The Role of Lexical Aspect in L2 Acquisition of the Present Perfect

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Abstract The present study examined the use and appropriateness of the English present perfect in 24 advanced L1 Cantonese ESL learners using a rational cloze test. Results suggested that the learners strongly associated the present perfect with accomplishments than with states. Mixed-effects statistical analyses confirmed that prototypical pairings of morphology and lexical aspect (i.e. accomplishments and the present perfect) tended to be used more appropriately than non-prototypical combination (i.e. states and the present perfect). Yet, another finding revealed a robust L1-based lexico-grammatical pairing between present perfect progressive and state verbs modified by durative adverbials. These patterns of findings are interpreted as supporting the strong effect of lexical aspect and L1 transfer, which demonstrates a very complex relationship between putatively universal and language-specific mechanisms in second language acquisition. In sum, this study has provided new impetus to a possibility of extending the Aspect Hypothesis to the perfect aspect. More L2 acquisition research is called for to investigate the more complex yet less frequent English present perfect and present perfect progressive. Pedagogical implications of the findings are also discussed.

Keywords Aspect hypothesis · Lexical aspect · Present perfect · State · Accomplishment · Cantonese

1 Introduction

In English, we can use the simple past or the present perfect (PP) to describe past situations, as exemplified in *He died* versus *He has died* (i.e. He is dead). The perfect encoded by PP adds a subtle aspectual meaning of "continuing present relevance of

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a past situation" (Comrie, 1976, p. 52) that is unavailable to the simple past. Such a perfect/non-perfect contrast presents some unique difficulties to language learners.

First and foremost, the perfect has complex semantic and pragmatic meaning. Comrie (1976) posited four types of meaning for the perfect (see Sect. 2.2). The multiple perfect meanings, plus other linguistic factors such as verb forms, adverbial context, lexical verb and meaning, are found to be responsible for the late emergence of PP forms (present perfect progressive included) relative to the simple past between both preschool children (e.g. Johnson, 1985) and adult English as second language (ESL) learners (e.g. Bardovi-Harlig, 1997, 2001). The multiple perfect meanings, in addition to the perfect/non-perfect contrast, further exacerbate the learning difficulty of PP (Bardovi-Harlig, 2001, pp. 223–4).

Another stumbling block arises from the differential use of PP in British English (BrE) and American English (AmE). Comrie (1976, p. 54) observed "American English overall shows a greater preference for the non-perfect, in cases where British English would prefer or require the perfect". Corpus research corroborates this observation that "written AmE in the 1990s still uses significantly fewer PPs than BrE" (Hundt & Smith, 2009, p. 48). Yao and Collins (2012) also adduced corpus evidence to show the highly dynamic use of PP among major varieties of English, as well as across genres such as conversations, news reportage, academic and fictional writing. These dialectal and discourse variations in usage, plus the subjective perspective of the writer/speaker, render PP an elusive learning target as its use is largely non-obligatory and context dependent.

Third, the infelicitous combination of PP and deictic past adverbials (e.g. **I have eaten cookies yesterday*) poses an interesting typological problem known as the present perfect puzzle (Klein, 1992). Such a combinatory restriction applies to English, but the equivalent combinations are perfectly permissible in closely related languages such as German, Dutch and French. Previous research has suggested that language learners from these language backgrounds, depending on specific L1-L2 pairings, may struggle in processing the semantics of the English present perfect and interactions with temporal adverbials (e.g. Roberts & Liszka, 2013).

To date, little research has focused on the acquisition of the English present perfect. Much attention has been devoted to initial and subsequent acquisition and processing of the English simple past and present progressive morphology inspired by the Aspect Hypothesis in the last two decades (e.g. Andersen & Shirai, 1994; Bardovi-Harlig, 2000; Bardovi-Harlig & Comajoan-Colomé, 2020). Although the influential Aspect Hypothesis does not make predictions about the emergence of PP forms, prototypical associations between lexical aspect and related morphological forms at the crux of the Aspect Hypothesis may underlie the interlanguage development of the perfect, similar to those of the past tense yet on a more advanced structure characterised by complex form-meaning mappings, variations in input and use and cross-linguistic puzzle (i.e. combinatory restrictions between PP and deictic past adverbials unique to English). Against this gap, this chapter examines the role of lexical aspect in L2 acquisition of the English present perfect in advanced ESL learners from Hong Kong. The goal is twofold. First, in the spirit of prototype, it seeks to extend the Aspect Hypothesis to the study of the perfect. Second, it provides empirical data to help us

understand the interlanguage development of advanced knowledge of the perfect in L2 tense-aspect acquisition.

The chapter consists of four sections. Section 1 outlines learning problems and theoretical issues unique to the English present perfect. Section 2 describes the perfect within the purview of the tense and aspect system. Section 3 reviews the acquisition literature pertaining to the English present perfect. Section 4 reports findings of the current study, followed by a discussion of research and pedagogical implications and conclusion.

2 Tense and Aspect

2.1 Linguistic Background

Time is abstract. Klein (2009) listed six linguistic devices that encode time in language, including tense, aspect, *Aktionsart*, temporal adverbials, temporal particles and discourse principles. Tense and aspect, in particular, have been the subjects of many scholarly debates in the theory of temporality in linguistics.

Tense refers to "the grammaticalisation of location in time" (Comrie, 1985, p. 1). Tense is deictic; it refers to a time interval in relation to another temporal reference, usually the moment of speaking. Common grammatical tenses include the past, the present and the future. Unlike tense, aspect is non-deictic; it concerns "the internal temporal constituency of a situation" (Comrie, 1976, p. 3), independent of a situation's temporal reference.

Smith (1991, 1997) proposed a compositional model of aspect that subsumes two levels of aspect—viewpoint aspect and situation aspect. Viewpoint aspect distinguishes between a perfective viewpoint and an imperfective viewpoint. According to Comrie (1976), "perfectivity indicates the view of a situation as a single whole, without distinction of the various separate phases that make up that situation" (p. 16). The perfective viewpoint, hence, construes a situation as complete. By contrast, the imperfective viewpoint construes a situation "from within" and presents it as incomplete, with explicit reference to its internal temporal structure (Comrie, 1976, p. 24). Viewpoint aspect is also known as grammatical aspect, because it is often marked morphosyntactically. One thing to note is that viewpoint aspect is subject to cross-linguistic and speaker differences, as languages differ in how aspect is encoded grammatically, and speakers of a language have options to take different viewpoints (if available) even when dealing with the same situation. For example, one can talk about the same situation perfectively (*he studied math*) or imperfectively (*he was studying math*), depending on the speaker's perspective.

Situation aspect, or lexical aspect, refers to the inherent temporal properties of a verbal predicate. It is also referred to as *Aktionsart* ("kind of action" in

German). Vendler (1967) distinguished four lexical aspectual classes—states, activities, accomplishments and achievements. Both states (e.g. *know* and *love*) and activities (e.g. *walk* and *swim*) are atelic for their temporal semantic representations do not specify an inherent endpoint. This is in contrast to accomplishments (e.g. *cross the road* and *build a house*) and achievements (e.g. *fall* and *win the race*), which are telic as they encode an inherent endpoint. Although there is some general agreement, the classification of telicity and situation aspect remains controversial. Smith's (1997) two-component theory of aspect remains influential as it provides a unified account of aspect in which viewpoint aspect and situation aspect, though orthogonal to each other, interact to yield a particular temporal interpretation of a situation. Notably, Smith (1997) catered to both universal and language-specific properties of aspect that are distributed across lexical aspect and grammatical aspect.

The above linguistic background, though quite brief, is useful to help understand the focus of this chapter (i.e. semantics and acquisition of the perfect as a linguistic category).

2.2 The Perfect

The perfect is a controversial category in the theory of aspect (Binnick, 1991; see Ritz (2012) for a general discussion). One defining property of the perfect that Comrie adopted is the continuing relevance of a previous situation (1976, p. 56). In the utterance *John has arrived*, PP denotes the relation between a past situation (i.e. *John's arrival*) and a present state (i.e. *John is here*). Although the perfect partakes of the past and the present, it mainly refers to the aspectual meaning of a situation (i.e. *John's arrival* and the ensuing state).

Comrie (1976, pp. 56–61) posited four senses for the perfect. They are the perfect of result, experiential perfect, the perfect of recent past and the perfect of persistent situation. The perfect of result emphasises an outcome due to some past situation(s). For example, the utterance *John has arrived* highlights a result state of John's arrival, implying that John is here at the moment of speech. This is in contrast to *John arrived*, in which the simple past does not necessarily denote a resultative meaning. Another meaning of the perfect is experiential perfect, as in *Tom has watched the documentary before*. The utterance suggests that Tom watched the documentary on at least one occasion before. The perfect of recent past denotes a recent past situation that often calls for temporal adverbials such as *just*, *lately* and *recently* (e.g. *The boys have just finished their homework*). The perfect of persistent situation depicts a situation that began in the past and persists to the present (e.g. *Ann has practised law for ten years*), for which the same situation can be depicted by the present perfect progressive, often collocated with durative adverbials such as *for ten years* and *since* (e.g. *Ann has been practising law for ten years*).

Table 1 summarises several tense-aspect categories in English, listed according to simplex viewpoint and complex viewpoint (Xiao & McEnery, 2004). The simplex viewpoint consists of simple, progressive and perfect, whereas the complex viewpoint

Table 1 Tense-aspect categories in English (based on Xiao & McEnery, 2004, p. 246)

	Aspect	Tense	Label	Linguistic form
Simplex viewpoint	Simple	Present	Simple present	V(-s)
		Past	Simple past	V-ed
	Progressive	Present	Present progressive	Is/am/are V-ing
		Past	Past progressive	Was/were V-ing
	Perfect	Present	Present perfect	Has/ have V-en
		Past	Pluperfect	Had V-en
Complex viewpoint	Perfect progressive	Present	Present perfect progressive	Has/have been V-ing
		Past	Pluperfect progressive	Had been V-ing

refers to the compound aspect of perfect progressive. Such a distinction becomes relevant when we compare nuanced meanings of two forms of present perfect—the present perfect (PP) and the present perfect progressive (PP-PROG) in the current study.

2.3 The Present Perfect, the Perfect Progressive and the Simple Past

As shown in Table 1, PP in the periphrastic form (*has/have V-en*) encodes the perfect in the present tense. PP-PROG, which is also periphrastic (*has/have been V-ing*), encodes both the perfect and the progressive aspects in the present tense. In comparison, the simple past in the inflected form (*V-ed*) encodes the simple aspect in the past tense. The three categories differ in form and meaning as they distinguish between perfective/imperfective, perfect/non-perfect, as well as past/non-past contrasts.

One useful heuristics to differentiate them is to observe the distribution of morphology according to lexical aspect. Perfective morphology (PP or the simple past) expressing a complete situation is most compatible with telic situations. Notably, change-of-state telic verbs can express direct results of some past situations [e.g. *Someone has stolen my wallet* (= The wallet is gone)]. According to Comrie (1976, p. 56), the perfect of result represents the most central form of current relevance meaning. Quirk et al. (1985) asserted that "because of its resultative meaning, the simple perfective (i.e. the present perfect) cannot be used with accomplishment verbs when the clause contains an adverbial of duration" (p. 212), as exemplified in the sentence pair **They've repaired the road for months* vs. *They've been repairing the road for months.* In some cases, however, PP and PP-PROG have equivalent meaning (e.g. *He has lived/been living here for three years*). The difference between

Table 2 Tense-aspect categories' prototypical associations with lexical aspect and combinatorial conditions with temporal adverbials

Categories	Telicity	Perfectivity	Canonical perfect meaning	Temporal adverbial
Present perfect	Telic *Accomplishment with durative adverbials	Perfective	Perfect of result	Already, just, since
Present perfect progressive	Activity *State	Imperfective	Perfect of persistent situation	For three days
Simple past	Telic	Perfective	–	Yesterday

the two forms in such cases is that PP-PROG overtly marks the imperfective viewpoint and/or duration involved, which is the default interpretation of the perfect of persistent situation (see Xiao & McEnery, 2004, pp. 269–272). PP-PROG is often compatible with activity verbs, which are durative and dynamic in nature (e.g. *She has been drinking*). Also, PP-PROG is generally incompatible with stative predicates (e.g. **I have been knowing him since childhood*).

As noted above, the co-occurrence conditions with temporal adverbials are also important. For instance, the simple past can readily take a temporal adverbial denoting a deictic past situation (e.g. *Mary arrived yesterday*). Unlike the simple past, PP rejects definite past adverbials (e.g. **Mary has arrived yesterday*). It can only occur felicitously with temporal adverbials denoting indefinite past. Some examples include *already*, *yet*, *ever*, *never*, *just* and *since*. Among them, *already*, *just* and *since* have been reported in corpus-based studies to co-occur more frequently with PP than others (Werner, 2013, p. 213). In comparison, PP-PROG can readily take durative adverbials (e.g. *for three days* and *for a long time*) to convey a durative, imperfective meaning. Table 2 summarises the three tense-aspect categories' prototypical associations with lexical aspect, as well as combinatorial conditions with temporal adverbials.

2.4 Perfective Zo in Cantonese

The current study concerns Cantonese ESL learners from Hong Kong. A brief description of the Cantonese aspectual system is in order. Cantonese, a Yue dialect spoken mainly in South China including Hong Kong, Macau and Guangdong, is often characterised as a tenseless language (Matthews & Yip, 1994, 2011). That is, Cantonese verbs do not vary in form in the past, the present or the future. It is a non-inflectional language and has a rich system of temporal particles (i.e. aspect markers), temporal adverbials and pragmatic devices to express temporality.

Cantonese overtly distinguishes between perfective and imperfective viewpoints. As shown in (1), the perfective marker (PERF) *zo* occurs after the activity verb *sik*

"eat" to indicate a situation that took place and concluded at a prior time. According to Matthews and Yip (2011), the function of perfective *zo* is threefold—to convey a resultative (perfect) meaning; to report past events without referring to a resultative meaning; and to express a period of time up to and including the present. Matthews and Yip added that the third usage "may correspond to the perfect progressive in English" (p. 234), as exemplified in (2), in which *zo* co-occurs with a durative adverbial *loeng nin gei* "over two years".

(1) 我 已經 食 咗 飯
ngo ji ging sik zo faan
I already eat PERF rice
'I have already eaten/ I ate already.'

(2) 我 架 車 揸 咗 兩 年 幾
ngo gaa ce zaa zo loeng nin gei
I CL car drive PERF two years some
'I have been driving the car for over two years.'

Cantonese differs from English in two principal aspects as far as tense-aspect is concerned. First, Cantonese lacks both the perfect and past tenses (similar to Mandarin Chinese, Xiao & McEnery, 2004, p. 26). In the domain of morphosyntax, perfective *zo* is deemed the closest functional equivalence to the present perfect and the simple past (Matthews & Yip, 1994). The absence of grammaticised perfect[1] and past may cause problems for Cantonese ESL learners, who must learn the difference between perfect and non-perfect as well as that between past and non-past—both dimensions are not grammatically encoded in Cantonese grammar.

Another key difference is that Cantonese (and Chinese in general) organises temporality in discourse via a mix of temporal particles, temporal adverbials and pragmatic devices. The use of these devices remains optional/non-obligatory if context suffices. Given these characteristics and L1-L2 differences, it is predicted that Cantonese ESL learners may take a much longer time to acquire and establish nuanced semantics of the perfect relative to past tense, as well as PP combinations with temporal adverbials in context.

3 The Acquisition of Tense-Aspect

3.1 The Aspect Hypothesis

The Aspect Hypothesis (hereafter the AH; Andersen & Shirai, 1994; Bardovi-Harlig, 2000) predicts developmental emergence and acquisition of perfective/past

[1] One exception to this description is that Cantonese has experiential *gwo* (Matthews & Yip, 2011, equivalent to Mandarin *guò*), which denotes experiential perfect (Smith, 1991). This might facilitate the acquisition of the experiential meaning of the English perfect by Cantonese learners, although this is beyond the scope of this present study.

and imperfective (progressive) morphology in relation to lexical aspect. Central to the AH are four tenets:

1. Learners first use past marking or perfective making on achievement and accomplishment verbs, eventually extending its use to activity and state verbs.
2. In languages that encode the perfective/imperfective distinction, imperfective past appears later than perfective past, and imperfective past marking begins with state and activity verbs, and then extends to accomplishment and achievement verbs.
3. In languages that have progressive aspect, progressive marking begins with activity verbs, and then extends to accomplishment or achievement verbs.
4. Progressive markings are not incorrectly overextended to state verbs (in L1 acquisition).

(Andersen & Shirai, 1996, p. 533; originally Shirai, 1991, pp. 11–12)

Although these four tenets focus on the emergence of morphology, not on appropriate use, Comajoan (2006) proposed that researching appropriateness of use can ascertain the AH and strengthen its predictive power, especially when the distribution of morphology comes close in advanced learners and native speakers (e.g. Salaberry, 1998, 1999).

One thing to note is that the AH does not make any claim about the acquisitional sequence of the perfect forms, let alone appropriate use. In a classic child language acquisition study about the present perfect, Johnson (1985, p. 342) reported that English preschool children aged four to five were systematically aware of semantic distinctions encoded by PP, PP-PROG and the simple past across various lexical verbs and adverbial contexts. If the AH assumes a semantic bias in the acquisition of tense and aspect (i.e. prototypical associations between morphology and lexical aspect), there is no reason not to consider the perfect in general or its instantiation in English in particular. This section reviews the state-of-the-art, albeit limited, research on L2 acquisition of the present perfect, with due attention to methodological details that inform the current study.

3.2 General Developmental Path of PP in L2 English

Bardovi-Harlig (1997) examined the emergence and subsequent development of the present perfect in instructed adult ESL learners from multiple L1 backgrounds, who were enrolled in an intensive English programme in the United States. Bardovi-Harlig analysed a total of 502 tokens in written samples and 105 tokens in oral samples with respect to appropriate use, coding non-target-like use as either overgeneralisation (use of PP where native speakers prefer another morphology) or undergeneralisation (salient non-use where native speakers prefer PP).

Two findings were illuminating. First, an overwhelming majority of the PP forms (86.9% of PP and 88.9% of PP-PROG) were used appropriately. For non-target-like use, learners used PP in the environments of the simple past, the pluperfect and the

simple present, when they tried to establish target form-meaning mappings in the interlanguage. Second, there was a clear acquisition order in which PP emerged after the simple past but well before PP-PROG, similar to Johnson's (1985) findings in child language acquisition. Bardovi-Harlig (1997) remarked that "for spontaneous use, the use of present perfect is a necessary (but not sufficient) condition for the emergence of the perfect progressive" (p. 391). The study, however, did not examine the role of lexical aspect—a key factor investigated by several later studies.

3.3 Lexical Aspect

Liszka (2002; also reported in Liszka, 2004) analysed oral and written narrative data to compare the development of the present perfect relative to present and past tenses among proficiency-matched ESL learners who speak typologically different languages such as Chinese, Japanese and German. The main finding is that all the learners had difficulties using PP regardless of their proficiency levels, and only the advanced Chinese and Japanese ESL learners exhibited a moderate bias to use PP with telic verbs—a prototypical association between morphology and lexical aspect, as previously discussed in Sect. 2.3. All the intermediate learners did not exhibit any effect of lexical aspect. Liszka interpreted these findings as support for L1 effect, which will be discussed more fully in Sect. 3.4 below.

Uno (2014), arguably the first study to extend the Aspect Hypothesis to the study of the present perfect, examined the role of lexical aspect in the use of PP by 29 adult Japanese learners of English as a foreign language (EFL) by means of a carefully controlled written cloze task normed by native English speakers. The main finding is that the learners' use of PP did not show any strong association with telic sentences without durative adverbs. Instead, the learners tended to use PP with atelic verbs in a context specified by a durative adverbial, as in *She has lived (live) mostly in California since she finished her degree course* (Uno, 2014, p. 41). Uno concluded that telicity is only one factor affecting the use of PP and proposed that perceptual saliency, cognitive processing principles and prototype formation in the early use of tense-aspect morphology may jointly account for acquisition.

Teran (2014) examined 85 Argentine Spanish EFL learners' use of PP in a fill-in-the-blank task, focusing on two perfect functions (experiential perfect and the perfect of persistent situation, see Sect. 2.2) distributed across four levels of lexical aspect. Two findings concern us here. First, language proficiency seems to play an important role, as the advanced learners showed a more appropriate use of PP overall. Second, in terms of specific perfect functions, both the intermediate and advanced learners tended to use PP more and with higher accuracy in a non-prototypical association (i.e. the perfect of persistent situation with atelic verbs) than a prototypical association (i.e. experiential perfect with telic verbs), contrary to the general assumption of the AH. Looking more closely, Teran stated that all the stimuli sentences for the non-prototypical association with atelic verbs contained durative adverbs such as *since*, *ever since* and *yet*. She posited that such favourable combinatory patterns

were responsible for a higher rate of appropriate use, similar to an observation made in Uno (2014). In sum, Teran argued that instruction, input frequency, sentence type and rote learning could be the underlying causes for the observed results.

The three studies reviewed above seem to suggest that the emergence of PP and appropriate use could be affected by lexical aspect, possibly in a direction inconsistent with the general assumption of the AH, coupled with other factors such as specific perfect functions, temporal adverbial contexts, learners' proficiency as well as L1.

3.4 L1 Influence

Collins (2002, 2004) and Ayoun and Salaberry (2008) observed some transfer effects involving the present perfect in their investigation of L2 acquisition of the English past tense. A common observation across these studies is that Francophone learners tend to overuse the present perfect in contexts where past tense marking is obligatory. This tendency is often reported as an instance of negative transfer, triggered by the formal similarity between the compound past tense *passé composé* in French (*be/have* + past participle) and the present perfect in English (*have* + past participle), which may have led Francophone learners to overuse PP in a context where the simple past is required.

Collins (2002) investigated the use of tense-aspect morphology among 70 Quebec French ESL learners across six levels of proficiency by means of a written cloze task developed by Bardovi-Harlig and Reynolds (1995). Findings were largely consistent with the AH. However, PP was found to be the most frequently used alternative to the simple past in telic predicates. Collins explained that "for instructors of Francophone learners of English, the inappropriate use of the present perfect in past contexts is perceived to be a predictable and pervasive feature of their students' interlanguage" (p. 49). Collins concluded that transfer alone does not override the lexical aspect effect observed, though L2 proficiency may mitigate the results. Collins proposed the notion of developmentally constrained L1 influence and found support for this proposal in a follow-up study involving Quebec French ESL learners and Japanese EFL learners (Collins, 2004).

Language-processing studies also show L1 influence. Roberts and Liszka (2013) employed a cloze comprehension task to examine advanced L2 learners' tacit knowledge of the perfect and past tenses. The reading performance was similar for both French EFL and German EFL learners in an offline cloze task, judging mismatch sentences such as **Last week, James has gone swimming every day* equally as less acceptable. In the online self-paced reading task, however, only the French EFL learners but not the German EFL learners were sensitive to mismatched items. The researchers contended that transfer is a viable explanation for the performance difference. That is although both French and German have a compound past tense (*passé composé* and *perfekt*), the two languages differ in viewpoint aspect—French distinguishes between perfective and imperfective viewpoints, whereas German does not, which may in turn affect speakers' implicit sensitivity and attention to aspectual

contrasts in L2 English. The researchers reasoned that there was positive transfer for the French EFL learners but negative transfer for the German EFL learners.

Turning to ESL learners, Hong (2008) examined the roles of L1 and lexical aspect on the acquisition of the past tense and the perfect among 138 Hong Kong secondary school students. One methodological novelty was a translation task in which some stimuli sentences contained perfective *zo* and others the zero marking. Results showed that *zo* affected the use of the present perfect. That is the Cantonese ESL learners used PP more frequently when *zo* was present in the prompts, whereas they opted for the simple past when *zo* was omitted. Interestingly, this complementary distribution was consistent across the four lexical aspect classes examined. Hong argued that the findings provided strong support for transfer but less so for lexical aspect.

Previous research, as reviewed in Sects. 3.2–3.4 above, has shed some light on the complexity of the acquisition of the English present perfect. Further research must seek to clarify a number of issues. Among them, what is the role of lexical aspect in L2 acquisition of the present perfect? Do PP forms (PP and PP-PROG) follow a universal sequence of development following some prototype formation? What is the role of the L1, if any?

4 The Current Study

4.1 Research Questions and Hypotheses

The current study examines Cantonese ESL learners' acquisition and appropriate use of the present perfect with particular emphasis on the role of lexical aspect. The goal is twofold. First, it seeks to extend the Aspect Hypothesis to study the lexical aspect effect on the perfect. Second, it provides empirical data to assess the interlanguage development of advanced knowledge of the perfect in L2 tense-aspect acquisition. The research questions are:

1. What is the effect of lexical aspect on the use of PP?
2. Is the appropriate use of PP related to the lexical aspectual properties of the predicates?

The following predictions are made with respect to the general assumption of the AH as well as empirical findings from previous research. We predict that the use of the present perfect will not be uniform across classes of lexical aspect. In the current study, lexical aspect is operationally defined by a two-level contrast, state *versus* accomplishment. Notably, Teran (2014) reported that intermediate and advanced learners used PP most appropriately in states and accomplishment predicates. The two-level contrast, thus, allows a good comparison focusing on lexical aspect while keeping the cloze task simple and short. With regard to the first research question, it is hypothesised that PP associates with accomplishment predicates more frequently than with stative predicates.

For the second research question, a similar prediction is also made for appropriate use of PP, following some preliminary evidence (e.g. Teran, 2014) that there will be a greater appropriate use of PP forms in prototypical combinations of morphology and lexical aspect. Because the perfect encodes perfective and imperfective meaning (see Sect. 2.3), perfective meaning (i.e. the perfect of result, experiential perfect and the perfect of recent past) of PP is expected to be used more appropriately in accomplishment predicates than in stative predicates in the current study. Again, the former combination is more prototypical than the latter one. Similarly, imperfective meaning (i.e. the perfect of persistent situation) explicitly marked by PP-PROG is hypothesised to be used more appropriately with stative predicates than accomplishment predicates.

4.2 Participants

A total of 73 undergraduate students participated in the current study. They included 24 Cantonese ESL learners (11 women, 13 men, M_{age} = 21.04 years, age range: 20–26 years) and 49 native speakers of British English (31 women, 18 men, M_{age} = 20.96 years, age range: 19–24 years) as native comparison group. The ESL learners were in their third or fourth year of study, majoring in English, English language education and/or translation at a bilingual university in Hong Kong. All of them scored 5* or 5** in HKDSE's English Language Examination, a local matriculation examination. Results were comparable to IELTS band scores between 7 and 9, according to the Hong Kong Examinations and Assessment Authority's benchmarking study (2013). The learner group was, thus, considered advanced ESL learners in the continuum of L2 development. Forty-nine native speakers of British English, who were undergraduates at a major university in the northeast of England, were recruited as the native control group. All the participants provided informed consent and volunteered to take part. The data collected were all anonymous. The Survey and Behavioural Research Ethics Committee at the first author's former institution approved the current study.

4.3 Materials and Procedures

A sentence-based written cloze task was designed to elicit the use of PP forms by learners and native speakers of English. The cloze task was pilot-tested with 8 native speakers of Canadian English. A total of 28 experimental items (see Appendix A) was constructed to target the use of PP forms, amid the potential for other tense-aspect forms. The experimental items were distributed equally across states and accomplishments (14 per category). Each category included a variety of verb types. The verbs were classified based on operational tests (see Shirai & Andersen, 1995, for details; also Smith, 1997). Cloze-type tasks were successfully used to investigate the

L2 acquisition of tense-aspect forms in relation to lexical aspect (Bardovi-Harlig & Reynolds, 1995; Collins, 2002). Learners' knowledge of English was also considered to ensure accessibility of materials. Twelve filler items unrelated to PP were added to the stimuli mix, yielding 40 items in total. All items were randomised for presentation.

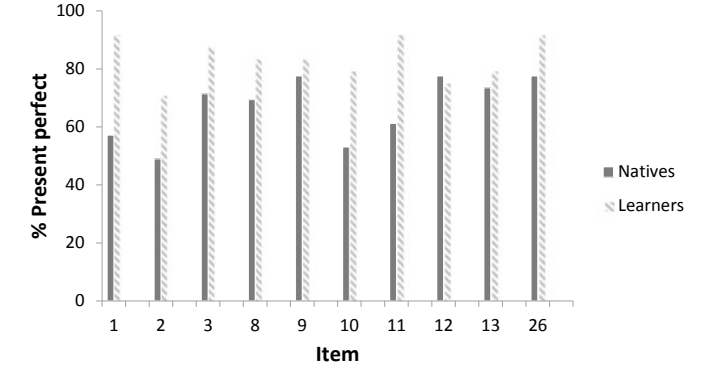
The participants completed the cloze task, followed by a short language history questionnaire to describe their language background and experience (Chan, 2012). In the cloze task, the participants were asked to read each sentence and then provide an appropriate inflected form of the given verb. The cloze task was administered via Google Form or by email attachment as an untimed written production task. The majority of the participants reported that they spent less than 20 minutes to complete the cloze task.

4.4 Data Analysis

For each participant, cloze responses were analysed (1) on the distribution of verb forms through descriptive statistics and (2) appropriateness through mixed-effects models, both in relation to lexical aspect. As for determining the target context for appropriate use in the second analysis, decisions were made with respect to the baseline data from the native control group ($N = 49$). If native speakers preferred PP to some other verb forms for a particular item, that item was qualified as the target context for appropriate use.[2] This yielded 20 experimental items from the pool of 28 deemed the target context for appropriate use of PP, with 8 items discarded from analyses. For consistency, the first analyses on the distribution of verb forms were also performed on the 20 items only (see Figs. 1 and 2 and Appendix for the complete set of items).

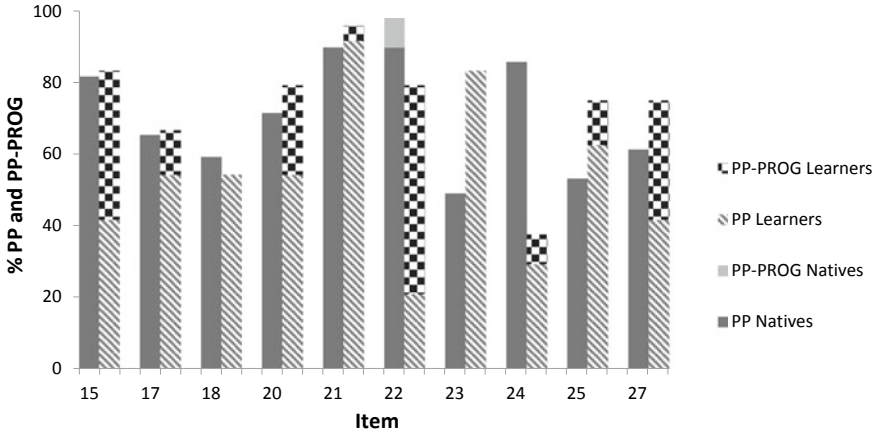
The cloze responses were coded as 1 (using PP in target context) or 0 (not using PP in target context) in the second analysis on appropriate use of PP. Responses of PP-PROG were coded as 0. This binary scheme described the relative proportion of use of PP for each item. Responses coded as 0 were not necessarily wrong. Instead, the score served to identify the frequency of use of PP in the target context.

[2] More specifically, PP was considered appropriate when it was the choice made by the largest number of native speaker participants. Since both PP and the simple past are often acceptable, the simple past should be the strongest competitor for both state verbs and accomplishment verbs for all items. When the simple past was preferred by more participants, the item was not considered appropriate use of PP, to be on the safe side. For most items included as appropriate PP use, the margin was wide except for a few items.



1 = *prepare*
2 = *buy*
3 = *write*
8 = *write*
9 = *watch*
10 = *buy*
11 = *clean*
12 = *wash*
13 = *create*
26 = *listen*

Fig. 1 Distribution of PP in accomplishment verbs by group



15 = *love*
17 = *hate*
18 = *experience*
20 = *believe*
21 = *know*
22 = *feel*
23 = *want*
24 = *need*
25 = *doubt*
27 = *live*

Fig. 2 Distribution of PP and PP-PROG in state verbs by group

4.5 Result

4.5.1 Distribution of Morphology

The cloze task collected a total of 1460 tokens of tense-aspect forms (480 from 24 learners and 980 from 49 native speakers), given the 20 items. The distribution is summarised in Table 3. The verb forms most frequently used include the simple present (PRESENT), PP, PP-PROG, the simple past (PAST) and others (i.e. future tense, the past perfect and occasional missing information). The percentage in each cell is calculated over the total number of verb forms within each class of lexical aspect. It was, therefore, a within-category analysis, fit for the purpose of studying the distribution of verb forms according to lexical aspect (Bardovi-Harlig, 2000).

Concerning the average distribution of verb forms (highlighted in grey in Table 3), PP received the highest frequency of use by the learners (68.3%), followed by PAST (11.7%), PP-PROG (9.8%), PRESENT (8.8%) and others (1.5%). As for the native speakers, PP also enjoyed the highest frequency of use (68.7%), followed by PAST (28.3%), PRESENT (1.5%), others (1.1%) and lastly PP-PROG (0.4%).

The interpretation of some observations is straightforward. First, the cloze task was effective in eliciting the use of PP in cloze sentences. PP was the prevailing choice with about 68% of the time across the board for both groups of participants. The Cronbach's alpha coefficient of 20 items combined was 0.84.

Second, while the native speakers and learners favoured PP, they differed considerably in the use of other verb forms in the cloze task. The native speakers used PAST (28.3% on average) as a major alternative to PP. Together, these two choices amounted to a predominant 97% of use, almost to the exclusion of other forms. The learners, on the other hand, appeared less homogeneous when it came to the distribution of other forms alternative to PP. The use of PAST (11.7%), PP-PROG (9.8%) and PRESENT (8.8%) all hovered at close margins. Seemingly, the learners tended to be more heterogeneous in their choice of alternative verb forms. That is

Table 3 Distribution of verb forms by lexical aspect

	PRESENT % (*n*)	PP % (*n*)	PP-PROG % (*n*)	PAST % (*n*)	Others % (*n*)	Total % (*n*)
Learners						
STA	16.3 (39)	53.3 (128)	19.6 (47)	9.2 (22)	1.7 (4)	100 (240)
ACC	1.3 (3)	83.3 (200)	0 (0)	14.2 (34)	1.3 (3)	100 (240)
Average	8.8 (42)	68.3 (328)	9.8 (47)	11.7 (56)	1.5 (7)	100 (480)
Native speakers						
STA	1.4 (7)	70.6 (346)	0.8 (4)	26.1 (128)	1.0 (5)	100 (490)
ACC	1.6 (8)	66.7 (327)	0 (0)	30.4 (149)	1.2 (6)	100 (490)
Average	1.5 (15)	68.7 (673)	0.4 (4)	28.3 (277)	1.1 (11)	100 (980)

Note STA = states, ACC = accomplishments, raw tokens in parenthesis ()

the natives mostly converged on PP and possibly on PAST, whereas the learners used many different forms, including PP-PROG and PRESENT.

Third, Table 3 shows interesting trends regarding the distribution of PP with lexical aspect. First, the learners showed a prevalence of PP in accomplishment predicates (83.3%) compared to that in states (53.3%), whereas the reverse was true for the native speakers with a higher percentage of PP in states (70.6%) than in accomplishments (66.7%). Despite these differences, the use of PP overall was comparable at an average of about 68% in the learners and native speakers.

In contrast, the participants used PAST considerably more with accomplishments (14.2% for the learners and 30.4% for the native speakers, respectively) than with states (9.2% for the learners and 26.1% for the native speakers, respectively). Overall, these quantitative trends suggest the following—1) the learners and native speakers differed in the breakdown of use of PP according to lexical aspect, despite the prevalence of PP and 2) the two groups exhibited similar tendencies when they used PAST with respect to lexical aspect, which is in line with the AH, which predicts that telic verbs (in the case of the current study, accomplishments) are more strongly associated with PAST than with atelic verbs (in this case, states). Evidently, the learners used PP sufficiently different from PAST, and the acquisition of PAST followed the acquisitional predictions of the AH.

Another notable observation concerns the distribution of PP-PROG. The average use of PP-PROG was markedly more frequent in the Cantonese ESL learners (9.8%) than in the native speakers of British English (0.4%). Interestingly, both groups used PP-PROG in stative predicates exclusively (e.g. *He has been living in Hong Kong*) relative to 0% in accomplishments. There was a clear complementary distribution of PP-PROG according to lexical aspect. The frequency results by item and lexical aspect are presented in Figs. 1 and 2. Take Item 22 for example: *I ____ (not feel) well for three days already. Should I go to see the doctor?*, 14 out of the 24 learners (or 58.3%) preferred PP-PROG to PP. In comparison, only 4 out of the 49 native speakers (or 8.2%) chose to use PP-PROG, whereas the majority (44 out of 49, or 89.8%) opted for PP. An item-based analysis further revealed that stative predicates involving verbs such as *love, hate, believe, know, feel, need, doubt* and *live* contributed to the bulk of PP-PROG tokens. One characteristic common to these eight items was that they were all modified by durative adverbials such as *the whole day, for three days, for many years, for a long time, since the very beginning* and *since Grade 1*. The co-occurrence of stative predicates, PP-PROG and durative adverbials was highly frequent in the learners' interlanguage.

4.5.2 Distribution of Appropriateness

Next, mixed-effects statistical analyses were performed on the appropriateness of PP in learner data using the software package R (R Core Team, 2011). According to Cunnings (2012), there are at least two advantages of conducting such analyses. First, mixed-effects statistical procedures can model crossed random effects by taking

participant and item variance into account in a single analysis, overcoming the so-called language-as-fixed-effect fallacy (Clark, 1973). Also, they can satisfy the data independence assumption that is often violated in repeated measures parametric statistics such as ANOVA and *t*-tests.

In what follows, we used the glmer() function in the lme4 library in R to build generalised linear mixed-effects models for binary responses of appropriateness data (Bates et al., 2015). To begin, we created model1 using the following syntax:

$$> \text{model1} = \text{glmer}(\text{appropriateness lexical.aspect} + (1|\text{subject}) + (1|\text{item}), \text{data} = \text{perfect}, \text{family} = ''\text{binomial}'')$$

As shown above, the glmer() function analysed the dependent variable appropriateness as a function of the independent variable lexical.aspect. The next part of the command specified a random intercept term for subjects (i.e. participants) and items. The final part selected the data frame called perfect and a binomial distribution as indicated by the logistic link function family = "binomial". The summary() function spelt out the model detail below:

```
Generalised linear mixed model fit by maximum likelihood (Laplace
Approximation) ['glmerMod']
        Family: binomial  ( logit )
        Formula: appropriateness ~ lexical.aspect + (1 | subject) + (1 | item)
          Data: perfect

           AIC      BIC   logLik deviance df.resid
         514.4    531.1   -253.2    506.4      476

        Scaled residuals:
            Min      1Q      Median      3Q     Max
        -3.8105 -0.6031  0.3344  0.5437  3.5318

        Random effects:
         Groups  Name        Variance Std.Dev.
         subject (Intercept) 1.0065   1.0033
         item    (Intercept)  0.8425   0.9179
        Number of obs: 480, groups:  subject, 24; item, 20

        Fixed effects:
                             Estimate Std. Error z value Pr(>|z|)
        (Intercept)           1.9340     0.4234   4.567   4.94e-06 ***

lexical.aspectSta  -1.5160     0.4820  -3.145  0.00166 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:
            (Intr)
lxcl.spctSt -0.662
```

The output reports some general summary statistics including Akaike's information criterion (AIC), which indicates how much variance remains unaccounted for by the model. A lower AIC score is generally preferred. The standard deviation values in the random effects output suggest that item has relatively less variability than subject. In the fixed effects output, the coefficient "lexical.aspectSta" refers to the slope for the categorical effect of lexical.aspect. It means one has to go down to -1.516 in value from accomplishments to states. In other words, appropriateness is lower in states than in accomplishments. Note that model1 contains random intercepts, which allow mean values for each participant and each item to vary.

Because the participants were repeatedly measured on different verbs across levels of lexical aspect and lexical aspect was repeatedly measured within the stimuli sentences, it was, therefore, apt to consider a subject random slope and an item random slope for the repeated measures fixed effects. Below is the syntax of model2, followed by the model summary:

```
> model2 = glmer(appropriateness ~ lexical.aspect + (1+lexical.aspect|subject) + (1+ lexical.aspect|item), data=perfect, family="binomial")

Generalised linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']
 Family: binomial  ( logit )
 Formula: appropriateness ~ lexical.aspect + (1 + lexical.aspect | subject) +  (1 + lexical.aspect | item)
   Data: perfect
      AIC      BIC   logLik deviance df.resid
    502.7    536.0   -243.3    486.7      472

Scaled residuals:
    Min      1Q  Median      3Q     Max
-2.9131 -0.5738  0.2160  0.4926  2.5458

Random effects:
 Groups  Name           Variance Std.Dev. Corr
 subject (Intercept)    2.94841  1.7171
         lexical.aspectSta 2.73827  1.6548   -0.79
 item (Intercept)       0.03005  0.1734
         lexical.aspectSta 1.59921  1.2646   -0.03
Number of obs: 480, groups:  subject, 24; item, 20

Fixed effects:
                   Estimate Std. Error z value Pr(>|z|)
(Intercept)          2.3255     0.5276   4.408  1.04e-05 ***
lexical.aspectSta  -1.8685     0.6659  -2.806   0.00502 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:
            (Intr)
lxcl.spctSt -0.710
```

```
> anova(model1,model2)

Data: perfect
Models:
model1: appropriateness ~ lexical.aspect + (1 | subject) + (1 | item)
model2: appropriateness ~ lexical.aspect + (1 + lexical.aspect | subject)
+       model2:     (1 + lexical.aspect | item)
           Df    AIC    BIC      logLik deviance  Chisq Chi Df Pr(>Chisq)
```

The AIC score for model2 (502.7) is lower than for model1 (514.4), suggesting that model2 is explaining more of the variance in the data. We compared and tested the two models using likelihood ratio tests with the anova() function in R. Below is the resulting output:

```
model1  4 514.37 531.07 -253.19   506.37
model2  8 502.65 536.04 -243.33   486.65   19.721      4  0.0005669 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

The chi-square statistic shows that model2 provides a significantly improved fit for the data than model1 ($\chi^2(4) = 19.721, p < 0.001$), indicating that random slopes have better fit and thus need to be included in subsequent model building.

To further explore whether the temporal adverbial *already* has any potential influence on the appropriate use of PP, we built another model (model3) by adding the control variable already and its main effect and all possible interactions with the fixed effect lexical.aspect. Similarly, the fourth model was built (model4) but without the interaction terms. We compared all models and examined whether any of these additional main effects and interactions yielded a significantly improved model fit to the data. The syntax and output are reported below:

```
> model3 = glmer(appropriateness ~ lexical.aspect*already +
(1+lexical.aspect|subject) + (1+lexical.aspect|item), data=perfect,
family = "binomial" )
> model4 = glmer(appropriateness ~ lexical.aspect + already +
(1+lexical.aspect|subject) + (1+lexical.aspect|item), data=perfect,
family = "binomial" )

> anova(model1,model2,model3,model4)

          Df    AIC    BIC    logLik  deviance  Chisq Chi Df Pr(>Chisq)
model1  4 514.37 531.07 -253.19   506.37
model2  8 502.65 536.04 -243.33    486.65  19.7208      4  0.0005669
***
model4  9 503.47 541.03 -242.73   485.47   1.1875      1  0.2758293
model3 10 504.83 546.57 -242.41   484.83  0.6378       1  0.4245131
```

As seen above, either model3 or model4 does not provide any better fit than model1. Instead, model2 provides a significantly better fit over any other model. Neither the main effect of already nor any interaction provides any improved fit. Hence, model2 is the most complex model justified by the data, based on an exploratory and somewhat data-driven approach in the above analyses.

Indeed, model2 turns out to be the one with "maximal" random effects structures (Barr et al., 2013). One of the main theoretical interests in the current study is the fixed effect of lexical aspect, which is used to probe the L2 acquisition of PP and appropriate use. As a result, the "maximal" model, which happened to be justified by the data, is the one that contains subject and item random intercepts and subject and item random slopes for lexical aspect.

In sum, we used the glmer() function in the lme4 library in R to perform generalised linear mixed-effects analyses on the relationship between appropriateness of PP and lexical aspect. As for fixed effects, we entered lexical aspect and the control variable already with and without interaction terms into the model(s). The likelihood ratio tests revealed that the control variable did not improve model fit and was discarded subsequently. As for random effects, we had random intercepts for subjects and items, as well as by-subject and by-item random slopes for the effect of lexical aspect. The results (model2) indicated that lexical aspect significantly affected the appropriate use of PP ($\chi^2(4) = 19.721$, $p < 0.001$). To be specific, the appropriate use of PP was significantly less in stative predicates than in accomplishment ones (estimate $= -1.87$, $SE = 2.33$, $p < 0.01$).

4.6 Discussion

The gist of the findings is that the learners used the two PP forms in ways distinct from the native speakers. The distribution and appropriateness data revealed some discrepancies between the two groups.

4.6.1 Lexical Aspect and PP Use

In response to the first research question "What is the effect of lexical aspect in the use of PP?", two distributional findings are clear. First, the learners used PP significantly more in accomplishment predicates (83.3%) than in states (53.3%) as shown in Table 3, whereas a reverse trend was observed in the native speakers. The percentage difference suggested that the association between PP and accomplishments was much stronger than that with states in the Cantonese ESL learners. This asymmetry was verified by the mixed-effects statistical analyses on appropriateness data that the learners' use of PP in accomplishment predicates was significantly more appropriate than in states ($p < 0.01$), which in turn also addresses the second research question "Is the appropriate use of PP related to the lexical aspectual properties of the predicates?"

4.6.2 Lexical Aspect and PP-PROG

Second, the learners produced 47 tokens of PP-PROG, all occurring exclusively in stative predicates. This was somewhat unusual, both in terms of number and

distribution. The 47 tokens of PP-PROG represented nearly a quarter of all present perfect forms produced in the stative predicates by the learners. Intriguingly, there was zero token of PP-PROG in accomplishments, which is in a stark contrast to the reported prevalence of PP-accomplishment pairing in the learners. Remarkably, the combination of complex viewpoint aspect (e.g. perfective progressive) and situation aspect (e.g. state) is generally not permissible in standard English grammar (e.g. **I have been knowing him since childhood*), although such a co-occurrence was also borne out in native speaker data (4 tokens, or 0.6%). Taken together, the robust pairing of PP-PROG in stative predicates in learner data looks like an idiosyncratic finding in the current study, which only included stative and accomplishment verbs. In contrast to the present finding, Johnson (1985, pp. 344–345) reported that L1 English preschool children used PP-PROG with atelic verbs in durative contexts (e.g. *have been riding… for a long time*). The atelic verbs refer to activity ones, presumably. Uno (2014) also speculated that Japanese EFL learners may have "formulated a prototype of the present perfect form and associate the form with atelic verbs to express unitary continuous situations in contexts with a durative adverb" (p. 48). The items analysis described earlier corroborates the role of durative adverbials in the association of stative verbs and PP-PROG. Although it is not clear why the Cantonese ESL learners robustly use PP-PROG in stative predicates modified by durative adverbials, one possible explanation is, following Uno's (2014) suggestion, prototype formation.

4.6.3 Prototype Account for PP and PP-PROG

Inspired by Rosch and colleagues' (1973, 1975, 1978; Rosch & Mervis, 1975) prototype theory on the cognitive representation of semantic categories and categorisation, Shirai and Andersen (1995), among others, appealed to a prototype account for the development of L1 and L2 tense-aspect morphology. The basic idea of the prototype account is that learning starts from the most representative member of a linguistic category—the prototype. Prototypical form-meaning associations are established first and gradually being extended to peripheral, non-prototypical ones via some general language-processing principles of category induction (Ellis, 2006). Ellis and Sagarra (2010) further suggested that the distributional biases present in language input promote the acquisition of more frequent, distinctive and prototypical exemplars of a category. As a result, the semantic-based prototype account has a universal appeal.

First, the PP form expressing perfective meaning of the perfect (i.e. the perfect of result, experiential perfect and the perfect of recent past) is used more with telic verbs (i.e. accomplishment in the current study) because presumably the pairing between lexical aspect and morphology is semantically congruent and thus forms a prototype of the "perfective" perfect. This prediction is borne out by the main finding from both the distribution and appropriateness data that the learners used PP more frequently and appropriately in accomplishment predicates.

Next, the imperfective meaning of the perfect (i.e. the perfect of persistent situation), which is afforded by either PP or PP-PROG, is used more with atelic verbs (i.e. state in the current study). Such a pairing is also congruent, following the prototype account. The only difference between PP and PP-PROG is that PP-PROG overtly marks the imperfective/progressive viewpoint and/or duration involved. Returning to the data, the fact that the learners robustly used 47 tokens of PP-PROG distributed across 8 types of stative predicate (recall that there was zero token of PP-PROG in accomplishments for both the learners and native speakers) suggests this is not accidental. As previously noted, similar findings were also reported in Uno (2014), and much more clearly articulated by Teran (2014, p. 25) that learners use PP in atelic situations (i.e. activity and stative predicates), a prototypical combination emerges only when learners approach advanced proficiency. Here, the question bears down on the highly constrained finding of PP-PROG in stative predicates modified by durative adverbials. Transfer seems to offer a plausible explanation.

4.6.4 Negative Transfer from Cantonese to English

As was outlined in Sect. 2.4, the threefold meaning of perfective *zo* in Cantonese is mapped to PP (notably, the perfect of result), PAST and PP-PROG in English. One language-specific fact that has yet to be noted is that perfective *zo* is versatile in combining with all verbs of lexical aspect except states, as shown in (3) (Sybesma, 2004, p. 171; also see Xiao & McEnery, 2004, p. 80 for a similar description about Mandarin Chinese perfective aspect marker *-le*). One way to remove the semantic restriction is to modify the stative-*zo* construction by a durative adverbial (Sybesma, 2004, p. 179), as exemplified in (4). Note that (3) and (4) differ minimally in the durative adverbial *hou noi* "for a long time". Its absence renders (3) ungrammatical in Cantonese; its presence warrants the well-formedness in (4).

(3) *我 識 咗 佢
ngo sik zo keoi
I know PERF him
'I knew/have known him.'

(4) 我 識 咗 佢 好 耐
ngo sik zo keoi hou noi
I know PERF him long time
'I knew/have known him for a long time.'

In other words, *-zo* is incompatible with states unless the combination is modified by a durative adverbial in Cantonese. By contrast, English does not have such a combinatory restriction for PP and state verbs, as shown in the English glosses in (3) and (4). Imagine such a typological tension in the interlanguage of Cantonese ESL learners. The juxtaposition of (3) and (4) highlights a very tricky case of use of two present perfect forms. One solution to resolve the conflict is to accommodate the target norm. That is Cantonese ESL learners could faithfully use PP in stative predicates as required by English grammar. Such an observation is indeed borne out

in the quantitative data as summarised in Table 3. The learners used PP in stative predicates at 53.3% of the time even though such a combination is prohibited in Cantonese.

Meanwhile, a non-negligible 19.6% (or 47 tokens) of stative predicates were marked in PP-PROG, all modified by durative adverbials. As noted above, PP-PROG is generally incompatible with stative predicates (e.g.**I have been knowing him since childhood*). The elevated token frequencies of the present perfect progressive construction with stative predicates could be evidence that the advanced Cantonese ESL learners understood its composite aspectual meaning for it is acceptable and indeed grammatically preferred in native Cantonese. The elevated token frequencies of the construction presented a compelling *prima facie* case of negative transfer (e.g. Bardovi-Harlig & Sprouse, 2017). The condition inducing negative transfer arose from durative adverbials. One important implication is that the Cantonese ESL learners appear to have navigated the interlanguage between Cantonese and English unavailable to native English speakers and derived a finer-grained distinction between the use of PP and PP-PROG when it came to collocating lexical aspect, grammatical aspect and temporal adverbials, though possibly at the expense of hindering L2 ultimate attainment. One can regard PP-PROG in stative predicates as a case of overgeneralisation in learners' interlanguage. Recall that Bardovi-Harlig (1997, p. 385) described overgeneralisations as the use of PP where native speakers prefer another morphology. In the current study, the learners produced 12.5% (or 47 tokens) of PP-PROG out of 375 present perfect forms in total, whereas the native English speakers produced a meagre 0.6% of PP-PROG (4 tokens out of 677 present perfect forms in total). Accordingly, 43 tokens of PP-PROG by raw token frequency counts ought to be considered overgeneralisation. The robust non-target-like use shows that the learners attempted to carve out a lexico-grammatical pairing for PP-PROG distinct from previously established associations pertaining to PP and PAST. This very task is deemed only possible for highly advanced learners. Either way, the overgeneralisation account is well-justified by L1 Cantonese grammar, lending additional support to the transfer account.

In sum, the dual patterns of PP-accomplishment and PP-PROG-state (not acceptable in L2 English, but its functional equivalence, namely stative predicates plus *zo* specified by durative adverbials, is required by L1 Cantonese grammar) provide evidence in support of prototype and transfer at the same time. Most importantly, transfer is highly restricted and does not seem to override the main effect of lexical aspect, reminiscent of Collin's (2004) idea of developmentally constrained L1 influence.

Finally, what about ultimate attainment (UA)? Chan (2018) stated that "UA subsumes the process of continuous second/foreign language (L2) learning, leading to and culminating in an outcome of highest possible development" (p. 933). The idiosyncratic combination of PP-PROG in stative predicates modified by durative adverbials can constitute evidence of learner attention shaped by L1-specific biases that may account for limited L2 attainment. In the spirit of language-specific influence in L2 aspect acquisition, Von Stutterheim and Carroll (2006) were probably right when they argued that "the central factor impeding the acquisitional process at

advanced stages ultimately is grammatical in nature, in that learners have to uncover the role accorded to grammaticized meanings and what their presence, or absence, entails in information organization" (p. 51). What makes the perfect uniquely difficult for Cantonese ESL learners is likely to be a mix of various factors, including the absence of the grammaticised perfect and tense, the availability of the perfective *zo* and its various meanings and ambiguities, the complex multiple meaning of the perfect and usage conditions related to optional use, input variations and combinatorial restrictions with temporal adverbials (i.e. the present perfect puzzle), which may all conspire to create a vulnerable interlanguage condition. Thus, it seems entirely plausible that advanced Cantonese ESL learners are prone to negative transfer in deploying PP *versus* PP-PROG in stative predicates—a locus where Cantonese and English maximally differ in terms of tense-aspect system.

4.7 Conclusion and Pedagogical Implications

Although the main vantage point of the current study is lexical aspect, it remains doubtful lexical aspect alone, or jointly with L1 influence, can account for all variations in L2 acquisition of the perfect. The state of affairs is bound to be more complicated than that. Other factors such as L2 proficiency, discourse function (foreground/background), learning context (ESL/EFL) and method (task and stimuli) may have important roles to play. This said, PP distribution and appropriate use data from the current study have provided new impetus to an exciting possibility of extending the Aspect Hypothesis to the perfect. To make progress in this direction, more empirical research is called for in L2 acquisition of the more complex yet less frequent present perfect in English.

The current study contributed new evidence to L2 acquisition of the English present perfect—an advanced grammatical structure that merits extensive investigations. Overall, results are in favour of the primary role of lexical aspect, a conclusion which is in line with previous theoretical analyses and empirical studies inspired by the Aspect Hypothesis (e.g. Teran, 2014; Uno, 2014). However, a novel finding was L1 transfer in advanced Cantonese ESL learners, specifically in terms of the lexico-grammatical pairing between the perfect progressive form and state verbs modified by durative adverbials that native speakers steer clear of. These findings are interpreted as support of both lexical aspect and transfer. Indeed, there has been a long-standing debate on SLA research to discern what is universal for all *versus* what is specific for certain learners/groups and how they fare in various stages of learning. In the domain of tense and aspect, the current study has gone to great lengths to investigate the use of present perfect forms (PP and PP-PROG) by advanced Cantonese ESL learners. It turned out that the learners and native speakers converged 68% of the time on PP use, yet they diverged the most in PP-PROG in stative predicates, exposing the biggest stumbling block for learners who are English majors in the third and fourth years of university study.

The current study also sheds light on the question of why certain L1 tendencies are so difficult to overcome. Cantonese learners maintaining L1-based profile may in turn impede their L2 aspect acquisition *en route* to the highest possible development. To better understand transfer mechanisms in L2 tense-aspect acquisition, future studies will need to examine closely all four classes of lexical aspect, in addition to the subtle distinction between simplex and complex viewpoint aspects instantiated by PP and PP-PROG, different types of temporal adverbial (e.g. frequency, recency and duration) and employing various tasks (e.g. controlled cloze task *versus* naturalistic elicitation crossing various spoken and written registers). The above-mentioned variables are indeed the limitations of the current study. In a follow-up study, it would be particularly fruitful to investigate how proficiency-matched Francophone and Cantonese learners use the English present perfect to identify differential L1 effects.

A pedagogical implication is that Cantonese learners, or Chinese learners in general, may benefit from L1-sensitive ESL instruction, including negative evidence, which aims to re-introduce and clarify the various functions and discourse usage of PP, PP-PROG and PAST, which are actually more complicated than they appear to be. Based on the results of the present study, we now know that Cantonese learners have particular difficulty attaining nativelike mastery of PP due to restricted prototypes, induced by L1-L2 difference. It would be useful to introduce pedagogical interventions that focus on consciousness-raising activities with regard to the errors often made by learners, providing contrastive analysis and explicit negative evidence to the extent appropriate for learners at different levels of proficiency. Needless to say, research on the effectiveness of such intervention is a step that needs to be taken next, in order to verify the validity of such pedagogical approaches.

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Appendix

Cloze Task (* items retained in data analysis)

Instruction: Please fill in the blank below with an appropriate form of the given verb (in brackets). In case there is more than one answer, please provide the best choice possible.

Accomplishment predicates

1. *I _____ (prepare) dinner already. Why didn't you tell me earlier that you're not coming back for dinner?

2. *My sister _____ (buy) a very expensive handbag already. Don't give her money to buy stuff anymore.
3. *This writer _____ (write) five books already. His books are on the bestseller list every time.
4. I _____ (bake) you a cake, and it's your favorite cheese flavor!
5. I _____ (clean) the toilet, so you can take a rest today.
6. Grandma's birthday is coming soon so I _____ (make) her a card.
7. This earthquake _____ (destroy) the home of many people. Organizations around the world are trying hard to help survivors.
8. *How's your essay? I _____ (write) half of it only.
9. *I really want to watch Monsters University. But everyone _____ (watch) it and no one wants to go to the cinema with me.
10. *I _____ (buy) all the ingredients for tonight's hotpot already. Just come!
11. *My sister behaved really well today. She _____ (clean) her bedroom already.
12. *_____ you _____ (wash) your hands? You are not allowed to eat before washing your hands.
13. *Human activities _____ (create) many environmental problems already. We should reflect on our behaviour.

Stative predicates

14. The worker _____ (paint) the wall, so you can go and take a look tonight. The wall looks quite nice.
15. *I _____ (love) her for many years already but I don't dare to tell her.
16. SiuMing _____ (think) about the topic the whole day, but he still hasn't got a clue about it.
17. *Don't tell me anything about him anymore! I _____ (hate) him for a long time.
18. *He _____ (experience) a lot of different things. He is way more mature now.
19. Don't worry! Mum _____ (agree) to let us keep the puppy! Remember what she said?
20. *Mr. Chan _____ (believe) in Christianity for many years already. He goes to church every week.
21. *We _____ (know) each other for many years already and we are very close.
22. *I _____ (not feel) well for three days already. Should I go to see the doctor?
23. *Since I was young I _____ (want/already) to be a good lawyer.
24. *I _____ (need) to wear eyeglasses since Grade 1 and I find it really inconvenient.

25. *I _____ (doubt) his ability since the very beginning. I don't have much confidence on him.
26. *I _____ (listen) to his fairy tale more than ten times already. This is so boring.
27. *I _____ (live) in Sha Tin for many years, so I am very familiar with the neighbourhood.
28. After he is released from the jail, he _____ (hope) to lead a normal life.

References

Andersen, R. W., & Shirai, Y. (1994). Discourse motivations for some cognitive acquisition principles. *Studies in Second Language Acquisition, 16*, 133–156.

Andersen, R. W., & Shirai, Y. (1996). Primacy of aspect in language acquisition. In W. C. Ritchie & T. K. Bhatia (Eds.), *Handbook of second language acquisition* (pp. 527–570). Academic Press.

Ayoun, D., & Salaberry, M. R. (2008). Acquisition of English tense-aspect morphology by advanced French instructed learners. *Language Learning, 58*, 555–595.

Bardovi-Harlig, K. (1997). Another piece of the puzzle: The emergence of the present perfect. *Language Learning, 47*, 375–422.

Bardovi-Harlig, K. (2000). *Tense and aspect in second language acquisition: Form, meaning, and use*. Blackwell.

Bardovi-Harlig, K. (2001). Another piece of the puzzle: The emergence of the present perfect. *Language Learning, 51*, 215–263.

Bardovi-Harlig, K., & Comajoan-Colomé, L. (2020). The aspect hypothesis and the acquisition of L2 past morphology in the last 20 years. *Studies in Second Language Acquisition, 42*, 1137–1167.

Bardovi-Harlig, K., & Reynolds, D. W. (1995). The role of lexical aspect in the acquisition of tense and aspect. *TESOL Quarterly, 29*, 109–131.

Bardovi-Harlig, K., & Sprouse, R. A. (2017). Negative versus positive transfer. In J. I. Liontas, M. Dellicarpini, & A. Shehadeh (Eds.), *The TESOL encyclopedia of English language teaching* (pp. 1–6). Wiley-Blackwell.

Barr, D. J., Levy, R., Scheepers, C., & Tily, H. J. (2013). Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language, 68*, 255–278.

Bates, D. M., Maechler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software, 67*, 1–48.

Binnick, R. I. (1991). *Time and the verb: A guide to tense and aspect*. Oxford University Press.

Chan, H. L. (2012). *Tense-aspect processing in second language learners* [Doctoral thesis, University of Pittsburgh]. ERIC. https://eric.ed.gov/?id=ED548842

Chan, D. H. L. (2018). Ultimate L2 attainment in ESOL. In J. I. Liontas, M. Dellicarpini, & A. Shehadeh (Eds.), *The TESOL encyclopedia of English language teaching* (pp. 933–941). Wiley-Blackwell.

Clark, H. (1973). The language-as-fixed-effect fallacy: A critique of language statistics in psychology research. *Journal of Verbal Learning and Verbal Behavior, 12*, 335–359.

Collins, L. (2002). The roles of L1 influence and lexical aspect in the acquisition of temporal morphology. *Language Learning, 52*, 43–94.

Collins, L. (2004). The particulars on universals: A comparison of the acquisition of tense-aspect morphology among Japanese- and French-speaking learners of English. *The Canadian Modern Language Review, 61*, 251–274.

Comajoan, L. (2006). The aspect hypothesis: Development of morphology and appropriateness of use. *Language Learning, 56*, 201–268.
Comrie, B. (1976). *Aspect*. Cambridge University Press.
Comrie, B. (1985). *Tense*. Cambridge University Press.
Cunnings, I. (2012). An overview of mixed-effects statistical models for second language researchers. *Second Language Research, 28*, 369–382.
Ellis, N. C. (2006). Selective attention and transfer phenomena in SLA: Contingency, cue competition, salience, interference, overshadowing, blocking, and perceptual learning. *Applied Linguistics, 27*, 164–194.
Ellis, N. C., & Sagarra, N. (2010). The bounds of adult language acquisition: Blocking and learned attention. *Studies in Second Language Acquisition, 32*, 553–580.
Hong, W. M. (2008). *Lexical aspect and L1 influence on the acquisition of English verb tense and aspect among the Hong Kong secondary school learners* [Doctoral thesis, The Hong Kong Polytechnic University]. PolyU Electronic Theses. https://theses.lib.polyu.edu.hk/handle/200/2763
Hong Kong Examinations and Assessment Authority. (2013). *Press release: Results of the benchmarking study between IELTS and HKDSE English language examination.* Retrieved November 18, 2018, from http://www.hkeaa.edu.hk/DocLibrary/MainNews/press_20130430_eng.pdf
Hundt, M., & Smith, N. (2009). The present perfect in British and American English: Has there been any change, recently*?*. *ICAME, 33*, 45–63.
Johnson, C. J. (1985). The emergence of present perfect verb forms: Semantic influences on selective imitation. *Journal of Child Language, 12*, 325–352.
Klein, W. (2009). How time is encoded. In W. Klein & P. Li (Eds.), *The expression of time* (pp. 39–81). De Gruyter Mouton.
Klein, W. (1992). The present perfect puzzle. *Language, 68*, 525–552.
Liszka, S. A. (2002). *The development of tense and the present perfect in second language English* [Doctoral thesis, University of Essex].
Liszka, S. A. (2004). Exploring the effects of first language influence on second language pragmatic processes from a syntactic deficit perspective. *Second Language Research, 20*, 212–231.
Matthews, S., & Yip, V. (1994). *Cantonese: A comprehensive grammar*. Routledge.
Matthews, S., & Yip, V. (2011). *Cantonese: A comprehensive grammar* (2nd ed.). Routledge.
Quirk, R., Greenbuam, S., Leech, G., & Svartvik, J. (1985). *A comprehensive grammar of the English language*. Pearson Longman.
R development core team. (2011). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing.
Ritz, M. E. (2012). Perfect tense and aspect. In R. I. Binnick (Ed.), *The Oxford handbook of tense and aspect* (pp. 881–907). Oxford University Press.
Roberts, L., & Liszka, S. A. (2013). Processing tense/aspect-agreement violations on-line in the second language: A self-paced reading study with French and German L2 learners of English. *Second Language Research, 29*, 413–439.
Rosch, E. (1973). On the internal structure of perceptual and semantic categories. In T. E. Moore (Ed.), *Cognitive development and the acquisition of language* (pp. 111–144). Academic Press.
Rosch, E. (1975). Cognitive representations of semantic categories. *Journal of Experimental Psychology, 104*, 192–233.
Rosch, E. (1978). Principles of categorization. In E. Rosch & B. B. Lloyd (Eds.), *Cognition and categorization* (pp. 27–48). Erlbaum.
Rosch, E., & Mervis, C. (1975). Family resemblances: Studies in the internal structure of categories. *Cognitive Psychology, 7*, 573–605.
Salaberry, M. R. (1998). The development of aspectual distinctions in L2 French classroom learning. *The Canadian Modern Language Review, 54*, 508–542.
Salaberry, M. R. (1999). The development of past tense verbal morphology in classroom L2 Spanish. *Applied Linguistics, 20*, 151–178.

Shirai, Y. (1991). *Primacy of aspect in language acquisition. Simplified input and prototype* [Doctoral thesis, UCLA]. ResearchGate. https://www.researchgate.net/publication/247245206_Primacy_of_Aspect_in_Language_Acquisition_Simplified_Input_and_Prototype

Shirai, Y., & Andersen, R. W. (1995). The acquisition of tense-aspect morphology: A prototype account. *Language, 71*, 743–762.

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

Smith, C. S. (1997). *The parameter of aspect* (2nd ed.). Kluwer Academic.

Sybesma, R. (2004). Exploring Cantonese tense. *Linguistics in the Netherlands, 21*, 169–180.

Teran, V. (2014). *Telicity and the developmental acquisition of the English present perfect by L1 Spanish speakers* [MA thesis, Southern Illinois University]. OpenSIUC. https://opensiuc.lib.siu.edu/theses/1446/

Uno, M. (2014). Lexical aspect in the use of the present perfect by Japanese EFL learners. *International Review of Applied Linguistics in Language Teaching, 52*, 31–57.

Vendler, Z. (1967). *Linguistics in philosophy*. Cornell University Press.

Von Stutterheim, C., & Carroll, M. (2006). The impact of grammatical temporal categories on ultimate attainment in L2 learning. In H. Byrnes, H. D. Weger-Guntharp, & K. A. Sprang (Eds.), *Educating for advanced foreign language capacities: Constructs, curriculum, instruction, assessment* (pp. 40–53). Georgetown University Press.

Werner, V. (2013). Temporal adverbials and the present perfect/past tense alternation. *English World-Wide, 34*, 202–240.

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

Yao, X., & Collins, P. (2012). The present perfect in world Englishes. *World Englishes, 3*, 386–403.

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