ON THE JUNCTION BETWEEN PREDICATES AND ADVERBS IN KOREAN WITH -KEY

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1 Introduction

It has been controversial whether the suffix -key derives an adverb or a predicate. The controversy arises from the fact that it is not clear whether -key is as an adverbializer or as a predicater. This paper attempts to provide an answer of how the so-called -key marked items behave differently. I argue that -key derives both adverbs and predicates. Then, the meaning differences between adverbs and predicates are explained by the notion of entailment.

This paper is organized as follows. Section 2 begins with the brief discussion of morphological processes of adverbialization in Korean. In this section, I overview previous works by looking at the issue of how -key has been analyzed. In Section 3, it is shown that -key derives both adverbs and predicates by looking at its distribution in primary and secondary predication constructions. The distinction between adverbs and predicates is explained by entailment. In Section 4, I argue that this analysis proves that some examples cited as predicates are in fact adverbs.

2 Previous Works

It has been assumed that Korean has two types of adverbials. Both of them are derived from verbs by adding the suffixes, -i or -key. Consider the example (1) from Jang (1997:149). I adopt the convention underlying the so-called -key or -i marked items.

(1) a John-1 ppal-h talm-ta
    b John-1 ppalu-key talm-ta
    John-Nom fast ran-dec

The adverb fast is formed by adding the suffixes, -key or -i to the verb stem ppalu. There are few adjectives in Korean. Consider the example (2).

(2) a ku umsik-i maypta
    the food-Nom be-spicy
    ‘that food is spicy’
    b ku c1p-i khuta
    that house-Nom big
    ‘that house is big’

Despite their English translations, the words maypta ‘spicy’ and aphuta ‘sick’ are verbs that take tense markers and other types of inflectional endings used for verbs. Based on this fact, the adverbialization has been typically formulated by adding either -i or -key to verb stems in Korean.
Compare Korean with English. In English, adverbs are derived from adjectives by attaching a morpheme -ly, whereas in Korean, they are derived from verb stems by adding the suffix -1 or -key, as illustrated in (3)

(3)   English    [adjective] +ly
      Korean      [verb stem] + (key or 1)

Given this assumption, it has been analyzed that -key is an adverbalizer as -1 Many linguists analyze -key as a syntactic adverbalizer to make its root function as an adverb. This is based on Choe's (1928) idea that both -key and -1 are adverbial suffixes, as shown in (4)

(4)   a  na-nun nnalu-key taliessta
      l-top    fast-ADV ran
      'I ran fast'
   b  ku-nun nulhkey kelessta
      he-top    slow-ADV walked
      'I walked slowly'

However, the traditional approach that analyzes -key as adverbial suffix has been challenged by Jang (1997), who argues that -key derives a predicate. He argues that any key-marked items are the predicates, not the adverbs. Consider the example (5)-(6) from Jang (1997, 154)

(5)   a  *John pressed the can flatly
   b  John pressed the can flat

(6)   a  *John-un kkangthong-ul napcaks nwul-ess-ta
      John-top can-ACC flat press-Pst-Dec
      'John pressed the can flat'
   b  John-un kkangthong-ul napcakhakey nwul-ess-ta
      John-top can-ACC flat press-Pst-Dec
      'John pressed the can flat'

Jang (1997) argues that as in English, the adverb napcaks 'flatly' cannot be a predicate of the resultative subject kkangthong because an adverb cannot be predicated of a noun argument directly. That is why (5a) and (6a) is not grammatical, while in contrast (5b) and (6b) are grammatical. (6b) shows that napcakhakey 'flat' is predicated of the noun argument kkangthong 'the can' in Korean. The fact leads him to argue that as in English, napcaks 'flatly' is an adverb while napcakhakey 'flat' is a predicate. In addition, he shows additional evidence in other secondary predication construction, as illustrated in (7)

The examples come from Jang (1997, 153)

(7)   a  na-nun ku-lul *solchi / solcikhakey saygkakhanta
      I-top    he-acc honestly honest consider
      'I consider him *honestly/ honest'
      (small clause)
   b  John-nom mwalkoki-lul *simenhul/simenshakey mekessta
      John-nom fish-acc freshly / fresh ate
      'John ate the fish *freshly/ fresh'
      (deictive construction)

Jang's argument is as follows. In English, the adverbs honestly, freshly are not predicated of the direct object NPs, him, the fish, while in contrast, the adjectives honest, fresh are secondary predicates whose predication subjects are the direct object NPs, him, the fish. The same holds true in Korean. The fact that the direct object NPs, ku 'he', mwalkoki 'fish' are predicated of the -key marked items

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solcikhakey ‘honest’, sinsenhakey ‘fresh’, not of the -ı marked items solcikhi ‘honestly’, sinsenhi ‘freshly’ supports the assumption that -key derives predicates, not adverbs. However, while he provides convincing evidence that -ı marks adverbs but not predicates, and -key can mark predicates, he fails to show that -key can also mark adverbs. In this paper, I argue that -key in fact derives both predicates and adverbs. If so, there emerges a question of how the different functions of -key are distinguished from each other, despite of their morphological identities. I assume that the answer is entailment.

3. Entailment

There are various ways to define the notion of entailment. Entailment and presupposition are two important kinds of judgements about implication relations between the meaning of sentences. Entailment is one species of the more general relation of implication. For example, when A entails B, we often say that A implies B. We could say that someone’s assertion of A implies B, or that the speaker uttering A implies B. To imply B is to suggest that B is true. In other words, to offer support for the inference that B is true is to assert a sentence A that actually entails B, which indicates that B is true. The inference that B is true is supported directly by that information’s being a part of the information A conveys. That is, given A, we can deduce B. However, entailment is influenced by some variables. Consider the example (8) from Chierchia & McConnell-Gnet, 1991, p.17

(8) a. This is big b. This is a sperm whale c. This is a big sperm whale

Suppose that the above sentences are uttered with reference to a particular object. In such a situation, if the sentences of (8a) and (8b) are true because the reference whale is in fact big and is a sperm whale, the sentence of (8c) must be true. It is impossible to utter the first two sentences ((8a) and (8b)) and then to deny the third ((8c)). In this case, the pair (8a, 8b) entails (8c). However, as pointed by Chierchia and McConnell (1991), suppose that the particular sperm whale is in size not bigger than the female whale which is small. In such a situation, it is reasonable to say that the pair (8a, 8b) does not entail (8c). In this sense, Chierchia & McConnell-Gnet (1991, p.18) define the notion of entailment as follows.

(9) \( A \) entails \( B = \)
   (a) whenever \( A \) is true, \( B \) is true
   (b) the information that \( B \) conveys is contained in the information that \( A \) conveys
   (c) a situation describable by \( A \) must also be a situation describable by \( B \)
   (d) \( A \) and not \( B \) is contradictory (cannot be true in any situation)

Among them, in this paper, I will analyze the data based on (10a). This refers to a relation between a pair of sentences such that the truth of the second sentence necessarily follows from the truth of the first. Following Chierchia & McConnell-Gnet (1991), the entailment is defined as follows. See the definition (10) in the next page.
(10) Entailment

A sentence expressing proposition X entails (⇒) a sentence expressing proposition Y if the truth of Y follows necessarily from the truth of X.

Let us look at (11) (11a) shows that if the sentence John ate all the kippers is true, the sentence someone ate something is necessarily true. One cannot both assert the first and deny the second. The same holds true in (11b) and (11c) If the sentence John killed Bill is true, the sentence Bill died is true, if the sentence I can see a dog is true, the sentence I can see an animal is true.

(11) a John ate all the kippers (X) ⇒ Someone ate something (Y)
    b John killed Bill (X) ⇒ Bill died (Y)
    c I can see a dog (X) ⇒ I can see an animal (Y)

However, presupposition involves more than simple implication in that presupposition requires a family of implications, not all of which can be licensed by an entailment. Consider following example (12)-(13) from Chierchia & McConnell-Ginet (1991 24-25).

(12) a It was Lee who got a perfect score on the semantics quiz
    b Someone got a perfect score on the semantics quiz

(13) a Lee got a perfect score on the semantics quiz
    b Someone got a perfect score on the semantics quiz

In the cleft sentences of (12), (12a) not only entails but also presupposes (12b). However, in (13), (13a) entails (13b), but does not presuppose (13b). This difference between entailment and presupposition indicates that presupposition requires a family of implication. That is why (13a) that does not have a family of implication does not presuppose (13b). Based on this, in recent semantic discussion, entailment has come to be contrasted with presupposition, on the grounds that different consequences follow from either of the sentences being false. Consider another example (14)-(15).

(14) a I can see a cat
    b I can see an animal

(15) a he has stopped smoking
    b he has smoked

If (14a) is false, the notion of entailment requires that the sentence I can see a cat may be true of false, but the notion of presupposition requires that if the first sentence is false, the second must be true. For example, in (15), if (15a) is false, (15b) is true. Thus, (15a) presupposes (15b).

In this section, I have discussed two types of logical relationships between statements, entailment and presupposition. In this paper, only the notion of entailment will be employed as a means for analyzing the data. In the next section, I will analyze the key marked items by looking at the two types of constructions, namely primary and secondary predication construction.
4. Analysis

Primary Predication Construction (PPC) involves only one predicate with additional arguments such as external and internal arguments. One of main functions of adverbs is to modify the mode of action caused by a verb. For example, in the sentence ‘I walked slowly’ means that I walked in a slow manner. This is true in Korean, as illustrated in (16)

(16) a na-nun ppalu-key talhessta
   l- top fast run
   ‘I ran fast’
   b John-un Mary-hul se-key ttehessta
   John-top Mary-acc strongly hit
   ‘John hit Mary strongly’
   c John-un pwusilenha-key ilhayassta
   John-top diligently worked
   ‘John worked diligently’

In the example (16a), the -key marked item is an adverb. It denotes a manner of the event of running caused by the verb talih ‘run’. Similarly, in (16b) and (16c), both the -key marked items, sekey ‘strongly, pwusilenha-key ‘diligently’ are the adverbs which modify the events, hitting and working, respectively. If so, how can we support the assumption that the -key marked items in (16) are not predicates, but adverbs? The function of -key as an adverbializer is clearly shown if we adopt entailment. Take (16a) as an example. The notion => indicates that a previous sentence entails a following sentence, while the notion |=> does that a previous sentence does not entail a following sentence. For easy understanding, the same sentence is repeated twice.

(17) a na-nun ppalu-key talhessta => a’ na-nun talhessta
   l- top fast run l- top ran
   ‘I ran’
   a na-nun ppalu-key talhessta |=> b’ na-nun ppalu-ta
   l-top fast ran l-top fast-dec
   ‘I am fast’

As shown in (17), if (17a) is true, (17a’ ) is necessarily true. Thus, the former entails the latter. However, (17a) does not entail (17b’). This shows that ppalisekey lacks its predication subject but functions as an adverb which modifies the event of running. The same holds in (16b), as illustrated in (18)

(18) a John-un Mary-lul se-key ttehessta => a’ John-un Mary-lul ttehessta
   John-top Mary-acc strongly hit John-top Mary-acc hit
   ‘John hit Mary strongly’ ‘John hit Mary’
   a John-un Mary-lul se-key ttehessta |=> b’ Mary-ka seyta
   John-top Mary-acc strongly hit Mary-nom strong-dec
   ‘John hit Mary strongly’ ‘Mary was strong’
   a John-un Mary-lul se-key ttehessta |=> c’ John-un seyta
   John-top Mary-acc strongly hit John-top strong
   ‘John hit Mary strong’ John was strong
In (18), (18a) dose entail (18a') However, (18a) does not entail when either external or internal argument is predicated of the -key marked item, sekey (18a) entails neither (18b'), nor (18c') This entailment indicates that sekey ‘strongly’ is not a predicate but an adverb, which modifies the event of hitting denoted by the verb ttle ‘hit’ The same holds in (16c) (19a) entails (19b) but does not entail (19b'), as illustrated below

\[
\begin{align*}
(19) & \quad \text{a} \quad \text{John-un nu\text{-}key} \text{ ilhayassta} \quad \Rightarrow \quad \text{a'} \quad \text{John-un ilhayassta} \\
& \quad \text{John-top} \text{ diligently worked} \quad \text{John-top} \text{ worked} \\
& \quad \text{‘John worked slowly’} \quad \text{‘John worked’} \\
& \quad \text{a} \quad \text{John-un nu\text{-}key} \text{ ilhayassta} \quad \Rightarrow \quad \text{b'} \quad \text{John-un nulita} \\
& \quad \text{John-top} \text{ diligently worked} \quad \text{John-top} \text{ slow} \\
& \quad \text{‘John worked slowly’} \quad \text{‘John is slow’}
\end{align*}
\]

So, based on the facts, I assume that as Jang (1997) pointed out, -key marked items are adverbs in PPC However, I argue that -key derives both adverbs and predicates in Secondary Predication Construction (SPC)

In English SPC, the string V-NP-ADJ corresponds to the verb phrase of several different construction types, among these are the causative, the small clause, the depictive, and the resultative, as illustrated in (20)

\[
\begin{align*}
(20) & \quad \text{a} \quad \text{Causative} \quad \text{Tom made me happy} \\
& \quad \text{b} \quad \text{Small clause} \quad \text{Mary consider Tom honest} \\
& \quad \text{c} \quad \text{Depictive} \quad \text{Mary ate the food cold} \\
& \quad \text{d} \quad \text{Resultative} \quad \text{Tom wiped the window clean}
\end{align*}
\]

The sentences of (20) appear identical on the surface-each contains a subject NP, a verb, an Object NP, and an adjectival phrase modifying the NP However, the thematic relations between the verb and the following NP and between the verb, and adjective vary, as does the interpretation, according to construction type Let us look at the corresponding Korean SPCs

\[
\begin{align*}
(21) & \quad \text{a} \quad \text{Tom-1 na-lul hangpokha-key hayessta} \\
& \quad \text{Tom-Nom I-ace happy made} \\
& \quad \text{‘Tom made me happy’} \quad \text{(causative)} \\
& \quad \text{b} \quad \text{Mary-ka Tom-ul cengeokha-key sangakheyssta} \\
& \quad \text{Mary-nom Tom-acc honest considered} \\
& \quad \text{‘Mary considered Tom honest’} \quad \text{(small clause)} \\
& \quad \text{c} \quad \text{Mary-ka umsk-ul cha-key mekessta} \\
& \quad \text{Mary-Mom food-acc cold ate} \\
& \quad \text{‘Mary ate her food cold’} \quad \text{(depictive)} \\
& \quad \text{d} \quad \text{Tom-1 changwun-ul kkeykkuesta-key takkassta} \\
& \quad \text{Tom-nom wmdow-acc clean wiped} \\
& \quad \text{‘Tom wiped the window clean’} \quad \text{(resultative)}
\end{align*}
\]

As in English, secondary predicates are always noninflectional in the sense that they do not contain inflection elements and are unmarked for tense The secondary predicates are derived by adding -key to the verb stems in Korean In this paper, I will focus on the last two types, depictive and resultative construction Let us look at the depictive construction first
Depictive construction expresses that the state denoted by a depictive predicate is contemporaneous with the event denoted by a primary predicate. For example, the sentence ‘Mary ate the food cold’ means that the state of the food being cold is contemporaneous with Mary’s eating the food. In this sense, the sentence is paraphrased this way: when Mary ate the food, it was cold (Simpson, 1983, Rothstein, 1985). Given the situation that the temporal situation between the matrix verb and the depictive predicate is identical, the entailment relations show that the -key marked item in (22) are predicates of the direct NPs. For example, (22a) entails both (22a’) and (22b’). This means that the -key marked item *chakey* ‘cold’ is predicated of the direct NP *umsk* ‘the food’.

Resultative predicate denotes a result state of the object NP caused by the action or process described by a matrix verb. For example, the sentence ‘I hammered the metal flat’ means that the metal became flat by the activity of hammering. In this sense, the resultative construction has been assumed to involve two events, namely the causing event by a matrix predicate and the resulting event by a resultative predicate. The relationship between the causing and resulting event is well shown in terms of entailment. Consider some examples in (23):

(23) a ku-ka mël-lul *ccalpkey* callassta => a’ ku-ka mël-lul callassta
   he-nom hair-acc short cut he-nom hair-acc cut
   ‘he cut his hair short’  ‘he cut his hair’

a ku-ka mël-lul *ccalpkey* callassta => b’ mël-ka *ccalpta*
   he-nom hair-acc short cut hair-nom short
   ‘he cut his hair short’  ‘hair is short’

In (23), the resultative construction (23a) involves two events, the causing event denoted by (23a’) and the resulting event denoted by (23b’). So, the fact that (23a) entails both (23a) and (23b’) means that the -key marked items *ccalpkey* ‘short’ is a secondary predicate. This is true in (24). That is, like depictive construction, the entailment relations show that the -key marked item is a secondary predicate of the direct object NP. (24a) entails both (24a’) and (24b’).

(24) a ku-ka ccagmwun-ul *kkekkeshesha-key* talkassta => a’ ku-nun ccagmwun-ul talkassta
   he-nom window-acc clean wiped he-top window wiped
   ‘he wiped the window clean’  ‘he wiped his window’

a ku-ka ccagmwun-ul *kkekkhesa-key* talkassta => b’ ccagmwun-i *kkekkeshata*
   he-nom window-acc clean wiped window-nom clean
   ‘he wiped the window clean’  ‘the window is clean’

However, -key can derive an adverb in that key-marked items appear in sentences lacking a possible predication subject. Consider the example (25) in the next page.
The sentence means that the ugly man sang very well, but does not mean that the ugly man was beautiful. Entailment shows that the ugly man is not the predication subject of the key marked item, _alumtap-key_, as illustrated in (26).

(26) a mosnan namca-ka _alumtap-key_ noleyhanta => a' mosnan manca-ka noleyhanta old man-NOM beautifully sing ugly man sang 'the ugly man sings beautifully' 'the old man sings'  

In (26), (26a) entails (26a') but not (26b'). This shows that _mosnan manca_ 'the ugly man' is not the subject of the key-marked item _alumtap-key_. Instead, it is an adverb that just modifies the singing event.

As mentioned above, entailments can clearly show whether -key marked items are predicates or adverbs in secondary predication construction (SPC). In this sense, I formulate the functions of -key as follows:

(27) The function of -key  
Given that the first sentence (A) involves Secondary Predication Construction (SPC) and the second sentence (B) involves PPC (Primary Predication Construction) whose subject is the direct object of A, -key derives a predicate if A entails B. Otherwise, -key derives an adverb.

The main argument is as follows: with respect to key-marked items, given that the first sentence involves SPC and the second involves PPC whose subject is the secondary subject of the first sentence, if the first sentence is true, the second sentence must necessarily be true. That is, only when the first entails the second, the -key marked item is a predicate. However, if the first is true and the second is false, that is, if the first does not entail the second, the -key marked item is an adverb.

Based on this assumption, I will show that some of the examples as cited as predicates are in fact adverbs, to which I will turn now.

5. 'Fake' predicates.

The so-called -key marked items have been analyzed as either adverbs or predicates. The issue arises from the fact that both predicates and adverbs are derived by adding the suffix -key. This raises the possibility that the resultatives using -key are really adverbs. In this paper, I argue that entailment can disambiguate the ambiguity caused by the morphological coincidence. Furthermore, this analysis can provide evidence that some of examples cited as a resultative predicate is in fact not a predicate but an adverb (Wechsler & Noh, to appear). Consider this example from Kim (1993, 471) in the next page.
According to Kim (1993), the sentences in (23) involve resultative construction. However, I assume that this is not true (Wechsler & Noh, to appear). In (28a), the sentence does not entail that he is (became) crazy, but just indicate that he shouted crazily. The same holds in (28b). The sentence does not entail that the river became thin, but rather that the ice did. It just shows that the freezing event occurred in a thin manner. The entailment relationship is shown in (29)-(30) (29a) entails (29a') but not (29b'), (30a) entails (30a'), but not (30b'). Note that michkey, 'crazily' yalpkey 'thinly' are analyzed as adverbs in (29) and (30), unlike Jang’s (1997) examples.

The similar patterns are shown in following sentences:

The sentences in (31) might be interpreted as depictive constructions because of the ambiguous usage of -key. However, they do not involve the depictive readings. Entailment shows that -key marked items are not predicates but adverbs (31a) does not entail that the baggage was heavy. Likewise, (31b) does not entail that Swumi was pretty. The word ypypukey 'prettily' just indicates the manners of the activities of moving and drawing as adverbs. See (32)-(33) in the next page.
(32)  a ku-nun c1m-ul mwukep-key nallassta => a' ku-nun c1m-ul nallassta
    he-top baggage-acc heavily moved
    ‘he moved the baggage heavily’

a ku-nun c1m-ul mwukep-key nallassta => b' c1m-1 nallassta
    he-top baggage-acc heavily moved
    ‘he moved the baggage heavly’

b' c1m-1 nallassta
    baggage-1 moved
    ‘the baggage was heavy’

(33) a ku-nun Swum-lul yeppukey kuhessta => a' ku-nun Swum-lul kuhessta
    he-nom Swum-acc prettily drew
    ‘he drew Swun pretty’

a ku-nun Swum-lul yeppukey kuhessta => b' Swum-ka yepputa
    he-nom Swum-acc prettily drew
    ‘he drew Swun pretty’

b' Swum-ka yepputa
    Swum-nom pretty-dec
    ‘Swun was pretty’

5. Conclusion

In this paper, I have shown how the ambiguous characteristics of -key is interpreted in terms of entailment. The suffix -key derives both predicates and adverbs, although they are morphologically identical. However, if we closely examine the distributions of -key, it is found that their morphological identities are differentiated semantically. The notion of entailment might provide an answer of how the morphological coincidences are differentiated in terms of adverbs and predicates.

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