Aspectual Coercion in Non-native Speakers of English

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Abstract

This study examined the processing correlates of aspectual coercion among native and non-native speakers of English. For native English speakers, results suggested that the processing delay associated with aspectual coercion is minimal. Aspectual coercion was perhaps cognitively easy to perform. By contrast, non-native speakers of English from unlike first language (L1) backgrounds differed in their reading performance. The differences varied systematically as a function of aspectual contrasts in L1 after controlling for second language (L2) English proficiency. Korean participants showed trends of aspectual coercion despite the absence of significant effects; German participants exhibited indifference across experimental conditions; Chinese participants showed aspectual coercion effects opposite to the predictions specified by the English grammar. A coupling of these data with evidence from the semelfactive progressive (e.g. *coughing*) in English suggests that the so-called online aspectual coercion effects may arise from a prototype organization of aspectual categories that is prone to L1 influence.

Keywords: Aspectual coercion; semelfactive progressive; prototype; L1 transfer

Introduction

The study of aspectual coercion in non-native speakers provides an unusual opportunity to understand how aspectual conflicts are recognized and resolved in the course of language processing. Presumably, the challenge for non-native speakers to process subtle semantic nuances on the fly is far greater than that of native speakers. If aspectual coercion incurs an extra processing cost, it will be more likely to find evidence of that in non-native speakers than in native speakers. This may in turn shed light on aspectual coercion research conducted on native speakers that have reported mixed findings in the literature.

Aspectual Coercion

Verbs denote events that take place in time. A semelfactive verb (e.g. *cough*) denotes a single-stage, atelic situation (Smith, 1991; 1997). When the semelfactive verb *cough* combines with an adverbial modifier of duration or durative adverbial *for an hour* in the sentence *Sam coughed for an hour*, the combination becomes problematic. The semelfactive verb and durative adverbial are aspectually incompatible with each other. However, the sentence is neither ill-formed nor ungrammatical. Often an iterative interpretation is derived, namely Sam coughed *repeatedly* for an hour. Researchers have hypothesized that a computational process is invoked to resolve the incompatibility and construe a more coherent interpretation.

Such a process is commonly known as aspectual coercion. The discussion of coercion phenomena first appeared in Moens and Steedman (1988).

Empirical studies to date have yet to provide conclusive evidence about the processing consequence of aspectual coercion. Also, it remains unexplored that semelfactive progressive (e.g. *coughing*) in English derives an iterative interpretation even in the absence of durative adverbials. Whether a construction such as *Sam was coughing for an hour* incurs an extra processing cost or not, and how non-native speakers respond to aspectual coercion relative to native speakers, become the twin goals of this study. It is hypothesized that a greater processing cost can be found in non-native speakers than in native speakers if aspectual coercion is computationally costly. Another prediction is that a construction like *Sam was coughing for an hour* will not incur an extra processing cost, because there is not any aspectual mismatch between the verbal predicate and the adverbial in the first place.

Psycholinguistic Evidence

A small number of empirical studies have examined the psycholinguistic evidence of aspectual coercion using behavioral and brain-imaging techniques. The reported findings were mixed. Some studies found longer decision times and/or higher reading latencies in cases of aspectual coercion, while others reported null results.

Task differences may be responsible for these dissimilar findings. Piñango, Zurif, and Jackendoff (1999) first examined the processing load associated with aspectual coercion using a cross-modal lexical decision task. They found longer decision times at the probe positions of coercion sentences. Todorova, Strab, Bedecker, and Frank (2000) employed a self-paced, makes-sense judgment task, and found higher reading latencies in coercion sentences. Piñango, Winnick, Ullah, and Zurif (2006) later reported that online effects of aspectual coercion could only be found when a secondary lexical decision task was administered at a delayed interval of 250ms. Unlike previous paradigms, Pickering, McElree, Frisson, Chen, and Traxler (2006) employed the self-paced reading and eye-tracking techniques to foster more naturalistic reading in experimental settings. Nonetheless, Pickering et al. found no behavioral differences in terms of reading times and other eye-tracking estimates across conditions. The researchers attributed the null results to an underspecification account, which claimed that native English speakers did not commit to the telicity of situations immediately during normal sentence comprehension.

Another challenge stems from lexical aspect. Lexical aspect (or *Aktionsart*) refers to the temporal meanings

inherent in verbal predicates. A semelfactive verb (e.g. *cough*) is, by definition, semelfactive because it conveys a single-stage, atelic situation (Smith, 1991; 1997). The classification of lexical aspect can be tricky. Brennan and Pylkkänen (2008) addressed this by first norming a selection of verbs for punctuality with native English speakers. Only a set of strongly punctual verbs (all semelfactives indeed) was then chosen for their self-paced reading and MEG (i.e. magnetoencephalography) experiments. As illustrated in (1), the critical sentences varied in adverbial type (either a durative adverbial or a punctual adverbial), followed by a genuine semelfactive verb:

(1) a. *Throughout the day the student sneezed in the back of the classroom.*
   b. *After twenty minutes the student sneezed in the back of the classroom.*

Crucially, Brennan and Pylkkänen reported significantly longer reading times at the inflected verb in 1a than in 1b in native English speakers from the self-paced reading experiment.

In addition to tasks and experimental control, previous empirical studies have only narrowly examined aspectual coercion in which a punctual situation is interpreted as iterative by means of an interaction with a specific type of temporal modifier, namely durative adverbial. Little is known about how other factors such as grammatical aspect could affect aspectual coercion. Comrie (1976) stated that grammatical aspect encodes different ways of viewing the internal temporal constituency of a situation. One can therefore distinguish *what happened* from *what was happening* owing to grammatical aspect, which is often marked via verbal morphology. In this light, semelfactive progressive in English (e.g. *coughing*) provides an exceptional window to elucidate this issue, precisely because it denotes iterative action-in-progress (Smith, 1991; 1997) without any temporal adverbials. A psycholinguistic investigation along this line shall cast some light on the study of aspectual coercion phenomena at large.

Experiment

This study examined the influence of grammatical aspect and temporal adverbials on aspectual coercion in the course of language processing. The two research questions were:

1. Does aspectual coercion incur an extra processing cost in native and non-native speakers of English?
2. Does grammatical aspect mediate the online effects of aspectual coercion? In other words, is there a trade-off between grammatical aspect and temporal adverbial?

Method

Participants Participants consisted of native English speakers and non-native speakers of English from Korean, Mandarin Chinese, and German L1 backgrounds. The

profiles of the participants were summarized as follows: native English speakers (15 women, 9 men, M_{age} = 20.2 years, age range: 18-25 years); Korean (14 women, 1 man, M_{age} = 21.7 years, age range: 18-29 years); Chinese (16 women, 5 men, M_{age} = 23.8 years, age range: 21-30 years). These participants enrolled at the University of Pittsburgh and Carnegie Mellon University in the US. The German participants (21 women, 4 men, M_{age} = 25.5 years, age range: 20-41 years) were recruited from the Ruprecht-Karls-Universität Heidelberg, Germany. All participants took part in the experiment for compensation.

Also, all non-native speakers completed a standardized English proficiency test — the Michigan Test of English Language Proficiency (MTELP) of the Michigan Test Battery (Corrigan, Dobson, Kellman, Spaan, Strowe, & Tyma, 1979). The maximum score was 100. At the time of testing, both Korean (M = 81.13, SE = 3.67) and German (M = 79.88, SE = 2.85) participants were more proficient in English than their Chinese (M = 63, SE = 3.11) counterparts, ps = .001.

Stimuli Twenty-four sentences were constructed from seventeen semelfactive verbs. These verbs were selected based on the norming results of punctuality (Brennan & Pylkkänen, 2008) as well as ratings for telicity (Wulff, Ellis, Römer, Bardovi-Harlig, & Leblanc, 2009). Participants' knowledge of English was also taken into consideration. The experiment implemented a 2x2 design crossing Grammatical Aspect (SIMPLE, PROG) and Adverbial (Punctual, Durative). Here, SIMPLE means the grammatical aspect is unspecified, whereas PROG denotes the progressive aspect. All critical items were distributed into 4 lists such that each list contained one token of each of the 24 critical items and six items from each of the four conditions. The 4 sets of experimental stimuli were each embedded into a list of 120 filler sentences, plus an additional 84 items from two other experiments (Chan, 2012). Presentation orders were completely randomized. Table 1 summarizes the quadruple design crossing grammatical aspect and adverbial.

Table 1: Conditions and sample stimuli

	Punctual adverbial	Durative adverbial
SIMPLE	**At noon** the kid **jumped** into the swimming pool. **A**	**All day** the kid **jumped** into the swimming pool. **B**
PROG	**At noon** the kid **was jumping** into the swimming pool. **C**	**All day** the kid **was jumping** into the swimming pool. **D**

Condition A is a control condition. It serves as a baseline for condition B, in which there is an aspectual mismatch between the durative adverbial *all day* and the verb *jumped*. Condition B is an example of aspectual coercion. Previous studies described this as an instance of iterative coercion

(e.g., Brennan & Pylkkänen, 2008). Because iteration is triggered by an adverbial, condition B is called Adverbial Coercion. This term is not new; it first appeared in Todorova et al (2000). Conditions C and D represent new manipulations, as they have never been tested before. As discussed earlier, Smith (1991; 1997) asserted that semelfactive verbs marked in English progressive denote iterative action-in-progress. The combination of the semelfactive progressive *jumping* with the punctual adverbial *at noon* therefore creates an aspectual conflict in condition C. Although conditions B and C both involve aspectual mismatch, the iteration in condition C arises via the progressive marking on the semelfactive verb, whereas that in condition B is enforced by a durative adverbial external to the verbal predicate. To differentiate between the two, condition C is therefore called Grammatical (Aspect) Coercion. Lastly, condition D serves as a baseline to Grammatical Coercion in condition C.

Two predictions are made for native English speakers. First, Adverbial Coercion sentences (Condition B) will incur longer reading times than respective control sentences (Condition A). This is based on previous findings that durative adverbials could trigger coercion (e.g. Todorova et al., 2000). Second, a new prediction for this study is that Grammatical Coercion sentences (Condition C) will take longer time to read than control sentences (Condition D) because of the aspectual mismatch. Therefore, the 2×2 design predicts aspectual coercion effects as a trade-off between adverbial and grammatical aspect.

It is generally assumed that native and non-native speakers will have similar reading performance. Of course, one may predict some variations as a result of L1 differences. For example, Korean participants may perform similarly to native English speakers, considering the many meaning overlaps between aspectual systems of Korean and English. Because German lacks a grammatical aspectual system, a reasonable prediction is that German participants may not exhibit any differences between SIMPLE and PROG. The Chinese participants may as well perform similarly to native English speakers. It must be emphasized that Chinese has richer perfective and imperfective contrasts, in addition to the optional marking system. The progressive aspect is obligatory in English, however. Given these cross-linguistic differences in aspectual meaning and grammar, the above predictions are speculative at best.

Procedure The current study involved a computerized self-paced reading experiment, which was administered individually to participants in a laboratory setting. Participants were instructed to read English sentences as quickly as possible and answer comprehension questions as accurately as possible. Six practice items were given before the actual experiment.

The self-paced reading task was implemented on Linger software (Rohde, 2001), following a word-by-word non-cumulative moving window paradigm presentation technique (Just, Carpenter, & Woolley, 1982). Each sentence was masked by a series of dashes (-). These dashes were replaced by a word from left-to-right every time the participant pressed the space bar. Only one word was shown on the computer screen at a time.

An optional break was provided in between every 50 trials. To ensure meaningful comprehension, a yes/no comprehension question prompt was presented to each of the 120 filler sentences embedded throughout the experiment. Feedback on accuracy was also provided. The majority of participants finished the experiment in an hour.

Data Analysis

The following procedures were employed. First, I ascertained that all participants scored 90% or above for the comprehension questions. For native English speakers, the mean accuracy was 94% ($SD = 3.9\%$). For non-native speakers, Korean participants achieved a mean accuracy of 94.2% ($SD = 3.4\%$), German 94.6% ($SD = 2.9\%$), and Chinese 91% ($SD = 4.8\%$). The overall high accuracy confirms that all participants paid attention and read the sentences carefully.

Next, extreme reading times (RTs), including those shorter than 100 ms or longer than 2,500 ms per word, were discarded. These criteria excluded 0.59%, 1.36%, 1.26%, and 2.31% of data points among the English, Korean, German, and Chinese participants, respectively.

RTs were then transformed logarithmically. A linear regression was performed on the log RT data to correct for word length differences across conditions, while taking into account each participant's individual reading speed. This procedure utilized all words from experimental items and fillers for each participant (e.g., Ferreira & Clifton, 1986; Trueswell, Tanenhaus, & Garnsey, 1994). The values predicted from the regressions were subtracted from the actual reading times to produce residual reading times for each participant. Thus, word-length adjusted residual log RTs became the dependent variable for subsequent statistical tests.

Separate analyses were conducted on RTs at four target word regions: 1) the verb; 2) the first word following the verb (V+1) to capture spill-over effects; 3) the second word following the verb (V+2) to assess further downstream effects; and 4) the sentence-final (SF) word to investigate sentence wrap-up effects (Just & Carpenter, 1980).

Furthermore, a number of problematic items were excluded from statistical analyses. All trials containing *yesterday*, *last night, last week* and the verb *open* that were intended to serve as punctual adverbials and semelfactives were excluded. This procedure reduced the entire data set by another 36.98%.

Results

A three-way mixed-design ANCOVA was performed with Grammatical Aspect (SIMPLE, PROG) and Adverbial (Punctual, Durative) as within-participant variables, group (English, Korean, German, and Chinese) as a between-
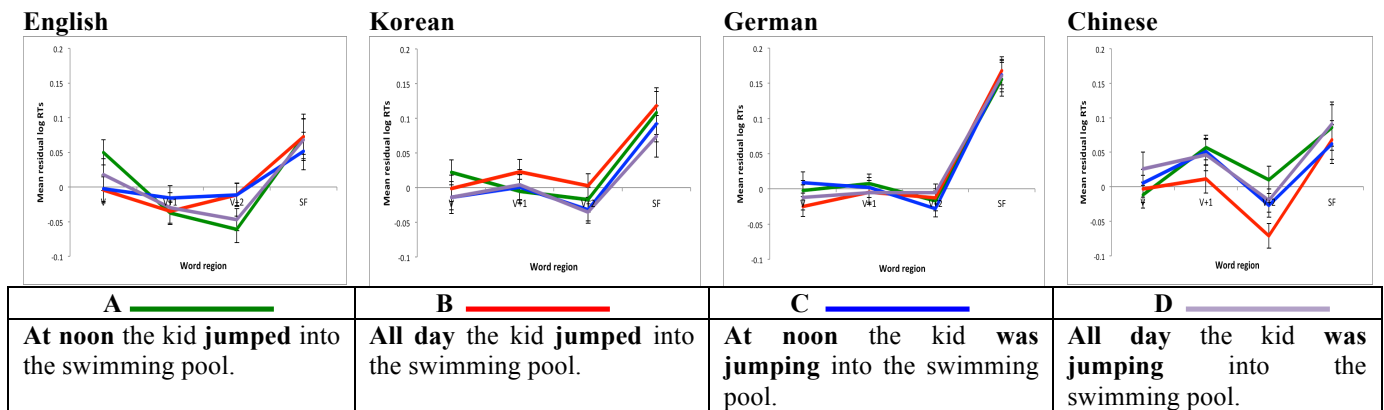
English	Korean	German	Chinese

A ━━━	B ━━━	C ━━━	D ━━━
At noon the kid **jumped** into the swimming pool.	**All day** the kid **jumped** into the swimming pool.	**At noon** the kid **was jumping** into the swimming pool.	**All day** the kid **was jumping** into the swimming pool.

Figure 1: ANCOVA reading time results. Error bars indicate ±1 standard error.

participant variable, and English proficiency as a covariate. A default score of 100 was entered for native English speakers in the covariate for ANCOVA analyses. An α-level of .05 was used. Figure 1 plots the ANCOVA RT results for each participant group.

Verb An ANCOVA controlling for English proficiency at the verb revealed a significant Adverbial × Grammatical Aspect interaction by both participants and items, $F_1(1, 80) = 5.773$, $p = .019$; $F_2(1, 56) = 4.607$, $p = .036$. The main effect of grammatical aspect was significant by participants, $F_1(1, 80) = 7.265$, $p = .009$; $F_2 < 3.072$. No other effects approached significance by either participants or items: adverbial, $F_1(1, 80) = 3.757$, $p = .056$; $F_2 < .071$; language, $F_1(3, 80) = 1.412$, $p = .245$; $F_2 < .892$; all interactions, Fs < 1.128.

To explore the Adverbial × Grammatical Aspect interaction collapsed across language groups, a follow-up simple main effect of adverbial across levels of grammatical aspect was performed in this word region. However, none of the comparisons reached significance, ps > .113.

V+1 An ANCOVA controlling for English proficiency at the first word after the verb revealed a significant Adverbial × Grammatical Aspect interaction by participants, $F_1(1, 80) = 5.036$, $p = .028$; $F_2 < .002$. The main effect of language was significant by both participants and items, $F_1(3, 80) = 5.456$, $p = .002$; $F_2(3, 56) = 2.893$, $p = .043$. All other main effects and interactions were not significant by either participants or items: grammatical aspect, $F_1(1, 80) = .119$, $p = .731$; $F_2 < .559$; adverbial, $F_1(1, 80) = 1.605$, $p = .209$; $F_2 < .818$; all interactions, Fs < 1.025.

To explore the Adverbial × Grammatical Aspect interaction, a follow-up simple main effect of adverbial across levels of grammatical aspect was conducted in this word region. No comparisons approached significance, ps > .492.

In order to understand how different language groups performed in this word region, *posthoc* pairwise comparisons with Bonferroni adjustment revealed that the reading speed of Chinese participants ($M = .041$, $SE = .011$)

was significantly slower than that of native English participants ($M = -.03$, $SE = .01$), $p = .001$, as well as German participants ($M = .000$, $SE = .008$), $p = .014$, respectively. No other comparisons were significant, ps > .107.

V+2 An ANCOVA controlling for English proficiency at the second word after the verb revealed a significant Adverbial × Grammatical Aspect interaction by participants, $F_1(1, 80) = 11.736$, $p = .001$; $F_2 < .39$, and a three-way Adverbial × Grammatical Aspect × Language interaction by participants, $F_1(3, 80) = 3.251$, $p = .026$; $F_2 < .169$, suggesting that the four language groups may behave differently across levels of adverbial and grammatical aspect. All other main effects and interactions were not significant by either participants or items: grammatical aspect, $F_1(1, 80) = .848$, $p = .36$; $F_2 < .038$; adverbial, $F_1(1, 80) = .923$, $p = .34$; $F_2 < .143$; language, $F_1(3, 80) = 1.025$, $p = .386$; $F_2 < .149$; all interactions, Fs < 2.206.

Because of a significant three-way interaction, a follow-up simple main effect of adverbial across levels of grammatical aspect was performed separately for each language group in this word region. Native English speakers slowed down at Adverbial Coercion sentences ($M = -.011$, $SE = .017$) relative to corresponding control sentences ($M = -.061$, $SE = .019$), $p = .052$. Also, they read Grammatical Coercion sentences ($M = -.011$, $SE = .016$) marginally slower than respective control sentences ($M = -.047$, $SE = .016$), $p = .096$. Although these results were only marginally significant, native speakers in this experiment behaved in accord with the prediction that sentences involving aspectual coercion generally took longer to read than non-coercion sentences. These results provided a reasonable baseline when evaluating non-native speakers' reading performance in the same experiment.

Unexpectedly, Chinese participants read Adverbial Coercion sentences ($M = -.071$, $SE = .018$) significantly faster than the respective control sentences ($M = .01$, $SE = .02$), $p = .003$, which is opposite to the prediction of adverbial coercion. All other comparisons were not significant in this word region, ps > .164.

SF An ANCOVA controlling for English proficiency at the sentence final word revealed a significant main effect of language by both participants and items, $F_1(3, 80) = 7.122$, $p < .001$; $F_2(3, 56) = 11.948$, $p < .001$. All other main effects and interactions were not significant by either participants or items: grammatical aspect, $F_1(1, 80) = 1.207$, $p = .275$; $F_2 < .952$; adverbial, $F_1(1, 80) = .155$, $p = .695$; $F_2 < .049$; all interactions, Fs < 1.549.

To explore how different language groups performed in this word region, *posthoc* pairwise comparisons with Bonferroni adjustment revealed that the reading speed of German participants ($M = .162$, $SE = .016$) was significantly slower than that of native English speakers ($M = .066$, $SE = .021$), $p = .004$, and Chinese participants ($M = .077$, $SE = .022$), $p = .01$, respectively. German participants also appeared to be slower than Korean participants ($M = .098$, $SE = .02$), $p = .087$. All other comparisons were not significant, ps > .087.

Taken together, the ANCOVA analyses revealed several interesting results. At the verb, there were no RT differences by condition collapsed across language groups. The same was generally true for V+1. At V+2, native English speakers exhibited marginally significant trends that Adverbial Coercion and Grammatical Coercion sentences took longer time to read. The Chinese participants, however, took significantly longer to read control sentences relative to Adverbial Coercion sentences ($p = .003$). At the sentence final word, the German participants showed elevated RTs across all conditions when compared to Korean, Chinese, and native English participants.

General Discussion

Overall, results provided partial support for the first research question that there is a processing cost for aspectual coercion. Native English speakers had the tendency to slow down at sentences involving Adverbial Coercion (*All day the kid jumped…*) and Grammatical Coercion (*At noon the kid was jumping…*), even though the reading time results were only marginally different from their control counterparts. These findings were consistent with the general prediction that aspectual coercion may incur a somewhat greater processing cost. However, it is noted that these results were delayed, and emerged only at the second word after the verb (V+2). It is unclear why no strong, immediate online effects emerge as other self-paced reading studies have shown. Brennan and Pylkkänen (2008), for example, presented evidence that iterative coercion can produce significant, immediate effects. The highly salient semelfactive verbs used in this experiment may have been responsible for the diminished online effects within native English speakers.

Despite these suggestive findings, one unambiguous result was that aspectual coercion is mediated by the interaction among grammatical aspect, lexical aspect, and adverbial. This is evident in the significant Adverbial × Grammatical Aspect interaction effect collapsed across language groups

at three of the four word regions probed, ps < .028. As predicted, not only adverbials but also grammatical aspect triggers aspectual coercion. This finding provides a new theoretical insight to aspectual coercion phenomena, as previous studies showed that a durative adverbial is responsible for iteration involved in a semelfactive predicate (e.g., Todorova et al., 2000). Here, results clearly show that there is no reason to believe that temporal adverbials independently cause processing slowdown. Instead, lexical aspect, grammatical aspect, and adverbial conspire to shape the aspectual interpretation of a sentence.

Moreover, the findings here were at odds with the underspecification account put forward by Pickering et al. (2006) to account for their null results. Pickering et al. asserted that readers routinely underspecify aspectual properties of an interpretation during comprehension. The underspecification account seemed to be untenable here because of the strong interaction between adverbial and grammatical aspect. In this light, the current study is more compatible with Brennan and Pylkkänen (2008), among others.

For the first time, this study extended the psycholinguistic investigation of aspectual coercion to non-native speakers. Although native English speakers behaved differently from non-native speakers in general, non-native speakers also differed systematically from one another after removing pre-existing differences in L2 English proficiency. For example, the Chinese participants showed significantly shorter reading times in Adverbial Coercion (*All day the kid jumped…*) sentences than control sentences (*At noon the kid jumped…*), which was opposite to the prediction ($p = .003$). These results seemed puzzling at first glance. One potential explanation may rest on the differences in the aspectual systems of English and Chinese. According to Yang (1995), the perfective marker *le* strongly prefers telic and bounded situations in Chinese. This explains why the semelfactive predicate *kesou* 'cough' in (2) cannot felicitously co-occur with *le*, because semelfactives are by definition atelic (i.e., Activities). However, when a bounded temporal situation is introduced via a verbal classifier phrase *yi-sheng* 'once' as shown in (3), the utterance becomes felicitous.

(2) **Lisi kesou le*
     Lisi cough PERF
     "Lisi coughed"

(3) *Lisi kesou le   yi-sheng*
     Lisi cough PERF one-CL
     "Lisi coughed once"
(Yang, 1995; cited in Xiao & McEnery, 2004, p. 103)

Xiao and McEnery (2004) adduced native Chinese corpus data to support the idea that the sensitivity of *le* to boundedness is relative rather than absolute. In their sample, an overwhelming 89.4% of all 1138 tokens of *le* occur in bounded contexts, whereas a meager 10.6% occurred in unbounded contexts. Of the 27 tokens of semelfactives taking *le* in the same corpus, 16 are bounded by additional

adverbials that impose a spatially or temporally bounded situation. This distributional pattern suggests that the semelfactive plus durative adverbial combination is quantitatively more common in Chinese. Although Xiao and McEnery did not articulate the underlying reason for such a language-specific bias in Chinese, they maintained that semelfactive verbs taking perfective *le* prefers to be bounded, particularly by means of a verbal classifier phrase, verb reduplication, or by a *for*-adverbial as shown in (4).

(4) *Da-le   ni   ji-tian*
      beat-PERF   you   how-many-day
      "For how many days did they beat you?"
(Xiao & McEnery, 2004, p. 111)

   The co-occurrence of a semelfactive verb taking *le* in the presence of a durative adverbial in (4) is equivalent to the Adverbial Coercion construction in English. Accordingly, the processing advantage found in Chinese participants can be attributed to the skewed distribution of *le* in bounded contexts for semelfactives. Although I consider such a possibility using Xiao and McEnery's Chinese corpus data, future Chinese sentence processing experiments will need to independently verify this claim. What is remarkable here is that Chinese participants exhibited a language-specific bias from their L1 Chinese aspectual system even when they were reading in English. If that's the case, results from Chinese participants provided crucial support for L1 transfer.

   Korean participants did not show any within-subject differences in terms of their reading performance across experimental conditions. They exhibited trends of aspectual coercion, despite the absence of statistically significant results. The same can be said about the German participants in which the reading times performance were highly comparable across conditions. I reckon that the lack of grammatical aspect (and associated grammaticized meanings) is responsible for their indifference (e.g., Stutterheim & Carroll, 2006).

Conclusion

What is interesting about aspectual coercion is that it involves contextual re-interpretation of aspectual information, rendering it computationally more demanding for non-native speakers. Although this prediction has not been borne out in all non-native speaker groups, the current study revealed important L1-based variations that could not have been exposed otherwise. A psycholinguistic investigation comparing both the performance of native and non-native speakers can thus reveal rather than obscure aspectual coercion operations in the course of language processing. Importantly, I contend that the so-called online aspectual coercion effects arise from a prototype organization of aspectual categories, which is, not surprisingly, prone to L1 influence in a systematic way.

References

Brennan, J., & Pylkkänen, L. (2008). Processing events: Behavioral and neuromagnetic correlates of aspectual coercion. *Brain & Language, 106*, 132-143.

Chan, H. L. (2012). *Tense-aspect Processing in Second Language Learners*. University of Pittsburgh, Pittsburgh.

Comrie, B. (1976). *Aspect: An introduction to the study of verbal aspect and related problems*. New York: Cambridge University Press.

Corrigan, A., Dobson, B., Kellman, E., Palmer, A., Peterson, J., Spaan, M., et al. (1979). *English placement test*. Ann Arbor, MI: University of Michigan English Language Institute.

Ferreira, F., & Clifton, C. (1986). The independence of syntactic processing. *Journal of Memory and Language, 25*, 348-368.

Just, M. A., & Carpenter, P. A. (1980). A theory of reading: From eye fixations to comprehension. *Psychological Review, 87*, 329-354.

Just, M. A., Carpenter, P. A., & Wooley, J. D. (1982). Paradigms and processes in reading comprehension. *Journal of Experimental Psychology: General, 111*, 228-238.

Moens, M., & Steedman, M. (1988). Temporal ontology and temporal reference. *Computational Linguistics, 14*, 15-28.

Pickering, M. J., McElree, B., Frisson, S., Chen, L., & Traxler, M. J. (2006). Underspecification and aspectual coercion. *Discourse Processes, 42*, 131-155.

Piñango, M. M., Winnick, A., Ullah, R., & Zurif, E. (2006). Time-course of semantic composition: The case of aspectual coercion. *Journal of Psycholinguistic Research, 35*, 233-244.

Piñango, M. M., Zurif, E., & Jackendoff, R. (1999). Real-time processing implications of enriched composition at the syntax-semantics interface. *Journal of Psycholinguistic Research, 28*, 395-414.

Rohde, D. (2001). LINGER (Version 2.9.4). Retrieved from http://tedlab.mit.edu/~dr/Linger/

Smith, C. S. (1991). *The parameter of aspect*. Dordrecht: Kluwer Academic Publishers.

Smith, C. S. (1997). *The parameter of aspect* (2nd Ed.). Dordrecht: Kluwer Academic Publishers.

Stutterheim, C. von, & Carroll, M. (2006). The impact of grammatical temporal categories on ultimate attainment in L2 learning. In H. D. Weger-Guntharp, H. Byrnes & K. A. Sprang (Eds.), *Educating for advanced foreign language capacities: Constructs, curriculum, instruction, assessment*. Washington DC, USA: Georgetown University Press.

Todorova, M., Straub, K., Badecker, W., & Frank, R. (2000). Aspectual coercion and the online computation of sentential aspect. *In Proceedings of the twenty-second annual conference of the cognitive science society*. Mahwah, NJ: Lawrence Erlbaum Associates.

Trueswell, J. C., Tanenhaus, M. K., & Garnsey, S. M. (1994). Semantic influences on parsing: Use of thematic role information in syntactic disambiguation. *Journal of Memory and Language, 33*, 285-318.

Wulff, S., Ellis, N. C., Römer, U., Bardovi-Harlig, K., & Leblanc, C. J. (2009). The acquisition of tense-aspect: Converging evidence from corpora and telicity ratings. *The Modern Language Journal, 93*, 354-369.

Xiao, R., & McEnery, T. (2004). *Aspect in Mandarin Chinese: A corpus-based study*. Amsterdam: John Benjamins.