

Result State and Internal Adverbs

Jae-Hak Yoon
(Kyung Hee University)

Yoon, Jae-Hak. 1999. Result State and Internal Adverbs. *Linguistic Research* 17, 86-129. Result state verbs pose a challenge to a compositional view of adverbial modification. They are involved in adverbial modification which is apparently noncompositional in the sense that certain temporal adverbials appear to 'internally' modify some semantic subpart of the denotations of these verbs, rather than the denotations of these verbs as a whole. We will attempt to solve this problem by proposing an analysis based on the aktionsarten of the verbs involved in this construction: according to this analysis, two eventuality variables are introduced in the semantics of those verbs, and sentences involving them can be understood as descriptions of two eventualities. (Kyung Hee University)

1. Introduction

Examples such as (1) and (2) appear to challenge the view that the suffix -ess marks the past tense. Even with the marker which we consider to indicate the past, they describe present states of affairs rather than a past event. Thus, they appear to suggest that it be a marker of some other kind such as a perfective marker, as often claimed by Nam (1978) and others.

- (1) Ney os-ey cikum hulk-i mwut-ess-ta.
your clothes-on now mud-NOM stick.to-PAST-DEC
'Mud is now on your clothes.'
- (2) Mary-ka cikum/onul ohwu-ey-nun ppalkan moca-lul ssu-ess-ta.
Mary-NOM now/this afternoon-in-TOP red hat-ACC put.on-PAST-DEC
'Mary is wearing a red hat now/this afternoon.'

For (2) to be true, for instance, it is only required that Mary is wearing a red hat at the utterance time; it is entailed that she put it on

sometime earlier than the utterance time. In other words, these sentences describe some present states which past events brought about.

These examples are also challenging to the standard approach to adverbial modification: under the given glosses of the verbs, the temporal adverbials in these examples seem to modify not the events denoted by the verbs *per se*; rather they seem to modify some states that are inferred as holding as a result of the type of event denoted.

What is crucial about the above sentences is not the fact that past tensed sentences are 'used' to describe present states of affairs. In fact, past tense is frequently used to describe present states, for instance, in an exchange like (3) in English:

(3) A: Is Mary in?

B: She left five minutes ago.

B's utterance is 'used' for present purposes, more specifically as an answer to a question about Mary's present state. However, it is hardly controversial that the tense is past and that it is an assertion about a past event: in the given context, the present state of Mary is inferred from the past-tensed sentence.

What IS crucial in (1) and (2) is the fact that the temporal adverb denoting the utterance time is used along with the past tense marker. Thus, there appears to be a contradiction by having both of them in the same clause.

It will be seen that despite these examples a theory of *-ess* as aspect marker is inadequate and unmotivated. Instead we will propose an analysis based on the aktionsarten of the verbs involved in the above sentences. In a nutshell it will be proposed that there are a class of verbs in Korean which are both telic and atelic according to common diagnostics and that the verbs in (1) and (2) belong to this class. We will propose an analysis according to which two eventuality variables are introduced in the semantics of verbs like *ssu* 'to put on/wear' in such a way that sentences involving them can be understood as descriptions of two eventualities, i.e. the telic event and its 'result state' at the same time. Accordingly, in (2) there are two

eventualities introduced by the verb: (a) the event of putting on a hat and (b) the result state of wearing it. Under the given reading the past tense is about the event while the temporal adverbials *cikum* 'now' and *onul ohwu-ey-run* 'this afternoon' modify the state.

In §2, elaborating Yang (1977) and Jeong (1981), we will motivate a subclass of verbs, to be called result state verbs. Moreover it will be shown that the kind of readings in sentences like (1) and (2) always involve a result state verb. Also, we will discuss interactions between result state verbs, tense, and temporal adverbials. Based on this, we will maintain that these readings, to be called result state readings, arise independently of the tense marker *-ess* and therefore that the existence of these readings is in fact consistent with the claim that *-ess* is a past tense marker.

Then, in §3 we will propose an analysis to account for the observed facts about result state verbs.

2 Verbs of Result State

Two classes of verbs participate in three different constructions to produce result state readings. We will first describe and motivate these classes of verbs. Then we will see how the three constructions are related and in what respects they differ from one another.

It was suggested in Yang (1977) that verbs in Korean be divided into two subcategories depending on whether or not they can appear in a result state construction with *-ko iss* or *-e iss*. According to him, 'process-goal separate' verbs, i.e. verbs that can combine with a result marker, can be used to refer either to the achieving stage (i.e. process) or to the achieved stage (i.e. goal). The other class of verbs, 'process-goal fused' verbs, do not distinguish between the two stages. Jeong (1981) proposes a class of verbs called 'resultatives' which essentially correspond to Yang's process-goal separate verbs. The key criterion for Jeong's class of resultatives is again whether a verb can appear with a result marker, i.e. the same test for Yang's process-goal separate verbs. Clearly, both Yang and Jeong recognized the distinction between verbs and moreover that one kind of verb is more complex than the other kind. What Jeong calls resultatives will be called result

state verbs.

We will elaborate these approaches in refining the criteria and also distinguishing among result state verbs. Also, we make a crucial connection which has not been explored in the literature between simple result state sentences and *-ka/e* iss constructions.

2.1 Result Verbs and Semi-result Verbs

Not all verbs are able to produce a result state reading. Among those capable of producing one, there are also some limitations on what types of temporal adverbials can appear with these verbs to modify the given result state. For instance, temporal adverbials such as *cikum* 'now' can appear with verbs like *mwut* 'to stick to' and *ip* 'to put on/wear' and produce a result state reading, as seen in (1) and (2) above. Adverbials like *hansikan tongan* 'for an hour' and *cengo puuthe* 'from noon' can also provide a result state reading for these verbs.

On the other hand, *cikum* 'now' is unavailable for a result state reading with a verb like *neh* 'to put', whereas *hansikan tongan* 'for an hour' and *cengo puuthe* 'from noon' are available, as shown in (4) and (5).

- (4) Peter-ka maykcwu-lul nayngcanggo-ey hansikan tongan neh-ess-ta.

Peter-NOM beer-ACC refrigerator-in for an hour put-PAST-DEC
'Peter put the beer in the refrigerator for an hour.'

- (5) #Peter-ka cikum maykcwu-lul nayngcanggo-ey neh-ess-ta.

Peter-NOM now beer-ACC refrigerator-in put-PAST-DEC
(intended) 'Peter put the beer in the refrigerator before now and it's in there now.'

There are implicational patterns in these limitations: a nonaspectual (locating) adverbial like *cikum* is more limited than an aspectual adverbial like *hansikan tongan*. Thus, if a verb can appear with a nonaspectual adverbial, it can also appear with an aspectual one; but the converse does not hold. According to these limitations, we can divide verbs into two subclasses: ones that are allowed with both nonaspectual and aspectual adverbials and ones that are only allowed with aspectual

adverbials, to be called result verbs and semi-result verbs respectively. Together they will be referred to as result state verbs. This can be defined more precisely as in (6):

(6) a. Result Verbs:

a verb (phrase) α is defined as a result verb (phrase) iff it can appear in the construction below and produce a result state reading with any β or any γ , where β is a variable over temporal adverbials *ecey ohwu-ey-nun* 'yesterday afternoon', *onul ohwu-ey-nun* 'this afternoon', *cikum* and γ is a variable over temporal adverbials *hansikan tongan* 'for an hour' and *cengo pwuthe* 'from noon'.

Mary-ka β/γ α -ess-ta.

Mary-NOM β/γ α -PAST-DEC

'Mary is in the state of having α '-ed β '/ γ '.'

b. Semi-result Verbs:

a verb (phrase) α is defined as a semi-result verb (phrase) iff it can appear in the construction above and produce a result state reading with any γ , but with none of β , where β and γ are the same as above.¹

¹ This condition may be too strong, as some semi-result verbs allow *pwuthe*-adverbials but not *tongan*-adverbials. For instance, the verb *sicakha* seems to be a semi-result verb. The sentence (i) has a result state reading.

- (i) *Swuep-i cengo-pwuthe sicakha-nun-ta.*
 class-nom noon-from start-nonpast-dec
 'The class starts at noon.'

However, the predicate *sicakha* does not allow *tongan*-adverbials, as shown in (ii). This difference may have to do with the verb *sicakha* being an aspectual verb which has strong focus on the initial stage and that *pwuthe*-adverbials are presumably initial-point oriented but *tongan*-adverbials are not.

- (ii) *#Swuep-i seysikan-tongan sicakha-ess-ta.*
 class-nom three.hour-for start-past-dec
 (on reading) 'The class started and lasted for three hours.'

Thus, we may have to weaken the condition 'produce a result state reading

There are two other constructions which provide result state readings similar to the sentences in (1) and (2). Consider the examples in (7) and (8). These are similar to the above sentences in that here also the temporal adverbials modify the result states. In particular, the same class of verbs, i.e. result verbs, seem to appear both in (2) and a construction of type (7). However, a sentence of type (8) allows both result verbs and semi-result verbs. We will refer to these constructions as *-ko iss* construction and *-e iss* construction, respectively.

- (7) Mary-ka cikum mwun-ul tat-ko iss-ta.
 Mary-NOM now door-ACC close-CONN exist-DEC
 'Mary is (here) now, with the door closed.'
- (8) Mary-ka cikum anc-e iss-ta.
 Mary-NOM now sit.down-CONN exist-DEC
 'Mary is (here) now, sat down.'

These two constructions are also closely related to each other: they are in complementary distribution in that the *-ko iss* construction takes transitive verbs only, whereas the *-e iss* construction allows only intransitive verbs. It is unknown though why semi-result verbs are allowed in the *-e iss* construction, but not in the *-ko iss* construction.

In the next section, we will investigate what semantic generalizations we can make about the class of result verbs. We will use the *-ko iss* construction as the criterion for result verbs rather than the adverbial test for two reasons. First, the *-ko iss* construction seems to determine whether a given verb can appear in the construction or not, more clearly than the adverbial test does. Second, some temporal adverbials can be pragmatically inappropriate for some verbs, e.g. too short durations for some events or states, though other temporal adverbials of the same type are fine. But, the *-ko iss* construction produces a result state reading natural without a temporal adverbial. Therefore, the appropriateness problem does not arise for this construction.

with any γ ' into 'produce a result state reading with some γ '.

However, the *-ko iss* construction can only be used to test transitive verbs, since it does not allow intransitives. Thus, for intransitives, we will have to resort to the adverbial test.

2.2 Result States and *-ko iss*

It has been observed that sentences like (9) below are ambiguous (see Chang 1973, Park 1974, Yang 1977, Jeong 1981). The difference may be rather significant for the revenue of tabloid magazine companies. One reading makes Diana half-naked and the other, totally naked.²

- (9) Diana-ka os-ul pes-ko iss-ess-ta.
 Diana-NOM clothes-ACC take.off-CONN exist-PAST-DEC
 a. 'Diana was taking off her clothes.'
 b. 'Diana was naked.'

(9) has a reading, (9b), which is about a result state of the accomplishment verb meaning, in addition to the progressive reading in (9a). This kind of ambiguity cannot arise for just any verb in Korean. The sentence (10) for instance does not have the result state reading which would amount to (10b).

- (10) Diana-ka cip-ul cis-ko iss-ess-ta.
 Diana-NOM house-ACC build-CONN exist-PAST-DEC
 a. 'Diana was building a house.'
 b. # 'Diana had built a house.'

We will conclude below that the ambiguity shown in sentences like (9) is due to the presence of two homophonous *-ko iss* constructions. Thus, focusing on the result state reading, we will attempt to arrive at a generalization that characterizes the class of result verbs.

First of all, it should be noted that result state readings are available only for transitive verbs, for when an intransitive verb appears

² For now we will categorize *-ko* vaguely as a connective.

in the construction, it is always assigned only a progressive reading, as shown in (11). For a result state reading, the *-e iss* construction is employed for intransitives as shown in (12). Notice that this sentence has no progressive reading. The result state reading for the intransitives will be discussed in the next section, § 2.3.

- (11) Diana-ka chimtay-ey nwuph-ko iss-ta.
 Diana-NOM bed-in lie.down-CONN exist-DEC
 'Diana is lying down in the bed.'

- (12) Diana-ka chimtay-ey nwuph-e iss-ta.
 Diana-NOM bed-in lie.down-CONN exist-DEC
 'Diana is in the bed, lied down.'

Second, a result state reading is possible only with telic predicates. For instance in (13) with an atelic *swuley-lul mil* 'to push carts', the reading is unambiguously progressive.

- (13) Diana-ka swuley-lul mil-ko iss-ta.
 Diana-NOM cart-ACC push-CONN exist-DEC
 'Diana is pushing carts.'

It was reported in K.-D. Lee (1978) and Ko & Nam (1985) that the result state reading is available to a group of verbs which represent actions of 'putting on/taking off' clothes, hats, or socks as in (14) or verbs that represent 'contacting' to body parts as in (15). As is evident here, Korean has different verbs for putting on/taking off clothes, hats, socks, gloves, belts, etc. Incidentally, notice that there are two verbs marked # in (14), i.e. *moca-lul pes* 'to take off a hat' and *cangkap-ul pes* 'to take off gloves'. They are marked to indicate that result state readings are unavailable with them. An explanation for this will be given shortly.

- (14) a. paci-lul ip/pes 'to put on/take off pants'
 b. moca-lul ssu/#pes 'to put on a hat'
 c. yangmal-ul sin/pes 'to put on/take off socks'

- d. *cangkap-ul kki/#pes* 'to put on gloves'
- e. *hyektay-lul cha/pes* 'to put on/take off a belt'

- (15) a. *an* 'to embrace'
 b. *i* 'to carry on the head'
 c. *ci* 'to carry on the back'
 d. *cwi* 'to grip'

H. Lee (1991) also notes that there is another group of verbs with the result state reading. These involve 'getting on' a means of transportation as shown in (16):

- (16) a. *cha-lul tha* 'to get on a car'
 b. *cacenke-lul tha* 'to get on a bike'
 c. *pihayngki-lul tha* 'to get on an airplane'
 d. *mal-lul tha* 'to get on a horse'

There seem to be still another group of verbs. These involve 'opening or closing' of space as in (17):

- (17) a. *mwun-ul yel/tat* 'to open/close a door'
 b. *changmwun-ul yel/tat* 'to open/close windows'
 c. *curtain-ul ket/chi* 'to draw/lift a curtain'

It is also interesting to see that the verbs in (16) do not display the symmetry which is evident in most other groups. Namely, this group contains 'getting on' verbs only, excluding the 'getting off' type. This suggests that a result state reading can be obtained for a verb if an event involving that verb produces a visible effect. Being 'visible', of course, is a very vague notion. Yet, we suggest that it is an appropriate characterization of the construction. We can be slightly more specific by defining that an effect is visible if, upon observing a result state, we can retrieve information about what type of event has occurred. This criterion distinguishes the asymmetric verbs in (15b,d) and (16) from the rest. For instance, once one gets in a car, the effect that one is in the car is visible. I.e. we can infer from seeing someone

in a car that he/she got in that car. Likewise, once you put on pants or take them off, either way the effect is visible enough for us to see what action you have performed under the assumption that one normally wears pants. The same is true of the verbs in (17).

However, if we take a verb like 'to get off', it is not obvious how we could recover the information. For example, once one is out of a car or an airplane, the effect is not generally visible so that we could notice that one is in the state of having gotten off a car or an airplane, or even whether one has gotten off from anything. This is consistent with the observation that (18a) is good and (18b) bad if John is a bald man frequently wearing a wig and Mary is not. This is expected because it should be visible to neighbors when John is not wearing a wig. Even if Mary wears a wig frequently, as is often the case for a woman wearing a wig, the effect is not as visible to unsuspecting eyes. After all, the effect of a wig on a non-bald woman is not as striking as on a poor bald man.

- (18) a. John-i kabal-ul pes-ko iss-ta.
 John-NOM wig-ACC take.off-CONN exist-DEC
 'John is taking off a wig.'
 'John is in a state of having taken off the wig/John is without a wig.'
- b. Mary-ka kabal-ul pes-ko iss-ta.
 Mary-NOM wig-ACC take.off-CONN exist-DEC
 'Mary is taking off a wig.'

The same kind of asymmetry is shown in (19). Turning on the light is normally as visible as turning off the light. But, turning off the radio is not perceived as visible (or perceptible) as turning on the radio.

- (19) a. pwul-ul khye/kku'to turn on/off the light'
 b. radio-lul khye/#kku'to turn on/off the radio'

Another condition is needed besides the visibility requirement and telicity condition when we consider unambiguous examples like (10), repeated here. Building a house, a telic predicate, seems to necessarily

involve an effect which is visible in every relevant sense. When a house building is completed we cannot fail to notice that there stands a new house. Conversely, if we see a new house, or any house for that matter, we can safely conclude that some house building occurred in the past. Nevertheless, the sentence in (10) lacks a result state reading.

- (10) Diana-ka cip-ul cis-ko iss-ess-ta.
 Diana-NOM house-ACC build-CONN exist-PAST-DEC
 #'Diana was in a state of having built a house.'

What separates acceptable examples from ones like (10) is that acceptable ones represent events that are easily reversible; actions of turning on the light, getting on a bus, putting on clothes, and opening a door can be easily and almost completely reversed, whereas building a house cannot.

The above conditions together are yet only necessary, but not sufficient, conditions for obtaining result state readings for the construction. Observe that a result state reading is unavailable in (20), though the verb *neh* 'to put' is transitive telic and the event it represents is reversible.

- (20) #Peter-ka maykcwu-lul nayngcanggo-ey neh-ko iss-ta.
 Peter-NOM beer-ACC refrigerator-in put-CONN exist-DEC
 (intended)'Peter is a state of having put the beer in the refrigerator.'

One difference between this example and the acceptable ones seems to be that a subject of the verb *neh* 'to put' is a proto-typical agent, but the subjects in the acceptable verbs are not, in the sense of Dowty (1991). Rather, they are also affected by the event correlated with the verb. E.g., if the event in question is 'putting on a hat', of course onto oneself, the individual denoted by the subject assumes some effect of the event. On the other hand, the event of putting some object in a location, which is correlated with *neh*, need not affect the subject.

Summing up the data, we have come to a rough generalization of result verbs in (21). Technically, we have arrived at this conclusion by examining what kind of verbs can appear in the *-ko iss* construction.

But, as noted above, this conclusion is justified since the membership of transitive result verbs extensionally coincides with those verbs which can appear in the *-ko iss* construction. We assume that the generalization made in this way is also applied to intransitive result verbs.

- (21) **properties of result verbs:** a verb is a result verb iff
- it is telic.
 - it denotes an easily reversible event.
 - it denotes an event which involves a visible effect.
 - its subject is an experiencer of the event in question.

We suggest without going through an examining process that semi-result verbs share the first two properties with result verbs.

- (22) **properties of semi-result verbs:** a verb is a semi-result verb iff
- it is telic.
 - it denotes an easily reversible event.

For completeness, some result verbs and semi-result verbs are listed in (23) and (24):

(23) **Result Verbs:**

a. Transitives:

| | |
|------------------------------------|---------------------------------|
| ip 'to put on (clothes)' | ssu 'to put on (a hat)' |
| kelchi 'to put on (clothes)' | sin 'to put on (shoes)' |
| cha/may 'to put on (a belt/watch)' | kki 'to put on (a ring)' |
| pes 'to take off (clothes)' | kwuphi 'to bend (one's) back' |
| ci 'to put a load on one's back' | i 'to put a load on one's head' |
| yel 'to open' | tat 'to close' |
| khye 'to turn on (light)' | kku 'to turn off (light)' |
| tha 'to get on (a car/a train)' | mayc 'to initiate (a relation)' |
| cap 'to grip (a power)' | cuy 'to grip (a knife)' |
| may 'to tie' | ... |

b. Intransitives:

| | |
|--|--------------------------------------|
| kay 'to clear up (weather)' | nwup 'to lie down' |
| eptuli 'to crouch' | kala anc 'to settle down (in water)' |
| ttu 'to float up' | el 'freeze up' |
| toy 'to become (adj./NP)' | nayli 'to come down' |
| olu 'to go up' | michi 'to get mad' |
| mwut 'to stick to (a body part/clothes)' | cichi 'to get exhausted' |
| tol 'to become crazy' | phi 'to bloom (flowers)' |
| ci 'to set (sun)' | ... |

(24) **Semi-result Verbs:**a. **Transitives:**

| | |
|-------------------|--------------------|
| neh 'to insert' | twu 'to put' |
| pilli 'to borrow' | pilyecwu 'to lend' |
| olli 'to raise' | ... |

b. **Intransitives:**

| | |
|-------------------------|------------------|
| ka 'to go (to a place)' | o 'to come' |
| sicakha 'to start' | kkuthna 'to end' |
| salaci 'to disappear' | olu 'to rise' |
| ... | |

Thus, in view of the consistent pattern of this class of verbs and their required properties, we can conclude that the result state reading is not a function of the tense marker *-ess* but some lexical feature of result verbs.

2.3 Relatedness of *-ko iss* and *-e iss*

The *-e iss* construction takes a member of a subset of the telic **intransitive** verbs and provides a result state reading. Thus, while (25) can describe a simple past event or its result state reading as shown below, (26) only describes the result state of a past event of taking a seat. Therefore, the *-e iss* construction provides the same kind of result

state reading as the *-ko iss* construction. But they differ in distribution with respect to transitivity.

- (25) John-i twis cali-ey anc-ess-ta.
 John-NOM back seat-on sit.down-PAST-DEC
 a. 'John sat down on the back seat.'
 b. 'John is in the back seat.'
- (26) John-i twis cali-ey anc-e iss-ta.
 John-NOM back seat-on sit.down-CONN exist-DEC
 'John is in the back seat.'

(27) and (28) illustrate the telicity and the intransitivity requirements for the construction, respectively. While (27) is unacceptable because the predicate is atelic, (28) is bad because the verb is transitive.

- (27) *John-i ket-e iss-ta.
 John-NOM walk-CONN exist-DEC
 (intended) 'John is in a state of having walked.'
- (28) *John-i moca-lul ssu-e iss-ta.
 John-NOM hat-ACC put.on-CONN exist-DEC
 (intended) 'John wears a hat.'

It seems evident that we get the same kind of reading with *-ko iss* and *-e iss*, even though the required conditions are different. The complementariness in distribution between the two constructions is further corroborated by two facts. Therefore, they seem to constitute a natural class, as suggested by Yang (1977), Jeong (1981), and some others.

It is observed in Yang (1977) that the transitivity co-occurrence restriction of *-ko* and *-e* is not limited to the verb *iss*. The restriction is applied to verbs like *o* 'to come' and *ka* 'to go' (see Yang 1977:230--231). This is illustrated in (29) and (30), where intransitives require an *-e* form but transitives, a *-ko* form (Yang 1977:231):

- (29) a. Na-nun cha-lul tha-ko, *tha-e o/ka-unta.
 I-TOP car-ACC take take come/go-DEC
 'I come/go by car.'

- b. Ne-nun *ket-ko, ket-e o/ka-unta.
 you-TOP walk walk come/go-DEC
 'You come/go on foot.'
- (30) a. Son-ul cap-ko, *cap-e o/ka-unta.
 hand-ACC hold hold come/go-DEC
 'Someone comes/goes, with holding someone else's hand.'
- b. Ai-ka cha-ey *sit-li-ko, sit-li-e o/ka-ess-ta.
 child-NOM car-in load-PASS-CONN load-PASS-CONN
 come/go-PAST-DEC
 'A child came/went, lying in a car.'

Furthermore, it is worth mentioning that historically *-e iss* was used for transitive verbs as well, *-ko iss* being a relatively recent development. S.Kim (1987:168--169) reports that the *-e iss* form had been used for transitive verbs until the 18th century, as illustrated below. In the contemporary Korean language only a *-ko* form is acceptable in these environments.³

- (32) 16th Century [Penyeknoultay Sang 40]:
 Achim pap-ul mot mek-e iss-ko ...
 breakfast-ACC cannot eat-CONN exist-and
 '[He] hasn't been able to have breakfast and ...'
- (33) 16th Century [Sohakenhay 2:60]:
 Miche [...] mot ha-e kyeysi-ketun ...
 yet cannot do-CONN exist-if
 'If [someone] haven't been able to do it, ...'
- (34) 16th Century [Sohakenhay 5:53]:
 sanai [...] ip-e iss-nun kos-ey ...
 man put.on-CONN exist-REL place-at
 'at a place where a man is wearing [...]'

2.3.1 Regarding an Objection

H. Lee (1991) claims that the *-e iss* construction does not necessarily require a telic predicate, citing two 'supposed' counterexamples in (34)

³ Notice in (32) that *kyeysi* is a honorific word for *iss*.

and (35). He argues that *sokha* and *sal* counterexemplify the generalization about the construction.

- (34) Enehakkwa-nun eti sokha-e iss-ess-eyo?
 linguistics.dept-TOP where belong-CONN exist-PAST-INTER
 'Where did the linguistics department belong?'
- (35) Suni-nun ipwuk-ey sal-e iss-ta.
 Suni-TOP North.Korea-at live-CONN exist-DEC
 'Suni is alive in North Korea.'

However, as no evidence is given for this claim, he apparently assumes that the Korean verbs *sokha* and *sal* are just like English *to belong* and *to live* and further that since these English verbs are atelic, the Korean verbs are also atelic. But, this assumption is questionable at best. Recall that all nonadjectival atelic predicates in Korean can appear with the 'progressive marker' *-ko iss*. But, as Lee (1991:209) admits, *sokha* cannot appear in that construction as seen in (36). Accordingly, this fact suggests that *sokha* is an achievement verb.

- (36) #Enehakkwa-nun mwunkwatay-ey sokha-ko iss-ta
 linguistics.dept-TOP coll.humanities-to belong-PROG exist-DEC
 (intended)'The linguistics department is belonging to the college of
 humanities.'

Moreover, *sokha* patterns with other result verbs in the relative construction. Namely, it takes the *-un* form for the nonpast meaning, rather than the *-nun* form which one would expect from a nonadjectival atelic predicate. Compare the contrast between (37) and (38). In (37a), the result verb *ssu* 'to put on' combines with the *-un* form relativizer and provides a description about the present state, though it can also describe the past event as well. When it takes the *-nun* form like (37b), it is interpreted as describing a repeated or generic event. On the other hand, the atelic verb *salangha* 'to love' takes the *-nun* form for the present tense but takes the *-un* form for the past interpretation, as shown in (38a) and (38b), respectively.

- (37) a. *moca-lul ssu-∅-un haksayng*
 hat-ACC put.on-PAST-REL student
 'students who have a hat on'
- b. *moca-lul ssu-n(u)-un haksayng*
 hat-ACC put.on-NONPAST-REL student
 'students who are putting on(repeatedly)/put on(generically)'
- (38) a. *Mary-lul salangha-∅-un haksayng*
 hat-ACC put.on-PAST-REL student
 'students who loved Mary'
- b. *Mary-lul salangha-n(u)-un haksayng*
 hat-ACC put.on-NONPAST-REL student
 'students who love Mary'

Observe that the verb *sokha* behaves like a result verb such as *ssu* 'to put on'.

- (39) a. *mincwutang-ey sokha-∅-un haksayng*
 Democratic.party-to belong-PAST-REL student
 'students who belong to Democratic Party'
- b. *mincwutang-ey sokha-nu-un haksayng*
 Democratic.party-to belong-NONPAST-REL student
 'students who will belong/belong(generically) to Democratic Party'

Furthermore, the verb *sal* shows a similar pattern in the relative construction that are unexpected from an atelic predicate in Korean. This verb describes the present state of being alive in the *-un* form but the present state of living in the *-nun* form as exhibited in (40). The phrases in (40) are slightly different in meaning in the sense that (a) means 'people who have survived', but (b), 'people who live'. In other words, (a) but not (b) presupposes an accident which would have changed the fate.

- (40) a. *sal-∅-un salam*
 live-PAST-REL person
 'people who are alive'

- b. *sal-n(u)-un* *salam*
 live-NONPAST-REL person
 'people who live'

A phrase like (40a) sometimes presuppose a salient comparison set of people who the person in question could have easily substituted. Consider (41), sentences commonly uttered in a funeral to a grieving widow.

- (41) *Kuman wul-e. Sal-∅-un salam-un sal-ayaci.*
 no.more cry-IMP live-PAST-REL person live-MOD
 'Cry no more. People who have survived should live.'

Thus, it seems that *sal* is polysemous and that *sal* in the context like (41) means 'to survive', a telic predicate in Korean. Now, it may be enlightening to reconsider the example (35) above. It is a meaningful sentence because it is under the context of the Korean War which killed many people and separated many families. The sentence (35) presupposes a salient event which could have claimed the life; the verb *sal* here means something close to 'to survive'.

Hence, we conclude that these two verbs are telic and that they are not exceptions to the generalization about the *-e iss* construction.

2.4 Key Features of Result State Verbs

This subsection will be devoted to discussion of crucial features of result state verbs, i.e. result and semi-result verbs, when they interact with temporal adverbials and tense. They can be summarized as in (42):

(42) Key Features of Result State Verbs:

1. Result state verbs are telic as well as atelic according to common diagnostics, though with different readings.
2. They cannot be accounted for by positing simple lexical ambiguity between a simple event reading and a simple stative reading.

3. The two eventualities involved in a result state verb do not enjoy an equal status with respect to temporal modification.

2.4.1 Bi-telicity of Result State Verbs

As illustrated below, temporal adverbials with *tongan* 'for' and *maney* 'in' are fairly reliable tests for telicity. A telic sentence like (43) is compatible with a *maney* phrase, but not a *tongan* phrase, whereas an atelic sentence such as (44) allows *tongan* phrases only.

- (43) Sip pwun {**tongan*, *maney*} phodocwu hanpyeng masi-ess-ta.
 ten minute for in a bottle of wine drank
 'She drank a bottle of wine {**for*, *in*} ten minutes.'
- (44) Sip pwun (*tongan*, **maney*) phodocwu masi-ess-ta.
 ten minute for in wine drank
 'She drank wine (*for*, **in*) ten minutes.'

With respect to these tests, one crucial characteristic of result state verbs is that they pass positive tests for a telic sentence as well as ones for an atelic sentence. Notice that (45) and (46) are in fact the same sentence, just as (47) and (48) are the same. However, (46) and (48) are unacceptable. Thus, the crosshatch, #, should be understood to indicate the intended readings are impossible with the given phrases. In other words, even though a sentence allows both types of temporal adverbials, it provides different types of readings, depending on the choice of modifying temporal adverbial, i.e. a telic reading with *maney* as in (45) but an atelic reading with *tongan* as in (47).

- (45) Sip pwun maney ku paci-lul ip-ess-ta.
 ten minute in the pants-ACC put on
 'She put on the pants in ten minutes.'
- (46) #Sip pwun maney ku paci-lul ip-ess-ta.
 ten minute in the pants-ACC put on
 (on reading) 'She wore the pants in ten minutes.'

- (47) Sip pwun tongan ku paci-lul ip-ess-ta.
 ten minute for the pants-ACC put on
 'She wore the pants for ten minutes.'
- (48) #Sip pwun tongan ku paci-lul ip-ess-ta.
 ten minute for the pants-ACC put on
 (on reading)'She put on the pants for ten minutes.'

2.4.2 Lexical Ambiguity?

One might suggest, following Ko & Nam (1985), that a verb like *ssu* is lexically ambiguous between two simple meanings of 'to put on' and 'to wear'. Thus, according to this suggestion, it could be argued that *ssu* in the 'to put on' sense behaves as a telic predicate compatible with *maney* 'in', whereas *ssu* in the 'to wear' sense behaves as an atelic compatible with *tongan* 'for'.

However, this line of approach runs into one empirical problem because in one and the same clause a temporal adverb can modify the result state while its tense modifies the resulting event, as evident in the (a) reading of the sentence (2) repeated below.

- (2) Mary-ka onul ohwu-ey-nun ppalkan moca-ul ssu-ess-ta.
 Mary-NOM today afternoon-in-TOP red hat-ACC put.on-PAST-DEC
 a. 'Mary is wearing a red hat this afternoon.'
 b. 'Mary put on a red hat this afternoon.'

Following Ko & Nam, suppose there are a 'putting on' *ssu* and a 'wearing' *ssu*. If we assume several obvious rules, we will get the two readings in (50) for the sentence (49), which is exactly like (2) but without the temporal adverb.

- (49) Mary-ka ppalkan moca-ul ssu-ess-ta.
 Mary-NOM red hat-ACC wear/put.on-PAST-DEC
- (50) a. $\exists s[\text{wear}(m,a,\text{red.hat},s) \ \& \ \text{past}(s)]$
 b. $\exists e[\text{put.on}(m,a,\text{red.hat},e) \ \& \ \text{past}(e)]$

If we add the temporal adverb *onul ohwueynun* to (49), we get (2) with translations in (51). While (51b) corresponds to the (b) reading of (2), (51a) does not match with the (a) reading of (2). Rather, it means (52), which is in fact similar to the (b) reading of (2).

- (51) a. $\exists s[\text{wear}(m,a.\text{red.hat},s) \ \& \ \text{past}(s) \ \& \ \text{this.afternoon}(s)]$
 b. $\exists e[\text{put.on}(m,a.\text{red.hat},e) \ \& \ \text{past}(e) \ \& \ \text{this.afternoon}(e)]$
 (52) Mary wore a red hat this afternoon.

Thus, positing lexical ambiguity proves to be inadequate at best in accounting for result state verbs. If we opt to provide the (a) reading of (2), we at least need a theory of result state verbs which can make reference to both an event and its result state in the same clause. To anticipate the solution in § 2.2, one formal way of achieving this is to introduce two eventuality variables in the semantics of result state verbs in such a way that sentences involving them can be understood as descriptions of two eventualities, i.e. the event and its result state.

2.4.3 Secondary Nature of Result State

Once we have decided to adopt a dual event variable approach, it should be noted that the two eventualities involved in a result state verb do not enjoy equal status with respect to temporal modification. Rather, the result state seems to be secondary to the event it results from.

If we take a sentence like (2) above as description of an event and its result state, we may regard the (2a) reading as when the tense modifies the telic event and the temporal adverb modifies the result state. On the other hand, the (2b) reading is obtained when both of them modify the telic event. These modification relations can be represented as in (53), where *e* and *s* stand for the telic event and the result state, respectively, and the arrows, for the modification relations:



If we allowed the two eventualities to have the same status, we would expect sentences like (54) and (55) to be acceptable. As the modification relations are illustrated below in (56) and (57) for (54) and (55) respectively, in (54) both the adverb *cikum* and the nonpast tense are meant to modify the result state, whereas in (55) the adverb modifies the event and the tense, the result state. However, they are not acceptable.⁴

(54) #*Cikum ppalkan moca-lul ssu-∅-nta.*
 now red hat-ACC put.on-NONPAST-DEC
 (on reading) 'She is now wearing a red hat.'

(55) #*Ecey ppalkan moca-lul ssu-∅-nta.*
 yesterday red hat-ACC put.on-NONPAST-DEC
 (on reading) 'She put on a red hat yesterday and is still wearing it.'



Thus, when we compare the acceptable and the unacceptable modification relations, we can conclude that the result state is secondary to the event with respect to the modification relations of tense, with a generalization in (57):

(57) Modification of Result State Verbs:

⁴ The sentence (54) is in fact possible with a reading that 'She is now putting on a red hat'. Under this reading, the modification relations are different from those intended in (54).

- A temporal adverbial can modify either the event or its result state.
- Tense can modify the event but cannot modify its result state.

3 Semantics of Result State Constructions

An adequate semantic account for result state constructions must explain at least the following three facts. First, certain lexical predicates, i.e. result state verbs, involve asserting something about two distinct eventualities: one an event, the other a state resulting from that event. Second, the compositional semantics has access to both, with the second being modifiable only by certain kinds of adverbials, the first modifiable by tense. Third, there are two subclasses, result verbs and semi-result verbs, within the category of result state verbs and adverbial modifications are different according to the subclasses.

The approach that we propose captures these facts, (i) by introducing two eventualities in the semantics of result state verbs and specifying a result relation between the two eventualities, (ii) by providing tense specification only for the event, (iii) by specifying these verbs to take a temporal adverbial as argument and that temporal adverbial to predicate of the result state in the end, and (iv) by treating result verbs and semi-result verbs as two different types which take different types of temporal adverbials as argument.

Based on the discussions in the previous sections, (58) is proposed as a schema for the translation of a result verb.

(58) $\alpha \Rightarrow \lambda x_1 \dots \lambda x_n \lambda T \lambda e [\alpha'(x_n, \dots, x_1, e) \ \& \ \exists s [\text{RES } \alpha'(s, e) \ \& \ T(s)]]$, where α' is the event meaning of the verb α and α is an n place predicate (cf. T is a variable over temporal adverbials).

(59) $\text{RES } \alpha(s, e)$ iff s is a result state of the event e with respect to α , i.e. $\text{RES}(\alpha)(\dots, s)$ and $\alpha(\dots, e)$.

Accordingly, (60) below can be thought of as an instantiation of the general schema for *ssu* 'to put on/wear'.

(60) $ssu \Rightarrow \lambda y \lambda x \lambda T \lambda e [\text{put.on}(x,y,e) \ \& \ \exists s[\text{RESput.on}(s,e) \ \& \ T(s)]]$

We define in (59) that $\text{RES } \alpha$ is a relation between initiating events and states which are understood as the results of the initiating events of the appropriate type. The relation RES is parameterized to α , the meanings of lexical items, so that it relates an event to states which are canonical results of that event type.

3.1 On Result State Readings

We propose the analysis tree in (61) and the semantic derivations in (62) to represent (2) with a result state reading.⁵

(2) *Mary-ka onul ohwu-ey-nun ppalkan moca-lul ssu-ess-ta.*
 Mary-NOM today afternoon-in-TOP red hat-ACC put.on-TNS-DEC
 'Mary is wearing a red hat this afternoon.'

(61) *Mary-ka onul ohwu-ey-nun ppalkan moca-lul ssu-ess-ta,t,4*

|
 Mary-ka onul ohwu-ey-nun ppalkan moca-lul ssu-ess-ta,EAb,3

/ \

Mary-ka ppalkan moca-lul ssu-ess-ta,EAb/TA,1 onul ohwu-ey-nun,TA,2

(62) 1. $\Rightarrow \lambda T \lambda e [\text{put.on}(m,a,\text{red.hat},e) \ \& \ \text{past}(e) \ \& \ \exists s[\text{RESput.on}(s,e) \ \& \ T(s)]]$

2. $\Rightarrow \lambda e [\text{t.a.n}(e)]$, (t.a.n abbreviated for this afternoon)

3. $\Rightarrow \lambda e [\text{put-on}(m,a,\text{red.hat},e) \ \& \ \text{past}(e) \ \& \ \exists s[\text{RESput.on}(s,e) \ \& \ \text{t.a.n}(s)]]$

4. $\Rightarrow \exists e [\text{put-on}(m,a,\text{red.hat},e) \ \& \ \text{past}(e) \ \& \ \exists s[\text{RESput.on}(s,e) \ \& \ \text{t.a.n}(s)]]$

3.2 On Simple Event Readings

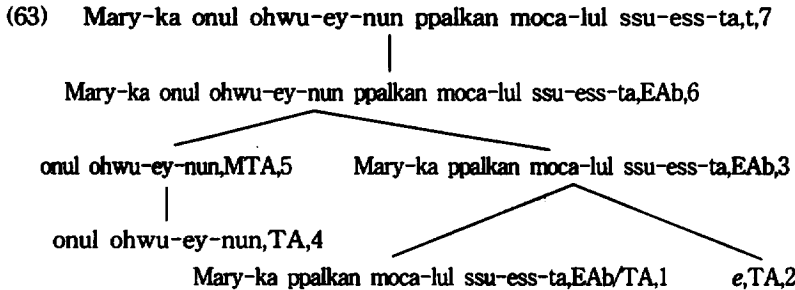
There are two ways to think of to derive simple event readings of sentences like (2) with the glossed reading below. One might choose to require result verbs to have only a single lexical entry and then allow a functional application to a null internal adverbial. Alternatively, we may propose two lexical entries for each result verb, one with and one

⁵ EAb stands for a category of event abstracts, whose denotations are sets of events.

without an internal adverbial. Either way, there are tradeoffs as to how the burden should be distributed between lexicon and syntax. Each method will be illustrated below.

- (2) *Mary-ka onul ohwu-ey-nun ppalkan moca-lul ssu-ess-ta.*
 Mary-NOM today afternoon-in-TOP red hat-ACC put.on-TNS-DEC
 'Mary put on a red hat this afternoon.'

On the one hand, the simple event reading of (2) can be obtained by the derivations represented in the analysis tree in (63) and in the steps shown in (64). Notice that the same string *Mary-ka ppalkan moca-lul ssu-ess-ta* undergoes a category change, from EAb/TA to EAb. This is considered as a result of applying the EAb/TA expression to an empty string of category TA, *e*.



- (64) 1. $\Rightarrow \lambda T \lambda e[\text{put-on}(m,a,\text{red},\text{hat},e) \ \& \ \text{past}(e) \ \& \ \exists s[\text{RESput.on}(s,e) \ \& \ T(s)]]$
 2. $\Rightarrow \lambda e'[e'=e']$
 3. $\Rightarrow \lambda T \lambda e[\text{put.on}(m,a,\text{red},\text{hat},e) \ \& \ \text{past}(e) \ \& \ \exists s[\text{RESput.on}(s,e) \ \& \ T(s)]] \ (\lambda e'[e'=e'])$
 $\Rightarrow \lambda e[\text{put.on}(m,a,\text{red},\text{hat},e) \ \& \ \text{past}(e) \ \& \ \exists s[\text{RESput.on}(s,e) \ \& \ s=s]]$, by λ -conversion
 $\Rightarrow \lambda e[\text{put-on}(m,a,\text{red},\text{hat},e) \ \& \ \text{past}(e) \ \& \ \exists s[\text{RESput.on}(s,e)]]$,
 by simplification of the vacuous formula $[s=s]$
 4. $\Rightarrow \lambda e[t.a.n(e)]$
 5. $\Rightarrow \lambda P \lambda e[P(e) \ \& \ t.a.n(e)]$, by MTA rule
 6. $\Rightarrow \lambda e[[\text{put.on}(m,a,\text{red},\text{hat},e) \ \& \ \text{past}(e) \ \& \ \exists s[\text{RESput.on}(s,e)]] \ \& \ t.a.n(e)]$, λ -conversion

7. $\Rightarrow \exists e[[\text{put.on}(m,a,\text{red.hat},e) \ \& \ \text{past}(e) \ \& \ \exists s[\text{RESput.on}(s,e)]] \ \& \ \text{t.a.n}(e)], \ \exists\text{-closure}$

Another way is to posit two lexical entries for a result verb. For instance, we can propose (65) for the lexical entries for *ssu* 'to put on/wear'. According to this approach, the first entry always produces a result state reading, whereas a simple event reading can arise with the second entry.

- (65) a. $\text{ssu1} \Rightarrow \lambda y \lambda x \lambda T \lambda e[\text{put.on}(x,y,e) \ \& \ \exists s[\text{RESput.on}(s,e) \ \& \ T(s)]]$
 b. $\text{ssu2} \Rightarrow \lambda y \lambda x \lambda e[\text{put.on}(x,y,e) \ \& \ \exists s[\text{RESput.on}(s,e)]]$

Notice that the RES α relation remains in the second entry, instead of proposing the simpler-looking (66). This is needed, since a result state reading can be obtained when there is no adverb at all. Recall the sentence (1), repeated below, has a result state reading, though it does not have a temporal adverb modifying the result state.

- (66) $\text{ssu2} \Rightarrow \lambda y \lambda x \lambda e[\text{put.on}(x,y,e)]$

- (1) Ney os-ey hulk-i mwut-ess-ta.
 your clothes-on mud-NOM stick.to-PAST-DEC
 'Mud is on your clothes.'

The analysis tree and semantic derivations for (2) with the second lexical entry are obvious and omitted here.

3.3 Semantics of Semi-result Verbs

Earlier we defined a semi-result verb as a verb which provides an internal reading when it appears in the *-e iss* construction or with adverbials like *hansikan tongan* 'for an hour'. To recall an earlier discussion, a semi-result verb differs from a result verb in two respects; (i) a semi-result verb cannot produce an internal reading with nonaspectual locating adverbials such as *ecy* 'yesterday' and *cikum* 'now'; (ii) it also cannot appear in the *-ko iss* construction. Thus, while

the nonaspectual adverbial *onul ohwu-ey-nun* 'this afternoon' can restrict the result state in (2), repeated here, notice that this type of reading is not allowed for a sentence with a semi-result verb, as shown in (5). In this regard, English causatives and inchoatives seem to behave like semi-result verbs, as witnessed by (67).

- (2) Mary-ka onul ohwu-ey-nun ppalkan moca-lul ssu-ess-ta.
 Mary-NOM today afternoon-in-TOP red hat-ACC put.on-TNS-DEC
 'Mary is wearing a red hat this afternoon.'
- (5) #Peter-ka ecey-nun maykwu-lul nayngcanggo-ey neh-ess-ta.
 Peter-NOM yesterday-TOP beer-ACC refrigerator-in put-PAST-DEC
 (on reading) 'Peter brought it about (before yesterday) that the
 beer was in the refrigerator yesterday.'
- (67) a. #Peter put the beer in the refrigerator yesterday.
 (on reading) 'Peter brought it about (before yesterday) that
 the beer was in the refrigerator yesterday.'
- b. #The lake froze yesterday.
 (on reading) 'It was brought about (before yesterday) that the
 lake was frozen yesterday.'

To contrast with (5), consider a minimally different sentence in (4), repeated here, which is grammatical when the adverb is aspectual.

- (4) Peter-ka maykwu-lul nayngcanggo-ey hansikan tongan neh-ess-ta.
 Peter-NOM beer-ACC refrigerator-in for an hour put-PAST-DEC
 'Peter put the beer in the refrigerator for an hour.'

It is not completely clear how to syntactically distinguish between the aspectual adverb and the nonaspectual adverb in such a way that result state verbs allow both types of adverbs but semi-result verbs allow only the aspectual adverb. One stipulation might be to take the nonaspectual adverb as solely sentential, and the aspectual adverb as both sentential and VP-internal. We admit that this position is not readily supported by convincing data from Korean. At least, temporal adverbials are not distinguished by the well-known Thomason and Stalnaker (1973) criteria for sentential and VP adverbs. According to

them, temporal adverbials are all sentential modifiers.

However, we notice the same kind of contrast between adverbials, both in English and Korean, i.e. that only aspectual adverbs allow semi-result verbs to have internal readings. Furthermore, it has been observed, as mentioned above, that an internal reading is unavailable with sentence-initial adverbs both in Korean and in English. These two facts, when combined, strongly suggest that nonaspectual adverbs cannot be VP adverbs but aspectual adverbs can.

Thus, the basic idea is that semi-result verbs carry 'potential' result states, which can be triggered by internal adverbs. Internal adverbs, in turn, are limited in membership to aspectual adverbs (and adverbs like *tasi* 'again'). We propose that semi-result verbs take as an argument an internal adverb of IV/IV category. Accordingly, the translation of semi-result verb *neh* 'to put' is proposed to be (68), in addition to a simple one which does not combine with an internal adverb.⁶ Accordingly, the verb *neh* 'to put' takes five arguments: the direct object, a subcategorized locative adverbial, and the internal adverbial, to make an IV, then the subject and the Davidsonian event argument.⁷

$$(68) \text{neh} \Rightarrow \lambda y \lambda O1 \lambda O2 \lambda x \lambda e [\text{put}(x, y, O1, e) \ \& \ \exists s [\text{RESput}(s, e) \ \& \ O2(\lambda y \lambda s' [= (y, y, s')])](x)(s)]]$$

Key syntactic and semantic derivations for the internal reading of (4) are illustrated below:

⁶ O, O1 and O1 are variables over expressions of IV/IV category, i.e. verb phrase modifiers like PPs and VP adverbs.

⁷ Note that IV is of a $\langle e, \langle v, t \rangle \rangle$ type, where v is the type for eventualities. Also, we are assuming some obvious syntactic rules for English (cf. Stump 1985, Chapter 3).

- (69) Peter-ka ... neh-ess-ta,t,5
 |
 Peter-ka ... neh-ess-ta,EAb,4
- Peter-ka,T maykcwu-lul ... neh-ess-ta,IV,3
- maykcwu-lul ... neh-ess-ta,IV/(IV/IV),1 hansikan tongan,IV/IV,2
- (70) 1. $\Rightarrow \lambda O \lambda x \lambda e [\text{put}(x, \text{the.beer, in.the.fridge}, e) \ \& \ \text{past}(e) \ \& \ \exists s$
 $[\text{RESput}(s, e) \ \& \ O(\lambda y \lambda e' [= (y, y, e')]) (x)(s)]]]$
2. $\Rightarrow \lambda Q \lambda x \lambda e [Q(x)(e) \ \& \ \text{for.an.hour}(e)]$
3. $\Rightarrow \lambda x \lambda e [\text{put}(x, \text{the.beer, in.the.fridge}, e) \ \& \ \text{past}(e) \ \& \ \exists s$
 $[\text{RESput}(s, e) \ \& \ = (x, x, s) \ \& \ \text{for.an.hour}(s)]]]$, by
 λ -conversion
 $\Rightarrow \lambda x \lambda e [\text{put}(x, \text{the.beer, in.the.fridge}, e) \ \& \ \text{past}(e) \ \& \ \exists s$
 $[\text{RESput}(s, e) \ \& \ \text{for.an.hour}(s)]]]$, by simplification of the
 vacuous formula $= (x, x, s)$, which means that x equals x in
 a state s .
4. $\Rightarrow \lambda e [\text{put}(p, \text{the.beer, in.the.fridge}, e) \ \& \ \text{past}(e) \ \& \ \exists s$
 $[\text{RESput}(s, e) \ \& \ \text{for.an.hour}(s)]]]$
5. $\Rightarrow \exists e [\text{put}(p, \text{the.beer, in.the.fridge}, e) \ \& \ \text{past}(e) \ \& \ \exists s$
 $[\text{RESput}(s, e) \ \& \ \text{for.an.hour}(s)]]]$, by existential closure

Notice that the derivation of (5), repeated below, is blocked as desired. The nonaspectual locating adverbial *ecey-nun* 'yesterday' is of categories TA or MTA, but not of a category IV/IV. Hence, a semi-result verb cannot take it as argument, as the blocked derivation is illustrated in (71).

- (5) #Peter-ka ecey-nun maykcwu-lul nayngcanggo-ey neh-ess-ta.
 Peter-NOM yesterday-TOP beer-ACC refrigerator-in put-PAST-DEC
 (on reading) 'Peter brought it about (before yesterday) that the beer
 was in the refrigerator yesterday.'
- (71) *ecey-nun maykcwu-lul nayngcanggo-ey neh-ess-ta,IV
 |
 maykcwu-lul nayngcanggo-ey neh-ess-ta,IV/(IV/IV) ecey-nun,MTA(or TA)

On the other hand, external readings of those sentences are obtained in the obvious way. Namely, the temporal adverbs, of an MTA category, take as arguments simple EAb's, which result from giving *neh* its four arguments.

3.4 *-ko/e iss* Constructions

Result state readings are available to sentences of type (72) and (26) as well as (2), repeated below. While (2) is of a simple sentence type based on result state verbs, (72) and (26) involve a connective and an auxiliary verb. In this section, we will investigate how result state readings can be assigned to *-ko/e iss* constructions and how they are assigned unambiguously to these constructions.

- (2) Mary-ka onul ohwu-ey-nun ppalkan moca-ul ssu-ess-ta.
 Mary-NOM today afternoon-in-TOP red hat-ACC put.on-PAST-dec
 a. 'Mary is wearing a red hat this afternoon.'
 b. 'Mary put on a red hat this afternoon.'
- (72) Mary-ka onul ohwu-ey-nun ppalkan moca-ul ssu-ko iss-ta.
 Mary-NOM today afternoon-in-TOP red hat-ACC put.on-CONN exist-DEC
 'Mary is wearing a red hat this afternoon.'
- (26) John-i twis cali-ey anc-e iss-ta.
 John-NOM back seat-on sit.down-CONN exist-DEC
 'John is in the back seat.'

In an earlier discussion, we observed that result verbs can appear in any of the constructions but that semi-result verbs can be allowed only in the *-e iss* construction. Also known is that a sentence of type (2) can be ambiguous between event and result state readings, whereas a *-ko/e iss* sentence is not.

Another crucial difference between them lies in the control relation when a transitive verb is involved: the subject of a *-ko iss* construction need not control the result phrase, i.e. the verb phrase marked and ending with the connective *-ko/e*, therefore it does not have to be the agent of the event denoted by the result verb, though the subject is understood as the controller for most result verbs.⁸ On the other hand,

the subject in a sentence of type (2) is undoubtedly the controller of its verb phrase, thus the agent of the event, if the event in question involves an agent. For instance, when transitives like *mwun-ul yel/tat* 'to open/close the door' and *pwul-ul khye/kku* 'to turn on/off the light' appear in the *-ko iss* construction, the subject is not necessarily construed as the controller of the predicate. In (7), Mary is not necessarily the person who closed the door. Notice however that its counterpart in a simple sentence in (73) requires Mary to be the agent of closing.

- (7) Mary-ka cikum mwun-ul tat-ko iss-ta.
 Mary-NOM now door-ACC close-CONN exist-DEC
 'Mary is (there) now, with the door closed.'
- (73) Mary-ka cikum mwun-ul tat-ess-ta.
 Mary-NOM now door-ACC close-PAST-DEC
 'Mary is now in a state of having closed the door.'

One might argue with an example like (74) below that there is no essential difference between them in terms of subject control, as it seems that the subject in (74) may not be the agent of the initiating event; it may be the most likely understanding of the sentence, since an *akita* is after all a dog, however Japanese it may be.

- (74) Ce akita-ka cikum ppalkan cokki-lul ip-ess-ta.
 that akita-NOM now red vest-ACC put.on-PAST-DEC
 'That akita is now wearing a red vest.'

Notice that this sentence does not support the argument, as the verb *ip* 'to put on' does not necessarily involve agentivity even when it is used only eventively. Namely, we still can say a sentence like (75) when its owner actually does all the dressing for the dog.

⁸ Note that the subject in the *-e iss* construction is always understood to control the verb phrase.

- (75) *Ce akita-ka cikum ppalkan cokki-lul ip-nun-ta.*
 that akita-NOM now red vest-ACC put.on-NONPAST-DEC
 'That akita is now putting on a red vest.'

Consequently, an adequate semantic description must account for the differences between the constructions summarized in (76):

(76) Differences:

- Subject control: the subject of a *-ko iss* sentence does not always control its result phrase, whereas those of a simple sentence like (2) and an *-e iss* sentence have to.
- Ambiguity: a simple sentence like (2) is ambiguous with both the event reading and the result state reading, whereas a *-ko/e iss* sentence has the result state reading only (ignoring the homophonous progressive *-ko iss* construction.)

It should be obvious that because of the difference in control relations we cannot simply treat *-ko/e iss* constructions as some kind of 'result state' operation of *-ko/e iss* on simple sentences of result state that would produce unambiguously result state readings.

3.4.1 Syntax of *-ko/e iss* Construction

It will be argued that a *-ko/e iss* construction is best analyzed as involving *iss* of a *IV/(IV/IV)* category taking as argument a modifier-like verb phrase headed by *ko/e*. For instance, the IV part of the sentence (77) will be analyzed as undergoing the derivation illustrated in (78):⁹

⁹ However, we will propose below that the connectives *-ko* and *-e* are of different types in order to account for the difference in selectional restrictions.

- (77) Mary-ka moca-lul ssu-ko iss-ta.
 Mary-NOM hat-ACC put.on-CONN exist-DEC
 'Mary is wearing a hat.'

- (78) moca-lul ssu-ko iss-ta,IV
 iss-ta,IV/(IV/IV) moca-lul ssu-ko,IV/IV
-

First, the result phrase is not a sentential but a verb phrase. Notice in (79) that whether the agent of the result phrase is understood as the same as the subject or not, an explicit noun phrase cannot appear before the result phrase. Therefore, we conclude that the result phrase has to be VP-level. The sentence (79) contrasts with (80); we conclude that a sentence is embedded in the (80) and that *malha* 'to say' subcategorizes for a sentence, even though a verb phrase alone can appear in that position. The difference is that a sentence can appear as argument in (80), whereas it cannot in (79).

- (79) Mary-ka (*caki/*John-i) mwun-ul tat-ko iss-ta.
 Mary-NOM self/John-NOM door-ACC close-CONN exist-DEC
 'Mary is (here), with the door closed (by her/John).'
- (80) Mary-ka (caki/John-i) keki ka-ess-tako malha-unta.
 Mary-NOM self/John-NOM there go-PAST-COMP say-DEC
 'Mary says that she/John went there.'

The fact that the agent of the result phrase cannot be specified even when the subject is not the agent is taken to suggest that the agent of the result phrase is unspecified semantically.

Second, the result phrase is a modifier-like category in the sense that intuitively it seems to make semantic contribution typical of a modifier--it qualifies given meanings as an adverbial or an adjective does. Also, the same type of phrase can appear optionally as a VP modifier as shown in (81) and also this phrase is optional, as verified by the acceptable sentence (82).

- (81) Mary-ka ppalkan moca-lul ssu-ko hakkyo-ey ka-ess-ta.
 Mary-NOM red hat-ACC put.on-CONN school-to go-PAST-DEC
 'Mary went to school, wearing a red hat.'
- (82) Mary-ka hakkyo-ey ka-ess-ta.
 Mary-NOM school-to go-PAST-DEC
 'Mary went to school.'

However, a result phrase is not optional when it appears in the construction that we are concerned with. Thus, the contrast between (83) and (84).

- (83) Mary-ka nwup-e iss-ta.
 Mary-NOM lie.down-CONN exist-DEC
 'Mary is lying/Mary is (here), lied down.'
- (84) #Mary-ka iss-ta.
 Mary-NOM exist-DEC
 'Mary exists.'

Third, the verb *iss* patterns with auxiliary verbs in Korean with respect to word order variation in that the result phrase cannot be separated from the verb *iss* (see Chung 1995:148--151). Notice in (85)--(88) that the argument phrase *ku mwuncey-lul phwullyeko* 'to solve the problem' can be scrambled off the main verb or be separated from the main verb by intervening adverbials.

- (85) Mary-ka ku mwuncey-lul phwullyeko sitohayssta.
 Mary-NOM the problem-ACC solve tried
 'Mary tried to solve the problem.'
- (86) Ku mwuncey-lul phwullyeko Mary-ka sitohayssta.
 the problem-ACC solve Mary-NOM tried
- (87) Mary-ka sitohayssta, ku mwuncey-lul phwullyeko.
 Mary-NOM tried the problem-ACC solve
- (88) Mary-ka ku mwuncey-lul phwullyeko kkuncilkikey sitohayssta.
 Mary-NOM the problem-ACC solve persistently tried
 'Mary persistently tried to solve the problem.'

However, this freedom of ordering is not allowed between an auxiliary and its subcategorized verb phrase, as attested by the examples in (90)-(92).

- (89) Mary-ka cak-ci anh-ta.
 Mary-NOM short-INF not-DEC
 'Mary is not short.'
- (90) *Cak-ci Mary-ka anh-ta.
 short-INF Mary-NOM not-DEC
- (91) *Mary-ka anh-ta, cak-ci.
 Mary-NOM not-DEC, short-INF
- (92) *Mary-ka cak-ci celtaylo anh-ta.
 Mary-NOM short-INF absolutely not-DEC
 'Mary is absolutely not short.'

The verb *iss* patterns with the auxiliary *anh* 'not'.

- (83) Mary-ka nwup-e iss-ta.
 Mary-NOM lie.down-CONN exist-DEC
 'Mary is (here), lied down.'
- (93) *Nwup-e Mary-ka iss-ta.
 lie.down-CONN Mary-NOM exist-DEC
- (94) *Mary-ka iss-ta, nwup-e.
 Mary-NOM exist-DEC, lie.down-CONN
- (95) *Mary-ka nwup-e coyonghi iss-ta.
 Mary-NOM lie.down-CONN quietly exist-DEC
 'Mary is (here) quietly, lied down.'
- (96) Mary-ka coyonghi nwup-e iss-ta.
 Mary-NOM quietly lie.down-CONN exist-DEC
 'Mary is (here) quietly, lied down.'

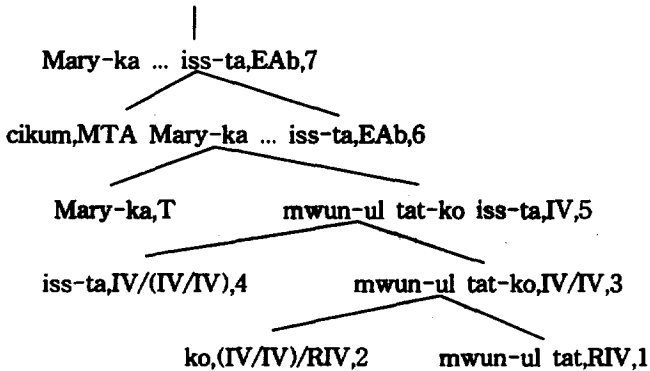
3.4.2 Semantics of the *-ko iss* construction

The sentence in (7) is based on one of the few result verbs which often allow the subject of the sentence to not control the result phrase. We will take this sentence as a general case and provide a derivation

in this section. We propose that this sentence is obtained by the derivational steps in (97) and (98).¹⁰ The proposed semantics of *-ko* is designed to account not just for the *-ko iss* construction but also for the occurrence of *-ko* without *iss* following. It takes a category of RIV to make an IV/IV category. This category in turn serves as an argument for *iss* in the *-ko iss* construction. It can also be an IV modifier in a sentence like (81) above.

- (7) Mary-ka cikum mwun-ul tat-ko iss-ta.
 Mary-NOM now door-ACC close-CONN exist-DEC
 'Mary is (here)now, with the door closed.'

- (97) Mary-ka ... iss-ta,t,8



- (98) 1. $\Rightarrow \lambda x \lambda T \lambda e [\text{close}(x, \text{the.door}, e) \ \& \ \exists s [\text{RESclose}(s, e) \ \& \ T(s)]]$
 2. $\Rightarrow \lambda R \lambda P \lambda y \lambda e' \exists e \exists x [P(y)(e') \ \& \ R(x)(\lambda s' [e' \leq t \ s'])(e)]$
 3. $\Rightarrow \lambda P \lambda y \lambda e' \exists e \exists x [P(y)(e') \ \& \ \text{close}(x, \text{the.door}, e) \ \& \ \exists s [\text{RESclose}(s, e) \ \& \ \lambda s' [e' \leq t \ s'](s)]]$
 $\Rightarrow \lambda P \lambda y \lambda e' \exists e \exists x [P(y)(e') \ \& \ \text{close}(x, \text{the.door}, e) \ \& \ \exists s [\text{RESclose}(s, e) \ \& \ e \leq t \ s]]$, by λ -conversions
 4. $\Rightarrow \lambda O [O(\lambda x \lambda s [\text{exist.in}(x, s) \ \& \ \text{nonpast}(s)])]$
 5. $\Rightarrow \lambda y \lambda s' \exists e \exists x [\text{exist.in}(y, s') \ \& \ \text{nonpast}(s') \ \& \ \text{close}(x, \text{the.door}, e) \ \&$

¹⁰ RIV and SIV are the categories for the verb phrases with a result verb and a semi-result verb, respectively. Thus, they abbreviate (EAb/TA)/e and IV/(IV/IV) respectively. Also, R,N are variables over expressions of the RIV and SIV categories, respectively. As before, O is a variable over expressions of the IV/IV category.

$$\exists s[\text{RESclose}(s,e) \ \& \ s' \leq t \ s]]$$

6. $\Rightarrow \lambda s' \exists e \exists x[\text{exist.in}(m,s') \ \& \ \text{nonpast}(s') \ \& \ \text{close}(x,\text{the.door},e) \ \& \ \exists s[\text{RESclose}(s,e) \ \& \ s' \leq t \ s]]$
7. $\Rightarrow \lambda s' \exists e \exists x[\text{exist.in}(m,s') \ \& \ \text{nonpast}(s') \ \& \ \text{now}(s') \ \& \ \text{close}(x,\text{the.door},e) \ \& \ \exists s[\text{RESclose}(s,e) \ \& \ s' \leq t \ s]]$
8. $\Rightarrow \lambda s' \exists e \exists x[\text{exist.in}(m,s') \ \& \ \text{nonpast}(s') \ \& \ \text{now}(s') \ \& \ \text{close}(x,\text{the.door},e) \ \& \ \exists s[\text{RESclose}(s,e) \ \& \ s' \leq t \ s]]$

The truth conditions in the last step in (98) require some explanation on at least two accounts. First, we have translated *iss* into *exist.in* rather than *exist* in order to reflect that the auxiliary needs a specification about the temporary state of existing under some circumstances. Also, note that (98) captures the fact that the result phrase is not controlled by the subject in this construction- i.e. the individual denoted by *x* need not be Mary, though, of course, it is a possibility. On the other hand, most other result verbs like *ip* 'to put on (clothes)' and *pes* 'to take off (clothes)' seem to be appropriate only when the subject in the construction controls the result phrase. This is consistent with the type of truth conditions in (98) above, because if someone is in a result state of an event of someone putting on a hat, the result state can be only meaningful when the two *someone*'s are the same individual.

3.4.3 Semantics of *-e iss* construction

It was noted above that not just result verbs but also semi-result verbs appear in the *-e iss* construction. We also observed that a result phrase with the *-e* form is always controlled by the subject, whereas one of the *-ko* form is not. This second point may not be a crucial difference that needs to be specified in the semantics of the connective *-e*. Rather, it seems that this result could be derived from the same pragmatic principle applied to the *-ko iss* construction under which result phrases with *ip* 'to put on' and *tha* 'to get on (a means of transportation)' are always subject-controlled, though the proposed truth conditions allow them to be uncontrolled in this way. However, since it will be eventually equivalent whether we specified this fact as part of the

semantics of *-e* or leave it to a pragmatic principle, we choose to specify it in the lexicon of *-e*. Also, we propose two separate lexical entries for the connective *-e* in (99), which we are led to do as a consequence of viewing result verbs and semi-result verbs as belonging to different categories.

(99) a. *-e*₁, (IV/IV)/RIV \Rightarrow

$$\lambda R \lambda P \lambda x \lambda e' \exists e [P(x)(e') \ \& \ R(x)(\lambda s'[e' \leq t \ s'])(e)]$$

b. *-e*₂, (IV/IV)/SIV \Rightarrow

$$\lambda N \lambda P \lambda x \lambda e' \exists e [P(x)(e') \ \& \ N(\lambda Q \lambda y \lambda s [e' \leq t \ s \ \& \ Q(y)(s)])(x)(e)]$$

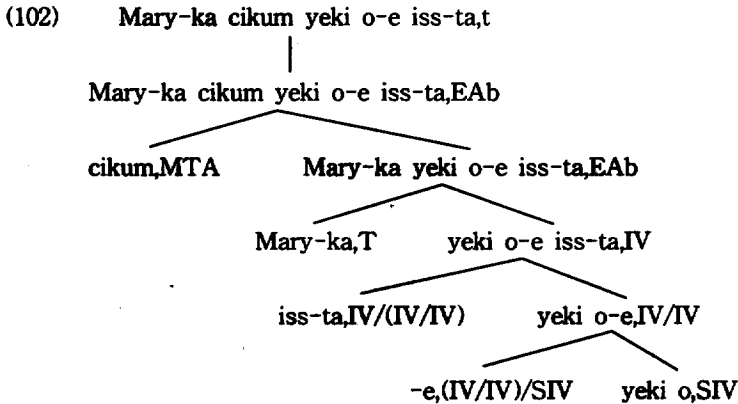
Thus, a sentence with a *-e*₁ *iss* construction, e.g. (83), will go through derivations essentially the same as in a *-ko iss* construction shown in (98) above, resulting in the truth conditions in (100) below:

(83) Mary-ka cikum nwup-e iss-ta.
 Mary-NOM now lie.down-CONN exist-DEC
 'Mary is (here) now, lied down.'

(100) $\exists e' \exists e [\text{exist.in}(m, e') \ \& \ \text{nonpast}(e') \ \& \ \text{now}(e') \ \& \ [\text{lie.down}(m, e)$
 $\ \& \ \exists s [\text{RESlie.down}(s, e) \ \& \ e' \leq t \ s]]]$

On the other hand, when a semi-result verb appears in the construction such as (101), it will have a slightly different derivation but lead to the same type of reading. We will omit the semantic derivations, as they will be notational variations of the derivations given in (96) and (97) above, except for the difference in types between RIV and SIV categories.

(101) Mary-ka cikum yeki o-e iss-ta.
 Mary-NOM now here come-CONN exist-DEC
 'Mary is here now, having come.'



3.5 A Potential Problem and Alternative Analysis

In this subsection, we will point out a potential problem of the proposed analysis of the result state construction. Then, we will sketch an alternative analysis.

3.5.1 A Potential Problem

There is a potential problem with the proposed analysis of result state verbs in general. Since the proposal allows TAs to modify either the initiating event or the result state, it is expected also to allow sentences like (103) and (104), where the two eventualities are modified by different TAs. Namely, in (103) *cengo-ey* 'at noon' and *onul ohwu-ey* 'this afternoon' are intended to modify the putting-on event and the wearing state, respectively. However, neither (103) nor (104) is acceptable.

- (103) #Cengo-ey Mary-ka onul ohwu-ey-nun ppalkan moca-lul
 noon-at Mary-NOM this afternoon-in-TOP red hat-ACC
 ssu-ess-ta.
 put.on-PAST-DEC
 (intended)'Mary put on a red hat at noon and is wearing it this
 afternoon.'

- (104) #Cengo-ey Mary-ka seysikan tongan ppalkan moca-lul
 noon-at Mary-NOM 3.hour for red hat-ACC
 ssu-ess-ta.
 put.on-PAST-DEC
 (intended)'Mary put on a red hat at noon and wore it for three
 hours.'

Notice also that these overgenerations arise partly because we have assumed that a clause can contain multiple TAs which do not constitute a single syntactic unit. Hence, this problem may be avoided if we give up that assumption: once multiple TAs in a clause are viewed as one constituent, the above sentences can be ruled out, since those adverbials in (103) and (104) are not compatible to modify the same eventuality. For instance, the sentences in (105)-(107) illustrate that while *cengo-ey* 'at noon' and *seysikan tongan* 'for three hours' can individually modify the state of Mary's being in her office, they cannot appear in the same clause.

- (105) Cengo-ey Mary-ka office-ey iss-ess-ta.
 noon-at Mary-NOM office-in exist-PAST-DEC
 'Mary was in her office at noon.'
- (106) Mary-ka Seysikan tongan office-ey iss-ess-ta.
 Mary-NOM 3.hour for office-in exist-PAST-DEC
 'Mary was in her office for three hours.'
- (107) #Cengo-ey Mary-ka seysikan tongan office-ey iss-ess-ta.
 noon-at Mary-NOM 3.hour for office-in exist-PAST-DEC
 (intended)'Mary was in her office for three hours at noon.'

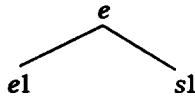
It is unclear how exactly we would prevent the two adverbials in (107) from appearing in the same clause. In any case, it seems that (107) is unacceptable for the same reason that (104) is unacceptable. Hence, (104) and (107) may be accounted for by the same constraint if we assume that all temporal adverbials in a clause make up one syntactic/semantic constituent.

3.5.2 Alternative Analysis

If we want to maintain the assumption that multiple TAs in a clause are not necessarily a constituent and account for the lack of multiple TAs in the result state construction, we may consider a rather different approach in the line of Pustejovsky (1988).

Thus, following the idea of Pustejovsky (1988), we may want to view result state verbs as involving subevent relations depicted in (108), where the event e is the join of $e1$ and $s1$.

(108)



Then, a result (state) verb can be analyzed as making reference not to two eventualities as we proposed above, but rather to three eventualities: one event and two subevents of that event which are related to each other via the RES relation. According to this idea, the denotation schema for result verbs is represented as in (109).

(109) A translation schema for result verbs (alternatively):

$$\alpha \Rightarrow \lambda e \exists e1, s1 [e = e1 \cup s1 \ \& \ \alpha' \ \& \ \text{RES } \alpha'(s1, e1)]$$

As it may be obvious from (109), this proposal does not allow TAs to directly modify the initiating event $e1$ or the result state $s1$; $e1$ and $s1$ are existentially quantified, but the variable e , the join of them, is abstracted over and available for modifications. However, since the event e has the partitioned structure of $e1$ and $s1$, it is not totally unreasonable to assume a pragmatic process by which a TA modifying a superevent e is understood as modifying its subeventuality $e1$ or $s1$, whichever is appropriate in type. For instance, if the adverbial is *hansikan tongan* 'for an hour', it will typically modify the result state $s1$ via e , though it can modify the event $e1$ providing a 'coerced' repetitive reading. If the given adverbial is *hansikan maney* 'in an hour', then it will modify the event $e1$ via e .

This approach has a potential to account for the lack of multiple TAs in the result state construction. Since TAs will modify the supereventuality e directly and $e1$ and $s1$ indirectly, we can employ the

constraint against incompatible temporal adverbials of the sort required to rule out the simple sentence (107) above. Moreover, this analysis would reduce a significant number of ambiguous predicates, as it does not propose many lexical entries for the same form.

One reservation against this alternative is that the pragmatic process is not defined at this point. It is doubtful whether it can be well defined. Therefore, we admit that this is only a suggestion for further research.

4. Conclusion

We have elaborated the class of result state verbs. By illustrating the connection between the result state reading and the verbs of result state, we have shown that the result state reading is not a function of the tense marker *-ess per se* but some lexical feature of result state verbs.

Also, we have explored a way of accounting for 'noncompositional modifications' by temporal adverbials, in a compositional way. In so doing, we have shown that one efficient and formally consistent way is to posit that the result state verbs make reference to two types of eventualities as part of their semantics.

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경기도 용인군 기흥읍 서천 1리

경희대학교 영어영문학과

449-701

Email: jhyoon@nms.kyunghee.ac.kr

전화: +82-331-201-2254

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