Syntax of Korean inchoatives

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The paper analyzes two different types of inchoatives in Korean, the I-inchoative and the zero inchoative, by examining their interaction with adjunct phrases as well as their morphological differences. I argue that the two types of inchoatives are similar in that they have the same event head \( \text{vincho} \). This syntactic similarity explains the compatibility of a cause phrase and the locution ‘by itself’ with the two inchoatives. The two inchoatives also present syntactic differences. I-inchoatives have a defective Voice head (as do passives) while zero inchoatives do not have one. This difference explains the grammaticality of instrument phrases in I-inchoatives but not in zero inchoatives. The presence of the Voice head in I-inchoatives but the absence of one in zero inchoatives also accounts for the morphological difference between the two inchoatives.

1. Introduction

The paper examines two types of inchoatives in Korean that are distinguished by their verbal morphology, as exemplified in (1):

\begin{align*}
\text{(1)} & \quad \text{a. namwuskaci-ka} \quad \text{kkekki-ess-ta} \\
& \quad \text{tree.branch-NOM} \quad \text{snap-INCHO-PAST-DEC} \\
& \quad \text{‘The tree branch broke.’} \\
\text{b. elum-i} \quad \text{nok-(-i)-ass-ta} \\
& \quad \text{ice-NOM} \quad \text{melt-(incho)-PAST-DEC} \\
& \quad \text{‘The ice melted.’} \quad \text{(Knob 2002)}
\end{align*}

Inchoative (1a) is marked by the morpheme \(-i\) (henceforth, I-inchoative), which is the same morpheme that marks the passive and surfaces variously as \(-i\), \(-hi\), \(-li\), \(-ki\) (S. Lee 1986; K. Lee 1987; Park 1994; Yeon 2003; Kim 2005). The other type of inchoative (1b) is marked by a zero morpheme (henceforth, zero inchoative), and it cannot be marked by the I-morpheme, as indicated in (1b).

In their cross-linguistic studies on inchoatives, Alexiadou (2006) and Alexiadou and Schäfer (A&S) (2006) propose two different inchoative structures that can each correspond to the inchoatives in (1), based on the distribution of various adjunct phrases (i.e. agents, cause, the locution ‘by itself’, and instrument phrases) in inchoative as well as a morphological relation between inchoatives and passives. Under their proposals, (1a) bears an eventive v as well as a Voice head while (1b) bears only an eventive v. In particular, it is argued that all the adjunct phrases in inchoatives, except agent phrases, are licensed by v. However, as will be shown in the paper, this fails to capture the distribution of instrument phrases in (1a) and (1b). Moreover, the proposed structures present some conceptual problems, and thus cannot capture the complementary distribution of agent phrases, on the one hand, and cause phrases and ‘by itself’, on the other, in inchoatives.

As a solution to the first problem, I argue that an instrument phrase in an inchoative is adjoined to VoiceP, and VoiceP is present only in I-inchoatives as with passives. The relevant Voice
head is a defective Voice head that lacks the ability to introduce an external argument (of the type argued for by Embick 1997, 1998, 2004). Crucially, I assume that the defective Voice head also represents the transitivity alternating nature of the verbs. Under this view, only I-inchoatives that show transitive use bear a defective Voice head. On the other hand, zero inchoatives that show no such use do not have one. As for the conceptual problems, I argue that the two types of inchoatives are represented by the same eventive head $v_{\text{incho}}$ that is modified by both a cause phrase and ‘by itself’, and thus an agent phrase that modifies $v_{\text{AG}}$ is not allowed in both types of inchoatives.

The paper is organized as follows. Section 2 surveys the distribution of the adjunct phrases in Korean inchoatives as well as passives. Section 3 presents the cross-linguistic studies of inchoatives from Alexiadou (2006) and A & S (2006), and discusses them with regard to the licensing of an instrument phrase. Section 4 examines whether the studies can account for the distribution of adjunct phrases in Korean inchoative, and discusses some problems that arise in the course of examination. As a first step to the direction of solving the problems, section 5 provides essential assumptions taken in the paper. Section 6 proposes new structures for the two types of inchoatives, and extends them to Korean inchoatives. Section 7 concludes and discusses the proposed proposal in a context of non-Voice bundling as in Pylkkänen (2002) in which a relevant event and an external argument role are separated by virtue of being realized under a different syntactic head respectively.

2. The distribution of adjunct phrases in Korean inchoatives and passives

As mentioned previously, I-inchoatives are marked by one of the allomorphs -i, -hi, -li, -ki, which are the same allomorphs that mark passives, as illustrated below:\footnote{All the examples without a citation are from the author.}\footnote{The allomorphs are mainly conditioned phonologically (cf. Yeon 1991).}

\begin{enumerate}
  \item \begin{tabular}{lll}
    a. & mun-i & yel-li-ess-ta \\
    door-NOM & open-INCHO-PAST-DEC \\
  \end{tabular}
  \begin{tabular}{l}
    ‘The door opened.’
  \end{tabular}
  \\
  b. \begin{tabular}{lll}
    totuk-i & (sunkyung-ey.uhay) & cap-hi-ess-ta \\
    thief-NOM & policeman-by & catch-PASS-PAST-DEC \\
  \end{tabular}
  \begin{tabular}{l}
    ‘The thief was caught by the policeman.’
  \end{tabular}
  \\
  c. \begin{tabular}{lll}
    elum-i & nok-ass-ta \\
    ice-NOM & melt-PAST-DEC \\
  \end{tabular}
  \begin{tabular}{l}
    ‘The ice melted.’
  \end{tabular}
\end{enumerate}

The I-inchoative (2a) is marked by the allomorph -li and the passive in (2b) is marked by the allomorph -hi. In contrast, the zero inchoative in (2c) is not marked by any explicit morpheme. Another difference between the two inchoatives is that the verbs in the former are alternating verbs but the ones in the latter are not, as exemplified in (3):

\begin{enumerate}
  \item \begin{tabular}{llll}
    a. & Inho-ka & mun-lul & yel-ess-ta \\
    Inho-NOM & door-ACC & open-PAST-DEC \\
  \end{tabular}
  \begin{tabular}{l}
    ‘Inho opened the door.’
  \end{tabular}
  \quad (Park 1994)
\end{enumerate}
Inho-ka elum-lul nok-ass-ta
Inho-NOM ice-ACC melt-PAST-DEC
‘Inho melted the ice.’

The verb *yel-‘open’ in I-inchoative (2a) can be used transitively as shown in (3a). However, the verb *nok-‘melt’ in zero inchoative (2c) cannot be used transitively as in (3b). The verbs in passives pattern with those of I-inchoatives, as illustrated below:

(4) sunkyung-i totuk-lul cap-ass-ta
policeman-NOM thief-ACC catch-PAST-DEC
‘The policeman caught the thief.’

The verb cap- ‘catch’ in passive (2) is an alternating verb as it can appear in transitive clause (4).

Let us now turn to how the two different inchoatives presented above interact with various adjunct phrases. Four different types of adjunct phrases are examined: agent phrases, cause phrases, the construction meaning ‘by itself’, and instrument phrases. For the sake of comparison, the patterning of these adjunct phrases in passive sentences is presented below. With regard to the first three adjunct phrases, the two types of inchoatives show the same pattern:

(5) a. *mun-i Inho-eyuyhay yel-li-ess-ta
   door-NOM Inho-by open-INCHO-PAST-DEC
   ‘The door opened by Inho.’

b. * elum-i Inho-eyuyhay nok-ass-ta
   ice-NOM Inho-by melt-PAST-DEC
   ‘The ice melted by Inho.’

(6) a. mun-i balam-ey yel-li-ess-ta
   door-NOM wind-LOC open-INCHO-PAST-DEC
   ‘The door opened by the wind.’

b. elum-i hayspyeth-ey nok-ass-ta
   ice-NOM sunshine-LOC melt-PAST-DEC
   ‘The ice melted by the sunshine.’

(7) a. mun-i ceccello yel-li-ess-ta
   door-NOM by itself open-INCHO-PAST-DEC
   ‘The door opened by itself.’

b. elum-i ceccello nok-ass-ta
   ice-NOM by itself melt-PAST-DEC
   ‘The ice melted by itself.’

As illustrated in (5), neither type of inchoative allows the agent phrase Inho-eyuyhay ‘by Inho’. However, they do co-occur with cause phrases and the locution ‘by itself’, as shown in (6) and (7), respectively. In (6a), the cause phrase balam-ey ‘by the wind’ is used and the sentence is grammatical. In (6b), the cause phrase hayspyeth-ey ‘by the sunshine’ can appear and the sentence is

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3 In order to be used transitively, the verbs in the latter class need a causative morpheme.
grammatical. As for *cecello* ‘by itself’, both allow the phrase, as shown in (7). By contrast, passives show the opposite pattern, as shown in (8):

(8)  
\[
\begin{align*}
totuk-i & \quad \text{sunkyung-eyuyhay/ } *hwacay-ey/*cecello & \quad \text{cap-hi-ess-ta} \\
\text{thief-NOM} & \quad \text{policeman-by }/ \text{by the fire }/ \text{by itself} & \quad \text{catch-PASS-PAST-DEC} \\
& \quad \text{‘The thief was caught by the policeman/*by the fire/*by itself.’}
\end{align*}
\]

The passive in (8) does co-occur with agent phrases, but not with the cause phrase *hwacay-ey* ‘by the fire’ and *cecello* ‘by itself’.

Lastly, with respect to an instrument phrase, the two types of inchoatives show a different pattern:

(9)  
\[
\begin{align*}
mun-i & \quad \text{byektol-lo} & \quad \text{yel-li-ess-ta} \\
\text{door-NOM} & \quad \text{brick-with } & \quad \text{open-INCHO-PAST-DEC} \\
& \quad \text{‘The door opened with the brick.’}
\end{align*}
\]

(10)  
\[
\begin{align*}
*elum-i & \quad \text{motak.pwul-lo} & \quad \text{nok-ass-ta} \\
\text{ice-NOM} & \quad \text{bonfire-with } & \quad \text{melt-PAST-DEC} \\
& \quad \text{‘The ice melted with bonfire.’}
\end{align*}
\]

The I-inchoative in (9) accepts the instrument phrase *byetol-lo* ‘with the brick’. On the other hand, the zero inchoative in (10) does not allow the instrument phrase *motak.pwul-lo* ‘with bonfire.’ As for passives, they pattern with I-inchoatives:

(11)  
\[
\begin{align*}
totuk-i & \quad \text{sunkyung-ey.uyhay} & \quad \text{chong-ulo} & \quad \text{cap-hi-ess-ta} \\
\text{thief-NOM} & \quad \text{policeman-by} & \quad \text{gun-with} & \quad \text{catch-PASS-PAST-DEC} \\
& \quad \text{‘The thief was caught by the policeman with the gun.’}
\end{align*}
\]

The distribution of the four different types of adjunct phrases across contexts and the morphological realization of each context are summarized in (12):

<table>
<thead>
<tr>
<th>(12)</th>
<th>I-inchoatives</th>
<th>Zero inchoatives</th>
<th>Passives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agent phrase</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Cause phrase</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>‘by itself’</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Instrument phrase</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Morphology</td>
<td>-i</td>
<td>Ø</td>
<td>-i</td>
</tr>
</tbody>
</table>

As indicated in (12), the two inchoatives show the same pattern with agent phrases, cause phrases, and the locution ‘by itself’, but passives show the opposite pattern. However, I-inchoatives allow instrument phrases, as do passives, but zero inchoatives do not. Furthermore, in terms of morphology, I-inchoatives and passives are marked by the same morpheme -I, but zero inchoatives are not marked by any particular morpheme.
3. Cross linguistic studies on inchoatives

In this section, I present inchoative structures proposed by Alexiadou (2006) and A & S (2006), which are based on the interaction between inchoatives with the adjunct phrases examined in the previous section as well as the morphological relation between inchoatives and passives. I also discuss some problems presented by their proposals with respect to the licensing of instrument phrases in inchoatives.

3.1 Two inchoative structures

Alexiadou (2006) and A & S (2006) propose two possible inchoative structures, as illustrated below:

\[
\begin{align*}
(13) & \quad \text{a. Type I} & \quad \text{b. Type II} \\
& \quad \text{vP} & \quad \text{VoiceP} \\
& \quad \text{DP} & \quad \text{-Ext} & \quad \text{Voice’} \\
& \quad \text{v’} & \quad \text{Voice’} \\
& \quad \text{v} & \quad \text{Root} & \quad \text{v} & \quad \text{Root (Alexiadou 2000)}
\end{align*}
\]

Before discussing the structures in (13), a discussion of the general assumptions underlying them is in order. Following Kratzer (1996), a Voice head is taken to introduce external arguments. The head v is assumed to represent a simple activity/eventive v as in Marantz (2005). It is also posited that Voice may denote two different kinds of relations between a DP and an event: an agent and a causer. When there is an agent relation, a Voice head hosts [+AG] feature. When the relation is one of cause, however, a Voice head does not host a CAUSE feature. In this case, causative semantics is derived from the combination of activity v and its stative complement. In this manner, CAUSE is argued to be represented by v.

Given these assumptions, let us examine how the adjunct phrases shown in the Korean data are licensed in each inchoative structure. According to Alexiadou (2006), neither of the structures in (13) allows an agent phrase since they do not possess an agent feature. In (13a), the Voice head that hosts an agentive feature is entirely absent. In (13b), on the other hand, there is a Voice head but it is marked by [-AG]. As for cause phrases and ‘by itself, both (13a) and (13b) allow them under the view that those phrases modify v. According to Alexiadou (2006), cause phrases in inchoatives indicate an implicit causer argument, and thus it modifies v that represents CAUSE. On the other hand, ‘by itself’ indicates that there is no external argument responsible for a given event. In this sense, Alexiadou (2006) argues that the phrase also modifies v in inchoatives. Lastly, both structures allow instrument phrases, since they are also viewed as modifying v. A crucial idea underlying this proposal is that instrument phrases in inchoatives are causers, to which I will return in

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4 Inchoatives in Korean have been studied extensively (S. Lee 1986; K. Lee 1987; Park 1994 among others). For the purpose of the paper, I do not discuss these studies.

5 The connection between the role of ‘by itself’ and v is not clearly articulated. No explanation is given for the lack of causative semantics when ‘by itself’ modifies v (or as to why ‘by itself’ modifies the same v as a cause phrase even though it does not have causative semantics).
more detail in the next section. The structures in (13) are supposed to predict that CAUSE and AG are predicted to be in complementary distribution in inchoatives.\(^6\) That is, CAUSE can be licensed in (13) but AG is not. Moreover, the structure in (13b) has a VoiceP without an external argument as -Ext in (13b) indicates; however, structure (13a) does not have VoiceP. According to Alexiadou (2006), (13b) is the structure of inchoatives that share the same verbal morphology as passives. In this case, the same morpheme marks the absence of an external argument, and this is represented structurally by a Voice head that lacks an external argument.\(^7\) (13a), on the other hand, has no special morphology on the verb, and thus it does not have a Voice head.

3.2 Pure instruments versus instrument causers

In the previous section, it was mentioned that instrument phrases are causers in inchoative structures, and thus are licensed by v. However, it is not the case that instruments are always permitted in inchoatives, as shown in Korean zero inchoatives (cf.(10)). This fact is also noted in Alexiadou (2006) and A & S (2006), and they propose that only instrument causers are allowed in inchoatives. Pure instruments are, on the other hand, not allowed in inchoatives. Before discussing their proposal, a discussion of each type of instrument and their syntactic properties are in order.

Following Kamp and Rossdeutscher (1994), it is assumed that instrument causers are instruments that can be conceived as acting on their own, once the agent has applied or introduced them, as exemplified in the following German example:

(14) Der arzt heilte den patienten mit kamille
    the doctor cured the patient with camomile
    ‘The doctor cured the patient with camomile.’    (A & S 2006)

The instrument kamille ‘camomile’ in (14) is an instrument causer which acts on its own after it is applied by the agent der arzt ‘the doctor’. On the other hand, pure instruments are instruments that are conceived as strictly auxiliary to the action of the agent by whom they are being employed, as in (15):

(15) der arzt heite den patienten mit dem skalpell
    the doctor cured the patient with his scalpel
    ‘The doctor cured the patient with his scalpel.’    (A & S 2006:2)

In (15), the instrument dem skalpell ‘the scalpel’ is used by the agent der arzt ‘the doctor’, but it cannot act own its own. With respect to the syntactic properties of each type of instrument, consider the following example:

(16) die kamille /*skalpell heilte den patienten
    the camomile/*scalpel cured the patient
    ‘The chamomile/*scalpel cured the patient.’    (A & S 2006:2)

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\(^6\) The complementary distribution does not seem to follow from the structures in (13). This problem will be discussed in detail later.

\(^7\) It seems that the statement is only partially correct or it needs a further elaboration. Both types of inchoatives lack an external argument in different ways, and this needs to be reflected on the presence/absence of a Voice head in each type of an inchoative. I will discuss this issue in more detail later.
In (16), the instrument causer ‘the camomile’ from example (14) appears in subject position and the sentence is grammatical. Conversely, the pure instrument ‘the scalpel’ cannot appear in subject position. The point here is that pure instruments cannot appear in subject position while instrument causers can appear in subject position. Rather, pure instruments can only appear in the adjunct position with an agent in subject position as in (15). This fact is taken to indicate that pure instruments are licensed by Voice, which hosts [+AG]. On the other hand, an instrument causer in subject position (16) is argued to be introduced by a Voice head, but they receive a causer interpretation through the combination of v and root.

Given the distinction between pure instruments and instrument causers, let us examine how instruments are licensed in inchoatives through a contrast between Greek and German inchoatives. Consider the following Greek and German inchoatives:

(17) to pani skistike me to psalidi/*apo tin komotria/apo mono tu
The cloth tore-Nact with the scissors/ by the hairdresser/ by alone-SG its
‘The clothes tore with the scissors/*by the hairdresser/ by itself.’

(18) die vase zerbrach *mit dem Hammer/*von Peter/von slebst
the vase broke           with the  hammer / by Peter/ by itself
‘The vase broke *with the hammer/*by Peter/ by itself.’ (A & S 2006)

The two languages display the same pattern, with the exception of instrument phrases: inchoatives cannot co-occur with agent phrases, indicating that they are not agentive, and thus lack an the agentive feature, but do co-occur with the phrase ‘by itself’, indicating that they do have a v. Only Greek, however, allows the inchoative to co-occur with the instrument phrase me to psalidi ‘with the scissors’, while this combination is ungrammatical in German. A question naturally arises: Why does only the Greek inchoative allow an instrument phrase? The answer provided by Alexiadou (2006) and A & S (2006) is that the instrument is a pure instrument in the German case, but an instrument causer in the Greek inchoative, based on the morphology which introduces an instrument in each language. Recall that pure instruments are licensed by Voice, which hosts [+AG]. On the other hand, instrument causers in subject position are introduced by Voice without the feature [AG] and its causer interpretation derives from the combination of v and a root. In inchoative sentences, instrument causers are licensed by the same v as their transitive counterparts, receiving the same causer interpretation from v and a root as in transitives. That is, it is the same v that is relevant to the causer interpretation of the instrument in both inchoatives and transitives. Now, the contrast between German and Greek can be explained. In German inchoatives, the instruments are associated with pure instrument role, and thus they cannot appear in inchoatives that lack [+AG]. In Greek inchoative, on the other hand, the instrument is associated with the instrument causer role, and thus it can appear in inchoatives that have v.

3.3 Discussion: Availability of instruments in subject position

Licensing of instrument phrases in inchoatives as presented above predicts that instrument causers occurring in inchoatives can appear in subject position of their transitive counterparts. This is because it is the same v that licenses instruments in both inchoatives and transitives, and this v is

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8 Both languages also take cause phrases (Alexiadou 2006).
9 The German preposition mit introduces exclusively instruments, which is taken to indicate that the instrument is associated with a pure instrument role. The Greek preposition me introduces causers as well as instruments, which is taken to indicate that instrument is associated with an instrument causer role.
relevant to a causer interpretation. On the other hand, it is also predicted that instruments not allowed in inchoatives cannot appear in subject position of the transitive equivalent. This is because the incompatibility with inchoatives indicates that the instrument must be licensed by Voice [+AG]. In other words, it must appear with an agent in subject position but cannot itself appear in subject position, as mentioned earlier. The latter part of the prediction seems to be correct, as the following German example illustrates:

(19) *der hammer zerbrach die vase
    the hammer broke the vase
    ‘The hammer broke the vase.’
    (Alexiadou 2006)

The pure instrument ‘hammer’ is not allowed in inchoatives (cf. (18)), and as predicted, it is also not allowed in subject position of a transitive sentence (19). However, the first part of the prediction does not seem to be borne out, as shown by the Greek data. The instrument causer psalidi ‘scissors’ in the inchoative sentence in (17) cannot occur in subject position of a transitive sentence (20):

(20) *To psalidi eskis-e to pani
    the scissor tear-3ACT the cloth
    ‘The scissor tore the clothes.’

That is, it is proposed that instruments in inchoatives are causers. If this is correct, then the instrument must be able to appear in subject position in transitive counterpart. However, this does not seem to be true, as shown in (20). Rather, it seems that the instrument ‘scissors’ must be used with an agent, as the following grammatical sentence suggests:

(21) I Maria eskis-e to pani me to psalidi
    the Maria tear-3ACT the cloth with the scissors
    ‘Maria tore the clothes with the scissors.’

The facts shown in (20) and (21) indicate that the instrument ‘scissors’ is a pure instrument that must be licensed by Voice with [+AG]. However, the fact that it can appear in the inchoative in (17) indicates that it cannot be licensed by Voice with [+AG], since inchoatives are [-AG]. In other words, the Greek facts contradict the inchoative structures proposed in Alexiadou (2006) and A & S (2006). The contradiction found with Greek is also found with Korean inchoatives, as will be shown in the following section. In what follows, I first examine to what extent the proposals of Alexiadou (2006) and A & S (2006) explain the interaction between the Korean inchoatives and adjuncts phrases, and then discuss problems that arise with Korean.

4. Licensing of instruments in Korean inchoatives

This section considers how the distribution of adjunct phrases in Korean inchoatives can be explained under the structures proposed by Alexiadou (2006) and A & S (2006). Recall that in both types of inchoatives (i.e., the I-inchoative and the zero inchoative), the distribution of agents and cause phrases shows the same pattern. More specifically, agents and cause phrases are in complementary distribution, as Alexiadou (2006) and A & S (2006) predict. This indicates that both

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10 Alexiadou (2006) does not provide data indicating whether instruments can appear in subject position of the transitive counterparts of Greek inchoatives. The Greek examples in (20) and (21) are provided by Maria Kyriakaki (p.c.).
kinds of inchoatives are non-agentive but rather causatives having an eventive v. The presence of an eventive v in both clauses also accounts for the availability of the phrase ‘by itself’ to them. Putting aside for the moment the opposing distribution of instruments in each inchoative, let us consider the morphological difference between the two inchoatives. I-inchoatives are realized by the same morpheme as passives, as mentioned earlier. Zero inchoatives, for their part, have no explicit morphology to share with passives. According to Alexiadou (2006), the fact that I-inchoatives and passives are marked by the same morpheme indicates that inchoatives have a Voice head. In particular, the Voice head must bear [-AG]. On the other hand, zero inchoatives do not have a Voice head, since they do not share special morphology with passives. Overall, the facts described in terms of Alexiadou (2006) and A & S (2006) predict that I-inchoatives would have the structure of type II (13b) but zero inchoatives would have the structure of type I (13a). As will be shown below, however, this prediction does not account for the distribution of the adjuncts phrases in Korean inchoatives.

4.1 Licensing of instrument phrases

In the previous section, we concluded that I-inchoatives and zero inchoatives have an eventive v but only the former has a Voice head. Alexiadou’s (2006) proposal that instrument causers, but not pure instruments, are licensed by v in inchoatives predicts that instrument causers are permitted in both types of inchoatives but pure instruments are not. However, as shown previously, instruments are allowed only in I-inchoatives but not in zero inchoatives:

(22)  
\begin{itemize}
  \item a. mun-i byektol-lo yel-li-ess-ta  
  \hspace{1em} door-NOM brick-with open-INCHO-PAST-DEC  
  \hspace{1em} ‘The door opened with the brick.’
  
  \item b. *elum-i motak.pwul-lo nok-ass-ta  
  \hspace{1em} ice-NOM bonfire-with melt-PAST-DEC  
  \hspace{1em} ‘The ice melted with bonfire.’
\end{itemize}

The instrument \textit{byektol-lo} ‘with the brick’ occurs in (22a), and this fact seems to indicate that the instrument is an instrument causer. In contrast, the instrument \textit{motak.pwul-lo} ‘with bonfire’ cannot appear in the zero inchoative (22b) which suggests that this instrument is a pure instrument. In other words, the instrument causer can be conceived of as acting on their own, and can thus appear in subject position. Pure instruments are considered strictly auxiliary to the action of an agent and cannot appear in subject position. However, the suggested semantic and syntactic properties of the two types of instruments are not predicted to be right in Korean. Consider the following examples:

(23)  
\begin{itemize}
  \item a. Inho-ka byektol-lo mun-lul yel-ess-ta  
  \hspace{1em} Inho-NOM brick-with door-ACC open-PAST-DEC  
  \hspace{1em} ‘Inho opened the door with the brick.’
  
  \item b. Inho-ka motak.pwul-lo elum-lul nok-i-ess-ta  
  \hspace{1em} Inho-NOM bonfire-with ice-ACC melt-CAUSE-PAST-DEC  
  \hspace{1em} ‘Inho melted the ice with bonfire.’
\end{itemize}
As shown in (23), both instruments are conceived of as being auxiliaries to the action of the agent ‘Inho’.\textsuperscript{11} Regarding the syntactic property, neither instrument can appear in subject position:\textsuperscript{12}

\begin{equation}
\begin{align*}
\text{(24) a. } & \text{*byektol-i mun-lul yel-ess-ta} \\
& \text{brick-NOM door-ACC open-PAST-DEC} \\
& \text{‘The brick opened the door.’}
\end{align*}
\end{equation}

\begin{equation}
\begin{align*}
\text{b. } & \text{*motak.pwul-i elum-lul nok-i-ess-ta} \\
& \text{bonfire-NOM ice-ACC melt-CAUSE-PAST-DEC} \\
& \text{‘The bonfire melted the ice.’}
\end{align*}
\end{equation}

The instruments ‘the brick’ and ‘the bonfire’ cannot appear in subject position, as shown in (24). The examined semantic and syntactic properties illustrated in (23) and (24) suggest that both instruments are pure instruments licensed by a Voice with [+AG]. However, the instrument ‘the brick’ in (23a) and (24a) is permitted in I-inchoatives (see 22a), indicating it is an instrument causer that cannot be licensed by the Voice with [+AG]. This result appears to conflict with the proposal in Alexiadou (2006) and A & S (2006).

Recall, moreover, that I had pointed out the same problem in the Greek data in the previous section. Given these facts of Korean and Greek, we conclude that the availability of an instrument in inchoatives does not correlate with its availability in subject position. This indicates that instrument phrases in inchoatives are not tied to a causer role as in transitives, and thus are not licensed by the same \(v\) as in transitives. Therefore, we cannot follow the proposal in Alexiadou (2006) and A & S (2006).

In order to solve this problem, I propose that instruments are adjoined to VoiceP. Before outlining my proposal, I discuss some conceptual problems with the structures proposed in Alexiadou (2006), which constitute further reasons not to adopt them.

\subsection*{4.2 Conceptual problems: Licensing AG and CAUSE}

In the system of Alexiadou (2006) and A & S (2006), a Voice head introduces an external argument. The Voice head has possible two relations with the DP that merges in spec of VoiceP as an external argument: either AG or CAUSE. However, these two relations do not seem to be equal with respect to the heads that license them, although they represent a relation with a DP merged in the same position. For AG, a Voice head bears a [+AG] or [-AG] feature in a relevant context. As for CAUSE, it is not directly encoded in \(v\) but derived from the combination of \(v\) and its stative complement. AG and CAUSE thus seem to be of a different nature. More specifically, they differ on three counts. First, the element that licenses each relation is different: Voice versus \(v+\text{root}\). Second, they differ in the way they are expressed: AG is assumed to be a binary feature while CAUSE is not. Third, they differ in their manner of derivation: AG is not a derived feature but rather simply hosted by a Voice head, while CAUSE is a derived relation represented by \(v\). AG and CAUSE are suggested to be in complementary distribution but this does not fall out of their proposed structures, which makes difficult to maintain the structures proposed in Alexiadou (2006) and A & S (2006).

I will propose a slightly different structure from the one in Alexiadou and A & S (2006) to address these problems. As a first step in this direction, I discuss first Parson’s semantic study on

\textsuperscript{11} The instruments in (23) can also have an instrument causer role, depending on the context. For example, ‘the bonfire’ can be viewed as acting on its own after the agent applies it. As this possibility indicates, semantic notions are not absolute criteria in determining types of instrument.

\textsuperscript{12} These judgments reflect the intuition of the two native speakers of Korean that I consulted.
instruments, next, Embick (1997, 2004)’s defective external argument introducing head and finally different types of v (following Harley 1995). I also discuss the pattern of cause phrases and the locution ‘by itself’ in both types of inchoatives with regard to the event that they modify.

5. Towards an analysis: Assumptions

5.1 Enhancements of an instrument role

Earlier, based on the conflict between Greek/Korean facts and the proposal of Alexiadou (2006) and A & S (2006), we concluded that the availability of an instrument in inchoatives does not necessarily indicate its availability in subject position. This indicates that instruments in inchoatives are not necessarily causers, and thus not licensed by v, contra Alexiadou (2006) and A & S (2006). What role, then, do instruments play in inchoatives, if they are not causers?

In studying of semantic roles of instruments, Parsons (1990) argued that instruments can have a performer role, in addition to an instrument role. Consider the following examples:

(25) 

a. *The hammer* hit the nail.
b. *The knife* cut his leg.
c. *The brick* hit the window and bounced off. (Parsons 1990)

In (25), all the subjects are instruments. In particular, they are neither agents nor experiencers, and thus receive an instrumental role. However, an instrumental role implies that there is an agent who uses the instrument. That is, in (25a), if Mary hit the nail with the hammer, then the hammer would be an instrument. An agent is, however, sometimes nowhere to be found. For example, the hammer could drop from a higher level and hit the nail. Parson argues that, in these cases, an instrument role is not adequate for the instrument. Instead, he proposes a performer role for the instrument when there is no agency implied.

Adopting this insight I assume that instruments in I-inchoatives receive a performer role. In passives, however, they receive an instrumental role, since agency is inherently implied in passives.

5.2 Defective VoiceP and event argument

I assume that an external argument introducing head (i.e. Voice) is present in unaccusatives and passives, following Embick (1997, 1998, 2004). This Voice is a defective functional head since it lacks the property of introducing an external argument syntactically. In passives, the external argument theta role is present while in unaccusatives it is not present. In the former, the theta role cannot be assigned to the external argument since it is not merged in the external argument position. Crucially I assume that Voice in unaccusatives and passives can also indicate the alternating nature of verbs. That is, passives and unaccusatives share the structural property of lacking an external argument that is suppressed by undergoing passivization and intransitivization, respectively. Under this view, only I-inchoatives have a defective VoiceP while zero inchoatives do not have one. I-inchoatives alternate, just as passives do, but zero inchoatives do not, as shown above (cf. (3)-(4))

I assume that the nature of the event argument is directly encoded by the type of functional v head that introduces it (Harley 1995; Folli and Harley 2005, 2007). In particular, I assume v_{incho} for

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13 Although Parson discusses the cases where an instrument is in subject position, the extension of Parson’s insight to inchoatives does not pose any substantial problems. Parson mentions that the thematic roles discussed do not necessarily play a role in the syntax, but are still useful in the semantics. In this sense, the fact that instruments in I-inchoatives cannot appear in subject position does not necessarily indicate that they cannot have a performer role.

14 Voice is also defective since it cannot assign accusative Case.
inchoatives, which indicates a dynamic event, related to the change of state verbs. As for passives, I assume $v_{AG}$, which indicates an agentive event.

5.3 Cause phrases and ‘by itself’

As illustrated throughout this paper, cause phrases and the locution ‘by itself’ are allowed in both types of inchoatives. This pattern also holds for German and Greek as shown in section 3. Moreover, they are in the complementary distribution with agent phrases in inchoatives. Given these empirical facts, I assume that cause phrases and ‘by itself’ modify the same event, namely, $v_{incho}$. The point to be stressed is that the cause phrase is not assumed to carry causative semantics. Rather, it is treated with ‘by itself’ in the same way in that it is in complementary distribution with an agent. In other words, they negate the presence of an agent. Both a cause phrase and ‘by itself’ indicate that an event occurs without an agent; however, they do not necessarily indicate that the event is causative. In this sense, I treat a cause phrase and ‘by itself’ in a similar fashion: they modify the same event.

6. The proposal and explanation of the data

Under assumptions presented above, I propose structure (26) for I-inchoatives and (28) for zero inchoatives. The structure of passives (27) is also presented for comparison:

(26) I inchoative

\[
\begin{array}{c}
\text{Root} \\
\text{v' \\
\text{DP}} \\
\text{v}_{incho} \\
\text{VoiceP} \\
\text{PP}_{\text{performer}} \\
\end{array}
\]

(27) Passive

\[
\begin{array}{c}
\text{Root} \\
\text{v' \\
\text{DP}} \\
\text{v}_{AG} \\
\text{VoiceP} \\
\text{PP}_{\text{instrument}} \\
\end{array}
\]

(28) Zero Inchoative

\[
\begin{array}{c}
\text{Root} \\
\text{v' \\
\text{DP}} \\
\text{v}_{incho} \\
\end{array}
\]

As shown earlier, the verbs in I-inchoatives and passives are alternating verbs but the ones in zero inchoatives are not. For this reason, a defective VoiceP is present in I-inchoative (26) and in passive (27) but not in zero inchoative (28). However, both types of inchoatives can be represented by the same verbalizing head, $v_{incho}$, given the fact that in both cases the verbs are change of state verbs. On the other hand, the passive (27) is represented by $v_{AG}$ because it implies an agent phrase.

Let us consider how the proposed structures in (26)-(28) capture the differences and similarities in the distribution of the adjunct phrases between the two inchoatives as well as their morphological relationship with the passive.

Recall the interaction between the two inchoatives and the passive and adjuncts (cf. Table (12)). Two types of inchoatives are similar in that they allow both a cause phrase and ‘by itself’
phrase. In this respect, passives are different from the inchoatives in not allowing those phrases. The two inchoatives are also similar in that they do not allow an agent phrase, unlike passives. However, they diverge with respect to instrument phrases. I-inchoatives allow them, as do passives, but zero inchoatives do not. Regarding morphology, I-inchoatives are expressed by the same morpheme as passives, but zero inchoatives manifest no overt morphology.

The compatibility of cause phrases and ‘by itself’ with both types of inchoatives can be explained by the presence of $v_{\text{incho}}$. That is, those phrases modify the same event head $v_{\text{incho}}$; therefore, it is present in both inchoatives (26) and (28). The non-compatibility of an agent phrase with the two inchoatives is also explained under the same structures. Because neither bears $v_{\text{AG}}$, they cannot co-occur with agent phrases. Conversely, passives, which bear $v_{\text{AG}}$, do co-occur with agent phrases (27). As for instrument phrases, they are adjoined to a defective VoiceP. Since zero inchoatives do not project the VoiceP as in (28), they are incompatible with instrument phrases. Passives and I-inchoatives, for their part, do project VoiceP and thus, they allow instruments as illustrated in (27) and (26) respectively. However, as mentioned earlier, the interpretation of instruments in each clause is different. In passives, they are interpreted as an instrument manipulated by an agent while in inchoatives, they are interpreted as an agentless performer. This difference is explained as follows. When an instrument is adjoined to a passive as in (27), it modifies the structure whose event argument is $v_{\text{AG}}$. That is, agency is implied. Therefore, the instrument adjunct is interpreted as an instrument, as we discussed previously. When it is adjoined to an inchoative as in (26), it modifies the structure whose event argument is $v_{\text{incho}}$: there is no agency implied. Therefore, a performer interpretation is derived. Lastly, the morphological difference between the two inchoatives is reduced to the presence of the VoiceP. As illustrated in (26), in I-inchoatives, the morpheme is realized under Voice head. In zero inchoative (28), there is no Voice head; therefore, the morpheme cannot be realized. In the same way, passives have the same verbal morphology as I-inchoatives due to the presence of a Voice head.

7. Conclusion

This paper examined two different types of inchoatives in Korean focusing on 1) their interaction with adjunct phrases and 2) their morphological difference. I argued that the two types of inchoatives are similar in that they have the same event head $v_{\text{incho}}$. This syntactic similarity explains the compatibility of a cause phrase and ‘by itself’ with the two inchoatives. I also argue that the two inchoatives are syntactically different on another count. I-inchoatives have a defective Voice head as do passives while zero inchoatives do not have one. This difference explains the availability of an instrument phrase in I-inchoatives but non-availability of one in zero inchoatives. The presence of the Voice head in I-inchoatives but the absence of one in zero inchoatives also accounts for the morphological difference between the two types of inchoatives.

It follows, from the structures I proposed, that the morphological congruence of I-inchoatives and passives is due to the presence of a defective Voice head, suggesting that I-inchoatives and passives share the lack of an external argument to be suppressed.

If the proposed structure is correct, an interesting structural result emerges. Abstracting away from specific event types, the proposed structure (particularly I-inchoative and passive structure) indicates non-Voice bundling in the sense of Pylkkänen (2002). In other words, the structure itself indicates that an external argument and a relevant event are separated. However, the structure proposed in the paper is different from Pylkkänen in that a defective VoiceP is present together with a relevant event head. Under the separation proposal of Pylkkänen, only two variations are expected: 1) an event phrase only, 2) an event phrase together with a non-defective VoiceP. \(^{15}\) Although

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\(^{15}\) I do not consider the selectional variation of CAUSE.
Pylkkänen does not discuss morphological realization of the structures, a verbal morpheme, if any, is expected to be realized under the event head in the structure proposed for I-inchoatives. However, in the proposed structure, the verbal morpheme is actually realized under the defective Voice head. This does not suggest a complete separation, but rather an intermediate structure between the two possible variations in Pylkkänen. Further research on the interaction of the morphological realization with syntax in relevant cross-linguistic structures will allow us to evaluate the status of the proposed structure with respect to non-Voice bundling.

References

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16 In zero inchoatives, the zero morpheme could be realized under either Voice or CAUSE.