case target pairs in the VoiceP. NP$_{\text{Ext. Arg.}}$ and NP$_{\text{Theme}}$ form a case target pair (<NP$_{\text{Ext. Arg.}}$, NP$_{\text{Theme}}$>), just as they did in (240). Assignment of dependent case on NP$_{\text{Theme}}$ and unmarked case on NP$_{\text{Ext. Arg.}}$ occurs in the same way as in (241) and (242): NP$_{\text{Theme}}$ is assigned dependent case due to it being c-commanded by NP$_{\text{Ext. Arg.}}$, and NP$_{\text{Ext. Arg.}}$ is assigned unmarked nominative case once it moves to the CP phase as in (245).

(245) *Structure of a ditransitive construction at case evaluation of CP*
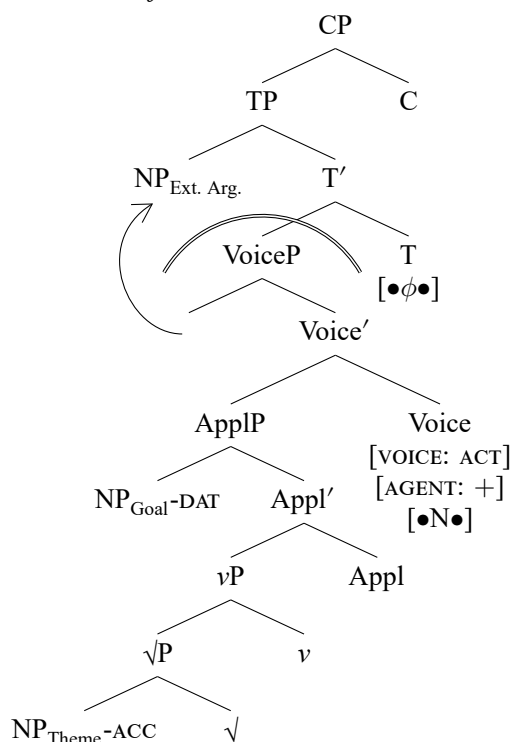
Now let us consider simplex psychological predicate constructions like (246). Here, the highest argument is introduced at Spec, ApplP.

(246) Mina-eykey holangi-ka mwusep-Ø-ta.
       Mina-DAT   tiger-NOM frightening-PRS-DECL
       'Tigers are frightening to Mina.'

In analyzing the argument structure of these constructions, I equate the feature makeup of their Voice head to that of inchoative constructions. I argued in section 4.3 that inchoative constructions contain a nonactive, nonagentive Voice head and optionally licenses the causer-denoting PP, NP_{Causer}-*lo inhay*. Since psychological predicate constructions have the same Voice head, I predict them to also be able to host NP_{Causer}-*lo inhay*. This prediction is borne out in the judgments reported in (247). The agent-denoting PP, NP_{Agent}-*ey uyhay*, is unavailable inside simplex psychological constructions as shown in (247a). In contrast, the sentence is acceptable with NP_{Causer}-*lo inhay* as in (247b). (247c) shows a similar example retrieved from an online search[9].

(247) a. *Inho-ey uyhay   Mina-eykey holangi-ka mwusep-Ø-ta.
            Inho-DAT depend.on Mina-DAT   tiger-NOM frightening-PRS-DECL
            'For Mina, tigers are frightening by Inho.'

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b. Thulawuma-lo inhay Mina-eykey holangi-ka mwusep-Ø-ta.
   trauma-INS   due.to Mina-DAT   tiger-NOM frightening-Ø-DECL
   'For Mina, tigers are frightening from trauma.'

c. ... [Eli-l   cek] thulawuma-lo inhay (*pro*) chikwa-ka   mwusep-ess-ki
      young-ADN days trauma-INS   due.to (*pro*) dentist-NOM frightening-PST-NMLZ
   ttaymwun [...]
   because...
   '[...] because the dentist was frightening (for *pro*) from childhood trauma [...]'

Therefore, I conclude that simplex psychological predicate constructions project a nonactive, nonagentive VoiceP. (248) shows a schematized representation of their structure at the timing of case evaluation of VoiceP. The experiencer (*Mina* in (246)) is represented as NP_{Exp}, and the theme argument (*holangi* in (246)) is represented as NP_{Theme}. Just as in inchoative constructions, Voice may either introduce the implicit external argument, represented as *e*, or the *NP_{Causer}-lo inhay* PP. I only represent *e* here; see the following section on agent/causer-denoting PPs.

(248) *Structure of a simplex psychological construction at case evaluation of VoiceP*
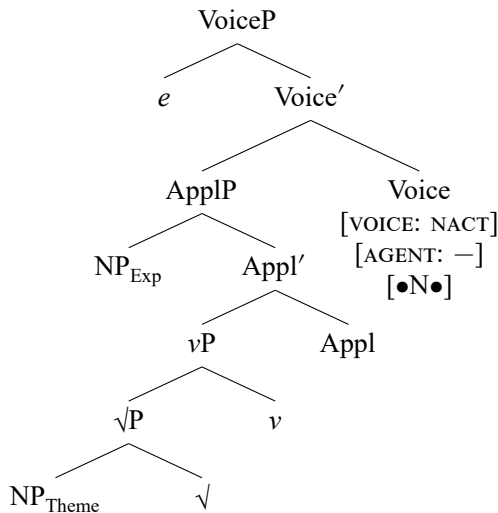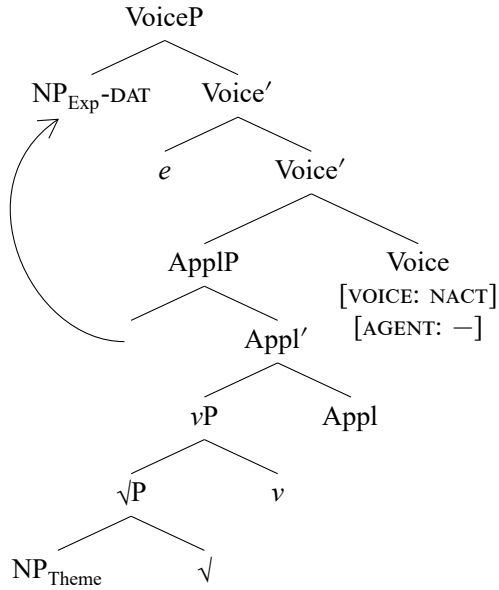

As always, lexical case evaluation applies first. Just as in the ditransitive construction (244), Appl assigns lexical dative case to NP_{Exp}. By the time dependent case evaluation occurs, NP_{Theme} is the only case target in the VoiceP phase. Since there is no case target pair to be evaluated, dependent case is not assigned. Unmarked case evaluation applies vacuously, since there is no unmarked case defined for the environment under evaluation (VoiceP).

Once case evaluation of VoiceP is complete, any movement to Spec, VoiceP ensues if triggered by any feature. I argued in section 4.5 that *e* does not bear a category feature such as *N* or *D*, although it does bear ϕ-features. Since *e* cannot satisfy the needs of the Voice head to project an NP specifier, [●N●] triggers movement of the most local NP to Spec, VoiceP. This is not NP_{theme} as in nonactive constructions, but NP_{Exp}, at Spec, ApplP. Therefore, NP_{Exp} moves to Spec, VoiceP. It
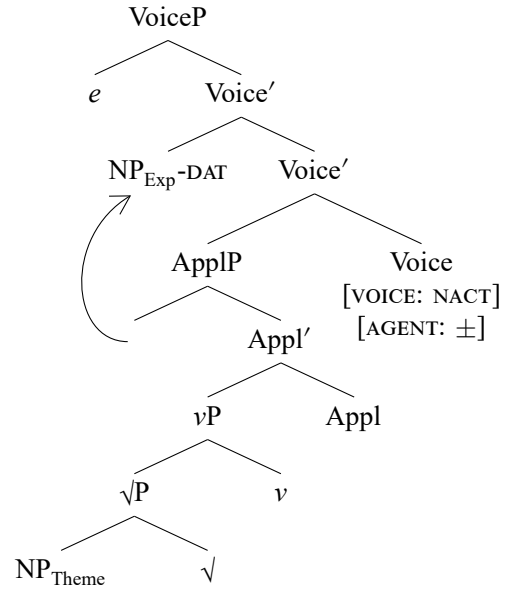
can either move to the lower specifier or the higher specifier as in (249a), or the lower specifier as in (249b).

(249) *Structure of a simplex psychological predicate construction at spell-out of VoiceP*

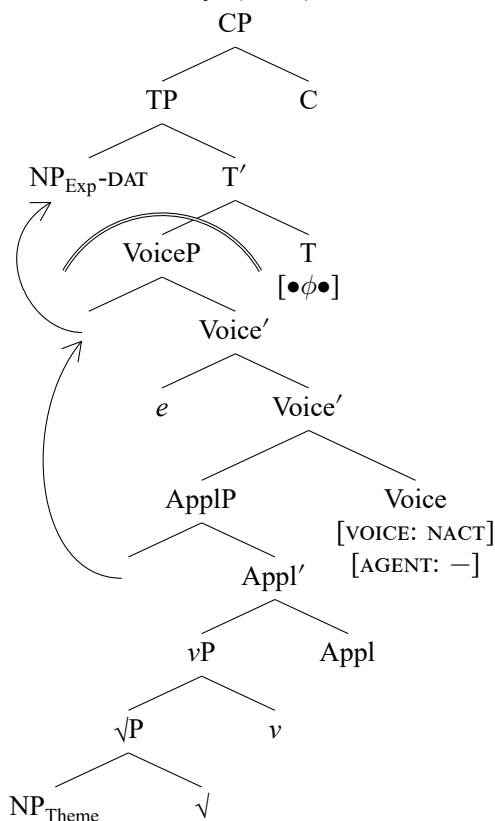a. *NP$_{Exp}$ moves to higher specifier*

b. *NP$_{Exp}$ moves to lower specifier*

```
           VoiceP
          /      \
   NP_Exp-DAT    Voice'
      ↗         /     \
            e        Voice'
                    /     \
                 ApplP     Voice
                /    \    [VOICE: NACT]
             Appl'    Appl [AGENT: −]
            /    \
          vP     Appl
         /  \
       √P    v
      /  \
  NP_Theme  √
```

```
           VoiceP
          /      \
        e        Voice'
                /     \
          NP_Exp-DAT    Voice'
             ↗         /     \
                    ApplP     Voice
                   /    \    [VOICE: NACT]
                Appl'    Appl [AGENT: ±]
               /    \
             vP     Appl
            /  \
          √P    v
         /  \
     NP_Theme  √
```

Between *e* and NP$_{Exp}$, whichever specifier ends up as the higher specifier moves to Spec, TP – triggered by [●ϕ●] on T. In (250a), we see NP$_{Exp}$ moving to Spec, TP. In (250b), we see *e* moving to Spec, TP.

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(250) *Structure of a simplex psychological predicate construction at case evaluation of CP*

    a. *Continuation of* (249a)   b. *Continuation of* (249b)
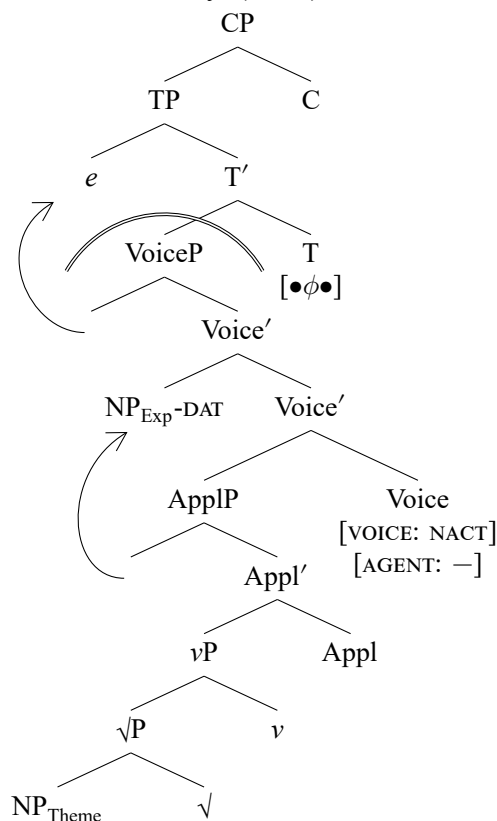
Regardless of whether the structure ends up as (249a) or (249b), the case on NP_{Theme} is always nominative. In (249a), NP_{Exp} gets another unvalued case feature inserted since it has moved to a new phase. Therefore, the case target pair $<NP_{Exp}, NP_{Theme}>$ is a case target pair that is associated with the CP phase. While NP_{Exp} does c-command NP_{Theme}, NP_{Exp} is not caseless – it has already received dative case in the VoiceP phase. Therefore, NP_{Theme} fails to be assigned dependent accusative case and receives unmarked nominative case instead. In (249b), the implicit causer *e* moves to Spec, TP. (Recall from section 4.4 that *e* bears ϕ-features and therefore can be the goal of $[\bullet\phi\bullet]$.) Because *e* is not a case target, there is no case target pair associated with the CP phase. Therefore, NP_{Theme} again fails to be assigned dependent case and ends up with nominative case. Hence, the experiencer is always dative and the theme always nominative in simplex psychological predicates constructions.

I close the section with complex psychological constructions, exemplified in (251). These behave like run-of-the-mill transitive constructions in terms of case marking. Therefore, I do not postulate an ApplP projection in the structure of (251) to license lexical dative case. The argument structure of (251) is identical to a regular transitive construction such as (240). Dependent case assignment also proceeds in the same way.

(251) Mina-ka   holangi-lul mwusep-eha-n-ta.
       Mina-NOM tiger-ACC   frightening-do-PRS-DECL
       'Mina fears tigers.'

5.2.1.3 Nonactive constructions with a PP

As mentioned in chapter 4, the nonactive *eci-* and *HI*-constructions can optionally include a PP denoting the agent or causer which made the event happen. The presence of these PPs does not change the case marking on the internal argument: it can only be nominative, and never accusative. This is true regardless of whether the internal argument c-commands the PP (as in the a-examples) or the PP c-commands the internal argument (as in the b-examples).

(252) a. Sengpyek-{✓i/*ul}   siwitay-ey uyhay   mwune-eci-ess-ta.
           castle.walls-✓NOM/*ACC rioters-DAT depend.on topple-NACT-PST-DECL
           'The castle walls were toppled by the rioters.'

       b. Siwitay-ey uyhay   sengpyek–{✓i/*ul}   mwune-eci-ess-ta.
           rioters-DAT depend.on castle.walls-✓NOM/*ACC topple-NACT-PST-DECL
           'The castle walls were toppled by the rioters.'

(253) a. Changmwun-{✓i/*ul} aitul-ey   uyhay   yel-li-ess-ta.
           window-✓NOM/*ACC   children-DAT depend.on open-NACT-PST-DECL
           'The window was opened by the children.'

       b. Aitul-ey uyhay Changmwun-{✓i/*ul} yel-li-ess-ta.
           children-DAT   depend.on   window-✓NOM/*ACC open-NACT-PST-DECL
           'The window was opened by the children.'

(254) a. Sengpyek-{✓i/*ul}   thaypwung-ulo inhay mwune-eci-ess-ta.
           castle.walls-✓NOM/*ACC typhoon-INS   due.to topple-NACT-PST-DECL
           'The castle walls toppled from the typhoon.'

       b. Thaypwung-ulo inhay sengpyek-{✓i/*ul}   mwune-eci-ess-ta.
           typhoon-INS   due.to castle.walls-✓NOM/*ACC topple-NACT-PST-DECL
           'The castle walls toppled from the typhoon.'

(255) a. Changmwun-{✓i/*ul} kangphwung-ulo inhay yel-li-ess-ta.
           window-✓NOM/*ACC   strong.wind-INS   due.to open-NACT-PST-DECL
           'The window open from the strong wind.'

       b. Kangphwung-ulo inhay changmwun-{✓i/*ul} yel-li-ess-ta.
           strong.wind-INS   due.to window-✓NOM/*ACC open-NACT-PST-DECL
           'The window open from the strong wind.'

Hence the presence of agent/causer-denoting PPs does not affect case marking on the theme subject. This is expected under my dependent case model. The tree in (256) shows the structure of a nonactive construction at the point where the VoiceP phase is evaluated for case. The upper tier

between curly brackets corresponds to passive constructions, and the lower tier corresponds to inchoative constructions. When the feature AGENT on nonactive Voice is valued as [AGENT: +], the postposition *uyhay* introduces an agent-denoting NP_{Agent}. When the feature AGENT on nonactive Voice is valued as [AGENT: −], the postposition *inhay* introduces an agent-denoting NP_{Causer}.
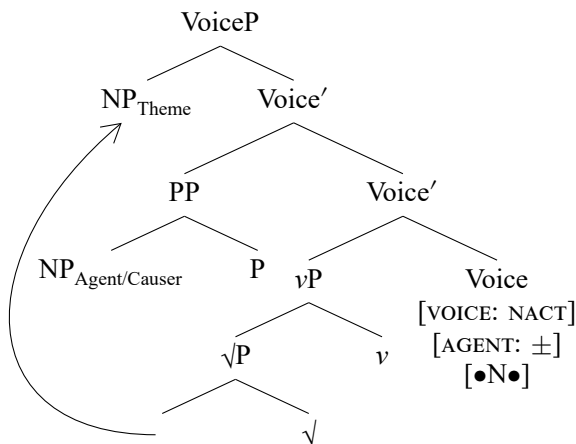
(256) *Structure of nonactive construction with agent/causer PP at case evaluation of VoiceP*
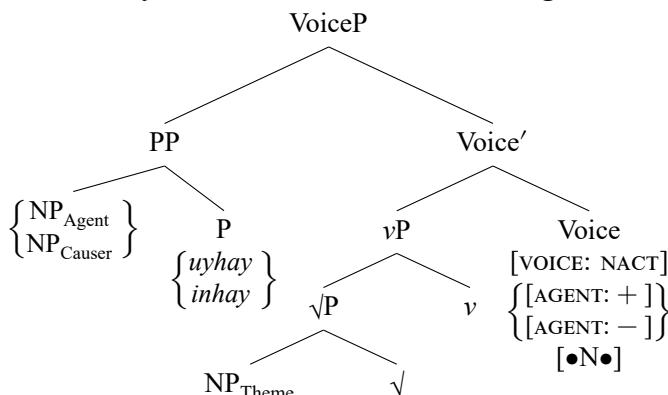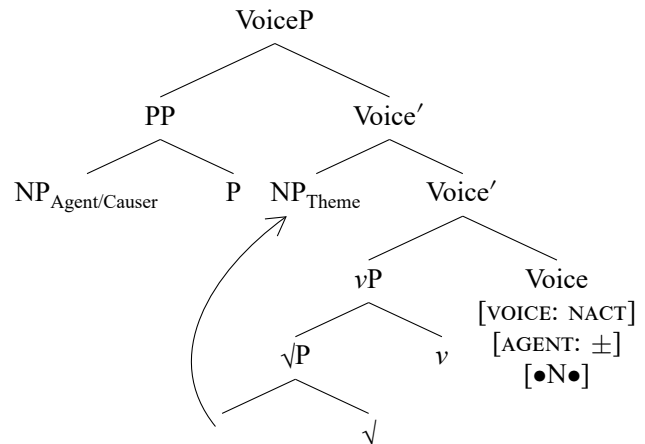

The VoiceP phase in (256) is evaluated for case as follows. First, the structure is evaluated for lexical case. The postposition assigns lexical case to its NP complement: *uyhay* assigns dative case (*ey*) to its complement NP_{Agent}, and *inhay* assigns instrumental case (*lo*) to NP_{Causer}. Then comes dependent case evaluation. $NP_{Agent/Causer}$ just had its case feature valued, so it does not bear an unvalued case feature. The definition of *case target* in (232a) refers to an NP that bears an unvalued case feature. Therefore, $NP_{Agent/Causer}$ is not a case target anymore by the time the VoiceP phase is evaluated for dependent case. The only remaining NP in the VoiceP phase is NP_{Theme}. Since there is no case target pair, there is no dependent case assigned. Lastly, unmarked case evaluation occurs. Since the environment under evaluation is VoiceP, and there is no unmarked case defined for VoiceP, NP_{Theme} remains caseless.

Recall from section 2.2 that movement to the edge of a phase occurs after case evaluation of the domain. In other words, movement to Spec, VoiceP occurs after case evaluation of VoiceP and before spell-out of VoiceP. Since Voice bears [●N●], and its PP specifier cannot satisfy the requirements of this feature, Voice triggers movement of NP_{Theme} to its specifier. NP_{Theme} can move either to the specifier higher than the PP as in (257a), or the specifier lower than the PP as in (257b). If it moves to the higher specifier, NP_{Theme} precedes the PP as in the a-examples in (252–255). If it moves to the lower specifier, NP_{Theme} follows the PP as in the b-examples.

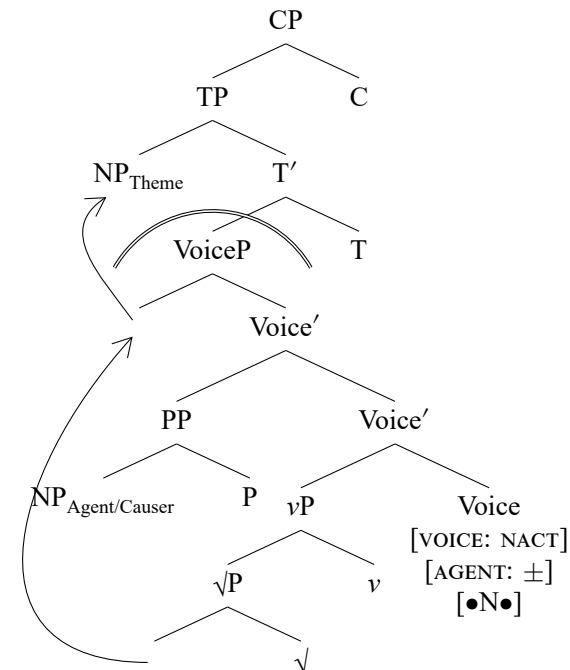(257) a. *NP_{Theme} merges as higher specifier*   b. *NP_{Theme} merges as lower specifier*

VoiceP
├ NP_{Theme}
└ Voice′
  ├ PP
  │ ├ NP_{Agent/Causer}
  │ └ P
  └ Voice′
    ├ vP
    │ └ √P
    │   └ √
    └ Voice
      [VOICE: NACT]
      [AGENT: ±]
      [●N●]

VoiceP
├ PP
│ ├ NP_{Agent/Causer}
│ └ P
└ Voice′
  ├ NP_{Theme}
  └ Voice′
    ├ vP
    │ └ √P
    │   └ √
    └ Voice
      [VOICE: NACT]
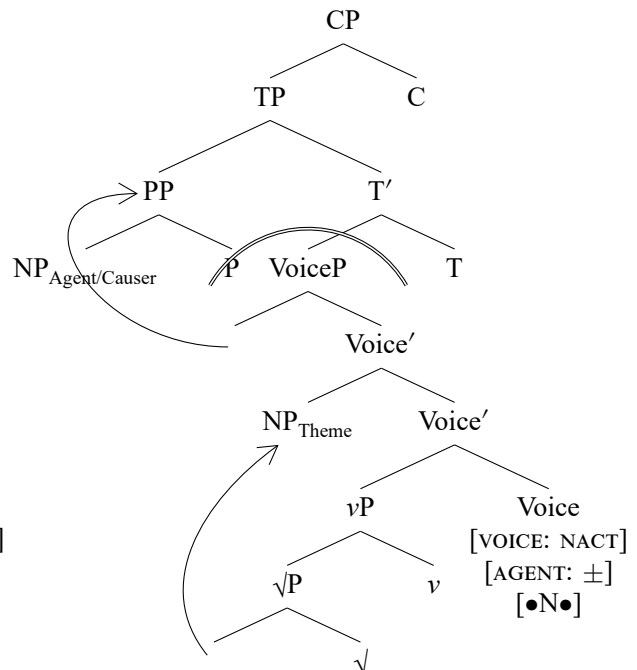   [AGENT: ±]
      [●N●]

After movement of NP_{Theme} to Spec, VoiceP, the VoiceP phase is transferred to the interfaces and linearization statements are made. The structure is then built up further to CP. The feature [●φ●] triggers whichever is the higher of the two specifiers on VoiceP to move to Spec, TP. The tree in (258a) shows the continuation of (257a), and (258b) shows the continuation of shows the continuation of (257b).

(258) a. *NP_{Theme} merges as higher specifier*   b. *NP_{Theme} merges as lower specifier*

CP
├ TP
│ ├ NP_{Theme}
│ └ T′
│   ├ VoiceP
│   │ └ Voice′
│   │   ├ PP
│   │   │ ├ NP_{Agent/Causer}
│   │   │ └ P
│   │   └ Voice′
│   │   ├ vP
│   │   │ └ √P
│   │   │   └ √
│   │   └ Voice
│   │   [VOICE: NACT]
│   │   [AGENT: ±]
│   │   [●N●]
│   └ T
└ C

CP
├ TP
│ ├ PP
│ │ ├ NP_{Agent/Causer}
│ │ └ P
│ └ T′
│   ├ VoiceP
│   │ └ Voice′
│   │   ├ NP_{Theme}
│   │   └ Voice′
│   │   ├ vP
│   │   │ └ √P
│   │   │   └ √
│   │   └ Voice
│   │   [VOICE: NACT]
│   │   [AGENT: ±]
│   │   [●N●]
│   └ T
└ C

The structures in (258) are evaluated for case. In (258a), NP_{Theme} moves to Spec, TP and is inserted another instance of unvalued [CASE: __]. Hence it bears two [CASE: __] by the time the CP is evaluated for case. Lexical case evaluation does not trigger any case assignment on NP_{Theme}. Since

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there is no case target pair, dependent case evaluation does not trigger any case assignment, either. Lastly, unmarked case evaluation occurs. Now that the environment under evaluation is CP, any instance of [CASE: ___] is valued nominative. Hence NP$_{Theme}$ bears nominative case.[10] In (258b), the PP moves to Spec, TP. NP$_{Agent/Causer}$ would be inserted another [CASE: ___]. I remain agnostic as to whether a lexical case-assigning postposition can assign the same case twice to its complement, or the second case on the complement of a postposition must be unmarked case. Since NP complements of a postposition do not overtly realize case stacking, I propose a morphological restriction against realizing two case features in the environment of P. The case target pair <NP$_{Agent/Causer}$, NP$_{Theme}$> fails to trigger dependent case assignment on NP$_{Theme}$ because NP$_{Agent/Causer}$ is not case-less, and the neither c-commands the other. Lastly, unmarked case evaluation triggers nominative case assignment to NP$_{Theme}$. Hence NP$_{Theme}$ is always nominative, as shown in (252–255).

5.2.2 Deriving the main puzzle: Durative and multiplicative adverbs

In section 1.1, I presented the case pattern on durative and multiplicative adverbs in transitive/unergative, unaccusative, nonactive (passive/inchoative), and simplex psychological predicate constructions. In this section, I derive these patterns from my formulation of the successive-cyclic dependent case model. For reference, I repeat table 1 from section 1.1, which summarizes the case patterns in these constructions.

Table 5: Case patterns on durative/multiplicative adverbials in various Korean constructions

	Nominative	Accusative
Transitive/Unergative	No	Yes
Unaccusative	Speaker variation	Yes
Nonactive	**Yes**	**Yes**
Psychological Predicate	Yes	No

5.2.2.1 Transitive and unergative constructions

Let us first discuss transitive and unergative constructions. The relevant examples are repeated from section 1.1 below. In transitive and unergative constructions, durative/multiplicative adverbials are always accusative-marked and cannot be nominative-marked.

(12) a. *Yolisa-ka naymbi-lul ney pen-**i**   talkwu-ess-ta.
   cook-NOM skillet-ACC four time-**NOM** heat-PST-DECL

---

[10]It bears two nominative case features, to be exact. However, since morphology bans realization of two consecutive non-honorific nominative case suffixes (Levin 2017), NP$_{Theme}$ only appears with one nominative case suffix.

b. Yolisa-ka naymbi-lul ney pen-**ul** talkwu-ess-ta.
cook-NOM skillet-ACC four time-ACC heat-PST-DECL
'The cook heated the skillet twice.'

(14) a. *Mina-ka tases pen-**i** haphwumha-yess-ta.
Mina-NOM five time-**NOM** yawn-PST-DECL

b. Mina-ka tases pen-**ul** haphwumha-yess-ta.
Mina-NOM five time-ACC yawn-PST-DECL
'Mina yawned five times.'

The tree in (259) presents the structure of VoiceP in transitive and unergative constructions. (The object NP_{Theme} is only present in transitive constructions.) Voice has merged with its complement *v*P and has introduced its specifier. Since Voice bears the feature [VOICE: ACT], its specifier is an NP external argument. This subject satisfies the requirements of the feature [●N●], so Voice does not trigger movement of any other NP to its specifier.

(259) *Structure of transitive/unergative construction with adverbial at case evaluation of VoiceP*
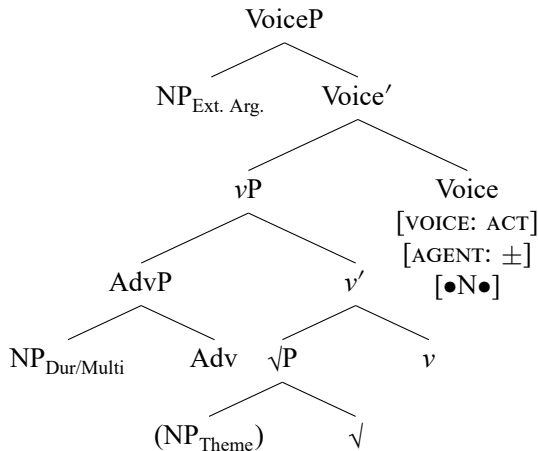
This structure is now evaluated for case. There is no lexical case-assigning head, so lexical case evaluation does not trigger any case assignment. Dependent case evaluation lists all the case target pairs that occupy the VoiceP phase, and check each pair for c-command relations. All case target pairs at this stage are listed below.

(260) a. Case target pair in unergative constructions:
<NP_{Ext. Arg.}, NP_{Dur/Multi}>

b. Case target pairs in transitive constructions:
<NP_{Ext. Arg.}, NP_{Dur/Multi}>, <NP_{Ext. Arg.}, NP_{Theme}>, <NP_{Dur/Multi}, NP_{Theme}>

Since NP_{Ext. Arg.} c-commands NP_{Dur/Multi}, the latter is assigned dependent accusative case. This is why the NP_{Dur/Multi} is always accusative in transitive and unergative constructions. In transi-

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tive constructions, NP_{Theme} is c-commanded by $NP_{Ext. Arg.}$. Hence the object is, unsurprisingly, always marked with accusative case. The pair $<NP_{Dur/Multi}, NP_{Theme}>$ is not relevant for dependent case evaluation, since neither NP c-commands the other. Lastly, unmarked case evaluation occurs. Since the case-assigning environment is VoiceP, and there is no unmarked case defined for VoiceP, $NP_{Ext. Arg.}$ remains caseless.

After case evaluation, VoiceP is transferred to the interfaces and a linearization statement is made. The structure is further built up to CP.

(261)   *Structure of transitive/unergative construction with adverbial at case evaluation of CP*
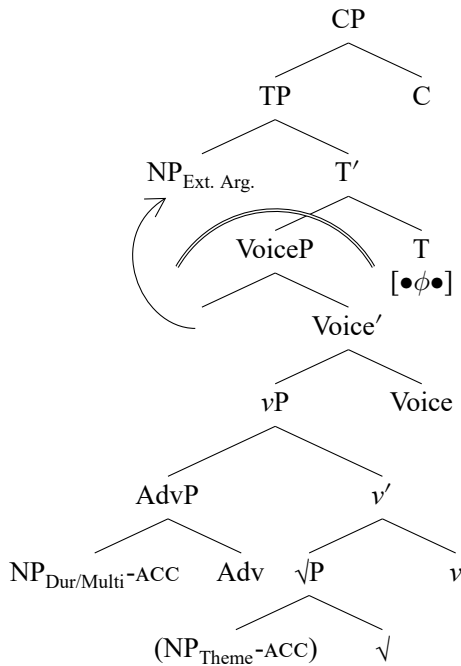
As proposed in section 3.1.4, T bears the feature $[\bullet\phi\bullet]$ which triggers movement of the most local phrase bearing a ϕ-feature to move to Spec, TP. In this case, it is $NP_{Ext. Arg.}$. The structure is again evaluated for case. Lexical case evaluation applies vacuously, since there is no lexical case assigning head. Since $NP_{Ext. Arg.}$ is the only case target, there is no case target pair against which the algorithm can evaluate for dependent case. Lastly, unmarked case evaluation occurs and assigns unmarked nominative case on $NP_{Ext. Arg.}$.

5.2.2.2   Unaccusative constructions

Another construction that only allows accusative case on adverbials is the unaccusative – at least for some speakers. (16b), repeated below, is fully acceptable with accusative case on the adverbial. Nominative case, on the other hand, is only accepted by some speakers.

(16) a. %Yongam-i   sip nyen-i   kkulh-ess-ta.
       magma-NOM ten year-NOM boil-PST-DECL

   b. Yongam-i   sip nyen-ul   kkulh-ess-ta.
       magma-NOM ten year-ACC boil-PST-DECL
       'The magma boiled for ten years.'

Following Alexiadou, Anagnostopoulou & Schäfer (2015), Kim (2009) and Jung (2014a), I analyze unaccusative constructions as lacking VoiceP altogether. This means that *v*P merges directly with Voice-external heads such as Asp and T. This also means that case evaluation and spell-out is not triggered until completion of CP. The structure of CP evaluated for case is presented in (262).

(262)   *Structure of an unaccusative construction with adverbial at case evaluation of CP*
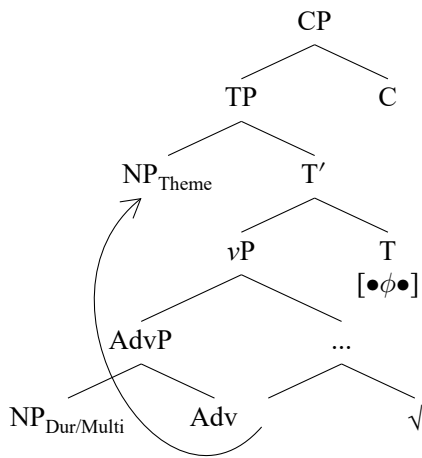
The feature [●ϕ●] on T triggers movement of NP$_{Theme}$ to Spec, TP. AdvP is not a suitable target for [●ϕ●] since AdvP does not bear a ϕ-feature. NP$_{Dur/Multi}$ cannot move out of the AdvP either due to an adjunct island violation or a pied-piping restriction. (See section 2.4.1 for arguments in favor of postulating a pied-piping restriction for the head Adv.)

   Case evaluation of the structure unfolds as follows. Lexical case evaluation fails to trigger any case assignment since there is no lexical case assigning head in the structure. Dependent case evaluation checks for any case target pairs in the structure. There is one pair: <NP$_{Theme}$, NP$_{Dur/Multi}$>. Since NP$_{Theme}$ c-commands NP$_{Dur/Multi}$, the latter is assigned dependent accusative case. Unmarked case evaluation values the [CASE: __] on NP$_{Theme}$ as nominative. Hence the theme subject in an unaccusative construction is always nominative, and the durative/multiplicative adverbial is always accusative. For speakers that do allow nominative on the adverbial in unaccusatives, I propose that these speakers ascribe an inchoative structure to unaccusative constructions. (See section 5.2.2.3 on inchoative constructions.) Given that inchoative constructions can express spontaneous or internally caused events similar to unaccusative constructions, this duality of the unaccusative structure is not particularly surprising.

5.2.2.3 Nonactive (passive/inchoative) constructions

Nonactive constructions allow both nominative and accusative case on the adverbial. I have demonstrated in chapter 3 that when the adverb is nominative, the subject is remaining at Spec, VoiceP. On the other hand, when the adverb is accusative, the subject has moved out of VoiceP. I derive this correlation between subject position and the case marking on the adverbial.

(19) a. Umak-i   ilkop sikan-**i**   thul-eci-ess-ta.
         music-NOM seven hour-**NOM** play-NACT-PST-DECL

   b. Umak-i   ilkop sikan-**ul**   thul-eci-ess-ta.
         music-NOM seven hour-**ACC** play-NACT-PST-DECL
         'The music was played for seven hours.'

(20) a. Khethun-i   samsip pwun-**i**   huntul-li-ess-ta.
         curtain-NOM thirty   minute-**NOM** shake-NACT-PST-DECL

   b. Khethun-i   samsip pwun-**ul**   huntul-li-ess-ta.
         curtain-NOM thirty   minute-**ACC** shake-NACT-PST-DECL
         'The curtain was shaken for thirty minutes.'

(21) a. Naymbi-ka ney pen-**i**   talkwu-eci-ess-ta.
         skillet-NOM four time-**NOM** heat-NACT-PST-DECL

   b. Naymbi-ka ney pen-**ul**   talkwu-eci-ess-ta.
         skillet-NOM four time-**ACC** heat-NACT-PST-DECL
         'The skillet was heated four times.'

(22) a. Pica-ka   tases pen-**i**   twicip-hi-ess-ta.
         pizza-NOM five   time-**NOM** flip-NACT-PST-DECL

   b. Pica-ka   tases pen-**ul**   twicip-hi-ess-ta.
         pizza-NOM five   time-**ACC** flip-NACT-PST-DECL
         'The pizza was flipped five times.'

(263) shows the structure of a nonactive construction at the timing of case evaluation of the VoiceP phase. Since Voice is nonactive, it either introduces an implicit agent/causer or PP agent/causer. For simplicity, I only represent the implicit agent/causer here as *e*.

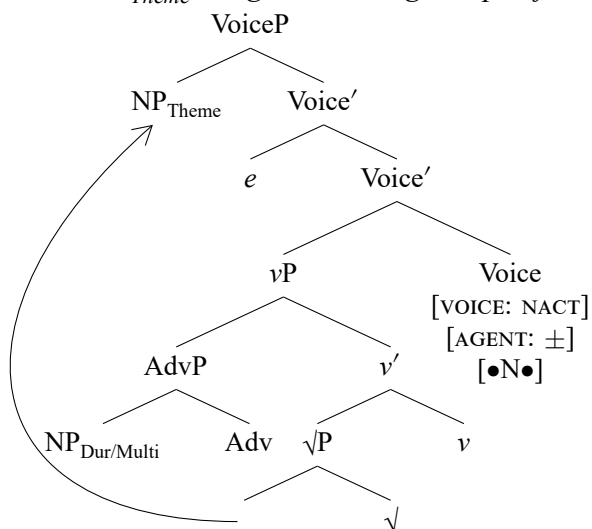(263) *Structure of a nonactive construction at case evaluation of VoiceP*
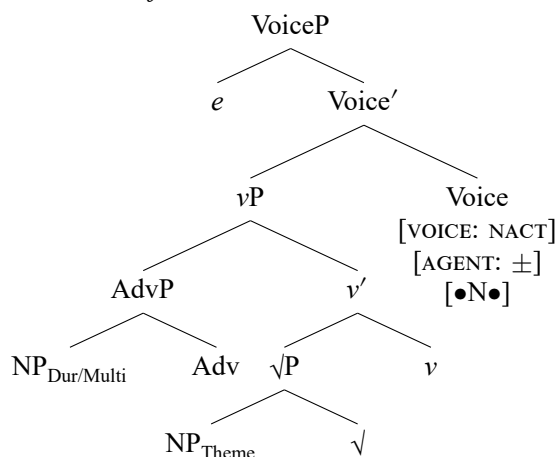
Lexical case evaluation fails to trigger any case assignment in the absence of a head that assigns lexical case. Dependent case evaluation lists all case target pairs. There is only one: <NP$_{Dur/Multi}$, NP$_{Theme}$>. Since neither c-commands the other, dependent case assignment is not triggered. Lastly, unmarked case evaluation applies vacuously since there is no unmarked case defined for VoiceP.

After case evaluation, movement to the edge of the phase occurs. Because Voice bears [●N●], it requires a specifier of category NP. The implicit external argument *e*, without a specified category, is unable to satisfy the need of the Voice head. Therefore, [●N●] triggers movement of NP$_{Theme}$ to Spec, VoiceP. (NP$_{Dur/Multi}$ cannot move out of AdvP either due to an adjunct island constraint or a pied-piping restriction.) As discussed in section 5.2.1 with regards to (257), an element moving to an already occupied specifier can either merge higher than the existing specifier or lower than the existing one. Therefore, we have two distinct structures that can result from this movement.

(264) *Two possible structures of a nonactive construction at spell-out of VoiceP*

a. *NP$_{Theme}$ merges as the higher specifier* b. *NP$_{Theme}$ merges as the lower specifier*
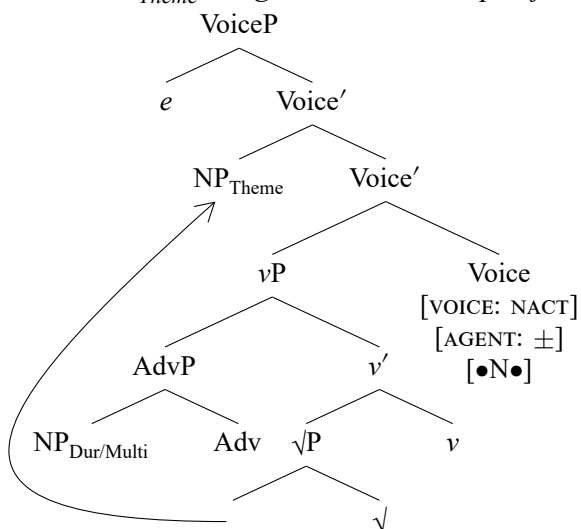
After completion of either (264a) or (264b), the VoiceP is transferred to the interfaces and linearization statements are made. The structure is further built up, with T and C merging with its complements. Depending on whether the VoiceP was spelled out as (264a) or (264b), a different element moves to Spec, TP. (265a) is the structure of T and C merging to the structure in (264a). Because NP$_{Theme}$ is the higher specifier of VoiceP, it is NP$_{Theme}$ that moves to Spec, VoiceP. In contrast, the implicit argument *e* is the higher specifier in (264b) and hence moves to Spec, TP in (265b).

(265)   *Two possible structures of a nonactive construction at case evaluation of CP*
   a. *Continuation of* (264a)   b. *Continuation of* (264b)
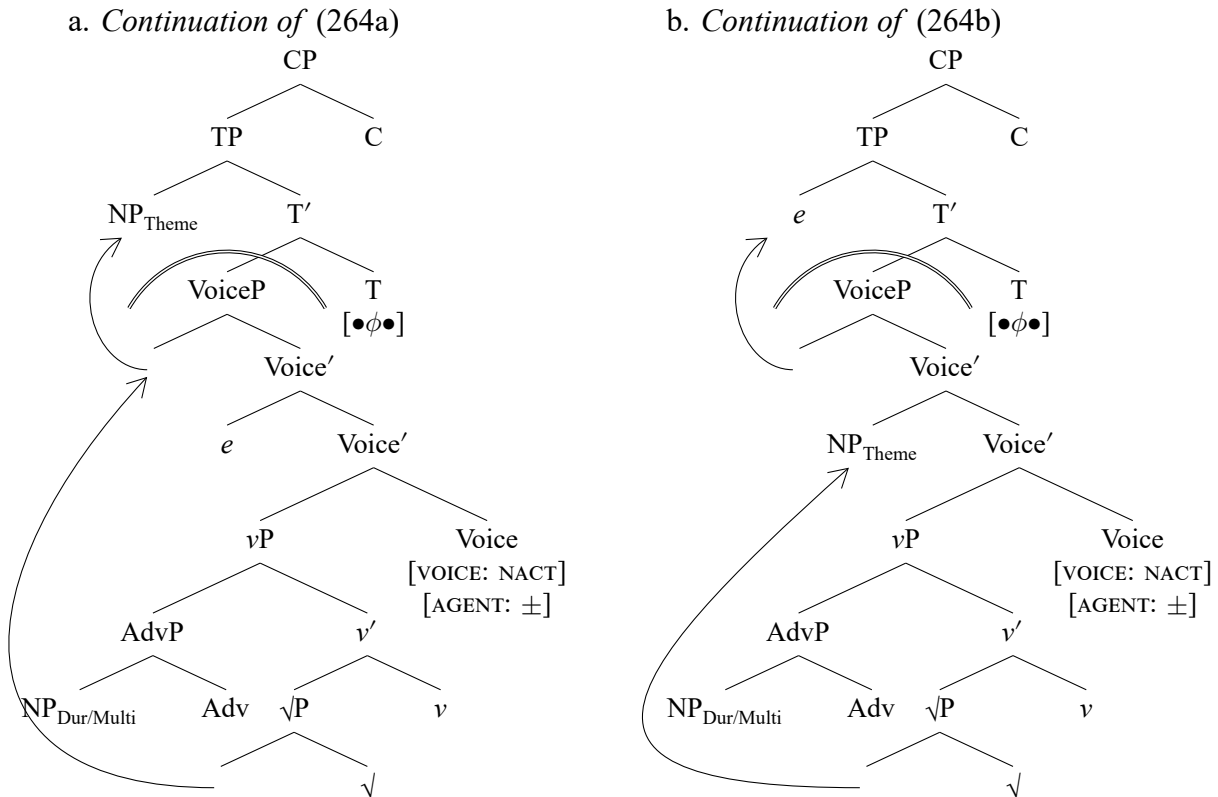
Recall that both NP$_{Theme}$ and NP$_{Dur/Multi}$ are caseless at this point. Let us first examine the case evaluation process of (265a). Since there is no head that assigns lexical case, no lexical case is assigned. There is one case target pair that is associated with the CP phase: <NP$_{Theme}$, NP$_{Dur/Multi}$>. Recall that the definition of a case target pair *associated with* a phase has *at least one* member of the pair located in the domain. While NP$_{Dur/Multi}$ is remaining in the VoiceP phase, NP$_{Theme}$ has moved into the CP phase. Therefore, <NP$_{Theme}$, NP$_{Dur/Multi}$> is a case target pair that is associated with the CP domain. Since NP$_{Theme}$ c-commands NP$_{Dur/Multi}$, dependent case is assigned to NP$_{Dur/Multi}$. Lastly, unmarked case evaluation triggers nominative case assignment on NP$_{Theme}$. Hence (265a) corresponds to nonactive constructions with accusative case on NP$_{Dur/Multi}$.

(266) *Accusative case on the adverbial – corresponds to structure* (265a)

    a. Naymbi-ka ney pen-**ul**   talkwu-eci-ess-ta.
         skillet-NOM four time-**ACC** heat-PASS-PST-DECL
         'The skillet was heated four times.'

    b. Umak-i   ilkop sikan-**ul** thul-eci-ess-ta.
         music-NOM seven hour-**ACC** play-PASS-PST-DECL
         'The music was played for seven hours.'

I now turn to the case evaluation process of (265b). Unlike (265a), it is the implicit agent/causer *e* that has moved to Spec, TP here. Again, no lexical case is assigned due to absence of a lexical case assigner. Next up is dependent case evaluation. Since no NP has moved to the CP phase, there is no case target pair that is associated with the CP phase. Crucially, the pair <NP$_{\text{Theme}}$, NP$_{\text{Dur/Multi}}$> is *not* a pair associated with the CP phase since neither member of the pair is located in the phase. Therefore, dependent case assignment is not triggered on any NP. Unmarked case evaluation applies, and marks the unvalued case feature on both NP$_{\text{Theme}}$ and NP$_{\text{Dur/Multi}}$ as nominative. Hence we obtain the sentences in (267), with both the theme subject and the adverb marked nominative.

(267) *Nominative case on the adverbial – corresponds to structure* (265b)

    a. Naymbi-ka ney pen-**i**   talkwu-eci-ess-ta.
         skillet-NOM four time-**NOM** heat-PASS-PST-DECL
         'The skillet was heated four times.'

    b. Umak-i   ilkop sikan-**i**   thul-eci-ess-ta.
         music-NOM seven hour-**NOM** play-PASS-PST-DECL
         'The music was played for seven hours.'

5.2.2.4 Simplex psychological predicate constructions

Simplex psychological predicates are reported to only allow nominative case on durative and multiplicative adverbials (Maling, Jun & Kim 2001; Kim & Sells 2010). I repeat the relevant examples from section 1.1 below.

(29) a. Mina-eykey yehayng-i sey pen-i   culkep-ess-ta.
         Mina-DAT   travel-NOM three time-NOM enjoyable-PST-DECL
         'For Mina, travel was enjoyable three times.'

    b.??Mina-eykey yehayng-i sey pen-ul   culkep-ess-ta.
         Mina-DAT   travel-NOM three time-ACC enjoyable-PST-DECL
         'For Mina, travel was enjoyable three times.'

(30) a. Inho-eykey swuhak-i sip nyen-i   elyep-ess-ta.
         Inho-DAT   math-NOM ten year-NOM difficult-PST-DECL
   'For Inho, math was difficult.'

b.??Inho-eykey swuhak-i   sip nyen-ul   elyep-ess-ta.
   Inho-DAT   math-NOM ten year-ACC difficult-PST-DECL
   'For Inho, math was difficult.'

In section 5.2.1, I argued that simplex psychological predicates project a nonactive, nonagentive Voice ([VOICE: NACT], [AGENT: −]) equivalent to that of an inchoative construction. This argument was based on the fact that psychological predicates can license a *NP-lo inhay* PP that denotes the causer of the psychological event.

(268) a.   Thulawuma-lo inhay Mina-eykey holangi-ka mwusep-Ø-ta.
            trauma-INS   due.to Mina-DAT   tiger-NOM frightening-Ø-DECL
            'For Mina, tigers are frightening from trauma.'

        b.   ... [Eli-l   cek] thulawuma-lo inhay (*pro*) chikwa-ka   mwusep-ess-ki
             young-ADN days trauma-INS   due.to (*pro*) dentist-NOM frightening-PST-NMLZ
             ttaymwun [...]
             because...
             '[...] because the dentist was frightening (for *pro*) from childhood trauma [...]'

(269) shows the structure of a psychological predicate containing a durative/multiplicative adverbial, at the timing where VoiceP is evaluated for case. The dative experiencer, represented as NP_{Exp}, is introduced as an applicative argument at Spec, ApplP.

(269)   *Structure of a simplex psychological predicate construction at case evaluation of VoiceP*
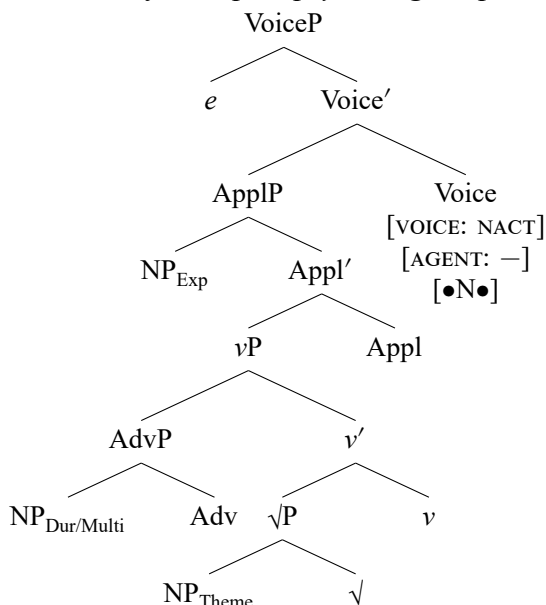

Lexical case evaluation applies first. Appl is a head that assigns lexical dative case to its specifier, so NP_{Exp} is assigned dative case. Dependent case evaluation lists all case target pairs. With NP_{Exp} assigned case, there is only one case target pair in the VoiceP phase: <$NP_{Dur/Multi}$, NP_{Theme}>. Since

neither c-commands the other, no dependent case is assigned. Unmarked case evaluation applies vacuously to the structure, since there is no unmarked case defined for VoiceP. Hence $NP_{Dur/Multi}$ and NP_{Theme} both remain caseless by spell-out of VoiceP.

After case evaluation is complete, movement to Spec, VoiceP follows. Since the implicit external argument e does not satisfy the requirements on Voice by [●N●], the most local NP needs to move to Spec, VoiceP. In (269), the most local NP is NP_{Exp}. Therefore, NP_{Exp} moves to Spec, VoiceP. It can either move above or below the implicit external argument, as shown in (270).

(270)   *Structure of a simplex psychological predicate construction at spell-out of VoiceP*

   a. *NP_{Exp} moves to higher specifier*
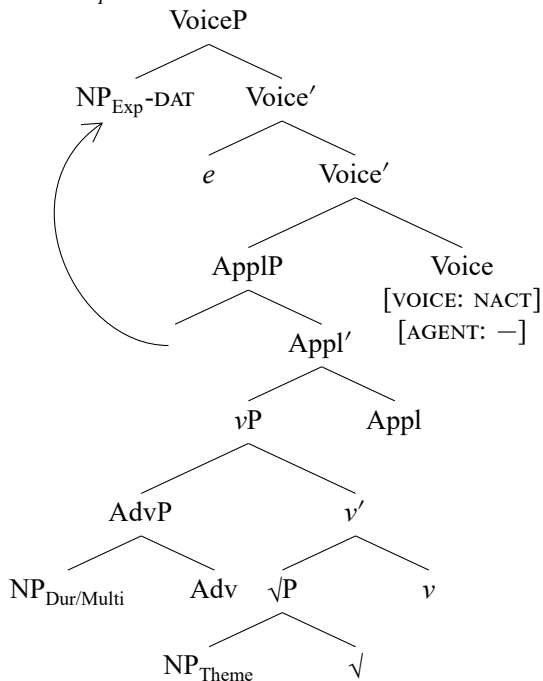
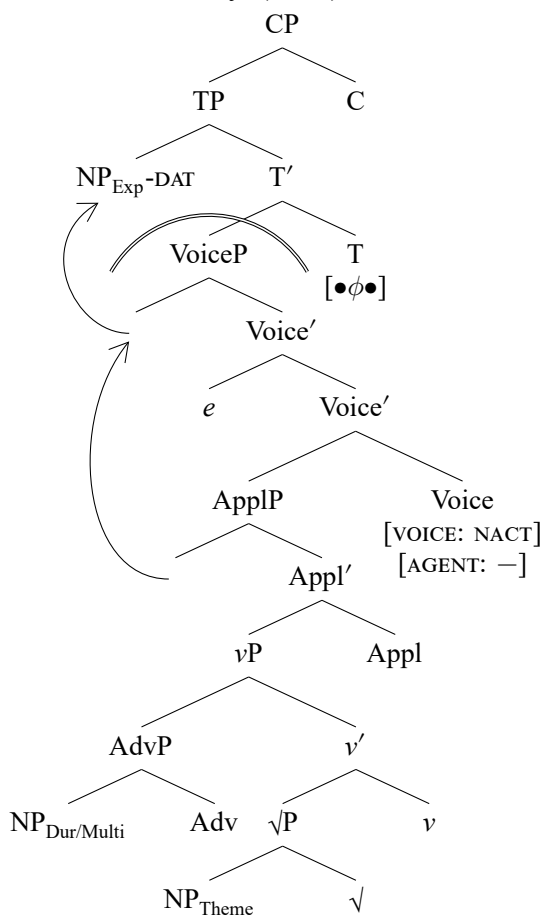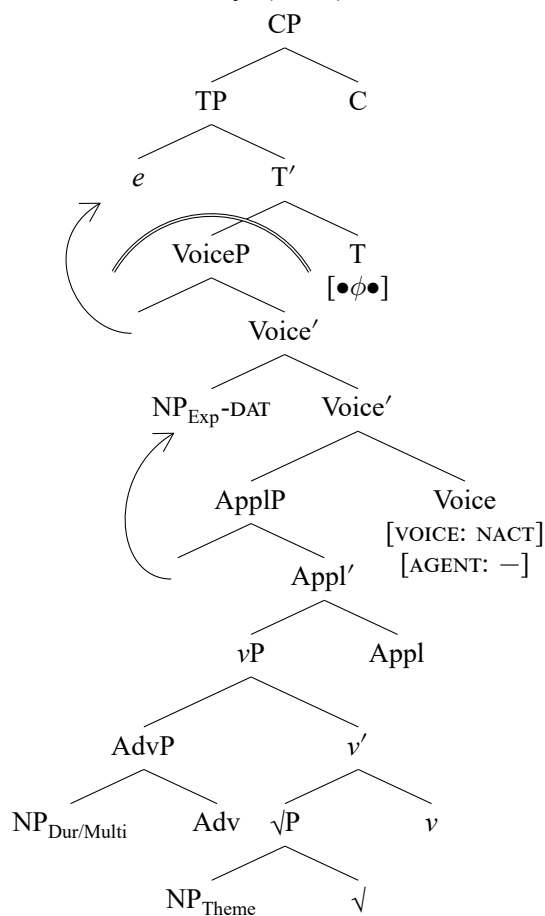   b. *NP_{Exp} moves to lower specifier*
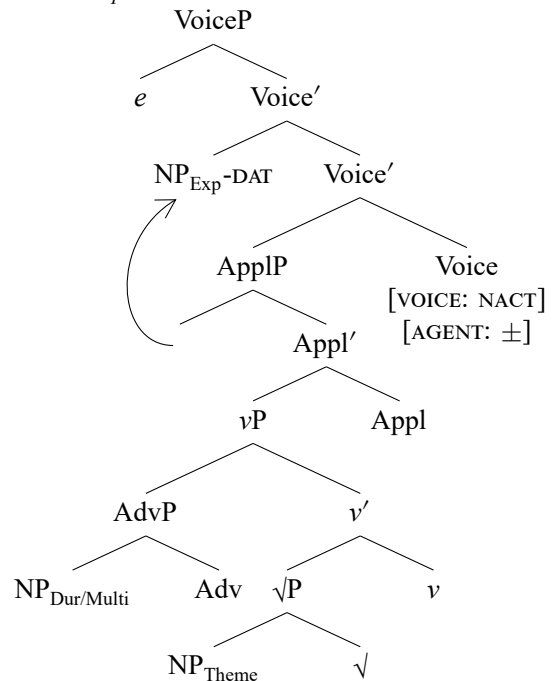
After movement of NP_{Exp}, VoiceP is transferred to the interfaces and linearization statements are made. The structure continues to be built, with T and C merging to the structure. Just as with non-active constructions, there are two different CP structures that can be evaluated for case depending on whether the NP_{Exp} merged above or below e.

(271) *Structure of a simplex psychological predicate construction at spell-out of VoiceP*

a. *Continuation of* (270a)

```
              CP
         /         \
       TP           C
    /      \
NP_Exp-DAT   T'
         /        \
     VoiceP         T
    /              [●φ●]
  Voice'
 /      \
e       Voice'
      /        \
   ApplP        Voice
  /    \      [VOICE: NACT]
      Appl'   [AGENT: −]
     /    \
   vP      Appl
  /   \
AdvP    v'
/   \   /  \
NP_Dur/Multi  Adv  √P    v
             /    \
        NP_Theme   √
```

b. *Continuation of* (270b)

```
              CP
         /         \
       TP           C
    /      \
   e        T'
         /        \
     VoiceP         T
    /              [●φ●]
  Voice'
 /          \
NP_Exp-DAT   Voice'
           /        \
        ApplP        Voice
       /    \      [VOICE: NACT]
           Appl'   [AGENT: −]
          /    \
        vP      Appl
       /   \
     AdvP    v'
    /   \   /  \
NP_Dur/Multi  Adv  √P    v
                  /    \
             NP_Theme   √
```

Despite different elements moving to Spec, TP, the case marking on $NP_{Dur/Multi}$ and NP_{Theme} does not differ between (271a) and (271b). Let us first examine (271a). There is no head that assigns lexical case in the CP phase, so no lexical case is assigned. Dependent case evaluation starts by listing all case target pairs that occupy the CP phase. Since NP_{Exp} has moved into the CP phase and received another unvalued case feature, it is a case target. Therefore, two case target pairs occupy the CP phase: <NP_{Exp}, $NP_{Dur/Multi}$>, <NP_{Exp}, NP_{Theme}>. While NP_{Exp} c-commands both of its pairmates, it fails to trigger dependent case on either of them. This is because NP_{Exp} is not caseless. When the VoiceP domain presented in (248) was evaluated for case, NP_{Exp} was assigned lexical dative case by the Appl head. Hence it was already bearing a valued case feature, [CASE: DAT], when it moved to Spec, TP. Recall that per (230), dependent case is triggered by a c-command relation between two *caseless* NPs. Therefore, dependent case evaluation of the CP phase fails to trigger any dependent case assignment. Lastly, unmarked case evaluation applies. $NP_{Dur/Multi}$ and NP_{Theme} are both caseless until this point, so their case features are valued nominative.

Example (271b) is minimally different from (271a) in that the implicit external argument *e*

moves to Spec, TP. Since there is no NP that has moved to the CP phase, there is no case target pair that occupies the domain at all. $NP_{Dur/Multi}$ and NP_{Theme} both remain caseless until unmarked case evaluation, by which they are assigned nominative case. In sum, regardless of whether the structure is built up as (271a) or (271b), $NP_{Dur/Multi}$ and NP_{Theme} always end up with nominative case.

5.2.3 Deriving the case stacking patterns

I now demonstrate how my reformulation of successive-cyclic case assignment can also derive the case stacking patterns captured by Levin (2017). In section 5.2.3.1, I first discuss examples where only the highest argument shows case stacking. I then discuss in section 5.2.3.2 more complicated cases where either more than one argument shows case stacking, or only one non-highest argument shows case stacking.

5.2.3.1 Only the highest argument shows case stacking

In (272a), the subject *sacangnim* 'CEO' bears two instances of nominative case. The inner nominative case marker is honorific, and the outer one is non-honorific.[11] On the other hand, the inner case on *Mina* of (272b) is lexical dative case. The outer case on *Mina* is unmarked nominative case.

(272) a. %Sacangnim-kkeyse-ka yakun-ul   ha-si-n-ta.[12]
           CEO-NOM.HON-NOM   overtime-ACC do-HON$_S$-PRS-DECL
           'The CEO does overtime.'

       b. %Mina-eykey-ka holangi-ka mwusep-Ø-ta.
           Mina-DAT-NOM tiger-NOM frightening-PRS-DECL
   'Tigers are frightening to Mina.'

---

[11]In Jou (2024) I provide an analysis of the honorific case markers *kkeyse* (nominative) and *kkey* (dative) as the result of a contextual allomorphy rule that applies to case features when they are in the immediate environment of an honorific feature ([HON: +]). Under this analysis, it is expected that the inner case marker – which is directly adjacent to the honorified nominal – be realized in its honorific form but the outer case marker be realized in the non-honorific form. The outer case marker is not adjacent to an honorific feature, so the allomorphy rule does not apply.

[12] As Levin (2017) mentions, the case stacking patterns presented in (272) are judged varyingly by native speakers. These sentences are marginal under my own judgments, especially compared to the DAT-ACC stack presented in (280). However, I consider the marginal judgments as stemming not from the ungrammaticality of the sentences in (272) but from morphological constraints against having the nominative case marker *ka* directly to the right of another case marker. With the focus marker *man* 'only' between the two case markers, the sequence is judged perfectly grammatical.

(i)   a.   Sacangnim-kkeyse-man-i yakun-ul   ha-si-n-ta.
           CEO-NOM.HON-only-NOM overtime-ACC do-HON$_S$-PRS-DECL
           'Only the CEO does overtime.'
      b.   Mina-eykey-man-i   holangi-ka mwusep-Ø-ta.
           Mina-DAT-only-NOM tiger-NOM frightening-PRS-DECL
           'Tigers are frightening only to Mina.'

I first explain the case marking in (272a), and then (272b). (273) shows the structure of (272a) at spell-out of VoiceP. Here, lexical case evaluation fails to trigger dependent case licensing since there is no head that assigns lexical case. There are two case target NPs, which form a case target pair: <*sacangnim*, *yakun*>. This case target pair undergoes dependent case evaluation. Since *sacangnim* c-commands *yakun*, and *sacangnim* is a caseless NP which does not bear any valued case feature, dependent case is assigned on *yakun*. Unmarked case evaluation applies vacuously, since VoiceP is not an environment that triggers unmarked case assignment. Therefore, *sacangnim* remains caseless.

(273)   *Structure of* (272a) *at spell-out of VoiceP*
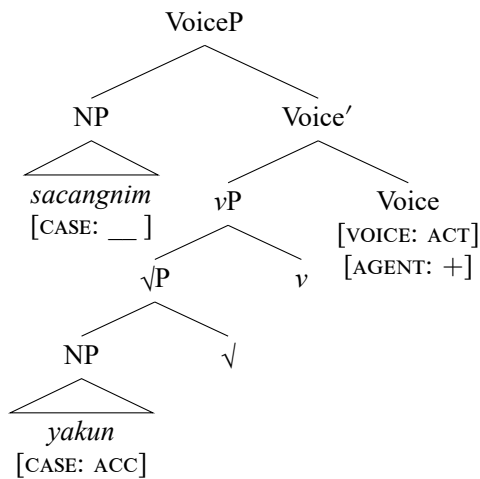
In (274) we see the structure of (272a) at completion and spell-out of CP. Since the NP *sacangnim* is the structurally highest and thus most local phrase to T, the feature [●φ●] on T triggers movement of *sacangnim* to Spec, TP. Subsequently, another instance of the unvalued feature [CASE: __] is "inserted" to *sacangnim*. Together with the [CASE: __] which remained unvalued at VoiceP, *sacangnim* now bears two instances of [CASE: __].

The grammaticality of these sentences show that it is not case stacking itself that is problematic for some speakers. The unacceptability likely arises from a morphological constraint against the surface strings *kkeyse-ka* and *eykey-ka*.

(274)   *Structure of* (272a) *at spell-out of CP*
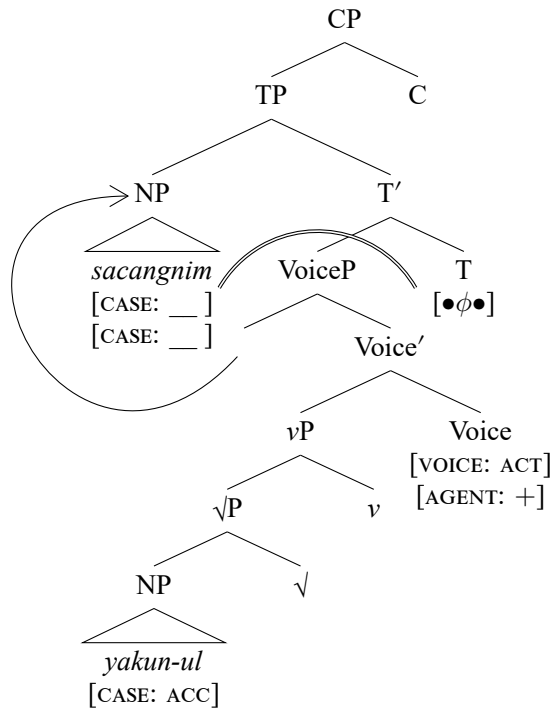
Now, case evaluation applies on the CP phase. Since there is no head assigning lexical case, there is no lexical case assigned. Dependent case evaluation applies vacuously, too, since there is no case target pair. With the object *yakun* having its only case feature valued as accusative, the subject *sacangnim* is the only remaining case target. Therefore, there is no case target pair to be formed. Lastly, unmarked case evaluation applies. Since the environment under evaluation is CP, any remaining unvalued case feature is valued nominative. Hence, the two instances of [CASE: __] borne by *sacangnim* are valued nominative at this stage.

In (272a), the inner nominative case marker is realized as honorific *kkeyse* while the outer nominative case marker is realized as non-honorific *ka*. In Jou (2024), I provided an analysis couched in the Distributed Morphology framework (Halle & Marantz 1993, 1994) where *kkeyse* as a contextual allomorph of *i/ka* (see also footnote 11). I proposed the following vocabulary insertion rules for the nominative case feature ([CASE: NOM]).

(275)   *Vocabulary insertion rules for the feature* [CASE: NOM] (Jou 2024, (29))

    a.   *kkeyse* ↔ [CASE: NOM] / [HON: +] ____

   b.   *i/ka* ↔ [CASE: NOM]

(275a) is configured for a more specific set of environments, namely a position immediately to the right of a high-level honorific feature ([HON: +]). Under the subset principle, (275a) takes priority in its specified environment; if the environment is not met, (275b) applies.

Let us return to the NP *sacangnim-kkeyse-ka*. *Sacangnim* is an NP that bears the high-level honorific feature [HON: +]. The inner case feature [CASE: NOM] is realized as the contextual allomorph *kkeyse*, and the outer one is realized as *ka*. This pattern is expected under (275), since only the inner instance of [CASE: NOM] is immediately to the right of [HON: +]. Realizing the outer instance of [CASE: NOM] as *kkeyse*, as in (276b) or (276c), leads to sharp ungrammaticality. Realizing both instances of [CASE: NOM] as *ka*, as in (276d), is also ungrammatical. I follow Cho & Sells (1995), Schütze (2001), Levin (2017) in attributing the ungrammaticality of (276d) to independent morphological restrictions, and refer the reader to these authors for more discussion.

(276) a. *sacangnim-kkeyse-ka*
      b. **sacangnim-ka-kkeyse*
      c. **sacangnim-kkeyse-kkeyse*
      d. **sacangnim-ka-ka*

Up to now I have demonstrated that the nominative-nominative case stacking pattern of (272a) can be derived from my version of the successive cyclic dependent case model, and explained why only the instance of [CASE: NOM] immediately adjacent to an honorified NP is realized as *kkeyse*. I now show that the dative-nominative case stacking on *Mina* in (272b) can also be explained under my model. (272b) is a simplex psychological predicate construction, which I have argued in section 5.2.1.2 projects an inchoative VoiceP where Voice bears the features [VOICE: NACT] and [AGENT: −]. The experiencer, *Mina*, is introduced at Spec, ApplP. (277) shows the structure of (272b) at the timing of case evaluation of VoiceP, before any movement to Spec, VoiceP occurs. (Since there are no overt PP causers in (272b), Spec, VoiceP is realized as *e*.)

(277) *Structure of* (272b) *at case evaluation of VoiceP*
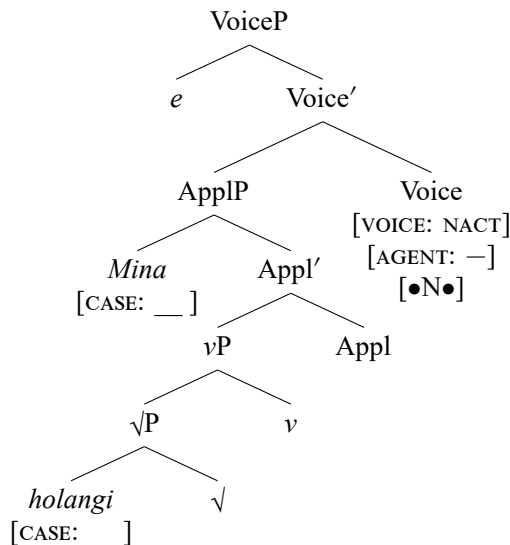
Lexical case evaluation applies first. Since Appl is a head that assigns lexical dative case to its specifier, the case feature on *Mina* is valued dative. By the time dependent case evaluation occurs, the only remaining case target is *holangi*. Since there is no case target pair, dependent case evaluation applies vacuously. Lastly, unmarked case evaluation also applies vacuously since there is no unmarked case defined for VoiceP.
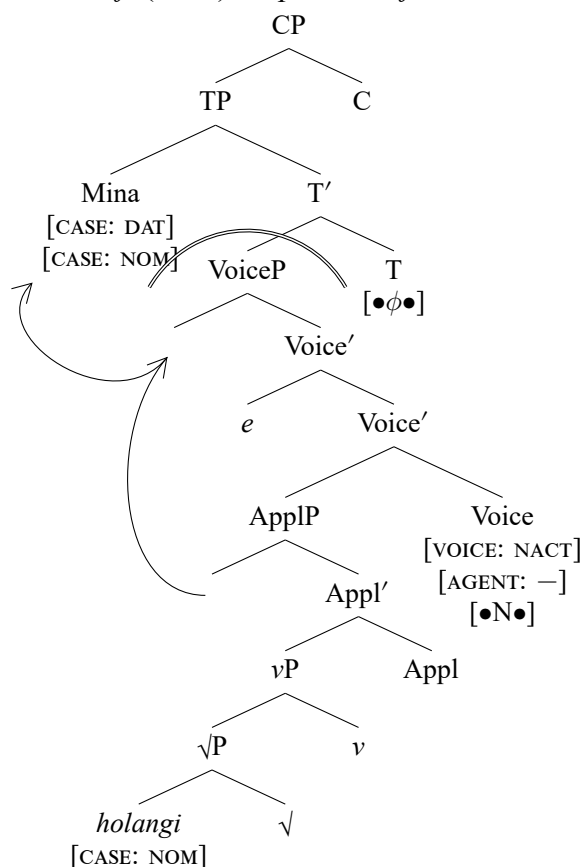
Once case evaluation is complete, movement to the edge of the phase occurs. Since *Mina* is the structurally highest NP, the feature [●N●] triggers movement of *Mina* to Spec, VoiceP. Just as in other instances of movement to Spec, VoiceP discussed in sections 5.2.1 and 5.2.2, movement to an already occupied specifier can either "tuck in" or "tuck out". However, case stacking on the experiencer like *Mina-eykey-ka* in (272b) entails that the experiencer has underwent A-movement to the CP phase (of which movement to Spec, TP triggered by [●φ●] is an instance). Since feature-driven movement attracts the structurally highest goal, this in turn means that the experiencer must have tucked out and become the higher specifier of VoiceP as shown in (278).

(278)   *Structure of* (272b) *at spell-out of VoiceP (after movement to Spec, VoiceP)*
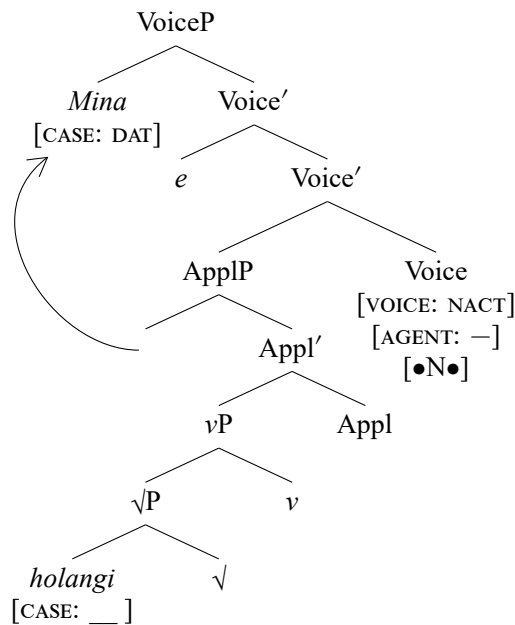
After VoiceP is transferred to the interfaces, the structure is built up further to CP. Triggered by [●φ●], *Mina* moves to Spec, TP. Since it has moved to a phase-internal position of the CP phase, it is given another instance of an unvalued case feature, [CASE: __]. (279) shows the structure of (272b) at spell-out of CP, after case evaluation of the CP domain.

(279) *Structure of* (272b) *at spell-out of CP*

```
                              CP
                         ╱         ╲
                      TP              C
                   ╱      ╲
               Mina         T′
            [CASE: DAT]    ╱    ╲
            [CASE: NOM]  VoiceP    T
                        ╱    ╲    [●φ●]
                            Voice′
                          ╱      ╲
                        e          Voice′
                                 ╱        ╲
                             ApplP           Voice
                            ╱    ╲        [VOICE: NACT]
                                 Appl′     [AGENT: −]
                               ╱     ╲       [●N●]
                             vP        Appl
                           ╱   ╲
                         √P       v
                       ╱    ╲
                   holangi     √
                 [CASE: NOM]
```

Since there is no head in the CP phase that assigns lexical case, no lexical case is assigned. Dependent case evaluation lists all case target pairs that are associated with the CP domain. There is one such case target pair: <*Mina, holangi*>. Both NPs bear an unvalued case feature, and *Mina* occupies the CP phase. However, dependent case is *not* assigned to *holangi* despite it being c-commanded by *Mina*. This is because *Mina* is not a caseless NP. In addition to the unvalued [CASE: __], it also bears a *valued* case feature ([CASE: DAT]) from the previous cycle of case evaluation. Recall that downward dependent case is triggered by a c-command relation with a *caseless* NP – I repeat the dependent case algorithm below from section 5.1, with added emphasis. (See also discussion of (238) there.)

(230) Dependent case assignment algorithm (cited from Baker 2015:48–49)

    a. Downward dependent case:
        If there are two distinct NPs in the same phase such that NP1 c-commands NP2, then value the case feature of NP2 as accusative **unless NP1 has already been marked for case.**

Mina, which c-commands *holangi*, has already been marked for case. Therefore, being c-commanded

by *Mina* does not lead to dependent case assignment on *holangi*. Of course, *Mina* itself also fails to get dependent case since it is not c-commanded by any NP. Lastly, unmarked case evaluation applies and values any remaining case feature as nominative. As a result, the feature [CASE: __] on *holangi* as well as the newly inserted [CASE: __] on *Mina* are both valued nominative. Hence we achieve the case stacking pattern shown in (272b), repeated below.

(272)   b.   Mina-eykey-ka holangi-ka mwusep-Ø-ta.
             Mina-DAT-NOM tiger-NOM frightening-PRS-DECL
             'Tigers are frightening to Mina.'

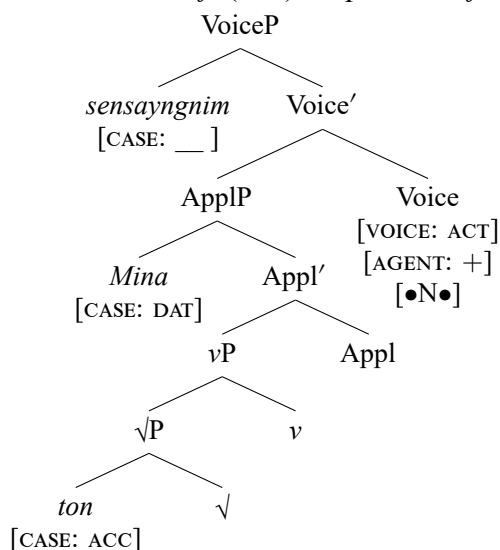### 5.2.3.2   Non-highest arguments (also) show case stacking

Let us turn to examples which show multiple case-stacked NPs such as the ditransitive sentence (280).

(280)%Sensayngnim-kkeyse-ka Mina-eykey-lul ton-ul   ponay-si-ess-ta.[13]
      teacher-NOM.HON-NOM   Mina-DAT-ACC   money-ACC send-HON$_S$-PST-DECL
      'The teacher sent Mina money.'

Example (280) is a ditransitive construction where both the subject and the indirect object show case stacking. The subject shows nominative-nominative stacking, just as in (272a). The direct object shows dative-accusative case stacking. (281) shows the structure of (280) at spell-out of VoiceP, after case evaluation of VoiceP has occurred; there is no movement to Spec, VoiceP since the needs of the feature [●N●] are satisfied upon external merge of the subject *sensayngnim*. As explained in section 5.2.1.2 concerning (243–244), I follow Pylkkänen (2002, 2008), Kim (2011) and Jung (2014a) in locating the indirect object of ditransitives at Spec, ApplP.

---

[13]Just as for (272), the marginal judgment report stems from the morphological oddity of the *kkeyse-ka* (NOM.HON-NOM) sequence for some speakers. (See also footnote 12.) The syntactic structure of (280) is grammatical.

(281) *The structure of* (280) *at spell-out of VoiceP*

```
                        VoiceP
                       /      \
              sensayngnim     Voice′
              [CASE: __ ]     /     \
                          ApplP      Voice
                         /     \     [VOICE: ACT]
                     Mina      Appl′  [AGENT: +]
                   [CASE: DAT]  /  \    [●N●]
                             vP    Appl
                            /  \
                          √P    v
                         /  \
                       ton   √
                  [CASE: ACC]
```
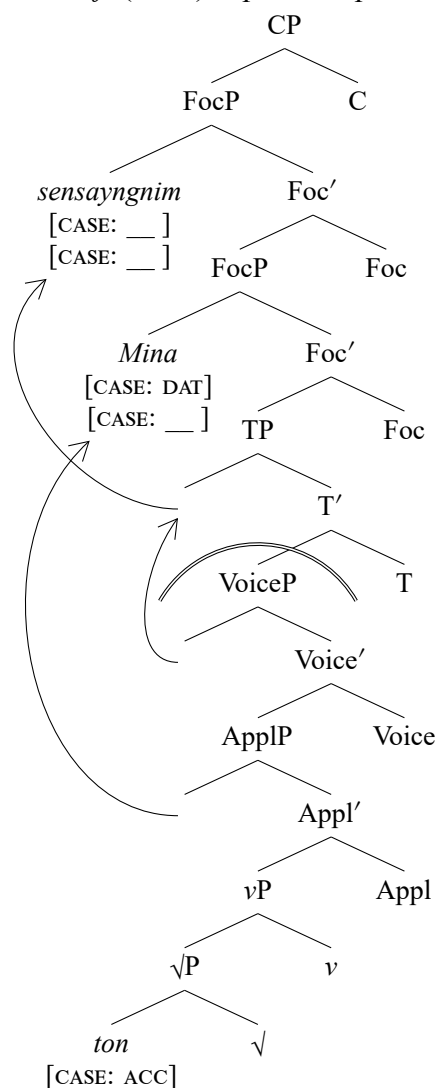
I walk the reader through the case evaluation process in (281). First, lexical case evaluation occurs. Since Appl is a head that assigns lexical dative case to its specifier, the indirect object *Mina* has its case feature valued as dative. Dependent case evaluation searches for case target pairs. There remain two case targets: the subject *sensayngnim* and the object *ton*. These form a case target pair: <*sensayngnim, ton*>. Not only are these two NPs case targets (by virtue of bearing [CASE: __]), they are also *caseless*: they do not bear any valued case feature. Since *ton* is c-commanded by a caseless NP, it is assigned dependent case and its case feature is valued accusative. Unmarked case evaluation fails to assign case on the subject *sensayngnim*, since there is no unmarked case defined for VoiceP. Subsequently, *sensayngnim* remains caseless by spell-out of VoiceP.

The structure is built further up to CP. Any NP that shows case stacking must have undergone movement to a phase-internal position in the CP domain. Therefore, both *sensayngnim* and *Mina* must have undergone such movement. I remain agnostic as to why *sensayngnim* always ends up in a position higher than *Mina*, which must be true for *Mina* to be assigned dependent case in the CP domain. But many different parses of (280), including a multiple focus construction exemplified in (282b) and schematized in (283), are compatible with the surface word order and allows both arguments to be in the CP domain.

(282) a. Q: Nwuka   nwukwu-eykey ton-ul   ponay-ess-ni?
           who.NOM who-DAT   money-ACC send-PST-Q
           'Who sent the money to whom?'

       b. A: %Sensayngnim-kkeyse-ka Mina-eykey-lul ton-ul   ponay-si-ess-ta.
           teacher-NOM.HON-NOM   Mina-DAT-ACC   money-ACC send-HON_S-PST-DECL
           'The teacher sent the money to Mina.'

(283) *Structure of* (282b), *a possible parse of* (280), *at spell-out of CP*

```
                          CP
                      ╱       ╲
                  FocP          C
                 ╱    ╲
        sensayngnim    Foc′
        [CASE: __ ]   ╱    ╲
        [CASE: __ ]  FocP    Foc
                    ╱    ╲
                 Mina      Foc′
              [CASE: DAT] ╱    ╲
              [CASE: __ ] TP     Foc
                        ╱   ╲
                           T′
                         ╱    ╲
                    VoiceP      T
                   ╱      ╲
                       Voice′
                      ╱      ╲
                  ApplP       Voice
                 ╱     ╲
                     Appl′
                   ╱      ╲
                 vP        Appl
                ╱  ╲
              √P     v
             ╱  ╲
           ton    √
        [CASE: ACC]
```

Let us study the case evaluation process. There are no heads assigning lexical case in the CP domain, so no lexical case is assigned. There is one case target pair in the CP domain: <*sensayng-nim*, *Mina*>. *Sensayngnim* bears two instances of [CASE: __], and *Mina* bears [CASE: DAT] (valued in the VoiceP domain) and [CASE: __] (inserted upon movement to Spec, FocP). Since *sensayng-nim* c-commands *Mina* and is caseless, *Mina* is assigned dependent case: the previously unvalued [CASE: __] on *Mina* is now valued as accusative. Lastly, unmarked case evaluation turns all remaining instances of [CASE: __] into [CASE: NOM]. As a result, both case features on *sensayngnim* are valued as nominative in this scenario. We have accordingly achieved the case stacking pattern shown in (280), repeated below.

(280) %Sensayngnim-kkeyse-ka Mina-eykey-lul ton-ul   ponay-si-ess-ta.
      teacher-NOM.HON-NOM   Mina-DAT-ACC money-ACC send-HON$_S$-PST-DECL
      'The teacher sent Mina money.'

Levin also discusses similar sentences such as (284), where the indirect object shows dative-accusative case stacking but the subject only shows one instance of nominative case marking.

(284) Inho-ka   Mina-eykey-lul ton-ul   ponay-ess-ta.   (Levin 2017:458)
       Inho-NOM Mina-DAT-ACC   money-ACC send-PST-DECL
       'Inho sent Mina money.'

He explains that the subject *Inho* does in fact bear two case features, both valued nominative just like *sensayngnim* in (280). The only difference between *Inho* and *sensayngnim* is that only the latter is of honorified status, triggering realization of the inner case marker as *kkeyse* instead of *ka*. However, due to morphological restrictions against pronouncing multiple instances of the non-honorific nominative case marker *i/ka*, *Inho* can only appear with either one of the two case features morphologically realized. Since both features are valued identically ([CASE: NOM]), it does not matter which one is realized – the result will always be *Inho-ka*. Since my dependent case model also assumes the morphological restrictions, this explanation holds under my model as well.

5.2.4   On multiple nominative constructions

I conclude the chapter by discussing how my analysis can explain multiple nominative constructions, exemplified in (285). Also called multiple subject constructions, these sentences feature two or more nominative-marked NPs in a sentence.

(285) a. Mina-ka   khi-ka   khu-Ø-ta.
           Mina-NOM height-NOM large-PRS-DECL
           'Mina is tall. (Lit. Mina's height is large.)'
       b. Yelum-i   hyuka-ka   kil-Ø-ta.
           summer-NOM vacation-NOM long-PRS-DECL
           'Vacations are long in summer.'

Multiple nominative constructions pose a challenge for many theories of case, and have been the topic of active debate (J.-Y. Yoon 1989; J.-M. Yoon 1989; Maling & Kim 1992; Cho 2000; J. H. S. Yoon 1989, 2007, 2009; Hogan 2018; see Yoon 2015 for an overview). At first sight, they might seem problematic for my successive-cyclic dependent case analysis as well. If dependent case can be assigned across the VoiceP phase boundary as I argued, what blocks assignment of dependent accusative case to the lower NPs in these sentences? I propose that the lower NP in these constructions is assigned unmarked nominative case before the higher NP merges to the structure. Since the lower NP is not caseless by the time the higher NP merges, it cannot be assigned dependent case despite being c-commanded by the higher NP.

    In making this proposal, I adopt the analysis of multiple nominative constructions developed by J. H. S. Yoon (1989, 2007, 2009) where he analyzes the higher nominative NP as the *major subject*

and the lower nominative NP the *grammatical subject*. (See Heycock & Doron 2003 on the concept of major subject.) For Yoon, the grammatical subject (*khi* 'height' in (285a), *hyuka* 'vacation' in (285b)) is the argument that saturates the verb of the sentence. The sentence then undergoes predicate abstraction, yielding a one-place predicate dubbed the *sentential predicate*. The argument selected by the sentential predicate is the major subject (*Mina* in (285a), *yelum* 'summer' in (285b)). The major subject is linked to the sentential predicate via variable binding of an operator inside the sentential predicate. The structure of multiple nominative constructions is visualized schematically in (286). For ease of discussion, I dub the sentence formed by the grammatical subject and the verb the "lower sentence" and the sentence formed by the major subject and the sentential predicate the "higher subject".

(286)   Sentence ("Higher sentence")

Major Subject$_1$ Sentential Predicate

Op_1 Sentence ("Lower sentence")

Grammatical Subject   ...
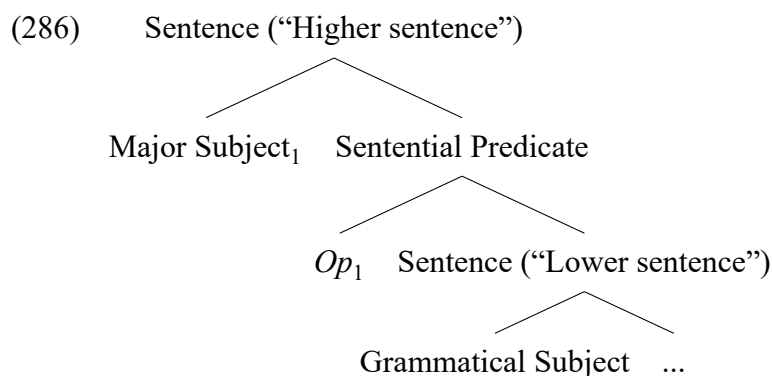
I propose that the lower sentence is a full-fledged CP. This means that the grammatical subject undergoes case evaluation to the exclusion of the major subject. Therefore, the grammatical subject is not caseless by the time the major subject merges in a position that c-commands the grammatical subject. When the higher sentence is evaluated for case, the grammatical subject cannot be assigned dependent case despite being c-commanded by the major subject. The fact that the grammatical subject bears nominative case is simply the result of it being the highest argument (the *subject*) in the lower sentence. Since it is not c-commanded by another NP, it gets unmarked nominative case. The major subject, which would be the only caseless nominal by the time the higher sentence is evaluated for case, also gets unmarked nominative case.

My proposal straightforwardly explains how multiple nominative arguments come to be. But in order for the proposal to hold, we need to be certain that the lower sentence is indeed a CP since only CPs trigger case evaluation and unmarked case assignment. Crucially, the lower sentence should not be a VoiceP. If it was, the grammatical subject would not be assigned unmarked case but instead remain caseless. It would then be qualified to get accusative case due to being c-commanded by the major subject, which is not true. I currently do not have conclusive evidence that the lower sentence is a CP, but I do argue below that the lower sentence must be larger than VoiceP.

Evidence that the lower sentence is larger than VoiceP comes from semantic restrictions on

multiple nominative constructions and their sentential predicates. Sentential predicates express some inherent property of the major subject and have been described as "holding an aboutness relation to the major subject" (Heycock & Doron 2003) or "expressing a characteristic property of the major subject" (Yoon 2007). This, the authors say, is why the major subject and the grammatical subject are often in a specific semantic relation. The grammatical subject is often the inalienable possession of the major subject (such as a body part, a family member, or some other inherent property), or is a subset/subtype of the major subject (such as *boat* for *mode of transport* or *apple* for *fruit*). But even when there is no such obvious relation between the major subject and the grammatical subject, the sentential predicate expresses some characteristic property of the major subject. The contrast between (287a) and (287b) clearly demonstrates this point.

(287) a. Ilen   chayk-i$_1$ [Op$_1$ haksayng-tul-i manhi e_1 chac-nun-ta].
          this.kind bookNOM   student-PL-NOM often   look.for-PRS-DECL
          'This kind of book, people often look for.' (*Adapted from* Yoon 2007:626)

    b. *Ilen   chayk-i$_1$ [Op$_1$ etten haksayng-i e_1 onul ilk-nun-ta.]
         this.kind book-NOM   some student-NOM today   read-PRS-DECL
         Intended: 'This kind of book, some student reads today.'

The sentential predicate of the grammatical (287a) expresses the property of being popular, a potentially inherent property of a book. In contrast, the sentential predicate of (287b) expresses the property of being read by some student today, which cannot be an inherent property of any book.

Because the sentential predicate expresses a characteristic property of the major subject, the verb inside the sentential predicate is prone to be an individual-level predicate as opposed to a stage-level one (Carlson 1977; Diesing 1992b; Kratzer 1995). The predicates *khu-Ø-ta* 'be large' and *kil-Ø-ta* 'be long' in (285) are both stative predicates that express a typically stage-level property. Similarly, the sentential predicate of (287a) expresses an individual-level property of 'people', a generic subject. Subjects of individual-level predicates have been argued to escape existential closure and move to Spec, TP or Spec, IP (Diesing 1992b,a). For the lower sentence to be able to contain the subject of an individual-level predicate, the sentence should be at least as large as TP. Therefore, it must be the case that the lower sentence is larger than VoiceP.

Furthermore, I have argued in section 3.1 that a sentence with accusative adverbials has its subject located at Spec, TP. If the lower sentence can license an accusative durative/multiplicative adverbial, this would provide additional evidence that the lower sentence is larger than VoiceP. The problem is that sentences with durative/multiplicative adverbials are typically stage-level since they express an event that is of finite duration. They are, after all, dubbed *situation delimiters* by Wechsler & Lee (1996). However, one can create an individual-level predicate by adding an adverb such as *mayil* 'every day' and creating a habitual meaning as in (288a).

(288) a. Mina-ka   on   kacok-i   mayil   wuntong-ul   sey   sikan-ul   ha-n-ta.
       Mina-NOM entire family-NOM every.day workout-ACC three hour-ACC do-PRS-DECL
       'Mina, her family works out for three hours every day.'

    b. Mina-ka   kangaci-ka   mayil   sey   pen-ul   sanchaykha-n-ta.
       Mina-NOM puppy-NOM every.day three time-ACC walk-PRS-DECL
       'Mina, her puppy takes walks three times every day.'

The lower sentences in (288a) express a characteristic property of *Mina*, so they are semantically felicitous. Also, they can contain accusative-marked durative/multiplicative adverbials. Hence we have seen another argument suggesting that the size of the lower sentence is larger than VoiceP.

Chapter 6

Conclusion

In this dissertation, I examined the case marking patterns on durative and multiplicative adverbials in Korean. In transitive, unergative, and unaccusative constructions, the adverbials always bear accusative case. In psychological predicate constructions, the adverbials always bear nominative case. In nonactive (passive and inchoative) constructions, the adverbials can bear either nominative or accusative case. Nonactive constructions were key to understanding the case marking pattern, since they provide minimal pairs of sentences that only differ in the case of the adverbial. In chapter 3, I compared the behavior of nonactive constructions that bear a nominative adverbial and those that bear an accusative adverbial, with regards to three phenomena: predicate fronting, negative concord item intervention effect, and the interpretation of indefinite subjects. This comparison revealed that the case on the adverbial correlates with the position of the theme subject in nonactive constructions. When the adverbial is nominative, the theme subject is located at Spec, VoiceP. When the adverbial is accusative, the theme subject has raised out of Spec, VoiceP to Spec, TP.

I provided an explanation for this correlation, built on two theoretical building blocks. The first is the idea presented in chapter 4 that nonactive constructions introduce either an implicit agent/causer or a PP agent/causer at Spec, VoiceP. This agent/causer competes against the theme subject to move to Spec, TP; whichever of the two happens to be more local to T gets to move to Spec, TP. This competition is what produces optionality in nonactive constructions. The constructions that do not show optionality lack this competition. In transitive/unergative constructions, there is no implicit or PP agent/causer to compete with the subject for movement to Spec, TP. In (simplex) psychological predicate constructions, the experiencer acts as an intervener and blocks the theme argument from moving to Spec, TP. In addition to uncovering the competition between the theme and the implicit agent/causer, I shed light on the identity and property of *HI* and *eci*, the nonactive suffixes of Korean. While earlier attempts have been made to characterize them as either passive or inchoative, I illustrated how both suffixes show both properties of passive and

inchoative constructions and thereby justified my choice to label them as *nonactive*.

The second building block is a slightly revised version of the successive-cyclic Dependent Case model, originally put forth by Levin (2017) and couched within the Cyclic Linearization view of Spell-out (Fox & Pesetsky 2005). The first building block established the relative position of the nominals in the different constructions. This second block is the case-assigning algorithm that actually determines the case on these nominals. In Levin's original model, case assignment was strictly phase-bound. But the facts examined in the dissertation called for a more relaxed locality constraint for dependent case assignment, which I formalized as an *association* requirement: as long as one of the two NPs are in the current phase under evaluation, the NP pair is *associated with the phase* and thus dependent case assignment can be triggered. While this relaxed locality requirement seems like it would allow for very long-distance dependent case assignment, this is not true because any caseless NP is assigned unmarked case at the Spell-out of each CP phase. For dependent case assignment to occur, both the c-commanding NP and the c-commanded NP must be caseless. But the Spell-out of a CP phase makes sure that all NPs in the structure are case-marked, thereby bleeding long-distance dependent case. My version of the successive-cyclic Dependent Case model arguably makes for a more consistent theory, because it is more compatible with the Cyclic Linearization view that the model is based on. Under Cyclic Linearization, Spell-out makes linearization statements but does not render Spelled-out parts of the structure opaque. Therefore, it is reasonable to expect NPs in previously Spelled-out phases to still be available for case evaluation if the structural configuration allows for it.

Having achieved the main goal of analyzing the case pattern of durative/multiplicative adverbials, I demonstrated how my successive-cyclic Dependent Case model can be extended to two other case phenomena of Korean. First, I showed that the model can explain the case stacking facts which motivated Levin (2017) to propose a successive-cyclic Dependent Case model. Second, I demonstrated that multiple nominative constructions can also be explained under my model if we accept Yoon's (1989; 2007; 2009) idea that multiple nominative constructions involve sentential predicates. By highlighting the wide range of phenomena that can be explained under my model, I have shown that the endeavor to capture the case phenomena of natural language is indeed a worthwhile and fruitful one.

On a larger scale, I have demonstrated that even "non-canonical" case phenomena such as case-marked adverbials can be explained with a syntactic theory of case. While this may sound like an obvious point, it has been contested in recent works on Korean durative/multiplicative adverbials. We have seen in chapter 1 that the case pattern varies across different constructions. We have also seen in section 3.1.3 that the case on these adverbials is correlated with semantic properties of the subject, which have been identified as a difference in prominence (Lee 2017) or a thetic – categorical distinction (Kim & Sells 2010). Based on their findings, Kim & Sells (2010) as well

as Lee (2017) have argued that a syntactic account is insufficient for explaining case marking on durative/multiplicative adverbials. However, I have provided an analysis of the facts with the same syntactic case model that accounts for case on other nominals such as arguments. Crucially, the semantic observations made by the previous authors are not lost in my account. Because the subject is located in different positions, the semantic effects are to be expected. Lee's observation that case on the adverbial affects the scope relation between the subject and the event is expected if we accept my analysis and Diesing's (1992) Mapping Hypothesis. Similarly, the thetic – categorical distinction has been mapped to a difference in subject position by von Fintel (1989). In other words, the observations put forth by Kim & Sells (2010) and Lee (2017) are not counterarguments against a syntactic analysis but in fact important arguments *for* a syntax-based account of case on adverbials.

The conclusion that case on adjuncts can be accounted for by the same syntactic case mechanism that assigns case on arguments leads to at least two welcome results. The first is a restricted theory of the grammar. With the successive-cyclic Dependent Case model presented in this dissertation, we do not need a duplicate case system for adjuncts separate from that of arguments. A case system that is independent of theta roles, argument structure, and selection provides support for a modular view of the internal workings of syntax. The second welcome result is an attainable case system that can be learned by learners with a limited set of input. A theory of the acquisition of case that is sensitive to lexical information and theta roles would likely have difficulties explaining how the various case patterns in chapters chapter 1 and chapter 3 are acquired. If case simply reflects the relative position of nominals, as suggested in this dissertation, a straightforward explanation becomes available. In fact, the results of an acquisition study performed by Chung (1994) support this view. Chung demonstrates from longitudinal and experimental studies that learners of Korean rely on positional cues like the word order of nominals to determine the case marking on nominals, instead of considering the "canonicity" of agent and patient theta roles as suggested by Pinker (1984) and Slobin (1985).

I close the dissertation by briefly addressing two relevant issues that have not been covered here. The first issue is understanding the Korean pattern in the context of case-marked adverbials in other languages. At least among the handful of languages considered in this dissertation, only Korean shows optionality in case marking on durative and multiplicative adverbials. Why don't Russian, Finnish, or German show a similar optionality? A promising direction is to focus on the aspectual restrictions that exist for adverbials in Russian and Finnish, but not for Korean. (I am not aware of the facts for German.) In Russian and Finnish, the case marking on the adverbial is affected by the telicity or boundedness of the event (Kiparsky 1998; Pereltsvaig 2000). This leads Pereltsvaig to locate the Russian durative adverbial at Spec, AspP. As Kim (2019) points out, there is no such restriction for Korean adverbials. This contrast in aspect restriction may hold the key to explaining the difference between Korean on the one hand, and Russian and Finnish on the other.

The second issue is also a crosslinguistic one, and has been briefly hinted at in chapter 1. This dissertation has mainly focused on Korean and other nominative-accusative case systems. But adverbials have been observed to bear dependent ergative case in at least in Diyari (Austin 2021) and Warlpiri (Simpson 1991). Interestingly, the adverbials getting case here are not durative/multiplicative but event-internal adverbs with meanings such as 'energetically' and 'quickly'. Whether an ergative-absolutive counterpart of my analysis can successfully explain the Diyari and Warlpiri facts is a question I leave for future research.

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