



## Phrasal Verb Usage and L1 Typology: A Corpus-based Study on Chinese and Japanese EFL learners

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This study investigated the usage of high-frequency English phrasal verbs (PVs) and the effects of L1 typology for learners of English as a Foreign Language (EFL). Essays by native English speakers and by Chinese and Japanese EFL learners from the International Corpus Network of Asian Learners (ICNALE) were analyzed to determine directional, aspectual, and idiomatic PV usage. As English, Chinese, and Japanese are typologically different languages, comparing their PV usage revealed preferences for how the three groups expressed motion, as seen in directional PVs, and change of state events, which are often seen in idiomatic and aspectual PVs. A Chi-squared test revealed a significant association between L1 typology and PV types, and a pairwise comparison indicated a disproportionate use of PVs among the groups. For example, the two EFL learner groups used fewer directional PVs than the English native speakers. Accordingly, L1 typology appears to be a factor in influencing the types of PVs that are used. Considering the high frequency of the PVs investigated in the current study, there are important pedagogical implications for educators who are recommended to take into consideration their learners' L1 and how it can affect their ability to acquire and use PVs of varying types.

**Keywords: Phrasal Verbs, EFL, Learner Corpus, Typology, Transfer**

### Introduction

Phrasal verbs (PVs) are ubiquitous in English due to their high frequency, yet their polysemy can be problematic for learners of English as a Foreign Language (EFL). For example, *a car pulled up* is idiomatic in meaning in comparison to *he pulled up his socks*. From the literature, it has been shown that figurative PVs present more challenges to learners than literal PVs, and that EFL learners whose first language (L1) does not have an equivalent linguistic feature tend to avoid PVs, which results in unnatural English usage (Liao & Fukuya, 2004; Wang, 2009). Furthermore, the literature has shown that learners process multi-word expressions such as PVs slower and less accurately than native speakers which can hinder usage and fluency (Yun, 2004). Considering these challenges, the literature has mostly focused on how PVs can best be acquired and what factors lead to their avoidance (Dagut & Laufer, 1985; Hulstijn & Marchena, 1989; Laufer & Eliasson, 1993; Siyanova & Schmitt, 2007; Boers, 2011). However, the literature has not been able to provide much insight into EFL learners' natural use of PVs that is typically obtained through corpus data. The current study has chosen to address this gap by investigating Japanese and Chinese EFL learners



use of PVs in the International Corpus Network of Asian Learners (ICNALE) (Ishikawa, 2018). To date, there appear to be only a few studies that have investigated the natural use of PVs in learner corpora (Alejo-González, 2010; Chen, 2013; Wei, 2021). Chen (2013) and Wei (2021) investigated PV frequency in Chinese EFL learners, although they did not separate PVs into different semantic types, which, based on the literature, are each uniquely challenging for EFL learners (Becker, 2014; Liao & Fukuya, 2004; Yasuda, 2010). Furthermore, Alejo-González (2010) was able to contrast the use of PVs that include the particle out in their usage, such as set out or go out by native speakers and three learner groups with different language typologies: Germanic satellite-framed, non-Germanic satellite-framed, and verb-framed. The results showed that verb-framed languages (e.g., Spanish and Italian) used fewer PVs than both satellite-framed learner groups and native speakers. This study utilized a similar design to Alejo-González (2010) and incorporated recommendations from Mano, Yoshinari, and Eguchi (2018), who noted that L1-L2 typological differences could best be observed when there were two L1s (Chinese and Japanese) that are contrasted against each other in relation to the target L2 (English). Thus, the current study aimed to highlight PV usage among the three groups and how L1 typology affects their preferences for different types of PVs.

## Literature Review

### Previous Studies on L2 Learner Use of PVs

When examining PV frequency, the combined work of Gardner and Davies (2007), Garnier and Schmitt (2015), and Liu (2011) were significant as their works led to the development of the Phrasal Verb Pedagogical (PHaVE) List, which is a collection of the most frequent 150 PVs in the BNC corpus and their meaning senses. For example, the PV *stand up* is number 30 on the list and has two meanings: “to rise” and “to make public knowledge a privately held position” (Garnier & Schmitt, 2015, p. 658). Undoubtedly, the PHaVE List can be beneficial to students and teachers as a resource for improving English ability but also as a tool for researchers to investigate EFL learners’ knowledge and usage of high-frequency PVs. The list has been widely used for selecting PVs to include in experiments and studies. For example, Spring (2018a) created a particle list of the meanings that are commonly found in the PHaVE List. Two Japanese EFL learner groups were taught PVs using either a particle list or were taught PVs as whole units without any specific focus on particle meanings. While both groups had equivalent scores on the pre-tests, learners taught with the particle list scored better on post-tests as they were able to extrapolate particle meaning senses to multiple PVs. Liu and Myers (2020) used the PHaVE List to compare PV usage between spoken and academic writing registers. The results revealed a significant difference in the use of the 150 PVs in the PHaVE List across the two registers and recommended that educators prioritize different meaning senses depending on the registers with which their learners are likely to engage with. For example, Liu and Myers (2020) reported that the PV *come up* was most often used in spoken registers to mean to be happening soon (62.5%), whereas in academic registers, the meaning *bring forth* or *produce* (58.5%) was more common. They thus argue that while educators should select different meaning sense depending on their learners’ goals, their study emphasizes the ubiquitous nature of the PVs in the PHaVE List which are found across registers.

Furthermore, adaptations and earlier versions of the PHaVE List have been used in learner corpus studies to examine PV usage. First, Chen (2013) utilized the frequency lists of Gardner and Davies (2007) as well as Liu (2011) to investigate whether Chinese learners and native speakers used PVs at similar frequencies. The study concluded that “Chinese learners of English are capable of producing a sufficient number of phrasal verbs in writing” (p. 433). Second, Wei (2021) used free conversation data from Chinese EFL learners in the Spoken and Written English Corpus of Chinese Learners (SWECCL) and examined PV use across four proficiency levels that ranged from primary to advanced. The results showed a significant difference in PV use between proficiencies as well as a preference among learners to use single verbs instead of PVs at lower levels of proficiency which lessens at higher English proficiency levels. In a learner

corpus investigation into Korean EFL students' usage of PVs, Ryoo (2013) found that the learners used less types of adverbial particles compared to native speakers. Specifically, the particles *on* and *about* were seldom used by the Korean EFL students despite their frequent use by the native speakers. Finally, Alejo-González (2010) investigated out-PVs and categorized them based on their meaning senses and then compared idiomatic PV use between learner groups and native speakers. The results revealed that learners with language typologies similar to English, such as Germanic satellite-framed and non-Germanic satellite-framed, used more non-idiomatic and idiomatic out-PVs. Through contrasting several types of learner groups, Alejo-González reported that L1 typological preferences were observed and reflected in their PV usage.

## L1-L2 Typology

Central to the current study is Talmy's (1985) theory of cognitive typology that compares the typological features of different languages by investigating their grammatical and lexical systems through cognitive, functional, and socio-cultural perspectives (Spring & Horie, 2013). For the current study, each of the three languages selected from the corpus were typologically different; Chinese, Japanese, and English are equipollently framed, verb-framed, and satellite-framed respectively. L1-L2 differences have often been discussed as one of the major causes of PV difficulties (Laufer & Eliasson, 1993; Liao & Fukuya, 2004). Therefore, these difficulties are likely to be different depending on the learners' L1 typology. According to Talmy (1985), languages can be divided into two types, satellite-framed or verb-framed, based on how they conflate complex events into simple sentences to form PVs and other linguistic forms. For example, Japanese generally achieves event conflation by encoding main events (path of motion) to verbs, whereas English tends to encode main events onto other words such as particles, prepositions, and so forth. In English, an example of satellite-framing used to express event conflation is shown in 1a.

- 1a. Tim ran out of the tunnel.
- 1b. Tim ran.
- 1c. Tim exited the tunnel.

Sentence (1a) is a conflated event as it contains the two smaller events (1b) and (1c) but is conceptualized and encoded into a single clause. In (1a), the main event is encoded to the preposition *out*, rather than to the verb. Although it is possible to encode the main event to the verb in English, as in (1c), this is neither standard nor colloquial expression, and thus English could be considered what Talmy (1985) termed a satellite-framed language. However, in verb-framed languages, the path and the manner of motion are often conflated within the verb, which results in not only structural differences between languages, but also in a cognitive shift in how speakers choose to express motion. While Talmy (1985) discussed a two-tier typology, others have suggested a three-tier typology or possibly a cline of event conflation (Slobin, 2004; Spring, 2019). Equipollently framed languages are considered as a third type as they are unique in that they utilize co-verb constructions, with one verb that can indicate path and another for manner; however, identifying the main verb can be difficult as either verb can be omitted and function independently of each other. Compare the two examples from Spring and Horie (2013) in Table 1:

TABLE 1  
*Differences in L1-L2 Event Conflation*

	<i>Chinese</i>	<i>Japanese</i>
Target English Sentence	He walked in the building.	The boy ran up the stairs.
L1 Equivalent	他 走 進 樓 了	男 が 階 段 を 上 が っ た
Grammatical Structure	he walk enter building PFV	Boy-NOM stairs-ACC go.up:PST
Literal Translation	He walked into the building.	The boy ascended the stairs.

*Glossary:* ACC: Accusative Case Marker; NOM: Nominative Case Marker; PFV: Perfective Aspect; PST: Past-Tense Marking (Spring & Horie, 2013, p. 693)

While it is possible to say *kake-nobotta* in Japanese, a more literal way of saying *ran up*, these types of compound verbs are not as generative as PVs, are limited by convention, and are not as common as simple verb-framed expressions. Conversely, while *walk* and *enter* in the Chinese example are functioning as a compound verb, they are flexible in that their individual uses are also possible. For example, 他走了, or *he walked*, and 他進樓了, *he entered the building* (Spring & Horie, 2013, p. 693). These structural differences impact preferential choices for expressing path of motion and manner of motion, which can influence not only how EFL learners construct PVs in English, but also whether they choose to use them or not.

## PV Definition for the Current Study

Defining PVs can be different from one article to the next, and this has been a source of confusion for both students and teachers (Gardner & Davies, 2007). Contrasting terms have been used to define PVs, such as adverbial particles (Alangari et al., 2020) and morphologically invariable particles (Sonbul et al., 2020), which can result in dramatic differences in definitions. At the extreme end, *The Cambridge Grammar of the English Language* (Huddelston & Pullum, 2002) listed each grammatical variation under a separate heading. Therefore, the term PV was rejected entirely in favor of more refined syntax- or semantic-based categories such as prepositional verbs and verbal idioms containing intransitive prepositions. Quirk's (1985) definition included literal and figurative PVs but relied heavily on syntax; they used the polysemous word phrase *turn on* (defined as to excite or to become hostile) to exemplify the difference between phrasal verbs and prepositional phrases based on how the preposition *on* (where *turn on* means to become hostile) and the particle *on* (where *turn on* means to excite) separated from the verb in tree-diagrams. In contrast, Biber et al. (1999) applied a semantic-based approach but also stated that PVs required "meanings beyond the separate meanings of the two parts" (p. 404), essentially excluding common, literal PVs that are transparent in meaning such as *go out* or *cut down*. Finally, regarding semantic opacity, or "compositionality" as it was referred to as by Bolinger (1971), contrasting terms and definitions have also been suggested. For example, Ke (2017) categorized the different types of PVs as literal PVs, semitransparent PVs, and idiomatic PVs. Conversely, Armstrong (2004) preferred the terms directional PVs, aspectual PVs, and idiomatic PVs. Gardner and Davies (2018) discussed this phenomenon of term conflation in the literature by stating that the "classification often becomes bogged down in ambiguity and inconsistency" (p. 198). However, most have opted to retain the term "phrasal verb", most likely due to its prolific presence in classrooms and textbooks.

A turning point may have been when Darwin and Gray (1999) critiqued how the literature was defining PVs and suggested a procedure for identifying PVs through a series of grammatical tests. Radically, they called for researchers and teachers to "consider all verb + particle<sup>1</sup> combinations to be potential phrasal verbs until they can be proven otherwise (p. 65)", such as in the case of *ran up the bill* and *ran up the hill*. This method has been refined and tested over the last few decades (Armstrong, 2004; Cowie & Mackin, 2001; Gardner & Davies, 2007; Garnier & Schmitt, 2015; Liu, 2011), and is a definition that has been applied to the *Oxford Dictionary of Phrasal Verbs* (Cowie & Mackin, 2001) which contains all the aforementioned PV examples, prepositional phrases, and PVs of varying semantic opacity that range from literal to figurative. Furthermore, due to its all-encompassing umbrella-like approach, it mitigated the issue of having conflating terms and lengthy descriptions. Gardner and Davies (2007) stated that, "if even the linguists and grammarians struggle with nuances of phrasal verb definitions, of what instructional value could such distinctions be for the average second language learner?" (p. 341). Accordingly, the current study adopts a pedagogically appropriate definition that was used by Garnier and Schmitt (2015) to develop the PHaVE List. That is, PVs are defined as a lexical verb followed by an adverbial particle (Gardner &

<sup>1</sup> Darwin and Gray (1999) use the word particle here to mean either a particle or a preposition which has yet to be identified.

Davies, 2007). The PHaVE List was also applied to the current study for the corpus search. However, as Garnier and Schmitt (2015) did not seek to categorize each meaning sense for PVs in the PHaVE List, some additional criteria were included to categorize them as either directional, aspectual, or idiomatic, which is discussed further in the Materials and Methods section.

## PV Difficulties for Chinese EFL learners

Becker (2014) investigated PV avoidance in relation to learning context, task type, and PV type and revealed that when provided with a story retelling task, where the Chinese EFL learners could express themselves freely, as opposed to a translation task, they chose one-word equivalents instead of PVs. Liao and Fukuya (2004), who also examined avoidance of PVs by Chinese EFL learners concluded that while it was apparent at the intermediate level, PV avoidance diminished as learners increased in level, which has also been showed in corpus investigations by Chen (2013) and Wei (2021) as discussed above. In Liao and Fukuya (2004), intermediate learners and above showed no preference between figurative and literal PVs, as compared to lower-level learners who avoided figurative PVs in favor of literal ones. However, regarding aspectual and idiomatic PVs, transferability has been suggested as difficult for Chinese EFL learners, except for the particle *chu* (meaning out) as it has “semantic similarities” (p. 367) to the figurative meaning senses in English PVs (Liao, 2020; Liao & Fukuya, 2004). Conversely, Spring (2019) discussed how Chinese learners exhibited equipollent-framing for change of state events, which are of a similar structure to aspectual and idiomatic PVs. Typologically, Spring and Horie (2013) found that Chinese EFL learners used far more satellite-framed expressions in English than their Japanese counterparts, but significantly fewer than native English speakers. This typological preference resulted in more descriptions of manner of motion by Chinese EFL learners in English, as compared to Japanese EFL learners. This was congruent with the findings of a study by Brown and Chen (2013), but was reflected in their L1 usage instead of their L2; suggesting the influence that L1 typological features can have on the L2. They investigated descriptions of motion from video recordings from native Chinese, Japanese, and English speakers. While the Chinese participants encoded manner of motion much more often than the Japanese participants, as compared to English participants, the Chinese participants “appear to include explicit mention of Manner in speech at both the event description and clausal level to the same high degree as native speakers of English” (p. 619). Thus, for Chinese EFL learners, their L1 typology may transfer into utilizing expressions of manner of motion in English, such as PVs, yet avoidance, specifically for figurative PVs, are problematic below the intermediate level.

## PV Difficulties for Japanese EFL learners

The literature has been deficient in learner corpus investigations into PV usage by Japanese EFL learners. However, there have been several studies examining PV acquisition and the influence of Japanese typology on L2 English. Yasuda (2010) and Spring (2018a) compared cognitive linguistic teaching methods to traditional vocabulary methods for the adoption of PVs in Japanese EFL learners. Also, Strong and Boers (2019a; 2019b) compared a retrieval method to shallow textbook exercises. All four studies mentioned the difficulty that Japanese learners faced when learning PVs due to not having an equivalent in Japanese as well as the challenges posed by PV form-meaning links (Spring, 2018b; Strong, 2013; Yasuda, 2010). Yasuda (2010) hypothesized that PVs would be problematic due to path trajectory (path of motion) being encoded not by the satellite particle or prepositions, as they are in English, but within in the verb itself in Japanese, respectively: “as in ‘to go through’ versus ‘tooru’, and ‘to go across’ versus ‘koeru’” which are similar in meaning despite having different parts of speech (p. 251). Inagaki (2002) investigated vague sentences that conflated motion and locational meanings, for example, Tom walked under the bridge, which are not exclusive to but are similar in PVs. The findings revealed that regardless of proficiency, Japanese EFL learners often interpreted satellite-framed motion events in English incorrectly (Inagaki, 2002). Spring (2018a) also noted that “learners with L1s such as Japanese (verb-framed languages) tend to have extreme

difficulty acquiring the patterns of satellite-framed languages” (p. 123). Spring and Horie (2013) examined this in their study where they asked participants to describe short video clips in order to examine framing-tendencies for motion events. As compared to native English speakers who used satellite-framing 81.56% of the time, native Japanese speakers interpreted the clips using verb-framing tendencies 95.67% of the time which suggests that these tendencies are more than just a representation of what is taught in schools. For example, the native English speakers were more likely to say, *he walked into the building*, whereas the Japanese EFL learners were more likely to say, *he entered the building*. While this illustrated the difficulty Japanese EFL learners could have with directional PVs, aspectual and idiomatic PVs also present further challenges. Their form is representative of satellite-framing, but it is not clear whether the particles contain conceptual meanings or not. These types of phrases have been considered difficult to acquire if there was not a translatable equivalent in the L1 (Yasuda, 2010). Furthermore, many aspectual and idiomatic PVs have been considered change of state expressions that Japanese EFL learners have often struggled to produce and understand (Spring, 2019).

## Methods

### Research Questions

Based on the aforementioned studies, it was reasonable to hypothesize that PV frequency and PV types may be influenced by L1 typological differences. From a pedagogical standpoint, it is important to understand the frequency and types of PVs that EFL learners are using as they are critical for natural English use, much less paramount for comprehension due to their high frequency (Siyanova & Schmitt, 2007). Furthermore, Chinese and Japanese EFL learners are without PV equivalents in their L1 which makes PVs uniquely challenging to them in their own respective ways (Liao & Fukuya, 2004). Additionally, there were no learner corpus investigations into PV usage by Japanese EFL learners, and only a few by Chinese EFL learners. Considering the above, this study sought to add to the previous body of research by finding answers to the following research questions:

1. How frequently are Chinese and Japanese EFL learners using PVs in comparison to native English speakers?
2. What PV types are learners using more or less of in the corpus?
3. How are the learners' L1 typological differences reflected in their PV use?

### Corpora

The corpus used for this paper was the International Corpus Network of Asian Learners of English (ICNALE) (Ishikawa 2018), which contained written essays of EFL learners from China, Indonesia, Japan, Korea, Taiwan, and Thailand, as well as contributions from native speakers of English. The target PVs used for keyword searches were the 150 PVs that form the PHaVE List and includes all polysemous meanings for each PV. The rationale for selecting these PVs was that they include 62.95% of all the PV occurrences in the British National Corpus (BNC) despite only representing 1.2% of all PVs. As this high-frequency group of PVs is critical to English proficiency, information regarding frequencies and PV types for the two EFL learner groups could be useful for educators. In the corpus, each participant including the native speakers contributed two academic essays to the corpus, one on part-time jobs and one on smoking, and each essay was counted as one independent sample which were between 200-300 words each. The two prompts were: (a) It is important for college students to have a part-time job. and (b) Smoking should be completely banned at all the restaurants in the country. The ICNALE corpus mapped participants onto CERF-level bands based on a vocabulary-size testing and their scores from tests such as the Test of English for International Communication (TOEIC) and the Test of English as a Foreign Language (TOEFL). The

distribution resulted in a lower and upper threshold for the CEFR B1 proficiency band (B1.1 and B1.2), and it was tentatively decided to conduct the current study on the larger B1.1 group. However, a priori power analysis revealed that to produce a medium effect size of  $N = 220$ , the Japanese B1.1 group ( $N = 179$ ) would have to produce more than one PV per sample. Considering the potential for errors, the literature's discussion on PV avoidance, L1-L2 difficulties, and that Gardner and Davies (2007) had reported that a PV would be encountered once every 192 words, it was decided to merge the B1.1 and B1.2 groups to create what was more commonly known as the B1 intermediate CEFR level. Finally, as the sample sizes and word count within each corpus were different, a multiplier was used to normalize the three groups to a words-per-million (WPM) count to compare the groups. A summary of the corpus data can be found in Table 2 below:

TABLE 2  
*Corpus Data Summary*

<i>First Language</i>	<i>No. of B1.1 Participants</i>	<i>No. of B1.2 Participants</i>	<i>No. of Essays</i>	<i>Total No. of Words</i>	<i>Mean Words/Essay</i>	<i>Words Per Million (WPM) Multiplier</i>
Chinese	232	105	674	160,460	238	x6.232082
Japanese	179	49	456	100,911	221	x9.909722
English	N/A	N/A	400	89,513	224	x11.17156

## Identifying and Classifying PVs

As the current study was focused on investigating the semantic characteristics of PVs and their use, a pilot test was initiated to compare the suitability of Armstrong's (2004) semantic PV categories to those of Ke (2017). Three raters, one native Japanese speaker and two native English speakers, all of whom were English teachers at Japanese universities, categorized the PVs based on their descriptors and found that Armstrong's (2004) categories were more definitive, as Ke's (2017) descriptors described more of a scale of semantic transparency. Therefore, Armstrong's (2004) descriptor and identification process for PVs was selected to be used in combination with the PV definition from Garnier and Schmitt (2015): a lexical verb followed by an adverbial particle.

The process begins by determining the transitivity of a particle, which is the defining factor for whether a verb + particle/preposition is a unit of meaning or not, and effectively separates PVs from free combinations (Armstrong, 2004). For example, this can be demonstrated when a verb + particle structure is not followed by a noun phrase, indicating that it is a PV:

Bob nodded off.  
Nobody has any idea why he gave up.  
She carried the suitcases up the stairs and set them down.  
He ripped the contract up.

However, more often than not, a noun phrase follows a particle. A quick test to determine the transitivity of a particle in these situations can be performed by saying the sentence out loud and pausing (as represented by double-slashes in the examples) before the particle; then say the sentence out loud again, but this time, pause after the particle (Armstrong, 2004). The asterisks indicate the examples in which the pauses should sound incorrect:

\*Bob jogged to // the park.  
Bob jogged // to the park.  
Bob threw out // the trash.  
\*Bob threw // out the trash.

As shown above, this test allows for the free combination jogged to to be discerned from the PV threw out. Here, it is important to reiterate that Garnier and Schmitt (2015), and Armstrong (2004), consider prepositional phrases as PVs, and that the transitivity of the particle distinguishes these from free combinations of a noun and preposition. If the above does not provide a clear answer, the particle + noun phrase (NP) can be moved to formulate WH-questions or cleft sentences to determine the transitivity of the particle. As the verbs and the particles that form PVs are units of meaning, separating them in this way creates errors that identify a sentence as having a PV. The following examples were taken from Armstrong (2004, p. 221):

- Where did Jo walk? To the Post Office.
- It was to the Post Office that Jo walked.
- \*Where did Jo look? After the children.
- \*It was after the children that Jo looked.
- \*It was up the contract that Jo tore.
- \*What did Jo tear? Up the contract.

## Process of Analysis

From the PHaVE List, the bare verbs and their lexemes were tabulated and became the search terms, and all the particles became the context words that were fed into Anthony's (2020) AntConc corpus software. This ensured that the search results only presented concordance lines that included both a search term in conjunction with a context word. The Key Word In Context (KWIC) sort was set to produce results where context words would appear between 1 and 7 words although the majority of concordance results had a particle directly after a verb or after a short noun-phrase. Unfortunately, a large number of sentences contained prepositions that formed free combinations instead of PVs and removing them was performed manually using the aforementioned identification tests. Nonsensical concordance results due to grammatical or lexical errors were removed. However, if the clause containing the PV and the PV itself could be understood, it was retained in the dataset regardless of minor errors such as tense, word order, or spelling.

Two professionals in the EFL field joined the project as raters along with one of the researchers to ensure that a) the identification tests were able to distinguish between PVs and free combinations and b) that the consistency of the descriptors was able to correctly categorize PVs into their semantic categories. Approximately 20% of the dataset, or 56 PV samples, was distributed amongst the raters and one of the researchers, which was an acceptable amount according to Loewen and Philp (2012), "particularly if the agreement in coding is high" (p. 68). Coincidentally, every meaning sense for each PV in the corpus was able to be rated once by the raters. For example, the PV give up was quite common, yet there was no need for the raters to judge all of the sentences that described people giving up smoking. The data from the inter-rater reliability procedure as well as the collected and categorized PVs were then entered into SPSS software for statistical analysis, and the concordance lines were extracted to Excel for descriptive analysis.

## Inter-rater Reliability

Fleiss' kappa was used to determine the raters' agreement among the individual 56 random samples of PVs that were judged as either directional, aspectual, or idiomatic, or not a PV at all, based on the descriptors outlined in Armstrong's study (2004). Four samples were selected as not being PVs. These were *go up*, *set up*, *bring up*, and *put through*. However, an agreement was reached that all but *put through* were actually PVs after reaffirming the identification process (Armstrong, 2004). The reliability agreement results, as shown in Table 3, are the raters' original scores, which included the four items selected as not-PVs as well as a few other disagreements. Upon renegotiation, a second round of rating resulted in 100%



agreement. Fleiss' kappa showed that there was a high level of agreement among the raters' judgements,  $\kappa = .724$  (95% CI, 0.615-0.834),  $p < 0.0005$ , based on the original scores.

TABLE 3  
*Inter-rater Reliability Agreement*

<i>Raters</i>	<i>Agreement Percentage</i>
Rater 1&2	89%
Rater 1&3	86%
Rater 2&3	80%

*Note.* Rater 1 is a researcher.

A few discrepancies were observed between the raters, such as a fourth category that combined elements from both aspectual and idiomatic PVs, such as *give up* (quit) and *go off* (explode). Furthermore, there was confusion regarding whether *go through an experience* was idiomatic or directional based on its metaphysical context. After a discussion, the PVs with both aspectual and idiomatic elements were placed in the idiomatic PV category, as adherence to Armstrong's (2004) descriptors meant that if the lexical meaning of the verb was not maintained, then it must be an idiomatic PV. Therefore, PVs such as *give up* (quit) and *go off* (explode) were categorized as such, despite having aspectual elements. Contrarily, the PVs were to be judged on their meaning sense alone despite their context being crucial in defining the applicable meaning sense. This meant that PVs such as *look back* (on my life) and *go through* (an experience) were considered directional PVs, and PVs such as *look down* could be either directional (look down at your shoes) or idiomatic (look down on someone), depending on the context.

## Findings and Discussion

### Overview of PV Usage

This corpus investigation of argumentative essays revealed differences in PV usage among native speakers of English, Chinese and Japanese EFL learners. The results came in lower than what is typically observed in the BNC, 0.52%, or 1 PV per 192 words, as reported by Gardner and Davies (2007). However, as the BNC included spoken and written data from a wide range of contexts, it was assumed that the nature of the written task and topics in the ICNALE corpus would result in fewer PVs produced overall, which the results in Table 4 suggest. In terms of total PV usage, there was a 0.04% difference in the Chinese EFL learners and 0.07% difference in the Japanese EFL learners, as compared to the native English speakers which may indicate an overall underuse of PVs by the two learner groups.

TABLE 4  
*Overview of PV Frequencies*

<i>First Language</i>	<i>PV Tokens</i>	<i>PV Types</i>	<i>Normalized No. of PVs in Essays (WPM)</i>	<i>% of Total</i>	<i>Phrasal Verb-to-Word Ratio</i>
Chinese	245	53	1,921	0.15%	1:655
Japanese	113	25	1,120	0.11%	1:893
English	172	58	1,787	0.19%	1:520

### Findings from PV Type Categorization

The normalized totals for each group are presented in Figure 1. The data for these categories were tested using a Chi-squared test that showed that there was a significant association between L1 and PV type within the corpus ( $\chi^2(4) = 344.201$ ,  $p < 0.001$ , Cramer's  $V = 0.194$ ). Furthermore, a pairwise comparison found a

significant difference in the proportionate use of PVs between the native speakers and the EFL learner groups across several PV categories. There was a significant difference viewed in terms of frequencies between the two EFL learner groups and the English native speakers. First, both Chinese and Japanese EFL learners used significantly fewer aspectual PVs than the native speakers, and the Chinese EFL learners used significantly more aspectual PVs than the Japanese EFL learners. For directional PVs, there were significant differences between all three groups. Interestingly, the Chinese EFL learners used significantly more idiomatic PVs than the native English speakers and the Japanese EFL learners.

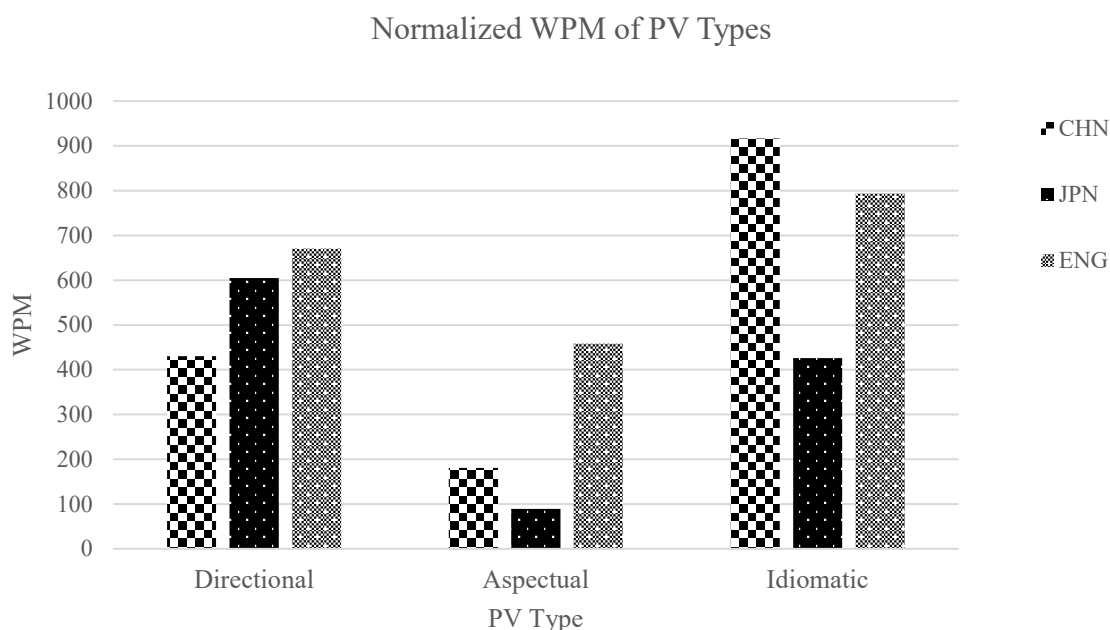


Figure 1. Normalized WPM of PV types.

One possible explanation is that the Chinese EFL learners displayed a tendency to use the PV *give up* which accounted for 32% of their idiomatic PV usage. Although *give up* was not included in the writing question prompt, the topic seems to have influenced many of the Chinese EFL learners to use it in reference to giving up smoking. While there were only two cases of *give up* in the English corpus, the Japanese EFL learners also used it markedly, but not as much as the Chinese EFL learners. Another possibility is that as PVs are used less in academic prose, the native speakers may have adjusted their writing style to match the register for the short essays (Liu, 2011). This relates specifically to idiomatic PVs as they often have “formal one-word equivalents” (Cowie & Mackin, 2001, p. 422). As the PHaVE List is comprised of high-frequency PVs, their academic equivalents are generally not as frequent. In contrast to the native speakers, the Chinese EFL learners may not have known the formal PV equivalents due to their lower frequency. Conversely, choosing to use them would have required a nuanced understanding of academic English vocabulary, which is a skill that the native speakers conceivably have more experience with than the two EFL learner groups. While further inquiry is required into this matter, what is clear is that proportionately the groups differed in use across all three categories. An extended list of the PV types used by the three groups can be found in the appendix.

## Effects of L1 Typology on PV Usage

Based on L1-L2 typological differences, it was hypothesized that the EFL learner groups would use fewer PVs across all PV types, as compared to native English speakers (Brown & Chen, 2013; Becker, 2014; Inagaki, 2002; Liao & Fukuya, 2004; Spring, 2018b; Yasuda, 2010). However, it was unexpected that the Chinese EFL learners used more idiomatic PVs than the native speakers, as idiomatic PVs are opaque in meaning and have inherent complexities that have typically been problematic for EFL learners (Siyanova & Schmitt, 2007). While the prompt may have elicited many of the Chinese EFL learners to use the PV *give up* which seems to have skewed their idiomatic PV usage, the Chinese language does have some typological advantages that may allow for a positive transfer to idiomatic PVs. First, the transferability of the idiomatic meanings associated with the particle *chu* (out) exist in Chinese (Liao, 2020; Liao & Fukuya, 2004), which is the most common particle in the PHaVE List, shown below in Table 5, and equated for 21% of their idiomatic PV usage.

TABLE 5.  
The PHaVE List PV Particle Frequencies

Particle	Number of PVs	Percentage
OUT	36	24%
UP	35	23%
DOWN	17	11%
BACK	14	9%
ON	11	7%
OFF	10	7%
IN	9	6%
OVER	6	4%
AROUND	4	3%
THROUGH	3	3%
ABOUT	3	2%
ALONG	2	1%
AHEAD	1	1%
TOTAL	150	100%

Furthermore, Spring (2013, 2019) notes how Chinese has more metaphorical meaning extensions, as compared to Japanese, due to its cognitive typology. This is not the case in Japanese compound verb structures which are similar constructs to English PVs, such as *fuki-toru* (meaning to wipe away), as the metaphorical extensions of these kinds of verbs are extremely rare. This means that there can be a negative impact on form-meaning mapping for Japanese EFL learners that can affect their cognitive preferences for how to express change of state events in English due to the dissimilarities between Japanese and English (Spring, 2019). Furthermore, there are many high-frequency PVs that express a change of state, which are typical with idiomatic and aspectual PVs, and make up many of the target meaning senses in the PHaVE List, such as *break down*, *grow up*, *break up*, *turn over*, and so forth. (Garnier & Schmitt, 2015). These PVs that express a change of state are often figurative and can have metaphorical and aspectual elements attached to their satellite particles, which are achieved in limited ways in Japanese. Yasuda (2010) explained that “the chief problem with comprehending phrasal verbs for Japanese EFL learners may exist in their lack of awareness of the orientational meaning(s) of particles and their failure to fully understand why one particle is used in preference to another” (p. 251). The orientational meanings that Yasuda is referring to here are orientational metaphors, such as COMPLETION IS UP, which are commonly found in aspectual and idiomatic PVs. Uniquely, Japanese does have compound verbs that express this orientational meaning, such as *tsukai-kiru* (use up), or *tabe-kiru* (eat up), although none of these were used by the Japanese EFL learners. In fact, the most used aspectual PV by the Japanese EFL learners was set up which is *wasei-eigo*, or a Japanese-language expression based on English words, or parts of word combinations, that do not exist in English or whose meanings quite differ from the words which they were derived from. Regarding aspectual PVs for the Chinese EFL learners, many found within the corpus had co-verbs or compound-noun equivalents in Chinese, such as *shèzhì* (set up) or *chéngdān* (find out). According to Liao (2020), the

meaning sense for *out* in *find out* has a similar perspective shift (p. 376) to *chu* in Chinese, which expresses something becoming visible or accessible. However, aspectual PVs can be comprised of particles other than *up* and *out* in English and, more generally, aspect is achieved different ways in Chinese and Japanese. To summarize, Japanese and Chinese have some limited uses of aspect which have some similarities to aspectual PVs. However, their lack of knowledge of other aspectual PVs may have resulted in them using less than the English native speakers. Finally, Chinese allows for much more metaphorical extensions than Japanese, specifically with the particle *out*, which may have contributed to their higher number of idiomatic PVs.

Directional PVs were the only category in which the Japanese EFL learners used more than the Chinese EFL learners. From an L1 typological perspective, Brown and Chen (2013) observed that Chinese speakers encoded manner of motion more often than Japanese speakers in their respective L1s. The same is reflected in Spring (2019) who discusses a cline of event conflation which explains how L1 typology influences preferential choices for the underproduction or overproduction of manner of motion and path. With English and Japanese on the opposite ends of the cline, it was hypothesized that the Japanese EFL learners would produce the least number of directional PVs. However, Japanese has some compound nouns and verb conjugations which are used to form verbs and are similar to PVs, such as *gaishutsu* or *dete-iku* (go out), and *modotte-kuru* (come back) which were all found as directional PVs in the Japanese corpus. Japanese also allows for directed motion verbs like in English, such as *go* and *come*, to combine with a goal, prepositions or particles, which form commonly found directional PVs (Inagaki, 2002). Of the directional PVs that were found in the Japanese EFL learner corpus, 49% of them were comprised with *go* or *come*, such as *come out*, *come in*, *go back*, *go in*, and *go through*. Yasuda (2010) hypothesized that path trajectory, which is usually encoded onto the verb itself in Japanese, would be problematic for Japanese EFL learners. Although, from the aforementioned PVs, this only applies to *go through* (*tooru*) and in some cases *go back* (*modoru*) which have their path trajectory encoded onto the verb, whereas the other PVs require constituents in Japanese to form the same meanings. In the case of Japanese EFL learners, their L1 typology can allow for easy transfer to directional PVs with *go* and *come*. Overall, Japanese as a verb-framed language will generate less descriptions of path due to its L1 typology which has been shown in the literature and by this study's frequency results (Brown & Chen, 2013; Inagaki, 2002; Spring & Horie, 2013). However, in the case of deictic verbs, which are only *go* and *come* in English, Spring & Horie (2013) saw a tendency for Japanese and Chinese EFL learners to replace a path verb in their L1 with *go* + a preposition. As both English and Japanese utilize directed motion verbs, it may be that not only do these directional PVs from the PHaVE List have a similar structure in both languages, but that the Japanese EFL learners have a preferential tendency to use these types of verbs.

Conversely, Chinese employs compound verbs, co-verbs, and directional complements, which can function alongside other verbs as prepositions or stand-alone verbs. Liao and Fukuya (2004) mentioned that Chinese has very few of these in regard to the particles that are found in English PVs, such as “*lai* (over here), *qu* (over there), *shang* (up), *xia* (down), *jin* (in), and *chu* (out)” (p. 211). However, the particles *up*, *down*, *in*, and *out* comprise 64% of the PHaVE List (Garnier & Schmitt, 2015). Contrastive analysis would assume that compound verbs conflated with path and manner of motion would be easily transferable into English PV constructions, for example, *zuò xià* (sit down), *qǔchū* (take out), etc. Becker (2014) reiterates this by outlining that literal PVs are similar enough between Chinese and English for Chinese EFL learners to deduce the meanings of PVs. Considering the above, why the Chinese EFL learners used so few directional PVs requires more investigation. Thus, we suggest that further studies are conducted into directional PV usage for Chinese EFL learners.

## Conclusion

Overall, the results revealed that the Japanese EFL learners used the least number of total PVs compared to the native English speakers, followed by the Chinese EFL learners. From a typological standpoint, the

cline of event conflation discussed by Spring (2019) was a good indicator of the likelihood to produce PVs as the cline is reflected in our total PV frequencies. As PVs are ubiquitous in English, these EFL learners will most likely produce unnatural writing unless they increase their usage of PVs (Siyanova & Schmitt, 2007). As Yasuda (2010) states, “L2 learners with these L1 backgrounds are likely to perceive phrasal verbs as nonanalyzable strings of words or fixed expressions whose meanings are arbitrarily stipulated” (p. 265). Thus, these learners may continue to be unaware of particularly ambiguous PVs, such as aspectual PVs, unless they receive proper instruction.

In terms of PV types, the current study revealed some differences between the two EFL learner groups which was highlighted by their L1 typological differences. First, the Chinese EFL learners used the most idiomatic PVs which aligns with Liao and Fukuya (2004) as well as Wei (2021) who observed that avoidance of idiomatic PVs disappears from the intermediate level for Chinese EFL learners which is the same as the CERF B1 participants in this study. However, this comes with the caveat that the native speakers most likely reduced their usage of PVs given the academic register, and that there was a disproportionate use of the PV *give up*, which may have confounded the results. Nonetheless, it appears that there are more typological advantages for idiomatic PVs for the Chinese EFL learners than the Japanese EFL learners (Liao & Fukuya, 2004; Liao, 2020; Spring, 2019). For aspectual PVs, the two L1s have little to offer in terms of transference outside of the particle *out* for Chinese EFL learners, and *up* for Japanese EFL learners. Furthermore, as most of the literature on Japanese EFL learners and PVs has focused on the instruction of idiomatic meanings and the difficulty of transfer from a verb-framed language to a satellite-framed language (Spring, 2018b; Strong, 2013; Yasuda, 2010), research into directional PVs has been inconspicuous. While the results of this study support their findings, 40% more directional PVs were used more by the Japanese EFL learners than by the Chinese EFL learners. Compared to idiomatic PVs, directional PVs and their particles are not vague, and many of the PVs in the PHaVE List are comprised of directed motion verbs, such as *go* and *come*, which also appear in Japanese and may be easily transferable into English (Inagaki, 2022). Considering the above, it would be beneficial for educators and learners to investigate more regarding both Chinese and Japanese EFL learners’ usage of directional PVs.

Finally, as with any study, ours was not without limitations. First, the essay topics and the academic context of the written tasks should be considered, as they may have influenced the type and usage of PVs observed in this study. Second, as our study only investigated one of the CEFR levels in the ICNALE corpus, it would be useful to examine and compare PV usage from A2 to B2+ levels. This study has shown that the three PV types are uniquely different and that L1 typology can influence their usage positively or negatively. Thus, we recommend that educators do not overgeneralize PVs and consider their learners’ L1s when teaching PVs.

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## Appendix A

### Directional PVs

<i>PV</i>	<i>Chinese</i>		<i>Japanese</i>		<i>English</i>	
	<i>PV Count</i>	<i>WPM</i>	<i>PV Count</i>	<i>WPM</i>	<i>PV Count</i>	<i>WPM</i>
BRING IN	3	19			2	22
COME BACK					6	67
COME IN	1	6	1	10	2	22
COME OUT			2	20	1	11
GET BACK	1	6			1	11
GET OFF					2	22
GET OUT	3	19	9	89	1	11
GET THROUGH	2	12	6	59	1	11
GET UP			1	10		
GIVE BACK	1	6			4	45
GIVE OUT	2	12				
GO BACK	4	25	3	30	1	11
GO DOWN	1	6				
GO IN	2	12	3	30		
GO OUT	18	112	18	178	16	179
GO THROUGH	5	31	4	40	6	67
GO UP					1	11
LOOK BACK	5	31				
MOVE IN			3	30		
MOVE OUT	1	6			3	34
PICK OUT	1	6	1	10		
PICK UP	1	6				
PUT IN					4	45
PUT ON	2	12			1	11
PUT OUT	2	12				
PUT UP	1	6				
SIT DOWN			7	69	2	22
SIT UP					1	11
TAKE IN	10	62	3	30	4	45
TAKE OUT	3	19			1	11
TOTALS	69	181	61	89	60	458

## Appendix B

### Aspectual PVs

<i>PV</i>	<i>Chinese</i>		<i>Japanese</i>		<i>English</i>	
	<i>PV Count</i>	<i>WPM</i>	<i>PV Count</i>	<i>WPM</i>	<i>PV Count</i>	<i>WPM</i>
BREAK UP	1	6				
COME OUT	3	19			1	11
FIND OUT	6	37			6	67
GET ON	2	12	1	10	1	11
GET OUT					1	11
GO OFF					3	34
GO ON			2	20	6	67
HOLD ON					1	11
MOVE ON	1	6			4	45
PUT IN					2	22
SET UP	12	75	6	59	1	11
TAKE ON	4	25			15	168
	29	430	9	604	41	670

## Appendix C

### Idiomatic PVs

<i>PV</i>	<i>Chinese</i>		<i>Japanese</i>		<i>English</i>	
	<i>PV Count</i>	<i>WPM</i>	<i>PV Count</i>	<i>WPM</i>	<i>PV Count</i>	<i>WPM</i>
BREAK DOWN	3	19				22
BREAK OUT					1	67
BRING ABOUT	1	6			1	22
BRING IN						11
BRING UP	1	6	6	59	3	11
CARRY ON						22
CARRY OUT	3	19	2	20	3	11
COME ABOUT	2	12			1	11
COME DOWN					8	
COME ON	1	6			1	45
COME UP	2	12	1	10	5	
FIND OUT	4	25			1	11
GET DOWN	1	6				
GET OFF	2	12				
GIVE UP	18	112	19	188	2	179
GO OFF	5	31				67
GO ON					3	11

GO OVER	5	31				
HOLD ON					1	
LOOK DOWN	1	6				34
LOOK UP	1	6				
MAKE UP	1	6	2	20	4	
PICK UP					5	45
POINT OUT	2	12	2	20	4	11
PUT ON	2	12			1	
PUT OUT	1	6			1	
PUT UP			9	89	2	22
SET OUT					1	11
SET UP	10	62			2	45
TAKE OFF	3	19			1	11
TAKE UP	21	131			7	78
TURN OUT	3	19	1	10	1	11
TURN UP	1	6	1	10	2	22
WORK OUT	1	6			8	89
	147	916	43	426	71	793