

A Fresh Look at the Ambiguity Puzzle of KO ISS Imperfective in Korean

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1. Introduction

In Korean, progressive meaning is expressed by the periphrastic imperfective marker *ko iss*. The morpheme *ko* is a connective (Conn) meaning ‘and’ and *iss* literally means ‘exist’ though it is usually transcribed as BE in the literature. Here are some examples containing the imperfective marker.

- 1) a. Nongpwu-ka pat-ul kal-ko iss-ta.
farmer-Nom field-Acc plow-Conn be-Decl
‘A/The farmer is plowing the field.’
b. Yeonghi-ka soselchayk-ul ilk-ko iss-ta.
Y.-Nom novel.book-Acc read-Conn be-Decl
‘Yeonghi is reading a novel.’
c. John-i ppali ket-ko iss-ta.
J.-Nom quickly walk-Conn be-Decl
‘John is walking fast.’

(Son 2004: ex. (1))

An interesting puzzle surrounding *ko iss* imperfective (henceforth KO ISS) is that, when co-occurring with the so-called ‘put on’ type verbs, it produces not only a progressive (P) state reading but also a result (R) state reading (see, among others, Kim 1986, Kim 1990, Lee 1991, Kim 1993, Ahn 1995). This ambiguity can be seen in (2).

- 2) Ku-ka os-ul ip-ko iss-ta.
he-Nom clothes-Acc wear-Conn be-Decl
‘He is putting on clothes.’ (P-state)
or ‘He is wearing clothes.’ (R-state)

(Lee 2008: ex. (4a))

The ambiguity of KO ISS has been much discussed in the literature (see, e.g., works cited above). But it is yet to receive a satisfactory treatment on both empirical and theoretical grounds. It poses a challenge to Lee (2008), for instance: Lee claims that the imperfective marker always selects for a VP that takes an actor subject. As illustrated by (3), however, it is compatible with a sentence in which the subject nominal is not an actor; a snowman cannot put clothes on itself, at least in the world in which we live. So it has to be a passive recipient of an action.

- 3) Nwunsalam-i os-ul ip-ko iss-ta.
snowman-Nom clothes-Acc wear-Conn exist-Decl
#‘A/the snowman is putting on clothes.’ (P-state)
√‘A/the snowman is wearing clothes.’ or ‘A/the snowman has clothes on.’ (R-state)

This problem does not arise in Son’s (2004) analysis: there, KO ISS yields a P-state state reading due largely to the lexical semantics of ‘put on’ type verbs. In a nutshell, ‘put-on’ type verbs assign two different types of thematic roles to the subject, namely, an Agentive role and a plain locative role. When the subject bears an Agentive role as well as a Locative role, the sentence receives a P-state reading; when the subject

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bears only a Locative role, a R-state reading comes about. Under this analysis, sentence (3) can only receive an R-state reading because the snowman merely designates the location of the clothes, rather than the agent who controls the event.

While attractive, Son's analysis also fails to capture the full array of facts. For example, it cannot explain why (4) can receive an R-state interpretation, although the subject does not bear a Locative role.

- 4) Context: it is freezing outside but Yenghuy is keeping the door open.

Yenghuy-ka **mwun-ul** **yel-ko** iss-ta.
 Y.-Nom **door-Acc** **open-Conn** be-Decl
 'Yenghuy is opening the door.' or 'Yenghuy has the door open.'

(adapted from Kim 2006: ex. (11))

The inability of Son's analysis to deal with cases like (4) shows that predicates yielding ambiguity with KO ISS are not just 'put on' type. This raises the question of what kind of predicates produce ambiguity in the first place. Furthermore, it makes us wonder whether the ambiguity stems solely from the lexical semantics of the predicates or from something else as well.

This paper aims to provide answers to these questions. The central claim will be that the ambiguity of KO ISS arises from the ambiguity of *ko* and *iss*, in conjunction with the predicate they combine with, contrary to the existing analyses, in particular Son (2004) and Lee (2008). More specifically, I argue that there are two types of KO and ISS. What I call KO ISS_P makes the sentence assert that the continuation branch of the progressive state of the VP meaning exists in some possible world, in a manner analogous to the English BE+ING in Landman's (1992) analysis. What will be called KO ISS_R, on the other hand, makes the sentence assert that the subject exists while keeping the object in the resulting target state of the VP meaning. I further claim that the ambiguity of KO ISS correlates with different syntactic structures. On a P-state reading, ISS behaves like a true auxiliary; on an R-state reading, it behaves more like a lexical verb and the other VP behaves like a secondary predicate. Another important claim will be that KO ISS_R structure contains a PRO which gets obligatorily controlled by the surface subject.

The remainder of this paper is structured as follows: in section 2, I take a closer look at the ambiguity puzzle with the view to identifying the characteristics of predicates that yield ambiguity with KO ISS. Section 3 is devoted to deriving the ambiguity of some KO ISS sentences compositionally. Section 4 assesses the proposed analysis by extending it to some potentially problematic cases. Section 5 concludes the paper with a brief summary.

2. A closer look at the puzzle

In this section, I examine the ambiguity puzzle of KO ISS by addressing two inter-related questions: (i) what are the common properties of predicates that yield an R-state reading with KO ISS?; (ii) what exactly is the nature of an R-state reading?

To begin with the first question, we have already seen in (3) and (4) that predicates like 'put on X' and 'open X' can yield ambiguity. But we do not know as yet what exactly would unify such predicates. In answer to this question, I would like to point out first that there are other predicates that produce a similar kind of ambiguity. As illustrated in (5)-(10), predicates like 'carry X', 'close/lock X', 'start a fire', 'clean/decorate X', and 'not report on X' can all yield P-state and R-state readings when occurring with KO ISS.

- 5) Mina-nun **kapang-ul** **tul-ko** iss-ta.
 M.-Nom **bag-Acc** **carry-KO** ISS-Decl
 'Mina is lifting a/the bag.' (P-state)
 'Mina has a/the bag in her hands.' (R-state)

- 6) Uju-nun **mwun-ul** **camku-ko** iss-ta.
 U.-Nom **door-Acc** **lock-KO** ISS-Decl
 'Uju is locking the door.' (P-state)
 'Uju has the door locked.' (R-state)

- 7) Yenghuy-nun **pwul-ul** **phiwu-ko** iss-ta.
 Y.-Top **fire-Acc** **burn-KO** ISS-Decl
 ‘Yenghuy is starting a fire.’ (P-state)
 ‘Yenghuy has/keeps the fire going.’ (R-state)
- 8) Yoona-nun **cip-ul** **ccaykkusshi** **chiwu-ko** iss-ta.
 Y.-Top **house-Acc** **neatly** **clean-KO** ISS-Decl
 ‘Yoona is cleaning the house neatly.’ (P-state)
 ‘Yoona is in the state of having cleaned the house neatly.’ (R-state)
- 9) Sera-un **pang-ul** **yeppukey** **kkwumi-ko** iss-ta.
 S.-Top **room-Acc** **beautifully** **decorate-KO** ISS-Decl
 ‘Sera is decorating her room beautifully.’ (P-state)
 ‘Sera is in the state of having decorated the house beautifully.’ (R-state)
- 10) Kutul-un **samang** **shinko-lul** **acik** **ha-ci** **ahn-ko** iss-ta.
 They-Top **death** **report-Acc** **yet** **do-CI** **NEG-KO** ISS-Decl
 ‘They are not reporting on the death yet.’ (P-state)
 ‘They have not reported on the death yet.’ (R-state)

One might suspect that what cuts across the predicates occurring in (7)-(10) is telicity, i.e., having a clear endpoint as part of the lexical meaning of the VP. As it turns out, however, telicity alone cannot unify them. Typical accomplishment predicates such as ‘build a house’, ‘break the window’, ‘melt/thaw an ice cube’, and ‘burn a tree’ do not give rise to R-state readings with KO ISS, as can be seen in (11) and (12).

- 11) Yenghuy-ka **elum** **hana-lul** **nok-i-ko** iss-ta.
 Y.-Nom **ice.cube** **one-Acc** **melt-Caus-KO** ISS-Decl
 ‘Yenghuy is melting an ice cube.’ (P-state)
 Not: ‘Yenghuy has an ice cube melted.’ (R-state)
- 12) Yenghuy-ka **namwu** **hana-lul** **thaywu-ko** iss-ta.
 Y.-Nom **tree** **one-Acc** **burn-KO** ISS-Decl
 ‘Yenghuy is burning a tree.’ (P-state)
 Not: ‘Yenghuy has a tree burnt.’ (R-state)

What is the difference between the ambiguous and non-ambiguous cases then? I submit that ambiguity arises when the sentence can be interpreted in such a way that the object stays in the state described by the culmination of the VP without changing its physical form. Put another way, an R-state reading comes about when the object’s ontological integrity is kept intact even after the culmination of the event described by the sentence.

Another important point is that, in an R-state reading, the object’s state is maintained not by itself but by the surface subject. That is, there has to be an agentive individual sustaining the temporary state resulting from the culmination of the event at hand. This observation reveals that what has thus far been called an R-state reading in fact comprises two layers: (i) the object’s change of state and (ii) the subject’s maintenance of that state. In this new light, KO ISS sentences with R-state readings turn out to involve double predication in which the predication of the subject embeds that of the object.

To illustrate how this analysis works, let us apply it to a minimal pair of examples: when I start a fire and try to keep it, I can maintain the fire’s physical form. This explains the ambiguity of (7). On the other hand, when I melt an ice cube and try to keep it, I cannot succeed in my attempt because, once melted, an ice cube becomes water. This explains the non-ambiguity of (11). An essentially same logic can account for all the other cases involving KO ISS as well.

This double-predication analysis has an additional welcome result: it lets us explain why KO ISS occurs only with transitive verbs when yielding R-state readings, a property that has often been mentioned but left unaccounted for in the literature (see, among others, Lee 1991, Kim 1993, Lee 2008). To see this, consider (13). In this sentence, the predicate is intransitive and it occurs with KO ISS. Interestingly, the

only possible reading for the sentence is a P-state reading. In order to receive an R-state reading, a different imperfective marker *e iss* (E ISS) has to be used, as shown in (14).

13) Yenghuy-nun byengtul-ko iss-ta.
 Y.-Top get.sick-Conn be-Decl
 ‘Yenghuy is getting sick.’ (P-state)
 Not ‘Yenghuy is in the state of being sick.’ (R-state)

14) Yenghuy-nun byengtul-e iss-ta.
 Y.-Top get.sick-Conn be-Decl
 Not: ‘Yenghuy is getting sick.’ (P-state)
 ‘Yenghuy is in the state of being sick.’ (R-state)

Under the analysis proposed here, the lack of an R-state reading in (13) is due to the absence of an agentive individual that can maintain the object’s change of state. Importantly, this analysis also leads us to see that the R-state reading produced by KO ISS and the one produced by E ISS, as in (14), are of a different nature, contrary to the prevailing view (see Lee 1991, Kim 1993, Lee 2008). The R-state reading associated with E ISS does not involve a layered structure in which an external argument maintains the internal argument’s change of state. Needless to say, precisely how those two R-state readings differ from each other merits further investigation. For reasons of space, however, pursuing it has to be left for another occasion.¹ Thus below, I continue to focus only on R-state readings associated with KO ISS.

3. Capturing the ambiguity

In the previous section, I have shown that predicates yielding ambiguity with KO ISS allow for a reading in which the subject keeps the object in the temporary state that results from the culmination of the VP meaning for some time. In so doing, I have also clarified what an R-state reading produced by KO ISS really means: it consists of the object’s change of state and the subject’s maintenance of that state. That is, it involves the predication of the object and that of the subject, where the latter embeds the former. Assuming that these generalizations are correct, the question that faces us now is how they can be formally implemented.

This section takes up this answer. The upshot of the proposal is that the object’s change of state is formally translated as temporal precedence, culmination of an event, and a resulting state, and the subject’s maintenance of this state is translated as a control by an agentive individual. I further claim that KO contributes all these meanings and what ISS does is to make the sentence assert about the subject’s existential state.

3.1. Semantics of KO and ISS

Let me begin with decomposing KO_R , i.e., KO that occurs in a sentence that receives an R-state reading. I claim that syntactically it is a connective meaning ‘and’ but its semantic contribution is two-fold: it spells out (i) a null perfect aspect marker ‘ \emptyset ’ and (ii) the concomitant marker *ko*. I further propose that the null perfect aspect introduces a target state in the sense of Parsons (1990), i.e., ‘result state’ in our terminology, and KO introduces an agentive PRO that gets controlled by the surface subject. Below, I take up each point one by one and provide arguments for them.

First, evidence for the perfect meaning contributed by KO_R comes from the fact that, in a sentence that receives an R-state reading, the auxiliary verb *noh* ‘have’ (Lit. ‘put’) can occur before KO, yielding a temporal abutting reading for two eventualities. Sentence (15) is an illustrative case: the (a) and the (b) sentences are semantically synonymous, despite the fact that the latter contains the aspectual auxiliary *noh*.

15) a. John-un mwun-ul camku-ko iss-ta.
 J.-Top door-Acc lock-KO ISS-Decl
 ‘John exists with the door closed.’

¹ See Kim (to appear) for a more formal analysis of E ISS in comparison with KO ISS.

- b. John-un mwun-ul camku-e **noh-ko** iss-ta.
 J.-Top door-Acc lock-e **Aux-KO** ISS-Decl
 ‘John locked the door and then exists (in that state).’

Notice that the auxiliary *noh* is incompatible with KO ISS sentences that only receive P-state readings, as exemplified in (16). This shows that KO_P and KO_R make different semantic contributions.

- 16) a. John-un wuntongcang-ul **talli-ko** iss-ta.
 J.-Top playground-Acc run-KO ISS-Pst-Decl
 ‘John is running in the playground.’
 b.*John-un wuntongcang-ul talli-e **noh-ko** iss-ta.
 J.-Top playground-Acc run-E Aux-KO ISS-Pst-Decl
 Intended: ‘John ran in the playground for a while and then exists in that state.’

With regard to the claim that KO_R introduces an agentive PRO argument, I want to capitalize on the fact that, with the light verb *ha* ‘do’, KO can mark the meaning of concomitance, as shown in (17) and (18).

- 17) Yenghuy-nun Swunhi-**hako** nollassta.
 Y.-Top S.-with played
 ‘Yenghuy played with Suwnhi.’
 18) Yenghuy-**hako** Swunhi-nun **hamkkey** nollassta.
 Y.-and S.-Top together played
 ‘Yenghuy and Suwnhi played together.’

On an intuitive level, ‘with’ is analogous to ‘have’ or ‘keep’; just like ‘have’ or ‘keep’, it is a two-place predicate so is relational in meaning. Given this, it would not be too far-fetched to hypothesize that KO_R is represented as ‘keep’ (or ‘have’) in the logical form. Treating KO_R as encoding the meaning of ‘keep’ would be tantamount to postulating that the morpheme takes an external argument, as ‘keep’ is a transitive verb. But since we never see KO’s argument surface in KO ISS sentences, it is suggested here as a PRO.

Further support for this PRO analysis may come from the fact that the verbal category that KO selects for is assumed to be invariably non-finite (see, among others, Son 2004, Lee 2008); since non-finite clauses are the proto-typical habitat of a PRO, we can hypothesize that the VP sister of *ko* harbors one as well.

Turning now to ISS_R , I argue that it is more of a lexical verb than a pure auxiliary.² More specifically, I propose that it literally means ‘exist’ and it assigns a Theme role to the surface subject. Semantically, I claim that ISS_R makes the sentence assert that the subject exists in a state wherein the object’s target state is kept or maintained.

Evidence for this lexical verb status of ISS_R comes from two novel observations. First, in a KO ISS_R sentence, a manner adverb can occur between *ko* and *iss* modifying *iss*. This is illustrated in (16). Suppose this sentence is uttered in the following context: I have a son named Uju. This evening I have to go to a party to which children are not welcome. So I tell my son to stay safe by keeping the door locked. This contextualization makes (16) not only grammatical but also felicitous. In addition, it shows that the only possible reading for it is one in which the manner adverb *ancelnhakey* modifies *iss*. If *iss* were an auxiliary, such modification would not be possible.

- 16) Uju-un mwun-ul camku-ko **ancelnhakey** iss-ess-ta.
 U.-Top door-Acc lock-KO **safely** ISS-Pst-Decl
 ‘Uju existed/stayed safely with the door locked.’
 Not: ‘Uju locked the door safely and existed/stayed in that state.’

By way of comparison, notice that, in a purely progressive sentence, a manner adverb cannot occur between *ko* and *iss*, modifying *iss*, though it can modify the main verb. To exemplify, compare the two sentences in (17).

² By this, I do not intend to claim that ISS_R is a purely lexical verb. It may have a hybrid status of being both a lexical and a grammatical verb. But what matters to us is that it displays properties of a lexical verb.

- 17) a. *John-un wuntongcang-ul talli-ko **yelshimhi** iss-ess-ta.
 J.-Top playground-Acc run-KO **vigorously** ISS-Pst-Decl
 Intended: ‘*John vigorously existed in the state of running.*’
 b. John-un wuntongcang-ul **yelshimhi** talli-ko iss-ess-ta.
 J.-Top playground-Acc **vigorously** run-KO ISS-Pst-Decl
 ‘*John was vigorously running in the playground.*’

Additional evidence for the lexical verb status of ISS_R comes from its interaction with short form negation in Korean, which is marked by *an*.³ A descriptive generalization is that unlike ISS_P, ISS_R can occur with *an* that behaves like a constituent negation. Before we look at the data on KO ISS, note first that pure auxiliaries such as *noh*, *twu*, and *po* behave like ISS_P: they cannot be immediately preceded by *an*, as illustrated in (18b). So the only way in which the sentence can contain short form negation is to have it occur immediately before the main verb, as shown in (18c).

- 18) a. Uju-nun cechwuk-ul hay noh-ass-ta.
 U.-Top saving-Acc do Aux-Pst-Decl
 ‘*Uju had saved some money.*’ (Lit.: ‘*Uju had done some saving.*’)
 b. *Uju-nun cechwuk-ul **hay an noh-ass-ta.**
 U.-Top saving-Acc **do NEG Aux-Pst-Decl**
 Intended: ‘*Uju had not saved money.*’
 c. Uju-nun cechwuk-ul **an hay noh-ass-ta.**
 U.-Top saving-Acc **NEG do Aux-Pst-Decl**
 ‘*Uju had not saved money.*’

Consider now (19) and (20), which contain KO ISS_P and KO ISS_R, respectively. These paradigms show that while short form negation cannot occur immediately before ISS_P, it can with ISS_R. Although the judgments are not entirely cut-and-dried, there is a clear contrast between the two cases.⁴

- 19) a. Uju-nun wuntongcan -lul talli-ko iss-ta.
 U.-Top playground-Acc run-KO ISS-Decl
 ‘*Uju is running in the playground.*’
 b. *Uju-nun wuntongcan-lul talli-ko **an iss-ta.**
 U.-Top playground-Acc run-KO **NEG ISS-Decl**
 Intended: ‘*Uju is not running in the playground.*’
 c.(?)Uju-nun wuntongcan-lul **an talli-ko iss-ta.**
 U.-Top playground-Acc **NEG run-KO ISS-Decl**
 ‘*Uju is not running in the playground.*’
- 20) a. Uju-nun potong naykthai-lul may-ko iss-ta.
 U.-Top regular necktie-Acc wear-KO ISS-Decl
 ‘*Uju is wearing a regular necktie.*’
 b.(?)Uju-nun potong naykthai-lul may-ko **an iss-ta.**
 U.-Top normal necktie-Acc wear-KO **NEG ISS-Decl**
 ‘*Uju is not wearing a regular necktie.*’
 c. Uju-nun potong naykthai-lul **an may-ko iss-ta.**
 U.-Top normal necktie-Acc **NEG wear-KO ISS-Decl**
 ‘*Uju is wearing a bowtie, not a regular necktie.*’

³ Korean also has long form negation, which is marked by the light verb *ha-*, and *-ci* and *ahn-*, as exemplified in (10).

⁴ There are some clean examples containing KO ISS_R with short form negation, though. Consider (i), for instance:

- i) Way kulehkey tepkey-iss-ni, eyekhон thul-ko **an iss-ko?**
 Why so hot-exist-Q.informal, airconditioner run-KO **NEG ISS-S.ending**
 ‘*Why haven’t you turned the air conditioner on though it is so hot?*’

Needless to say, we need to address more fully how exactly short form negation in Korean interacts with different types of verbs or sentences, deriving the intended meanings (see Han and Lee 2007 and references therein). For our purposes, however, what matters is that while ISS_P behaves like a typical auxiliary with respect to short form negation, ISS_R behaves more like a lexical verb.

To summarize this section, I have argued that KO_R is a connective with a dual function: (i) it contains a null perfect aspect marker, which introduces a target state of the event described by VP; (ii) it introduces a PRO to be controlled by the sentential subject. We will see below that this PRO is what keeps the object's target state for some period of time. With regard to ISS_R , I have proposed that it is more like a lexical verb of existence, rather than a pure auxiliary: being a lexical verb, it assigns a Theme role to the sentential subject and makes the sentence assert that the subject exists in a certain state (in some location).

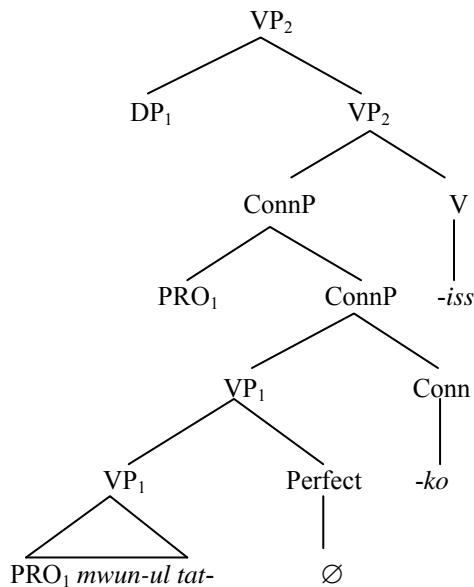
3.2. A formal analysis of KO ISS sentences

This section restates what has just been proposed in more formal terms. We begin with the syntax and semantics of KO_{ISS_R} sentences and then move on to the syntax and semantics of KO_{ISS_P} sentences.

3.2.1. The semantics of KO_{ISS_R} sentences

As schematically depicted in (21), I assume that the surface subject originates from the specifier position of VP (see, e.g., Fukui and Speas 1986). Importantly, the surface subject is selected by *iss-*, not by the other verb like *tat-* 'close', because the former is also a lexical verb. The flip side of this analysis is that *tat-* selects for a PRO argument that gets controlled by the surface subject, as indicated by the co-indexation. A PRO is posited here because *tat-* has an agentive role to assign but its external role bearer is never pronounced. As for *-ko*, it is analyzed as a connective. But since it gets translated as 'keep' in the logical form, it selects for a null subject PRO and a VP complement. Also, given the perfect meaning associated with it, its VP complement branches out into a null perfect aspect marker \emptyset^5 and another VP.

21) Schematic structure of the verbal domain of (4) with an R-state reading:



Turning now the semantic contribution of each core component of a KO_{ISS_R} sentence,⁶ for the semantics of the null perfect marker, I suggest that we adopt Parsons' (1990) treatment of Perfect Aspect. According to Parsons, Perfect Aspect introduces a 'target state', which refers to the temporary state that comes about when the event denoted by the sentence culminates and which holds true of the object or incremental theme argument (Parsons 1990: 234). Obviously, what Parsons calls a target state parallels

⁵ Given this, it may be that *ko* actually selects for an Aspect Phrase rather than a VP. But the current labeling is fine for our purposes.

⁶ I assume a type-theoretic, truth-conditional, compositional semantics here.

what we have been calling an R-state. Given this notional similarity between the two types of state, we can posit (22) as the denotation of the null perfect marker \emptyset .⁷

22) Denotation of the null perfect aspect marker:⁸

$$[[\emptyset]] = \lambda P_{\langle t \rangle} . \lambda s . \lambda t . \exists e [\tau(e) < t \ \& \ P(e) = 1 \ \& \ \mathbf{Target}(e) = s \ \& \ t \subseteq \tau(s)]$$

As for the lexical entry for KO_R , I propose (23), formalizing what I said above in prose.

23) Denotation of KO_R :

$$[[KO_R]] = \lambda R_{\langle s, \langle t \rangle \rangle} . \lambda x . \lambda s' . \lambda t . \exists s' [R(s')(t) = 1 \ \& \ \mathbf{keep}(x)(s')(s'') \ \& \ t \subseteq \tau(s'')]$$

Finally, I offer the following as the lexical entry for ISS_R , given its status as an existential verb.

24) Denotation of ISS_R :

$$[[ISS_R]] = \lambda Q_{\langle s, \langle t \rangle \rangle} . \lambda x . \lambda s . \lambda t . \exists s [Q(s)(t) = 1 \ \& \ \mathbf{exist}(x)(s) \ \& \ \mathbf{IN}(x)(s) \ \& \ t \subseteq \tau(s)]$$

When we apply these lexical entries to sentence (4'), following the composition scheme depicted in (21) while applying the standard semantics of Tense as a relation between speech time and topic time, we obtain (25) as its logical form (or truth-conditions).

4') John-i mwun-ul tat-ko iss-ta.
 J.-Nom door-Acc close-KO ISS-Decl
 'John has the door closed.' (R-state reading)
 Lit.: 'John exists with the door closed.'

25) Logical form of (4') with the R-state reading:

$$\exists t [\text{now} \subseteq t \ \& \ \exists s'' . \exists s [\exists s' [\exists e [\tau(e) < t \ \& \ \mathbf{close}(\text{door})(\text{John})(e) \ \& \ \mathbf{Target}(e) = s' \ \& \ t \subseteq \tau(s')] \ \& \ \mathbf{keep}(\text{John})(s')(s) \ \& \ t \subseteq \tau(s)] \ \& \ \mathbf{exist}(\text{John})(s'') \ \& \ \mathbf{IN}(\text{John})(s) \ \& \ t \subseteq \tau(s'')]]^9$$

This logical form says that John exists keeping the object in the target state that results from the VP meaning. This matches our intuitions about the meaning of the sentence. We can therefore conclude that the proposed analysis is on the right track.

3.2.2. The semantics of $KO\ ISS_P$ sentences

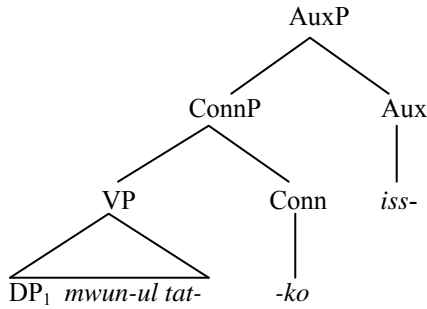
I hypothesize that a $KO\ ISS_P$ sentence has a much simpler structure, as shown in (26). There is no PRO, for one thing. Furthermore, $KO\ ISS$ is treated like an ordinary progressive aspect marker. KO is analyzed as a connective here also, but ISS is treated as an auxiliary, just like BE in English. In this regard, the structure of a $KO\ ISS_P$ sentence resembles what is usually assumed for progressive sentences in the literature (e.g., Son 2004, Lee 2008). As will be articulated momentarily, however, the present analysis diverges from the existing analyses in one important respect: unlike the prevailing view, KO is claimed to contribute something significant to the progressive meaning denoted by $VP+KO\ ISS$.

⁷ We will see in the next subsection that adopting Parsons (1990) analysis of Aspect affords us a parallel analysis of KO_R and KO_P .

⁸ Here and throughout, l is a type for events, s for states, i for times, and t for truth-values. In addition, τ is shorthand for 'run time' of an eventuality.

⁹ This logical form can be enriched by inclusion of world variables and an implicit location argument of ISS , because 'existence' usually involves 'location'. Yet the current version is sufficient for our purposes, as it captures the core idea of the present analysis without unnecessarily complicating things.

26) Schematic structure of the verbal domain of (4) with a P-state reading:



I propose that KO_P introduces an in-progress state in the sense of Parsons (1990). According to Parsons, an in-progress state describes the developmental stages of the event at hand and holds true as long as the event is in progress (p. 234). A motivation for this treatment comes from the fact that *ko* means ‘and’. Since it is plausible that ‘and’ morphologically encodes the semantic notion of ‘incrementality’ in event development, I envision that the ‘and’ meaning of *-ko* gets read as ‘progress’ by the interpretive system. That is, in the logical form, the morpheme introduces the in-progress state of the event described by the relevant VP, as spelled out in (27).

27) Denotation of KO_P :

$$[[KO_P]] = \lambda P_{\langle t, \langle e, t \rangle \rangle} . \lambda s . \lambda t . \lambda w . \exists e [\tau(e) < t \ \& \ P(e)(w) = 1 \ \& \ \mathbf{Progress}(e) = s \ \& \ t \subseteq \tau(s)]$$

The proposed line of analysis illuminates the affinity between KO_R and KO_P : the former introduces a target state in the sense of Parsons (1990), as it signals the null perfect aspect marker. The latter introduces an in-progress state in Parsons’ sense.¹⁰ Since they both introduce a temporary state described by the relevant VP, we can see that they are not so different from each other after all.

Turning now to the contribution of *iss-*, I argue that it makes the sentence assert that the ‘continuation branch’ of the VP meaning exists in some possible world, as formally given in (28).

28) Denotation of ISS_P :¹¹

$$[[ISS_P]] = Q_{\langle s, \langle t, \langle w, t \rangle \rangle \rangle} . \lambda s' . \lambda t' . \lambda w' . \exists s . \exists w [Q(s)(t)(w) = 1 \ \& \ \langle s', t', w' \rangle \in \mathbf{CON}(g(s), t, w) \ \& \ [[Q]](s')(t')(w') = 1]$$

The notion ‘continuation branch’ is adopted from Landman (1992), who builds on Dowty (1979). Simply put, the continuation branch of an event is a further developed stage thereof. And it can be realized in another possible world and also culminate if the VP meaning is intrinsically telic. In this regard, my analysis of KO_{ISS_P} is, in spirit, akin to Dowty (1979) and Landman (1992) and also to Ogihara (1998), and Son (2004), who deal with the progressive in Japanese and Korean, respectively. But it differs from them in detail: what KO_{ISS} brings about is the existence of the continuation branch of the *P-state* of the VP meaning, rather than just the continuation branch of the VP meaning. Thus, although the present analysis may appear indistinguishable from the existing analyses in the grand scheme of things, it is in fact more fine-grained and more compositional. For this reason, it also gives us what we want without resorting to a separate semantic rule like PRO, IRU, or ISS, as it is done in Landman (1992), Ogihara (1998), and Son (2004), respectively.

¹⁰ One might think that it would be better to treat KO_P as a progressive marker but I doubt that such a move would be a wise one. As will be shown below, *-ko* alone does not bring about a progressive aspectual meaning; it is done by the combination of *-ko* and *iss-*. This shows that, at least in Korean, progressive meaning is derived compositionally, rather than by a single morpho-syntactic component delivering it.

¹¹ The progress is widely assumed as modal (see for instance, Dowty 1976, Portner 1992, and Landman 1992). Hence the denotation of ISS_P given in (28) contains world variables, unlike the case with ISS_R . But since anything can be intensionalized, such difference has little direct bearing on the difference between ISS_P and ISS_R .

When we apply the proposed lexical entries for *ko* and *iss* to the syntactic tree given in (26), following standard practice for the rest of the sentence, we obtain (29) as the logical form of (4') under the P-state reading.

- 4') John-i mwun-ul tat-ko iss-ta
 J.-Nom door-Acc close-KO ISS-Decl
 'John is closing the door.' (P-state reading)

- 29) Logical form of (4') with a P-reading:
 $\exists t[\text{now} \subseteq t \ \& \ \exists s.\exists w[\exists e[\tau(e) < t \ \& \ \text{close}(\text{door})(\text{John})(e)(w) \ \& \ \mathbf{Progress}(e) = s \ \& \ t \subseteq \tau(s)] \ \& \ \exists s'. \ \exists t'.\exists w'. \ [< s', t', w' > \in \mathbf{CON}(g(s), t, w) \ \& \ \exists e'[\tau(e') < t \ \& \ \text{close}(\text{door})(\text{John})(e')(w') \ \& \ \mathbf{Progress}(e') = s' \ \& \ t' \subseteq \tau(s)] = 1]]]$

What we have obtained is again compatible with native speakers' intuitions about the meaning of the sentence. It also seems to capture the subtle semantic nuances of the sentence. Hence I conclude that the proposed compositional analysis of KO ISS_P is a promising line to pursue.

4. Extension to other cases and prospects

When applied to other KO ISS sentences discussed in this paper, the present analysis also returns satisfactory results. To illustrate, sentence (9), repeated below for convenience, receives the interpretations given in (30) and (31).

- 9) Sera-un pang-ul yeppukey kkwumi-ko iss-ta.
 S.-Top room-Acc beautifully decorate-KO ISS-Decl
 'Sera is decorating her room beautifully.' (P-state)
 'Sera is in the state of having decorated the house beautifully.' (R-state)

- 30) Logical forms of (9) on the P-state reading:
 $\exists t[\text{now} \subseteq t \ \& \ \exists s.\exists w[\exists e[\tau(e) < t \ \& \ \text{decorate}(\text{her.room})(\text{Sera})(e)(w) \ \& \ \text{beautiful}(e) \ \& \ \mathbf{Progress}(e) = s \ \& \ t \subseteq \tau(s)] \ \& \ \exists s'.\exists t'.\exists w'. \ [< s', t', w' > \in \mathbf{CON}(g(s), t, w) \ \& \ \exists e'[\tau(e') < t \ \& \ \text{decorate}(\text{her.room})(\text{Sera})(e')(w') \ \& \ \text{beautiful}(e') \ \& \ \mathbf{Progress}(e') = s' \ \& \ t' \subseteq \tau(s)] = 1]]]$

- 31) Logical forms of (9) on the R-state reading:
 $\exists t[\text{now} \subseteq t \ \& \ \exists s''.\exists s[\exists s'[\exists e[\tau(e) < t \ \& \ \text{decorate}(\text{her.room})(\text{Sera})(e) \ \& \ \text{Target}(e) = s' \ \& \ \text{beautiful}(s') \ \& \ t \subseteq \tau(s')] \ \& \ \text{keep}(\text{Sera})(s'')(s) \ \& \ t \subseteq \tau(s) \ \& \ \text{exist}(\text{Sera})(s'') \ \& \ \text{IN}(\text{Sera})(s) \ \& \ t \subseteq \tau(s'')]]]$ ¹²

The above logical forms seem to capture the two possible meanings of (9). This welcome result lends further support to the proposed analysis.

There are some problematic cases that pose a challenge to this analysis, however. Sentences (32) and (33) are two such cases: as indicated in the translations, both sentences cannot be judged perfect on the intended R-state readings.¹³

- 32) Sujin-un hwacang-ul ciwu-ko iss-ta.
 S.-Top make.up-Acc remove-KO ISS-Decl
 \surd 'Sujin was removing the make-up.' (P-state)
 ??Intended: 'Sujin was in the state of having (just) removed the make-up.' (R-state)

- 33) Jwunki-nun pyek-ul phayinthu-lul ppalkahkey chillha-ko iss-ta.
 J.-Top wall-Acc paint-Acc red-KEY brush-KO ISS-Decl
 \surd 'Jwunki was painting the wall red.' (P-state)
 *Intended: 'Jwunki was in the state of having (just) painted the wall red.' (R-state)

¹² Again, this logical form can be enriched by inclusion of world variables and an implicit location argument of *iss*.

¹³ (32) and (33) are due to Seungho Nam (p.c.) and Minjeong Son (p.c.), respectively.

What is the reason for the difficulty of assigning the R-state readings to these sentences? To take up (32) first, notice that the grammaticality can actually improve dramatically with some contextualization and the change of sentence ending, as shown in (34). Suppose I have two housemates, Sujin and Jeanna. This evening the three of us went to a party. We are all very tired but Jeanna wants to watch a DVD together. So she asks me to go check on Sujin. So I went to Sujin's room and saw that she just finished removing her make-up and was just sitting there doing nothing. In this context, I say (34) to Jeanna as a kind of report on Sujin.

- 34) Sujin-inun hwacang-ul ciwu-ko iss-te-la.
 S.-Top make.up-Acc remove-KO ISS-Evid-Decl
 √'Sujin was removing the make-up.' (P-state)
 √'Sujin was in the state of having (just) removed the make-up.' (R-state)

As the English translations show, (34) is ambiguous. That is, it can receive the R-state reading as well as the P-state reading. Since the only difference between this sentence and (32) is the presence vs. absence of the evidential marker *te*, rather than *ko* or *iss*, we are led to conclude that the relative badness of (32) on the R-state reading is not grammatical in nature; it is more about pragmatic infelicity. This shows that KO ISS sentences with R-state readings have to be judged with appropriate contextualization. Since such a contextualization requirement is true of numerous other linguistic data, however, this revelation does not really surprise us.

What is surprising, though, is that (33) is judged plain ungrammatical, as indicated by the star in front of it. I suspect, however, that this has more to do with the presence of two accusative-marked nominals, namely, *pyek-ul* and *phayinthu-lul*. When we eliminate the second accusative marked nominal and also change the tense into the past, the sentence improves a great deal on the R-state reading. Moreover, if an adverbial *onthong* 'everywhere' or *ta* 'completely' added, it becomes even more palatable, as shown in (35). To bring out this reading more clearly, I offer a plausible context here: Suppose I hate anything red. Today I went to my friend Jwunki's house and got rather shocked that he painted the entire walls completely red and was resting in his chair, feeling so ecstatic about his 'artistic' accomplishment. Uttered in this background, the sentence is judged almost perfect.

- 35) Jwunki-nun pyek-ul onthong ppalkahkey chillha-ko iss-ess-ta.
 J.-Top wall-Acc everywhere red-KEY brush-KO ISS-Pst-Decl
 √'Jwunki was painting the wall red.' (P-state)
 (?)'Jwunki was in the state of having (just) painted the wall red.' (R-state)

Admittedly, (35) is not impeccable but I think this is due to a pragmatic rather than a grammatical reason. In light of Gricean Maxim of Quantity (Grice 1975), in conjunction with the proposed analysis of KO ISS_R, the pragmatic value of uttering (35) (or (33)) seems almost non-existent. If a KO ISS_R sentence is indeed concerned with asserting about the subject's existential state in which she is keeping the object in the target state of the relevant VP meaning, it sounds uninformative or even non-sensical to assert that Jwunki existed in the state of keeping the wall painted red; ordinarily, one would not want to devote his precious energy to paint the wall painted in a certain color and *keep* it that way for some duration of time.

To the extent that these observations and conjectures are correct, sentences like (32) and (33) do not pose an insurmountable challenge to the proposed analysis of KO ISS. In fact, they can be readily overcome.

5. Summary and conclusion

In this paper, I have argued that the ambiguity of KO ISS sentences in Korean comes from the ambiguity of KO and ISS, in conjunction with the semantics of VPs. On a P-state reading, KO introduces an in-progress state and ISS asserts the existence of the continuation branch of the progressive state in some possible world. On an R-state reading, KO introduces a target state and 'keep' meaning and ISS asserts about the subject's existential state wherein she keeps the object in the same target state for some time. I have shown that these semantic differences are reflected in their syntax as well. Despite such differences, however, they have at least two things in common. First, sentences in which they occur assert about the continuity of a

temporary state, be it is an in-progress or a target state. Second, due to the semantics of ISS, both cases assert about the existence of some entity, be it an eventuality or an individual, in some possible world or salient location.

This analysis provides further evidence for the deep connection between ‘BE/EXIST’ and ‘HAVE’, which is widely attested across languages. In so doing, it also implicates that there is more affinity between the progressive and the perfect than currently recognized in the literature. It remains to be seen how the proposed analysis extends to other languages, in particular to Japanese, whose progressive marker TE IRU behaves like KO ISS but not in an identical manner (see, e.g., Ogihara 1998). Hopefully, the present analysis prompts further research on Aspect and sheds new light on cross-linguistic differences surrounding the topic, especially in connection with existential constructions and secondary predication.

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