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EMPIRICAL STUDY

Acquisition of the Korean Imperfective Aspect Markers *–ko iss–* and *–a iss–* by Japanese Learners: A Multiple-Factor Account

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Although cross-linguistic research on second language tense-aspect acquisition has uncovered universal tendencies concerning the association between verbal semantics and tense-aspect markers, it is still unclear what mechanisms underlie this link. This study investigates the acquisition of two imperfective aspect markers (*–ko iss–* and *–a iss–*) in Korean by Japanese learners to determine how cognitive universals, first language (L1) transfer, and input frequency interact. The current findings are compared with the results of Lee and Kim (2007), who studied the acquisition of the same aspect markers by L1 English learners. Both groups of learners acquired the progressive *–ko iss–* earlier than the resultative *–a iss–*/*–ko iss–*, while L1 Japanese learners acquired the resultative use of *–ko iss–* earlier than L1 English learners. Japanese learners' early acquisition of the resultative *–ko iss–* is likely due to L1 transfer, because Japanese has a similar imperfective marker (*–te i–*). We argue that cognitive universals (one-to-one principle), L1 transfer, and input frequency all contribute to the acquisition patterns of temporal morphology.

Keywords second language acquisition; Korean imperfective markers; L1 transfer; prototype; pedagogical conditions

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Introduction

A strong association between the inherent aspect of verbs and the acquisition of tense-aspect morphology has been widely observed in both first (L1) and second (L2) language learning (Andersen & Shirai, 1996). This universal tendency is referred to as the Aspect Hypothesis (Andersen & Shirai, 1994; Bardovi-Harlig, 2000; Robison, 1995), and it claims that there is a universal developmental sequence of tense-aspect markers: Past-tense forms start with telic verbs, and progressive forms start with activity verbs. Although the Aspect Hypothesis has been investigated in various cross-linguistic studies (Bardovi-Harlig, 2000; Shirai, 2009), the majority of these studies focus on perfective and past markings, and the acquisition of imperfective marking has not been extensively investigated (Bardovi-Harlig, 2012). Some studies of Asian languages, however, have not only provided support for the Aspect Hypothesis (e.g., Shirai & Kurono, 1998) but have also extensively investigated how the imperfective aspect is acquired (Ishida, 2004; Li & Shirai, 2000; Sugaya & Shirai, 2007). For example, in the L2 acquisition of the Japanese imperfective aspect, it has been observed that *–te i–* (used in Japanese to mark imperfective aspect) appears first with activities (progressive use) and expands to achievements (resultative state use), which is assumed to occur because the progressive meaning is the prototypical meaning of *–te i–* (Shirai & Kurono, 1998). Further, a study of L2 Korean (Lee & Kim, 2007) found that the progressive *–ko iss–* developed earlier than the resultative *–ko iss–* and *–a iss–* in L1 English learners of Korean. The present study tests whether this arguably universal developmental pattern in the acquisition of imperfective aspect (the progressive being acquired earlier than the resultative) holds true for the L2 acquisition of Korean by Japanese learners and additionally investigates the acquisition of the two resultative aspect markers *–ko iss–* and *–a iss–* in order to address the issue of what factors—cognitive universals, input frequency, and transfer—influence the acquisition of temporal morphology.

Background to the Study

The Imperfective Aspect System in Korean and Japanese

The Korean tense and aspect system has two imperfective periphrastic constructions: *–ko iss–* and *–a*/*e iss–*[1] (see Table 1). It is commonly assumed that *–ko iss–* denotes progressive (Lee, 1993; Kim, 1986; Martin, 1992), and *–a*/*e iss–* denotes resultative state (Ahn, 1995; Lee, 1993; Martin, 1992).

The construction *–ko iss–* has generally been treated as a progressive marker similar to the English progressive marker *be –ing*, as in (1a), although

Table 1 Imperfective markers *–ko iss–* and *–a iss–* and their meanings

	Intransitive verbs	Transitive verbs
Progressive meaning	*–ko iss–*	
Resultative meaning	*–a iss–*	*–ko iss–*

–ko iss– is not obligatory to describe an ongoing event, unlike English *be –ing* (or the Japanese *–te i–*, to be discussed below). The simple present form in Korean can encode an ongoing event like in many Romance languages, as in Examples 1a and 1b.

Example 1

a. Ku-ka ket-ko iss-ta.
   he-Nom walk-Prog-Dec[2]
   "He is walking."
b. Ku-ka ket-n un-ta.
   he-Nom walk-Prs-Dec
   "He is walking." or "He walks."

The imperfective *–ko iss–* focuses on internal stages of dynamic durative situations (Ahn, 1995) and denotes action in progress when it is combined with activity verbs or accomplishment verbs as in Examples 2a and 2b. However, *–ko iss–* is generally not compatible with statives,[3] as in Example 2c.

Example 2

a. Activity: action in progress (progressive)
   Swuni-nun tali-ko iss-ta.
   Swuni-Top run-Prog-Dec
   "Swuni is runing." (Ahn, 1995, p. 112)
b. Accomplishment: action in progress (progressive)
   John-i cip-ul cis-ko iss-ta.
   John-Nom house-Acc build-Prog-Dec
   "John is building a house." (Ahn, 1995, p. 112)
c. Stative: anomaly
   *Swuni-nun yeyppu-ko iss-ta.
   Swuni-Top be:pretty-Prog-Dec
   "*Swuni is being pretty." (Ahn, 1995, p. 112)

In addition to its progressive meaning, *–ko iss–* can also describe a resultative state with transitive achievement verbs such as verbs of wearing, carrying, and body posture[4] (Ahn, 1995; Kim, 1993; Lee, 1991). In Example 3, *–ko iss–* can be interpreted either as an ongoing event or as a resultative state. This is because, in the case of describing the progressive, *–ko iss–* is attached regardless of the transitivity of the verb used, and in the case of describing the resultative state, *–ko iss–* is also chosen as the imperfective aspect marker because the verb *ssuta* "wear" is transitive.

Example 3

Ku-ka moca-lul ssu-ko iss-ta.
he-Nom hat-Acc wear-Resl-Dec
"He is wearing a hat." or "He is putting on a hat."

Another imperfective aspect marker, *–a iss–*, has been called the resultative marker in Korean, as noted above.[5] While *–ko iss–* can denote resultative state with transitive verbs, *–a iss–* can co-occur with intransitive verbs in describing a persisting state resulting from a completed action, as in Example 4.

Example 4

Ku-ka chimtay-ey nwu-e iss-ta.
he-Nom bed-Loc lie-Resl-Dec
"He is lying in bed."

Because the present study investigates the acquisition of Korean by Japanese learners, we briefly describe the aspectual system of Japanese, as compared with Korean. Japanese has a single form *–te i–* for the meanings covered by both *–ko iss–* and *–a iss–*. Korean and Japanese exhibit a remarkable parallel here.[6] Lee (1991) characterizes the progressive *–ko iss–* as a "dynamic durative" and the resultative *–a iss–* as a "static durative" (p. 207), noting their commonalties; that is, they both refer to a durative situation persisting at reference time, as in the case of Japanese *–te i–*. The Japanese imperfective marker *–te i–* expresses both progressive and resultative meanings, focusing on a durative situation. Generally speaking, the meaning of *–te i–* depends on the inherent aspectual value of the verb to which *–te i–* is attached (e.g., Kindaichi, 1950; Ogihara, 1998). Dynamic durative verbs, such as activity and accomplishment verbs (Vendler, 1967), combine with *–te i–* to express progressive meanings, whereas punctual change of state verbs (Vendler's achievement verbs) express a resulting state (Shirai, 2000). The Korean imperfective marker *–a iss–*, which covers the resultative meaning denoted by *–te i–* with achievement verbs in

Table 2 Comparison of Japanese and Korean imperfective aspect markers

Language	Progressive	Resultative	
Japanese	*–te i–* activity, accomplishment	*–te i–* achievement	
Korean	*–ko iss–* activity, accomplishment	*–ko iss–* transitive achievement	*–a iss–* intransitive achievement

Japanese, is attached almost exclusively to intransitive change-of-state verbs. On the other hand, the Korean imperfective marker *–ko iss–*, which denotes progressive meaning with activity and accomplishment verbs as in Japanese, can have resultative meaning with transitive achievement verbs (see Table 2).

To recapitulate, in both languages, the imperfective aspect has two primary meanings: the progressive and the resultative. The imperfective marker combined with activity and accomplishment verbs can signal a progressive meaning, whereas the imperfective marker combined with achievements can refer to a resultative state. The presence of this resultative state meaning is an important difference between Korean/Japanese and English, which is the L1 of the learners in the study by Lee and Kim (2007) to which the present study is compared. English cannot focus on the duration of a resultative state that is obtained as a result of a punctual action, whereas Korean and Japanese can.[7]

The Aspect Hypothesis

Previous studies on the acquisition of tense-aspect have claimed that the development of tense-aspect morphology in L2 acquisition is strongly influenced by the inherent semantic aspect of the verbs to which the inflections are attached. This hypothesis, generally referred to as the Aspect Hypothesis (Andersen & Shirai, 1994, 1996; Bardovi-Harlig, 1999, 2000; Li & Shirai, 2000; Salaberry & Shirai, 2002; Shirai, 1991), has the following as its central claims (Andersen & Shirai, 1996, p. 553):

1. Learners first use past marking (e.g., English) or perfective marking (Chinese, Spanish, etc.) with achievement verbs (e.g., *recognize*, *drop*) and accomplishment verbs (e.g., *run a mile*, *make a chair*), eventually extending its use to activity and stative verbs (e.g., *see*, *want*).
2. In languages that encode the perfective/imperfective distinction, imperfective past appears later than perfective past, and imperfective past marking

begins with stative verbs, then extends to accomplishments and activity verbs (e.g., *run*, *sing*).
3. In languages that have progressive aspect, progressive marking begins with activity verbs, then extends to accomplishment or achievement verbs.
4. Progressive markings are not incorrectly overextended to stative verbs.[8]

Although there are some disagreements (Klein, Dietrich, & Noyau, 1995; Meisel, 1987; Salaberry, 1999), there appears to be a consensus that this developmental sequence has the status of a universal in the field of second language acquisition (SLA) (Shirai & Kurono, 1998). However, the explanation for these generalizations is still an open issue.

Shirai and Andersen (1995) used the notion of prototype as an explanation for early tense-aspect morphology. Prototype theory assumes an internal structure within a category, with some members of the category being more basic, or more prototypical, than others (Rosch, 1973; Lakoff, 1991). Kellerman (1978) applied this notion to SLA, specifically to the acquisition of the polysemous verb *break*, noting that physical destruction (e.g., *break a vase*) is more prototypical than metaphorical destruction (e.g., *break one's heart*). This notion can also be applied to the acquisition of prototypical members of a grammatical category that are acquired earlier than less prototypical members. In the acquisition of tense-aspect morphology, Shirai and Andersen proposed that the association observed between inherent aspect and verb morphology in L1 and L2 acquisition can be explained as the development from prototypical to peripheral members. For example, the prototypical progressive that is first acquired by learners is action in progress. This action-in-progress meaning is obtained when the progressive marker is attached to activity and accomplishment verbs. However, progressive meaning with accomplishment verbs has been shown to be slower in development than with activity verbs, at least in the L1 acquisition of English (Shirai, 1991). Shirai and Andersen attributed this observation to the possibility that initial progressive morphology in English is strongly associated with [−telic] and [+dynamic] by comparing semantic features of activity verbs ([−punctual], [−telic], [+dynamic]) and accomplishments verbs ([−punctual], [+telic], [+dynamic]). They further proposed that this prototype formation is, at least in part, due to input frequency—a theory they called the Distributional Bias Hypothesis (Andersen, 1993; Andersen & Shirai, 1996). It argues that associations in acquisition are based on a skewed distribution of certain combinations in input, which was supported by analyzing input data in English (Shirai & Andersen, 1995) and native speech in other languages (Andersen, 1993; Andersen & Shirai, 1996).

L1 Transfer

There have been several important studies that investigated the influence of L1 in the acquisition of tense-aspect morphology. L1 transfer implies that certain linguistic structures, patterns, or rules from L1 are transposed and applied to L2 (Gor & Vatz, 2011). L1 transfer may lead to two possible outcomes: a facilitative effect when both the L1 and L2 share the same structure (positive transfer) and a negative effect, resulting in errors in the L2, when the L1 and L2 do not share the same structure (negative transfer).

Cross-linguistic influence (Kellerman & Sharwood Smith, 1986) includes many aspects of phonetic, morphological, lexical, syntactic, and pragmatic transfer, as well as interference and language attrition related to L2 acquisition. Recent work on language transfer has added a new distinction between meaning transfer and conceptual transfer (Odlin, 2005). In particular, typological distance has been shown to play an important role in transfer (Fouser, 1995; Kellerman, 1983; Ringbom, 1987). Cenoz (2001) found that Spanish-Basque bilinguals learning English showed a stronger influence from Spanish, typologically a closer language to English, than from Basque, a non-Indo-European language.

Shirai (2002) suggested that L1 influence might also be key in the formation of the aforementioned aspectual prototype because most of the studies on tense-aspect in L2 Japanese investigated learners whose L1 has a progressive marking (e.g., English, Chinese, Korean). If the learners map *–te i–* onto the progressive marker in their L1, it is not surprising that the progressive meaning is easier to acquire than the resultative state (Li & Shirai, 2000; Shirai & Kurono, 1998). Thus, Shirai argued that, if the L1 transfer explanation is valid, learners whose L1 has no progressive marker will not show a preference for progressive meaning over resultative meaning. Sugaya and Shirai (2007) tested L1 effect directly, investigating the acquisition of the Japanese imperfective marker *–te i–* by native speakers of English, German, and Slavic languages. Unlike English, German and the Slavic languages do not have overt progressive morphology. The results of a judgment task showed that, regardless of a learner's L1, the imperfective marker *–te i–* was strongly associated with activity verbs, supporting the Aspect Hypothesis. However, the results from an oral picture description task showed that the intermediate learners whose L1 did not have overt progressive morphology (L1 German and Slavic) did not show any such preference, whereas two advanced groups and an L1-English intermediate group found progressive meaning significantly easier than resultative meaning. Sugaya and Shirai, however, argued that L1 transfer

cannot be the sole reason for the association between the Japanese *–te i–* and activity verbs, given the complex interaction with task types and proficiency.

In relation to the Distributional Bias Hypothesis discussed above, Ishida (2004) illustrated the strong effect of input frequency in the acquisition of the Japanese imperfective aspect marker *–te i–*. Ishida, who analyzed conversational data from four L2 learners of Japanese (L1 English and Chinese), reported higher accuracy for the resultative use of *–te i–* over its progressive use, which goes against most previous studies (e.g., Shirai & Kurono, 1998). As Ishida suggested, her findings can be attributed to input factors, as the learners in her study were first taught *–te i–* with a resultative meaning, and were then taught the progressive use of *–te i–* six months later. Some relevant studies in European languages also investigated the role of L1 in the L2 acquisition of progressive forms. Kleinmann (1977) studied two groups of L2 English learners: L1 Arabic, which does not have progressive or passive forms, and L1 Spanish and Portuguese, which have progressive and passive forms. They found clear evidence that L1 had an effect on learning passive forms, but they did not find evidence that it had an effect on learning progressive forms. Giacalone Ramat (2002) found that both English (L1 progressive) and German (L1 nonprogressive) speakers showed similar behavior and produced only a few progressive forms in L2 Italian. These studies suggest that the influence of L1 in the acquisition of progressive marking in SLA may be minimal.

In contrast, Rocca (2002) conducted a bidirectional study of L2 English (L1 Italian) and L2 Italian (L1 English) learners and reported evidence for L1 transfer. Whereas L2 English children often overextended the progressive form to states, L2 Italian children showed strong association of the imperfective past (*imperfetto*) with activities in Italian. Rocca interpreted these results as being due to L1 transfer, arguing that, because the scope of the Italian imperfective marking is wider than the English progressive, L1 Italian (L2 English) children overextended the English progressive, while English L1 children underused Italian imperfective marking, which can be associated with state verbs. Izquierdo and Collins (2008) compared native speakers of Spanish and English who were learning French in their use of L2 French perfective and imperfective past marking. In their results, L1 English learners, whose L1 does not mark the perfective/imperfective distinction, showed verb semantic influence and an overall preference for perfective over imperfective. However, L1 Spanish learners did not prefer perfective over imperfective and were also less influenced by verb semantics. Their study suggested an advantage in acquisition of tense-aspect morphology due to L1–L2 similarity. Gabriele's (2009) bidirectional study reported on the effects of transfer through an investigation of

the interpretation of the present progressive in L2 English and the imperfective marker *–te i–* in L2 Japanese. She examined whether or not L2 learners could rule out interpretations available in their L1 but not in the L2. In Japanese, with the imperfective marker *–te i–*, achievements encode a resultative reading, indicating that the event has already been completed, whereas in English, with the progressive *be –ing*, achievements encode a progressive (or preliminary-stage) reading, which indicates that the event is about to happen. The results showed that L2 Japanese learners were more successful than L2 English learners in both acquiring the semantics of the imperfective in the L2 and ruling out interpretations available only in the L1. She suggested that successful learning depends on both the grammatical complexity of the semantic target in the L2 and the transparency of the input cues available to the learner.

Previous Studies on the Acquisition of Korean Imperfective Aspect

Three previous studies investigated the L2 acquisition of the Korean imperfective aspect: Kim and Lee (2006), Lee and Kim (2007), and Ryu and Shirai (2011). Kim and Lee tested, and found evidence for, the Aspect Hypothesis in L1 English learners of Korean. Learners of L2 Korean were found to extend past-tense marking *–ess–* from telic verbs to activities to states and to use progressive marking *–ko iss–* more frequently with activities and accomplishments than with achievements. They also found that *–ko iss–* was used for action-in-progress meaning with activities before it was used for resultative meaning.

Lee and Kim (2007) collected cross-sectional data from 121 L1 English college students learning Korean, using a sentence interpretation task and a guided picture-description task. Of all students, 80% were heritage students (whose parents were both native Korean speakers), and 20% were nonheritage students. The results of the interpretation task showed that the accuracy of interpreting *–ko iss–* as action in progress was greater than that of interpreting the resultative *–ko iss–* and *–a iss–*. Although the results of the guided production task showed less frequent use of the progressive *–ko iss–*, compared to the resultative *–a iss–*, the authors ascribed this finding to the heritage students' awareness that *–ko iss–* is not required to encode the action-in-progress meaning, partly because the nonheritage students, who had less exposure to native speaker input, used the progressive *–ko iss–* most frequently in the production task. However, with respect to two resultative markers *–a iss–* and *–ko iss–*, Lee and Kim found conflicting results in their two tasks. In their production task, learners showed higher accuracy with *–a iss–* than with *–ko iss–* for resultant state meaning, whereas in their comprehension task there was no significant

difference between *–a iss–* and *–ko iss–*. After some detailed analysis of individual patterns and native speaker data, the researchers suggested that the resultative *–a iss–* may have been acquired before the resultative *–ko iss–*, an issue which will be revisited in the discussion section.

Ryu and Shirai (2011) tested whether the order of instruction influences the acquisition of the Korean imperfective aspect by Japanese learners. The Resultative Group ($n = 18$) was taught the resultative meaning (*–ko iss–*/*–a iss–*) before the progressive *–ko iss–*, and the Progressive Group ($n = 15$) was taught the progressive *–ko iss–* first, and then resultative *–ko iss–* and *–a iss–*. The two tasks (comprehension and production), originally used by Lee and Kim (2007), were used to test the effect of instruction order 4 months after the second meaning was taught. Although there was no significant difference for most between- and within-group comparisons, the Resultative Group outperformed the Progressive Group in the accuracy of the resultative marker *–a iss–* in the comprehension task, suggesting that teaching the resultative aspect first might facilitate the comprehension of the resultative *–a iss–*.

The Current Study

As discussed previously, there has been a commonly observed trend in L2 acquisition of imperfective aspect morphology that progressive markings are acquired earlier than resultative markings. The present study focuses on L1 Japanese learners of Korean by comparing the data of L1 Japanese and L1 English learners (from Lee & Kim, 2007) in order to address the issue of L1 transfer. In addition, this study investigates how resultative markers are acquired, by comparing the development of the resultative state *–ko iss–* and *–a iss–*, which were not fully investigated in earlier studies. Our research questions were: (1) Does the "progressive before resultative" order hold true for the L2 acquisition of Korean by Japanese learners? and (2) How do Japanese learners acquire two resultative aspect markers? We hypothesized, first, that the progressive *–ko iss–* would be acquired before the resultative *–ko iss–* and *–a iss–* and, second, that the resultative *–ko iss–* would be acquired before the resultative *–a iss–*.

Our first hypothesis is based on the Congruence Principle (Andersen, 1993). The Congruence Principle explains that the prototypical (congruent) combination of the lexical aspect and morphology (e.g., *run* + *be –ing*) is acquired faster than the less prototypical (incongruent) combinations (e.g., *finish* + *be –ing*). This would explain why progressive morphology is used with activities first because progressivity and activity both involve duration and dynamicity.

Along the same lines, we can hypothesize that the Korean imperfective marker *–ko iss–*, which is durational, dynamic, and incompletive, would readily attach to activities ([+durative, +dynamic, −telic]) resulting in progressive meaning, but would not attach to achievements ([+telic, +punctual, +dynamic]) to denote resultative meaning as quickly. Lee and Kim (2007) have also shown that the progressive meaning is acquired earlier than the resultative meaning. Thus, we predict that the progressive *–ko iss–* will be acquired before the resultative *–ko iss–* and *–a iss–*.

Assuming that progressive *–ko iss–* will be acquired first, two different routes of development of the resultative aspect are possible: (a) progressive *–ko iss–* → resultative *–ko iss–* → resultative *–a iss–* or (b) progressive *–ko iss–* → resultative *–a iss–* → resultative *–ko iss–*. Route (a) would be indicative of L1 transfer. If L1 transfer is a strong factor in L2 acquisition of temporal morphology, Japanese learners would easily analogize from their L1 *–te i–* form, which denotes both progressive and resultative meaning, that Korean *–ko iss–* can be extended from progressive to resultative, before acquiring the resultative *–a iss–*. In other words, the Japanese imperfective *–te i–* will function as the initial working hypothesis for acquiring Korean imperfective *–ko iss–*. Route (b), as proposed by Lee and Kim (2007), would be indicative of the one-to-one principle (Andersen, 1984; Clark, 1987), which states that learners generally prefer to assign one form to one meaning/function. The results of production task in Lee and Kim did in fact show the dichotomous trend that L1 English participants used *–ko iss–* as progressive meaning and *–a iss–* as resultative meaning. Based on these results, one could predict that learners would initially keep *–ko iss–* and *–a iss–* apart, the former for dynamic durativity and the latter for static durativity.

We, however, hypothesized that the Japanese learners would follow Route (a), that is, progressive *–ko iss–* → resultative *–ko iss–* → resultative *–a iss–*, because the effect of L1 transfer would be stronger than the force of the one-to-one principle in the acquisition of the Korean imperfective aspect by Japanese learners. Previous research shows that L1–L2 similarities in tense-aspect marking facilitated the distribution and appropriate use of grammatical aspect markers (e.g., Izquierdo & Collins, 2008).[9] We similarly predicted that L1 transfer would be quite straightforward at first because the aspect systems of Korean and Japanese show close resemblance. In addition, the language distance between Japanese and Korean is relatively small, which may facilitate L1 transfer (Kellerman, 1983). Thus, we hypothesized that the resultative *–ko iss–* would be acquired before the resultative *–a iss–*.

Method

Participants

The data for our experiments were collected from 55 Japanese learners of L2 Korean and 20 Korean native speakers. The 55 learners were studying at the Korean Education Center in the Korean Consulate General in Sendai, Japan (M_{age} = 49.5 years, range = 27–63). The Korean Education Center is an organization established by the Ministry of Education, Science, and Technology of the Republic of Korea. The 20 Korean native speakers were living in Seoul, Korea, and were students of Korea University (M_{age} = 26.6 years, range = 18–33). None of the L2 participants were heritage learners of Korean (students whose parents are native Korean speakers). This is a very important difference between the present study and the one conducted by Lee and Kim (2007), in which 79.3% of the L2 participants were heritage students. Our participants all reported Japanese as their L1 and were learning Korean as a foreign language in Japan. The length of studying Korean varied from 2 to 6 years. Among the 55 participants, three reported having lived in Korea for less than 1 year and one for 3 years.

We divided the participants into three groups according to their proficiency level (beginner, intermediate, advanced). We used the information on a standardized Korean language proficiency test (Test of proficiency in Korean [TOPIK], http://www.topik.go.kr). All participants had taken the test prior to their enrollment, and their scores were self-reported. The TOPIK, made by the Korea Institute for Curriculum and Evaluation, is a standardized test targeting nonnative speakers of Korean or Koreans who live in foreign countries and do not use Korean as their native language. It consists of four sections (vocabulary, writing, reading, listening comprehension). The TOPIK has six levels and three grades (beginner levels 1 and 2, intermediate levels 3 and 4, and advanced levels 5 and 6). The 55 participants were divided into groups based on their TOPIK grades, resulting in a group of 32 beginning-level learners, a group of 11 intermediate-level learners, and a group of 12 advanced-level learners.

The pedagogical conditions of the Japanese learners in our study and the L1 English learners in Lee and Kim (2007) were also slightly different, in that the students used different textbooks. *The Korean* (National Institute for the International Education Press) was used by the Japanese L1 learners in the present study and *Integrated Korean* (University of Hawaii Press) was used by the English L1 learners in Lee and Kim. However, there were no major differences in the instruction of imperfective markers, as both groups of learners were introduced to the progressive *–ko iss–* first (1st-year Korean), with the

resultative *–a iss–* introduced later (2nd-year Korean). Neither group learned the resultative *–ko iss–* with explicit explanation as a particular function of grammar and were only exposed to it through lexical expressions that described clothes with wearing verbs (e.g., *ssu-ta* "to put on [a hat]," *ip-ta* "to put on [pants]").

Materials and Procedure

We employed a cross-sectional design and used two different tasks, which were originally used by Lee and Kim (2007). One task was an interpretation task focusing on comprehension and the other a sentence completion task focusing on production. The use of the same task as Lee and Kim allowed for making a principled comparison between the L1 English learners in their study and the L1 Japanese learners of Korean in our study. The interpretation task included 30 target items (10 items for each of the categories: the progressive *–ko iss–*, the resultative *–ko iss–*, and the resultative *–a iss–*) and 17 distractor items. The participants were asked to select the best matching picture for the sentence from three choices that were supplied (see Appendix S1 in the Supporting Information online). The three choices were made up of three distinctive stages of an event: the inception of the event, the action in progress, and the resultant state after the completion of the event. For example, the participants read sentences such as *Kulim-ul kuli-ko iss-supnita* ("She is drawing a picture") and were instructed to circle the appropriate picture from three choices representing scenes in which (a) she is about to draw a picture, (b) she is drawing a picture, and (c) she has drawn a picture.

The sentence completion task, which focused on production, included 15 target items (5 items from each category). Two pictures, a picture of a family at home and a picture of a train station, were presented with sentences describing the actions, postures, or outfits of the people in the pictures. The participants were asked to fill in the blanks with the appropriately inflected forms of the given infinitive verbs (see Appendix S1 in the Supporting Information online). For example, in the picture of a train station, in which an old lady wearing a coat and a hat is waiting for a train, the following sentences were provided (*Halmeni han myeng-i kicha-lul kitali-ko iss-eyo. Khothu-lul ip-ko moca-lul eyo. (ssuta)*, which corresponded to "An old lady is waiting for a train. She (wear) a coat and a hat"). The participants' written responses were scored as 1 (using the target form) or 0 (not using the target form). The target form here does not mean it is obligatory; rather, it means the target the researchers intended to elicit (i.e., *–ko iss–* and *–a iss–*), with alternative forms possible (e.g., simple present tense for *–ko iss–* progressive context). The target

verbs used in the interpretation task and the guided production task are shown in Appendix S2 in the Supporting Information online; it illustrates that the lexico-semantic restrictions of *–ko iss–* and *–a iss–* are key when learners use and comprehend the Korean imperfective aspect markers *–ko iss–* and *–a iss–* correctly.

The participants first filled out background questionnaires and then completed the interpretation and the sentence completion tasks. The data were collected during regular class sessions, taking about 40 minutes on average. One of the researchers (the first author) was present throughout the tests. During the two tasks, the researcher told the participants to feel free to ask about unfamiliar words in the test items in order to properly elicit their tense-aspect knowledge and avoid misunderstanding of the test sentences. When asked, the researcher gave the meaning of unknown words in Japanese. Responses in the multiple-choice interpretation task were marked as either correct or incorrect. Responses in the guided production task were checked for the grammatical tense and aspect forms the participants used and were also scored as either correct or incorrect. Spelling errors and other irrelevant inflection errors were ignored. This scoring method follows that of Lee and Kim (2007) to facilitate comparison.

Results

Sentence Interpretation Task

Overall, the accuracy of the progressive *–ko iss–* was 90.9%, compared to 86.7% for the resultative *–ko iss–* and 78.9% for the resultative *–a iss–* with all groups collapsed together. The mean scores for each group divided by level are summarized in Table 3. The accuracy of the progressive *–ko iss–* was higher than the resultative *–ko iss–* or *–a iss–*, across all levels. Furthermore, the accuracy of the resultative *–a iss–* was the lowest of the three markers.

The data for each proficiency level were analyzed through a two-way analysis of variance (ANOVA), with proficiency level as a between-subjects factor and aspect type as a within-subjects factor. This analysis revealed that the interaction between proficiency level and aspect type was not significant, $F(4, 104) = 1.24$, $p = .299$, $\eta_p^2 = .05$, but proficiency level had a significant main effect on the comprehension score, $F(2, 52) = 13.05$, $p < .01$, $\eta_p^2 = .33$, and aspect type also had a significant main effect, $F(2, 104) = 16.85$, $p < .01$, $\eta_p^2 = .25$. Pairwise comparisons (with a Bonferroni correction), conducted to explore the significant main effect of aspect type, further revealed that there was a

Table 3 Group mean scores (standard deviations) in the interpretation task

Target imperfective	Beginning ($n = 32$)	Intermediate ($n = 11$)	Advanced ($n = 12$)	Total ($n = 55$)
Resultative *–a iss–*	7.88 (0.87)	6.91 (1.45)	8.83 (1.11)	7.89 (1.20)
Resultative *–ko iss–*	8.59 (1.19)	8.18 (1.47)	9.33 (0.89)	8.67 (1.20)
Progressive *–ko iss–*	8.91 (0.96)	9.00 (1.18)	9.67 (0.49)	9.09 (1.00)

Note. There were 10 items for each aspect type.

significant difference between the resultative *–a iss–* and the resultative *–ko iss–* ($p = .005$, $\eta_p^2 = .43$) and between the resultative *–a iss–* and the progressive *–ko iss–* ($p < .0001$, $\eta_p^2 = .43$), whereas the difference between the resultative *–ko iss–* and the progressive *–ko iss–* was not significant ($p = .104$, $\eta_p^2 = .43$). As for the significant main effect of level, pairwise comparisons (with a Bonferroni correction) revealed that there was a significant difference between the advanced and intermediate levels ($p < .0001$, $\eta_p^2 = .33$) and between the advanced and beginning levels ($p = .001$, $\eta_p^2 = .33$), whereas the difference between the intermediate and the beginning levels was not significant ($p = .146$, $\eta_p^2 = .33$).

Overall, the resultative *–a iss–*, with the lowest accuracy of the three markers, appears to be more difficult than other two aspect markers, namely, the progressive *–ko iss–* and the resultative *–ko iss–*. As for the difference between the progressive *–ko iss–* and the resultative *–ko iss–*, the accuracy of the resultative *–ko iss–* (93.3%) came very close to that of the progressive *–ko iss–* (96.7%). Even though there was no statistically significant difference between the progressive *–ko iss–* and the resultative *–ko iss–*, at all three levels, the accuracy of interpretation of the progressive *–ko iss–* was the highest (89.1% for beginning-level learners, 90.0% for intermediate, and 96.7% for advanced), the resultative *–ko iss–* was in the middle (85.9%, 81.8%, and 93.3%, respectively), and the resultative *–a iss–* was the lowest (78.8%, 69.1%, and 88.3%, respectively). Thus, the order of accuracy across all groups was: progressive *–ko iss–* = resultative *–ko iss–* → resultative *–a iss–*, with a nonsignificant trend for the progressive *–ko iss–* to be easier to interpret than the resultative *–ko iss–*. We can therefore assume that the progressive *–ko iss–* shows a tendency to develop earliest of the three imperfective aspect markers, and the resultative *–a iss–* develops most slowly. Thus, our first and second hypotheses were partially supported by the results of the comprehension task, which suggest that the developmental sequence for these learners is the progressive *–ko iss–* =

Table 4 Group mean scores (standard deviations) in the guided production task

Target imperfective	Beginning ($n = 32$)	Intermediate ($n = 11$)	Advanced ($n = 12$)	Native speaker ($n = 20$)
Resultative *–a iss–*	1.66 (1.96)	1.18 (1.72)	3.75 (1.76)	4.75 (0.64)
Resultative *–ko iss–*	1.75 (1.68)	1.64 (1.43)	3.33 (1.50)	4.35 (1.18)
Progressive *–ko iss–*	2.66 (1.86)	2.27 (1.85)	3.75 (0.62)	3.25 (1.68)

Note. There were five items for each aspect type.

the resultative *–ko iss–* → the resultative *–a iss–*, again with a numerical trend favoring the progressive *–ko iss–* over the resultative *–ko iss–*.

Guided Production Task

Overall, the usage of the progressive *–ko iss–* was 56.2%, compared to 41.4% for the resultative *–ko iss–* and 40.2% for the resultative *–a iss–* with all groups collapsed together (see Table 5). Target aspect marking was most frequent with the progressive *–ko iss–*. However, the difference in the frequencies of use between the two resultatives was small (40.2% vs. 41.4%). The mean scores for each group divided by level are summarized in Table 4. The usage of the progressive *–ko iss–* was higher than the resultative *–ko iss–* or *–a iss–* across all levels, with the exception that in the advanced level the progressive *–ko iss–* had exactly the same production frequency as the resultative *–a iss–* (3.75 out of 5).

The data for each proficiency level were analyzed through a two-way ANOVA, with proficiency level as a between-subjects factor and aspect type as a within-subjects factor. The ANOVA revealed that the interaction between proficiency level and aspect type was not significant, $F(4, 104) = .79, p = .535$, $\eta_p^2 = .03$, but proficiency level had a significant main effect on the production score, $F(2, 52) = 7.57, p < .01, \eta_p^2 = .23$. In addition, aspect type also had a significant main effect, $F(2, 104) = 3.80, p = .025, \eta_p^2 = .07$. Pairwise comparisons (with a Bonferroni correction), conducted to explore the significant main effect of aspect type, further revealed that there was a significant difference between the progressive *–ko iss–* and the resultative *–ko iss–* ($p = .022$, $\eta_p^2 = .17$) and a marginally significant difference between the resultative *–a iss–* and the progressive *–ko iss–* ($p = .057$, $\eta_p^2 = 0.17$), whereas the difference between the resultative *–ko iss–* and the resultative *–a iss–* was not significant ($p = 1.0$, $\eta_p^2 = .17$). As for the main effect of level, pairwise comparisons (with a Bonferroni correction) revealed that there was a significant difference between the advanced and intermediate levels ($p = .004$, $\eta_p^2 = .23$) and between the

Table 5 Mean percent of aspect marker use (standard deviations) in the guided production task

Target imperfective	Learners ($n = 55$)	Native speakers ($n = 20$)
Resultative *–a iss–*	40.2 (41)	95.0 (13)
Resultative *–ko iss–*	41.4 (34)	87.0 (24)
Progressive *–ko iss–*	56.2 (34)	65.0 (34)

Note. There were five items for each aspect type.

advanced and beginning levels ($p = .003$, $\eta_p^2 = .23$), whereas the difference between the intermediate and the beginning levels was not significant ($p = 1.0$, $\eta_p^2 = .23$).

Overall, the results of the production task revealed the same pattern as those of the interpretation task: There was no interaction, with two significant main effects, meaning that the effect of aspect type was the same across all groups. However, the results of pairwise comparisons were different between the interpretation and the production tasks. In the production task, the progressive *–ko iss–*, the highest usage of the three markers, had a significant difference from the resultative *–ko iss–* and the resultative *–a iss–*, suggesting that the progressive *–ko iss–* was used more frequently than the other two aspect markers. However, the difference in the frequencies of use between the two resultatives was not significant. As seen descriptively in Table 4, at the beginning and intermediate levels, the usage of the resultative *–ko iss–* was higher (1.75 and 1.64) than that of the resultative *–a iss–* (1.66 and 1.18), but at the advanced level, the usage of the resultative *–a iss–* was higher (3.75) than the resultative *–ko iss–* (3.33), to the point that it had the same score as the progressive *–ko iss–* and was closer to native speakers' usage (4.75).

In comparing the results of Korean learners and native speakers, we found an interesting usage pattern (see Table 5). The learners' usage of the progressive *–ko iss–* was 56.2% of the target context, the highest of the three aspect types. Meanwhile, the learners' usage of *–ko iss–* and *–a iss–* for resultative state meaning was 40.2% and 41.4%, respectively, which was lower than that of the progressive *–ko iss–*. On the other hand, the native speakers used *–ko iss–* only 65% of the time in the progressive context, which was far less than the 87% usage of *–ko iss–* and the 95% usage of *–a iss–* in the resultative state context. As noted earlier, it is not obligatory to employ the Korean *–ko iss–* to describe an ongoing event. The simple present form in Korean can also denote an ongoing event as in many Romance, Germanic, and Slavic languages. Thus,

native Korean speakers used the simple present tense for the remaining 35% of the progressive contexts. According to the data from the native speakers, it would appear that *–ko iss–* is less obligatory for the action in progress than the resultative state meaning.

However, the learners' choices of the aspect forms were quite different from the native speakers'. While their use of progressive *–ko iss–* was relatively similar to the native speaker pattern, their use of resultative *–ko iss–* and *–a iss–* was much less frequent than the use of native speakers. We performed *t* tests to examine potential differences between the Japanese learners and native Korean speakers in their use of aspect markers. We found that the difference in the use of progressive *–ko iss–* was not statistically significant, $t(73) = .97$, $p = .337$, $d = .26$, whereas the difference in the use of resultative *–ko iss–* and resultative *–a iss–* was statistically significant, $t(49) = 6.49$, $p < .01$, $d = 1.46$, and $t(72) = 8.72$, $p < .01$, $d = 1.55$, respectively. In other words, the use of progressive marking (*–ko iss–*) by learners approximated that by native speakers, whereas the use of resulatative marking (*–ko iss–* and *–a iss–*) in comparison to native speakers was significantly less frequent, which indicates that the latter takes more time to be acquired. The difference between the patterns of use by native and nonnative speakers is likely due to the progressive *–ko iss–* being acquired earlier than the other forms and the learners using the progressive *–ko iss–* more confidently.

Based on the findings from the production task, we can conclude that our first hypothesis, which stated that the acquisition of the progressive *–ko iss–* would precede the resultative *–ko iss–* and *–a iss–*, was supported by the results of the production task. However, this task yielded no clear support for our second hypothesis, which claimed that the resultative *–ko iss–* would develop earlier than the resultative *–a iss–*.

Individual Use Patterns

In order to gain a more in-depth understanding of the acquisition pattern of the two resultatives, we examined participants' individual usage patterns in the production task. As mentioned above, participants were asked to fill in blanks with appropriately inflected forms of given infinitive verbs. We analyzed the data further by looking at which aspect marker the participants used, regardless of their correctness. Table 6 shows which resultative marker the learners used in the resultative state target context. There were 9 students who did not use any aspect markers in the target context; 31 students exhibited well-balanced use of the two aspect markers, *–ko iss–* and *–a iss–*; and 15 other students showed a usage distribution skewed toward *–ko iss–* or *–a iss–*. In Table 6, the

Table 6 Individual patterns of *–ko iss–* and *–a iss–* use in resultative contexts

			Skewed users		
Participants	Nonusers	Balanced users	*–a iss–* user	*–ko iss–* user	Sum
Total	9	31	2	13	55
Beginning	6	16	2	8	32
Intermediate	3	4		4	11
Advanced		11		1	12

Note. *–a iss–* user and *–ko iss–* user refer to participants who used only *–a iss–* and *–ko iss–*, respectively, as the aspect marker in the resultative state target context.

skewed users are those who produced only one form exclusively for both target contexts, with 13 students who used only *–ko iss–* and 2 students who used only *–a iss–* for the resultative state context, meaning that there were 6.5 times as many learners who overused *–ko iss–* as there were learners who overused *–a iss–*.

Looking at descriptive analyses separately by proficiency level, at the beginning level, of the 10 students who were skewed users, 8 were *–ko iss–* users and 2 were *–a iss–* users. At the intermediate and advanced levels, *–a iss–* users disappeared, but *–ko iss–* users still existed (four at intermediate and one at advanced levels). Thus, it seems that the Japanese learners tended to overgeneralize *–ko iss–* more than *–a iss–* when they express the resultative meaning. The analysis of individual data thus revealed that the Japanese learners of Korean in this study were more likely to expand the use of *–ko iss–* from progressive to resultative than the resultative *–a iss–* to progressive use. This may suggest that these learners analogized from their L1 imperfective *–te i–* and expanded the prototypical meaning of *–ko iss–* to the resultative state because of the influence from their L1.

To sum up the results of the production task, the analysis of both the group data and the usage pattern data from individual subjects in the production task suggested that learners tend to overgeneralize *–ko iss–* when they acquire the resultative state meaning. In fact, 23.6% (13 out of 55 participants) of learners used only *–ko iss–* as the aspect marker in the resultative state target context, implying that the resultative *–ko iss–* had likely become productive earlier than the resultative *–a iss–*. Therefore, we argue that our first and second hypotheses were supported by the results of the production task and that the sequence of development was indeed: the progressive *–ko iss–* → the resultative *–ko iss–* → the resultative *–a iss–*.

Discussion

Language-General Patterns: Prototype of the Imperfective Aspect

The results of this study suggest that the progressive is the prototypical meaning of *–ko iss–* in L2 Korean development of Japanese L1 learners. The development proceeds from the action-in-progress meaning to the resultative state meaning in both the comprehension task and the production task. The earlier development of the progressive *–ko iss–* can be explained by the Congruence Principle (Andersen, 1993), as usage of the progressive *–ko iss–* ([+dynamic, +durative, −punctual]) is congruent with the semantic features of activity verbs ([+dynamic, +durative, −punctual]). Meanwhile, the resultative *–ko iss–* and *–a iss–* develop later because their defining semantic feature ([+durative]) is not congruent with that of achievement verbs ([−durative]). In the acquisition of L2 imperfective aspect, this pattern of the progressive developing earlier than the resultative has been observed in Japanese (Koyama, 2003; Sheu, 1997; Shirai & Kurono, 1998) and Korean (Lee & Kim, 2007). We may tentatively suggest that the L2 developmental pattern of imperfective aspect is possibly a cognitive universal, which is driven by the Congruence Principle. However, before we come to this conclusion, we need to consider other factors, discussed below.

Language-Specific Patterns: Expansion of the Prototype

The results of our study also suggest that the expansion of the prototype proceeds from the progressive *–ko iss–* to the resultative *–ko iss–*. From the results of the production task, it can be observed that Japanese learners of Korean tend to overgeneralize *–ko iss–* before acquiring the resultative *–a iss–*. When producing the sentence in the resultative state context, 23.6% (13 out of 55) of Japanese learners used only *–ko iss–* exclusively, and there were 6.5 times more learners who followed this pattern than learners who used only *–a iss–* (2/55 or 3.6%). It appears that Japanese learners actively produced *–ko iss–*, which is the same form as the progressive marker, more frequently than *–a iss–* for expressing resultative meanings. This implies that Japanese learners start to acquire the resultative state meaning from the more familiar form, *–ko iss–*, than from the novel form *–a iss–*. Thus, we argue that the Japanese learners tended to use the expansion of their prototype when they acquired the resultative state meaning. Even though they could have used the one-to-one principle (Andersen, 1984; Clark, 1987), attaching one marker to one meaning, they chose to use an expansion of their prototype, using one marker for several meanings, unlike Lee and Kim's (2007) L1 English learners, who kept *–ko iss–* and *–a*

iss– apart in early stages of acquisition, the former for progressive meaning and the latter for resultative state meaning, which Lee and Kim argued was due to the one-to-one principle.

Relevant to this interpretation is typological distance (Kellerman, 1983) as a factor in enhancing L1 transfer in tense-aspect acquisition. In looking at L1 influence on the acquisition of Japanese imperfective *–te i–*, learners of L1 Russian, which does not have progressive aspect markers, showed no preference for the progressive use of *–te i–* in L2 Japanese production (Sugaya, 2001), whereas learners of L1 Chinese, which has the progressive marker *zai*, appeared to have interpreted *–te i–* as the progressive (Shirai & Kurono, 1998). With respect to aspect marking, Chinese is probably perceived to be more similar to Japanese than Russian is. In another study, L1 Korean speakers were reported to judge the grammaticality of the resultative use of *–te i–* correctly more often than Chinese L1 speakers (Koyama, 2003). These studies may suggest that, when the L1 and L2 are similar, L1 transfer may be facilitated. In interpreting our L2 Korean data, it appears easy for Japanese learners to analogize from their L1 *–te i–*, which denotes both progressive and resultative meanings, and to expand the use of *–ko iss–* from the progressive to the resultative. We therefore suggest that the acquisition of the L2 Korean imperfective aspect by Japanese learners is highly influenced by the L1, unlike that by L1 English speakers in Lee and Kim (2007).[10]

U-Shaped Behavior

Shirai (2004; see also Salaberry & Shirai, 2002) argued that multiple factors, such as input frequency, learning environment, and L1 influence, contribute to the acquisition patterns predicted by the Aspect Hypothesis. In the following sections, we discuss other factors including (a) U-shaped behavioral development as the cognitive learning pattern, (b) the pedagogical conditions under which the Korean imperfective aspect markers are taught, and (c) input frequency, to account for the differences between the current study and Lee and Kim (2007).

According to Kellerman (1985), L2 learners' performance in some domains is error-free at an early stage, then deviates from the target norm and finally becomes error-free again at a later stage. He called this phenomenon a "U-shaped behavioral development" in SLA. Such a U-shaped curve can also be observed in both interpretation and production data, in which the accuracy rate can be seen to go down from the beginning level to the intermediate level, and then go up again from the intermediate level to the advanced level.

Shirai (1990) further examined the causes of U-shaped development, discussing three types of U-shaped behaviors, one of which is caused by developing sensitivity concerning transferability by L1 learners. Shirai states, building on Kellerman (1985), that at the beginning, the learner is simply transferring L1 form–meaning mappings to the L2. In other words, the learner's knowledge about the semantic boundaries of the items is almost identical in L1 and its L2 equivalent. Then the learner's knowledge is gradually restructured and becomes more sensitive to constraints on transfer, showing underuse, especially in cases where positive transfer is possible, resulting in declining performance in terms of accuracy. Finally, if the interlanguage keeps developing, the learner's knowledge comes closer to that of native speakers.

The results of our comprehension task suggest that the intermediate-level students, like Kellerman's (1985) L1 Dutch learners of English, are restructuring their interlanguage, struggling to figure out how to use Korean imperfective markers correctly. The items that particularly showed lower accuracy in the intermediate level, compared to the beginning level, were exclusively resultatives: 6 items out of 10 for the resultative *–a iss–* target and 5 items out of 10 for the resultative *–ko iss–* target. For the progressive *–ko iss–* target, there were no items that showed lower accuracy in the intermediate than in the beginning level. It appears that L1 Japanese learners are showing the same trend as Kellerman's L1 Dutch learners learning English, that is, they are developing a sensitivity to transferability. Both resultative items (*–ko iss–* and *–a iss–*) result in a correct answer if a simple L1 transfer strategy is applied. However, the learners seemed to have developed the idea that simple transfer may not apply and chose alternative meanings, due to the complex form–meaning mapping in the resultative imperfective in Korean.

Instruction

The role of instruction, an important factor for instructed learners like the Japanese learners in this study, should also be considered. As we mentioned earlier, both the Japanese L1 learners in our study and the L1 English learners in Lee and Kim (2007) were introduced to the progressive *–ko iss–* first, with the resultative *–a iss–* being introduced later. Neither group learned the resultative *–ko iss–* with explicit explanation as a particular function of grammar, which followed the textbooks used by each class. However, the Japanese learners' performance with the resultative *–ko iss–* was generally higher than that of the L1 English learners. For example, in the interpretation task, the L1 Japanese learners' accuracy of the resultative *–ko iss–* was 87%, while the L1 English learners' accuracy was 81%. Using the date from Lee and Kim,

we performed a *t* test to examine the differences between the two groups' mean accuracy and found that the difference was statistically significant, $t(172) = 2.60$, $p = .005$, $d = .35$, with the L1 Japanese learners outperforming the L1 English learners in the comprehension of the resultative marker *–ko iss–*. In the interpretation task, both the Japanese L1 learners and the English L1 learners showed the highest accuracy rates with the progressive *–ko iss–* (91% vs. 95%), the next best accuracy rates with the resultative *–ko iss–* (87% vs. 81%), and the lowest accuracy rates with the resultative *–a iss–* (79% vs. 79%). Furthermore, there was a larger gap in the difference between the interpretation of the progressive *–ko iss–* and the resultative *–ko iss–* in the L1 English learners (14% vs. 95%, compared to 81% for *–a iss–*) than in the Japanese learners (5% vs. 91%, compared to 87% for *–a iss–*). Thus, unlike the L1 English learners, the Japanese learners seemed to have fully comprehended both the resultative *–ko iss–* as well as the progressive *–ko iss–*. In the production task, the Japanese learners' frequency of accurate resultative *–ko iss–* usage was 41%, while the L1 English learners' was 24%, with the difference between these score statistically significant, $t(167) = 3.05$, $p = .002$, $d = .50$, in favor of the L1 Japanese learners.

Unlike the interpretation task, the results of the production task are difficult to compare between the two L1 groups, because their patterns of usage frequency were so different. The L1 English learners used the resultative *–a iss–* (35%) most frequently, followed by the progressive *–ko iss–* (28%) and the resultative *–ko iss–* least frequently (24%). On the other hand, the Japanese learners used the progressive *–ko iss–* (56%) most frequently, followed by the resultative *–ko iss–* (41%) and the resultative *–a iss–* least frequently (40%). However, it is clear that the L1 English learners had more difficulty producing the resultative *–ko iss–* than the Japanese learners, because the L1 English learners used the resultative *–ko iss–* the least frequently among the three aspect markers. It may be that teaching the resultative *–ko iss–* explicitly is less important to Japanese L1 learners, because they can analogize the resultative *–ko iss–* from their L1 *–te i–*.

We should also point out the order of instruction for the Japanese L1 learners and English L1 learners. Both groups were taught the progressive *–ko iss–* first and the resultative *–a iss–* later. One might wonder about the influence of this on acquisition. Perhaps the progressive developed earlier than the resultative simply because the progressive was introduced earlier than the resultative, as was suggested by Ishida (2004), whose learners were exposed to the resultative *–te i–* long before the progressive *–te i–* was introduced and had higher accuracy in resultative than progressive *–te i–*. Ryu and Shirai (2011), however, found

that, overall, changing the instructional order does not have a strong effect on the acquisition of the Korean imperfective aspect markers by L1 Japanese learners. Even though they found instruction order to have some effect on the comprehension as far as the resultative marker *–a iss–* was concerned, the progressive *–ko iss–* was still more accurate than the resultative *–ko iss–* and *–a iss–*. Ryu and Shirai's results may suggest that the progressive meaning of imperfective aspect is easier than the resultative *meaning.* However, we should also consider that the effect of instructional order may be less important than the role of highly skewed input frequency as suggested by Ishida (2004), which is the topic we turn to now.

Input Frequency

With respect to the frequency of the imperfective aspect markers in Korean, Lee and Kim (2007) investigated the classification of 1,000 tokens of *–ko iss–* and *–a iss–* from the Seyjong Written Corpus, which is an abridged version of the Seyjong Corpus (http://www.sejong.or.kr) jointly published by the National Korean Language Institute and the Ministry of Tourism and Culture in Korea. The Seyjong Corpus is based on 10 different genres, including novels, essays, newspapers, science, art and life, and so on. The classification of 1,000 tokens by Lee and Kim yielded counts of 570 (57%) progressive *–ko iss–*, 283 (28%) resultative *–a iss–*, and 157 (16%) resultative *–ko iss–*. The native data used in Ryu and Shirai (2014) was taken from a spoken corpus (almost 98 hours of recordings) which is built from four pairs of mother–child interaction. In their data, Korean-speaking mothers generally used 55% progressive *–ko iss–*, 32% resultative *–a iss–*, and 13% resultative *–ko iss–*. These data suggest that the progressive *–ko iss–* is used most frequently in native Korean addressed to children, followed by the resultative *–a iss–* and then the resultative *–ko iss–*. To see if this same pattern can be found in L2 Korean, we compared these native speaker data to the L2 data in our study.

In our study, Japanese learners performed better on the resultative *–ko iss–* than on the resultative *–a iss–* at all proficiency levels in the interpretation task and at the beginning and intermediate levels in the production task. It should be noted that, in Lee and Kim (2007), the English L1 heritage students used the resultative *–a iss–* more productively than nonheritage students especially in the production task. They argued for the effect of proficiency and input frequency influencing the uses of aspect markers. However, as mentioned earlier, the participants of Lee and Kim were composed of about 80% of heritage students and about 20% of nonheritage students. This is a very important difference between the present study and Lee and Kim's, because none of our participants were

heritage students of Korean. In the results of Lee and Kim, the striking differences between heritage and nonheritage groups were the use of the resultative *–a iss–*. The use of *–a iss–* was remarkably greater in heritage students than in nonheritage students, and in proficient students (intermediate level and above) than in nonproficient students (beginning level), whereas no such pattern was observable in the use of the resultative *–ko iss–*. Thus, they drew the conclusion that the acquisition sequence for the resultative meaning is *–a iss–* to *–ko iss–*. This acquisition order suggested by Lee and Kim (2007) is identical to the frequency order in native Korean discourse we mentioned above. Because we did not achieve the same results in our data, we could suggest that heritage students received a sufficient amount of input from their parents, which would influence their acquisition patterns.

As mentioned above, the acquisition order in the current study was different from the frequency order, showing that the resultative *–ko iss–*, which had the lowest frequency (about 15%), was acquired earlier than the resultative *–a iss–* (about 30%). This suggests that the Japanese speakers learning Korean in a foreign language setting (KFL), who did not receive as much input as heritage students, tend to rely on their L1. Thus, language environment (i.e., whether a sufficient amount of input can be received or not) could be a potential influence on learners' acquisition patterns. Meanwhile, nonheritage students in Lee and Kim (2007), who were L1 English learners of KFL, showed neither a remarkable increase in their use of *–a iss–* like heritage students, nor high performance on the resultative *–ko iss–* like L1 Japanese learners. Thus, the L1 English learners of KFL appear to be placed on a continuum between heritage learners and L1 Japanese speakers. This is likely because the L1 English learners did not have an L1 form to rely on to facilitate their development of the resultative *–ko iss–* and because their learning depended on the degree of exposure to a high frequency of input for the resultative *–a iss–*.

Implications and Conclusion

The results of the current study (L1 Japanese) and their comparison with Lee and Kim's (2007) L1 English data thus have important implications for the acquisition of temporal morphology in SLA. In terms of Korean acquisition, we can safely conclude that the progressive *–ko iss–* is acquired first. This is supported by both input frequency as well as the Congruence Principle. To account for this observation, no L1-based explanations are needed. However, remaining differences between the two studies need to be explained by other factors. While the L1 English learners showed variable patterns of development depending on the task (and also on whether they were heritage or nonheritage

learners), the L1 Japanese group invariably acquired resultative *–ko iss–* before resultative *–a iss–*, defying both the notion that input frequency determined their acquisition pattern (resultative *–ko iss–* being less frequent in discourse than resultative *–a iss–*) and the Congruence Principle (resultative *–ko iss–* is not a congruent combination of lexical aspect and morphology). This can only be explained by L1 transfer. Because the Japanese imperfective *–te i–* denotes both progressive and resultative meaning in one-form, as does *–ko iss–* in Korean, this was not difficult for Japanese learners to acquire in L2 Korean. Meanwhile, English L1 learners, who do not have such a versatile progressive marker in their L1, had a hard time expanding the semantic boundary of *–ko iss–* and acquired resultative *–a iss–* first, likely due to a distributional bias and the one-to-one principle (Andersen & Shirai, 1994). The resultative *–a iss–* is more frequent than the resultative *–ko iss–* (distributional bias), and thus it was easier for the L1 English learners to assign one form to one meaning (progressive to *–ko iss–* and resultative to *–a iss–*).

What are the implications of Korean L2 data for the general theory of L2 temporal morphology, in particular for the Aspect Hypothesis? As noted above, the basic tendencies for the four generalizations of the Aspect Hypothesis have been repeatedly observed in numerous languages (Shirai, 2009), but there are some exceptions (e.g., Salaberry, 1999). The real issue is perhaps not whether the Aspect Hypothesis holds in all situations, but under what conditions (Shirai, 2009). By understanding why in some studies these generalizations hold and not in others, we could understand the mechanism of language acquisition better. Considering this, it would be wise to treat the descriptive generalization of the Aspect Hypothesis as a "universal tendency," not as an "absolute universal" (McLaughlin, 1987) in SLA. In the future, it will be important to explain why this generalization is almost always supported and, when it is not supported, to understand reasons for such differences (Shirai, 2009). To explain instances when the Aspect Hypothesis does not hold, we must consider multiple factors such as input frequency, prototype effect, salience, L1 transfer, form–meaning mapping in the target language, and instruction order.

The present study (and its comparison with Lee and Kim's [2007] research) shows that the Korean imperfective aspect markers are acquired in L2 Korean in the order of progressive *–ko iss–* (activities and accomplishments) and then, depending on L1, resultative *–ko iss–* (Japanese L1) or resultative *–a iss–* (English L1). This latter order is also influenced by form–meaning relationship in the target language (one to one or one to many) and input frequency. Because we have found these factors at work in L2 Korean acquisition, it is

likely that they are also at work in the acquisition of temporal morphology in other languages. The acquisition of temporal morphology should be further investigated to identify how these multiple factors contribute to and interact in L2 learning in order to truly understand why the four generalizations of the Aspect Hypothesis, which generally hold true, sometimes do not.

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Notes

1 There is a variation between *a* and *e* in the *–a iss–* construction, which is phonologically determined and depends on the last vowel of the verb stem to which it is attached. In this study, we represent it as *–a iss–*.

2 The abbreviations used in the glosses area as follows: Acc = accusative case marker, Dec = declarative sentence ending, Loc = locative case marker, Nom = nominative case marker, Pas = passive suffixes, Prs = present tense marker, Prog = progressive imperfective aspect marker, Resl = resultative imperfective aspect marker, Top = topic marker.

3 Unlike in English where stative verbs such as *know*, *love*, *believe*, *have*, and so on, are not normally used with the progressive *–ing*, the corresponding verbs in Korean naturally occur with the *–ko iss–* form. Ahn (1995) refers to these verbs as Know-class verbs, which are classified as achievement verbs. Korean verbs such as *alta* "know," *sokhata* "belong to," and *kacita* "have" are similar to Japanese *siru* "know," *syozokusuru* "belong to," and *motu* "have," which are achievements that refer to entry into a state and thus require the imperfective *–te i–*. For example, *Ku-nun ku sasil-ul al-ko iss-ta* (he-Top the fact-Acc know-Resl-Dec), with the corresponding meaning of "He is knowing—now aware of—the fact."

4 An anonymous reviewer asked whether *–ko iss–* can express the resultative meaning with transitive verbs such as "put (something) on (e.g., a table)." In Korean, transitive verbs such as "put" cannot co-occur with the resultative marker *–ko iss–*. When expressing the resultative meaning, transitive verbs such as "put, write etc." are turned into their passive forms, and then *–a iss–* is combined with it, as in the following example: *Chayk-i chayksang-ey noh-i-e iss-ta* (book-Nom desk-Loc put-Pas-Resl-Dec), with the corresponding meanings of "There is a book on the desk."

5 Korean *–a iss–* is often treated as perfective, not imperfective (e.g., K.-D. Lee, 1981; McClure, 1993; Sohn, 1995). This is understandable because there is a close affinity between resultative, perfect, and perfective aspects (e.g., Bybee, Perkins, & Pagliuca, 1994). However, in this study, the resultative marker *–ko iss–* is treated as an imperfective aspect marker that focuses on the duration after the punctual point of change of state, as per Shirai (1998) and Smith's (1997) definition of the imperfective viewpoint.

6 The sources for the Japanese imperfective marker *–te i–* are the nonfinite connective *–te* plus the verb of existence *iru*. Korean imperfective markers also use nonfinite connectives *–ko* and *–a*, plus the verb of existence *–iss*.
7 It is in fact possible for the English progressive to denote resultative meaning with some restricted verbs of contact and posture verbs (Shirai, 1998; Smith, 1997) but these do not have fully fledged resultative meanings, and thus researchers such as Onozuka (2008) argue that it is not resultative at all.
8 The present study only concerns generalization three and four of the Aspect Hypothesis, but the fourth generalization is not fully addressed because we did not classify each verb for lexical aspect and thus cannot address the issue concerning stative progressive.
9 Izquierdo and Collins's (2008) study showed that L1 Spanish learners of French showed more balanced usage of the perfective/imperfective by successfully transferring perfective-imperfective distinction from L1 Spanish to L2 French, while L1 English learners, whose L1 does not make this distinction, relied more on the universal process of verb semantics as predicted by the Aspect Hypothesis.
10 It should be noted that Salaberry's (2008) suggestion that L1 English learners transferring English simple past as default past tense marker may be facilitated by typological similarity between English and Spanish, although this hypothesis needs to be tested by other studies with different L1–L2 combinations involving differing typological distance.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's website:

Appendix S1. Sample Task Items.
Appendix S2. Target Verbs.