Pui Yiu Szeto*, Stephen Matthews and Virginia Yip

Bilingual children as "laboratories" for studying contact outcomes: Development of perfective aspect

Abstract: This paper examines the close parallels between the contact phenomena in Cantonese-English bilingual children and Southeast Asian creoles, especially in the domain of perfective aspect marking. 'Already' is a cross-linguistically common lexical source of perfective aspect markers given its conceptual link with the sense of perfectivity. In contact scenarios involving a European lexifier and Southeast Asian substrates, the development of 'already' into a perfective marker is further triggered by the incompatibility between the verbal morphology of the former and the isolating typology of the latter. Adopting an ecological approach to language transmission and creole genesis we discuss how the transient grammaticalization phenomena in the bilingual children can be compared to decreolization, and how the study of bilingual acquisition can contribute to contact linguistics. Despite the prevalence of unpredictable factors in contact scenarios, we argue that bilingual children can still serve as powerful "laboratories" for studying contact outcomes at the communal level.

Keywords: Cantonese-English bilingual acquisition, Asian-Portuguese creole, creole genesis, grammaticalization, language contact

1 Introduction

A widely held assumption in contact linguistics is that the bilingual or multilingual individuals are the locus of language contact, as first put forward in Weinreich's (1953) seminal work and later reinforced by Romaine (1989).

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Mufwene (2001, 2008) formulates a compelling theoretical framework which not only describes the competition and selection of linguistic features in a multilingual ecology but also explains why all kinds of linguistic innovations and changes observable at the communal level must logically stem from the idiolectal level. With such a generally recognized notion in the field, it is natural to have a considerable amount of scholarly work addressing the link between language acquisition (an individual phenomenon) and contact language formation (a communal phenomenon). The undeniable link between the two phenomena notwithstanding, an important yet relatively under-addressed question is, what kind(s) of language acquisition should we look at?

Transfer in L2 acquisition is widely acknowledged to play a role in creole genesis and other kinds of contact-induced language change (Lefebvre 1998; Chaudenson 2001; Siegel 2008; Clements 2009) (see also Baptista 2016 for a critical overview). Although it is commonly believed that L2 acquisition and creole genesis are intimately connected or even share the same underlying mechanisms, it would be too simplistic an approach to only take L2 acquisition into account. As demonstrated by DeGraff (1999, 2002, 2009), creole genesis necessarily involves both adults and children in a multilingual setting; therefore, late L2 acquisition, early L2 acquisition, and bilingual L1 acquisition[1] are all at play, in what DeGraff terms the L2-L1 cascade. Such a distinction is no trivial matter, because as Kouwenberg (2006: 205) observes, "L1 transfer in creole genesis may have the effect of assigning new grammatical functions to superstrate material", which is not a phenomenon commonly found in L2 acquisition (cf. Siegel 2008). According to this observation, bilingual L1 acquisition studies can arguably shed light on the studies of grammaticalization in creoles.

The emergence and development of grammatical forms and constructions in contact scenarios, i.e. contact-induced grammaticalization, constitutes the

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1 Based on the general consensus on bilingual children's ability to differentiate between the two linguistic systems from early on, some studies went on further to argue that the two systems develop autonomously without interaction, and hence developing two grammars essentially in the same way as those of monolinguals (Meisel 1989, Meisel 1994, Meisel 2011; De Houwer 1995). However, a number of studies have found various forms of interaction and cross-linguistic influence between the two languages (e.g. Döpke 2000; Hulk and Müller 2000; Yip and Matthews 2007; Ringblom 2012; Silva-Corvalán 2014). Cross-linguistic influence may not be symmetrical and its directionality may be affected by factors like language dominance and the presence of vulnerable domains in the languages involved (Yip and Matthews 2007). Such findings illustrate that the development of differentiated language systems in bilingual children does not preclude cross-linguistic influence; the crucial question lies in the nature of the influence and whether transfer is involved.

theme of this study. In particular, we will focus on the emergence of perfective aspect in Cantonese-English bilingual children and a number of contact languages. As discussed in Yip and Matthews (2007), the English utterances of Cantonese-English bilingual children show a number of parallels with Singlish, one of which is the use of bare verb forms together with *already* when inflectional morphemes such as the *-ed* and *–en* verbal suffixes are required in Standard English (1–4):

Cantonese-English bilingual children's English
(1)   *You wipe your mouth already*?   (Kasen 3;00)

(2)   *You swallow the short teeth already*.   (Timmy 3;01)
       (Yip and Matthews 2007)

Singlish
(3)   *I wash my hand already*.
       'I have washed/washed my hand.'
       (Bao 2005: 239)

(4)   *I see the movie already*.
       'I have seen/saw the movie.'
       (Bao 2005: 238)

Interestingly, similar developments involving the development of a lexical item meaning 'already' into a perfective marker are also observed in Ibero-Asian creoles like the Spanish-lexified Zamboanga Chabacano (realized as *ya*) (Steinkrüger 2013) (5), and the Portuguese-lexified Papiá Kristang (realized as *ja*) (Baxter 2013) (6)[2]:

(5)   *Éle **ya**-matá pwérko gat   alyá   gránde*
       3SG   PFV-kill   pig   really   there   big
       'S/he killed a really big pig there.'

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2 The abbreviations used in this paper are as follows: 1 = 1st person; 2 = 2nd person; 3 = 3rd person; ACC = accusative; CAUS = causative; CLF = classifier; EXP = experiential; INF = infinitive; NEG = negation; NPST = nonpast; OBJ = object; PASS = passive; PERM = permissive; PFV = perfective; PL = plural; PST = past; SFP = sentence-final particle; SG = singular; SUR = surpass

(6) *Eli* **ja** *bai mar onti*   *anoti*
    3SG PFV go sea yesterday night
    'S/he went fishing last night.'

Matthews and Yip (2009) argue that the emergence of *already* as a perfective aspect marker presents a case of ordinary contact-induced grammaticalization, and make an important observation that both the [V *zo2...laa3*] and [V *saai3...laa3*] constructions may serve as the models for interlingual identification, suggesting that *already* may not correspond to the Cantonese perfective aspect marker *zo2* only. We will take this observation as a point of departure and analyze how *already* develops into a perfective marker in Cantonese-English bilingual children (Section 2), and why such a development is prevalent in Southeast Asian contact languages (Section 3). The analysis serves to show how far the developments in contact languages are paralleled in individual bilingual development, and how typological and social factors may affect contact outcomes (Section 4).

2 Emergence of perfective *already* in Cantonese-English bilingual children

The use of *already* as a perfective marker in Cantonese-English bilingual children was first discussed in Kwan-Terry (1989) and further investigated in Yip and Matthews (2007). According to these studies, the bilingual children's development is parallel to the development of *already* as a perfective aspect marker in Singlish, which is used in post-verbal or clause-final position to express perfective notions such as completion and change of state. Such a use of *already* is observed in all nine children in the Hong Kong Bilingual Child Language Corpus (Yip and Matthews 2007), regardless of their dominant language (Szeto et al. 2017). The background information of the bilingual children involved in this study is shown in Table 1.

Two questions follow–(a) Why is *already* (but not any other lexical item) identified as a perfective marker? (b) Why are the target-like tense/aspect forms which involve inflectional morphemes so rare in the corpus data despite the fact that all the bilingual children received native or near-native English input since birth?

2.1 *Already* and the Cantonese [*zo2...laa3*] construction

The development of 'already' into a marker of perfective aspect is a crosslinguistically common grammaticalization pathway–it is not only attested in the

Table 1: Background information of the Cantonese-English bilingual children.

Name	Age	No. of English files	No. of utterances in English files
Timmy	2;01.22–3;06.25	38	6,241
Sophie	1;06.00–3;00.09	40	6,717
Alicia	1;03.10–3;00.24	40	5,109
Llywelyn	2;00.12–3;04.17	17	4,121
Kathryn	3;01.05–4;06.07	17	4,202
Charlotte	1;08.28–3;00.03	19	4,621
Janet	2;10.16–3;11.11	22	5,043
Kasen	2;04.07–4;00.09	20	5,318
Darren	1;07.23–3;11.24	28	5,304
TOTAL		241	46,676

creoles mentioned in Section 1 but also in non-creole languages like Malay, Inuit, and Buli[3] (Bybee et al. 1994). The existence of such parallel developments may be a result of some inherent conceptual links between the semantics of 'already' and the sense of perfectivity (Bao 1995).

The English adverb *already* is often associated with completed events, which makes it a natural perfective aspect marker. For example, in (7), the event of starting is completed when the event of arriving occurs.

(7)   *The performance had already started when we arrived.*

However, as Traugott and Waterhouse (1969) and Soh (2009) point out, in addition to a "change of state" interpretation, an important feature associated with the use of *already* is that the assertion made by the sentence is contrary to what one may expect or assume (referred to as the "contrary to expectation" interpretation by Soh 2009).[4] For example, the sentence in (7) implies that the

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3 Instead of developing into a perfective marker directly, the grammaticalization pathway for the perfective 'already' has to pass through the stage of a perfect (termed "anterior" by Bybee et al.), i.e., lexical 'already' > perfect 'already' > perfective 'already'.

4 As Soh (2009: 624) demonstrates, the "change of state" and "contrary to expectation" interpretations are independent of each other. In some contexts, *already* may only carry the "contrary to expectation" interpretation without any "change of state" interpretation (but not the other way around).

performance began earlier than expected. A more noticeable example involving a "contrary to expectation" sense is given in (8), where B uses *already* to correct A's wrong assumption B hasn't finished his/her homework yet.[5]

(8)   A: *You have to finish your homework first.*
        B: *I've finished my homework already!*

As Soh (2009) demonstrates, the semantics of *already* is similar to the Mandarin sentence-final particle *le*, which corresponds closely to the Cantonese *laa3* (Matthews and Yip 2011). The Cantonese *laa3* is a sentence-final particle which functions to express current relevance (Matthews and Yip 2011) or a change of state (Cheung 2007). It often co-occurs with the perfective aspect marker *zo2* to describe a completed event which has current relevance, thus entailing a change of state. It is noteworthy that the Cantonese [*zo2...laa3*] construction does not always have the same "change of state" meaning as that associated with the English *already*. Both can convey the meaning that a proposition is true at the time of speaking and there was a time when it wasn't. For example, by saying 'I have returned home' or its Cantonese equivalent in (9), I have arrived at the time of speaking and there must be a previous state in which I haven't arrived yet.

(9)   *Ngo5 faan1-zo2   uk1kei2 laa3*
        1SG   return-PFV home   SFP
        'I have returned home.'

Meanwhile, only Cantonese [*zo2...laa3*] construction conveys an inchoative meaning, which denotes the beginning of a state, as shown in (10).

(10)   *hung4-zo2 laa3*
        red-PFV   SFP
        '(It) has turned red.'

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5 The "contrary to expectation" reading sometimes only targets the time-point but not the occurrence of the action or event concerned. For example, the sentence "John has already arrived" can be uttered in a context where John has been invited to a party but arrives unexpectedly early. In other words, John's arrival is expected but the time he arrives is earlier than expected, suggesting that *already* is associated with an "earliness implication" (van der Klok and Matthewson 2015). The same applies to (7) and (8), where the beginning of the performance and completion of homework occurred earlier than expected, respectively. We thank the reviewers for bringing up this issue and providing an excellent example to highlight the semantic properties of *already*.

Its association with the sense of current relevance may make the [*zo2...laa3*] construction a perfect-like category. However, this construction lacks the experiential reading typically associated with the perfect (McCawley 1971; Comrie 1976), making it fail to qualify as a bona fide perfect category according to some scholars' standards[6] (e.g. Dahl and Velupillai 2013).

Like *already*, the [*zo2...laa3*] construction may express senses of "change of state" and "contrary to expectation" simultaneously. For example, the utterance of B in (11a) is associated with a sense of "contrary to expectation" because the fact that "B has eaten" is in contrast with A's inviting B to join him/her for a meal. At the same time, B's utterance also conveys the meaning that the eating event is completed and s/he has changed from a state of "not having eaten" to "having eaten". (11b) is the English equivalent of (11a), in which *already* carries the "change of state" and "contrary to expectation" readings.

(11a) A: *Heoi3 m4   heoi3 sik6 faan6 aa3*?
             go   NEG go   eat rice   SFP
             'Will you go and eat the meal?'

     B: *Ngo5 sik6-zo2 je5   laa3*
             1SG   eat-PFV thing SFP
             'I've already eaten.'

(11b) A: *Let's go eat, shall we?*
     B: *No, I've already eaten.*

Although the [*zo2...laa3*] construction shares some properties with *already* in the above example, it differs in the obligatoriness of the "contrary to expectation" reading – when responding to a neutral yes/no question, the use of [*zo2...laa3*] construction is perfectly acceptable, without any "contrary to expectation" reading, as in (12). See Szeto et al. (2017) for a more detailed analysis of the congruence between *already, zo2,* and *laa3*.

(12) A: *Maai5-zo2 bun2 syu1   mei6 aa3*?
             buy-PFV   CLF book NEG   SFP
             'Have you bought the book?'

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6 As Binnick (1991) demonstrates, the perfect is a complex category with plenty of language-specific peculiarities. Whether the [*zo2...laa3*] construction should be considered a perfect category in Cantonese is open to further discussion. This is, however, beyond the scope of the present study.

B: *Maai5-zo2 laa3*
   buy-PFV   SFP
   'Yes, I have.'

Based on the above analysis, the high degree of semantic overlap between *already* and [*zo2...laa3*] construction makes it likely for the bilingual children to identify the former with the latter. If this is the case, we would expect *already* to undergo semantic bleaching and lose the obligatory "contrary to expectation" reading. Consistent with our prediction, there are cases in which the bilingual children's use of *already* is unlikely to be associated with a "contrary to expectation" interpretation. In (13a), the child appears to be replying to a neutral question by indicating that the sending action is completed. There appears to be no specific presupposition suggesting a "contrary to expectation" interpretation.

(13a) Investigator: *Did you send him to the hospital?*
      Child: *I send already.*   (Timmy 3;01)

(13b) A: *Sung3-zo2 keoi5 jap6 ji1jyun2 mei6?*   (Cantonese counterpart)
         send-PFV   3SG   enter hospital NEG
         'Have you sent him to the hospital?'
      B: *Sung3-zo2 laa3*
         send-PFV   SFP
         'Yes, I have.'

Moreover, one child is observed to use *already* when asking yes/no questions with no presupposition about whether the enquired actions should have been done, as illustrated in (14a). In its Cantonese counterpart (14b), the perfective aspect marker *zo2* is used to indicate that the questions are about completed actions. The data supports our hypothesis that *already* is identified with the [*zo2...laa3*] construction and undergoes semantic bleaching in the bilingual children, losing its obligatory association with the "contrary to expectation" reading.

(14a) Child: *You already eat?*
      Investigator: *Mm?*
      Child: *Okay, you wipe your mouth already?*   (Kasen 3;00)

(14b) *Nei5 sik6-zo2 je5   mei6? Nei5 maat3-zo2 zeoi2   mei6?*
      2SG   eat-PFV   thing   NEG   2SG   wipe-PFV   mouth   NEG
      'Have you eaten? Have you wiped your mouth?'

As we discuss above, the Cantonese [*zo2...laa3*] construction and English *already* differ in the *obligatoriness* of the "contrary to expectation" reading. Therefore, it does not come as a surprise that there are still examples showing that such a reading may be present in the bilingual children's English. In (15–16), the children seem to use *already* to correct a wrong assumption, which is a function of the lexical *already*. These examples suggest that the lexical *already* coexists with the grammaticalized *already* in the bilingual children, displaying a grammaticalization pattern commonly found in Mainland Southeast Asian languages[7] (Bisang 2004, Bisang 2011) (also see Section 3).

(15) Investigator: *Hey Sophie, she said she wants to listen to a story.*
      Child: *She sleep already.*   (Sophie 2;06)

(16) Investigator: *Are you sleeping now?*
      Child: *No, I sleep already.*   (Llywelyn 2;08)

The inchoative use of *already* in the bilingual children further manifests features of the Cantonese [*zo2...laa3*] construction, which are not attested in the standard English *already* and can only be expressed by lexical means.

(17) [coming in wearing pink dress]   *I today wear pink. I today wear pink.*
      [later, re-appearing in red dress] *I all red already.*   (Alicia 2;09)

2.2 Emergence of *already* in relation to tense/aspect acquisition

As the most basic aspectual distinction is that between perfective and imperfective aspects (Comrie 1976; Li and Shirai 2000), it comes as no surprise that the bilingual children start to use the Cantonese perfective aspect marker *zo2* early on (18–19).[8]

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7 Akin to the bilingual children's *already*, a marker combining semantic features of 'already' with a current relevance reading is found in some Southeast Asian languages, which is termed "iamitive" by Olsson (2013).

8 As Sophie and Alicia are the only bilingual children with speech data collected by the age of 1;06, only the utterances of these two children are included in the examples. The other children are found to use *zo2* productively even in the first few Cantonese files in the corpus, suggesting that they had already acquired the Cantonese perfective aspect marker before the recording period.

(18) *Rabbit zau2-zo2 aa3*   (Alicia 1;05)
      rabbit   go-PFV   SFP
      'The rabbit has gone.'

(19) *Faan1-zo2 lei4   aa3*   (Sophie 1;06)
      back-PFV   come SFP
      '(S/he) has come back.'

Meanwhile, the target-like English perfect form emerges much later in the bilingual children–it is only found in three bilingual children after age 3 (20–22), and not at all in the other six children's data.

(20) *Mummy has gone already.*   (Timmy 3;01)

(21) *She said she has already heard, she said.*   (Kathryn 3;08)

(22) *You have lost.*   (Kasen 4;00)

The other six bilingual children appear to have a delay in acquiring inflectional morphology and produce non-target-like uninflected tense/aspect forms even towards the end of the recording period (23–28).

(23) *She eat the poison.*   (Sophie 3;00)

(24) *Danny have like this.*   (Alicia 3;00)

(25) *Is that Linda have record it?*   (Llywelyn 3;00)

(26) [Responding to the question 'Where did you go?']
      We go to the church and dance.   (Charlotte 3;00)

(27) *She has push xxx.*   (Janet 3;08)

(28) *I have not see it.*   (Darren 3;10)

By contrast, when we look at the corpus data of five English monolingual children taken from three corpora (Brown 1973; Rowland and Fletcher 2006; Lieven et al. 2009) in the Child Language Data Exchange System (CHILDES)

database (MacWhinney 2000), we observe that the target-like past and perfect forms emerge by 2;07 in the English monolingual children (29–33).[9]

(29) [Responding to the demand 'Put the cork on the cup]
      I caught it.   (Adam 2;04)

(30) *See, we made a picture. See?*   (Eve 2;03)

(31) *I got Kleenex Mommy right here.*   (Sarah 2;07)

(32) *Have you done my balloon?*   (Lara 2;06)

(33) *Have you seen them?*   (Thomas 2;05)

The results indicate that the bilingual children's development in the English perfect system shows at least a 6-month delay compared with their monolingual counterparts. Given the isolating typology of Cantonese, it is natural that the bilingual children may take a longer time to fully acquire the relatively morphosyntactically complex English tense/aspect forms. Consequently, after having acquired the basic aspectual distinction between perfective and imperfective in Cantonese, the bilingual children resort to using *already* after uninflected verbs to mark perfective aspect in order to fill the gap in their English. Given that the 'bare verb + *already*' construction is not attested in the monolingual data, the use of such a construction is not a normal stage in the acquisition of the English perfect. Rather, it is specific to bilingual children. Another important observation is that the Cantonese perfective form emerges more than one year earlier than the English perfect form, regardless of any cross-linguistic influence. Such a significant developmental asynchrony explains why the use of perfective *already* as a gap-filling strategy is observed in all the Cantonese-English bilingual children in the corpus, regardless of their dominant language.

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9 Taking the differences between British English and American English into account, the use of simple past to convey a present perfect meaning (Elsness 2009) is also considered a target-like construction in the three American English monolingual children (Adam, Eve, Sarah).

3 Perfective aspect marking in Southeast Asian contact languages

Monsoon Asia has a long history of maritime trade and is home to a considerable number of linguistically and culturally diverse communities, within which new language varieties emerged (Ansaldo 2009). To make the comparison relevant to Cantonese-English bilingual development, we will focus on creoles with a European lexifier in Southeast Asia (including peninsular Southeast Asia and South China). In the following section, we will provide a brief overview of the typological properties of the indigenous languages in this region.

3.1 Typological properties of Southeast Asian languages

Languages in peninsular Southeast Asia and South China are often collectively referred to as Mainland Southeast Asian languages (Enfield 2003). Although composed of languages from five different families (namely Sino-Tibetan, Austroasiatic, Tai-Kadai, Hmong-Mien, and Austronesian), due to prolonged contact, these languages share many typological properties irrespective of their genetic affiliation (Enfield 2003; Bisang 2004). Languages in this area generally belong to the isolating or analytic type, and are characterized by their tone systems and discreteness of syllable boundaries, which contribute to the relative morphophonological stability of grammaticalized items in these languages (Bisang 2011). For example, no significant phonetic reduction is observed in the grammaticalized form of the Cantonese *gwo3* 'to pass/cross' (34) or the Hokkien $ho^{33>21}lan^{24}$ 'to give people' (35) (Ansaldo and Lim 2004: 348–349).

(34a) *Ngo5* **gwo3** *ma5lou6*
  1SG   cross road
  'I cross the road.'

(34b) *Ngo5* *daai6* **gwo3** *nei5*
  1SG   big   SUR   you
  'I'm older than you.'

(34c) *Ngo5* *heoi3* **gwo3** *gwong2zau1*
  1SG   go   EXP   Guangzhou
  'I've been to Guangzhou.'

(35a) *i⁵⁵ᐟ³³* **ho³³ᐟ²¹** **laŋ²⁴ᐟ³³** *te³³*
    3SG   give   people bag
    'S/he gave them a bag.'

(35b) *i⁵⁵ᐟ³³* **ho³³ᐟ²¹** **laŋ²⁴ᐟ³³** *sien³³*
    3SG   CAUS   people be.bored
    'S/he made them bored.'

(35c) *i⁵⁵ᐟ³³* **ho³³ᐟ²¹** **laŋ²⁴ᐟ³³** *tsiaʔ⁵*
    3SG   PERM   people eat
    'S/he let them eat.'

(35d) *i⁵⁵ᐟ³³* **ho³³ᐟ²¹** **laŋ²⁴ᐟ³³** *me³³*
    3SG   PASS   people scold
    'S/he was scolded.'

Given the morphophonological stability of grammaticalized items in Southeast Asian languages and the conceptual link between 'already' and the sense of perfectivity (see Section 2.1), one would expect the presence of a perfective marker derived from a lexical word meaning 'already' in some of these languages. This is precisely what we observe in Bazaar Malay (36) and Javanese (37), two important contributing languages in the genesis of Southeast Asian creoles (Michaelis et al. 2013). In both of these languages, a lexical word meaning 'already' (*sudah* in Bazaar Malay, *wis* in Javanese) has developed into a perfective marker:

(36) *Dia* **sudah** *mati*
    3SG PFV   die
    'He died.'
    (Khin Khin Aye 2005: 177)

(37) *Dhèwèké* **wis** *mlebu*
    3SG   PFV go.inside
    'He has gone inside.'
    (Robson 2002: 96)

As demonstrated above, Mainland Southeast Asian languages show very limited coevolution of form and meaning over time, producing morphophonologically stable grammatical items (see Bisang 2015 for a more detailed analysis). In the next section, we will discuss how such typological properties may have influenced the development of perfective aspect in the Southeast Asian creoles.

3.2 Contact-induced grammaticalization of 'already'

The isolating typology of Mainland Southeast Asian languages contrasts with the verbal morphology of European languages. Lack of a clean typological fit between languages in a contact situation can lead to the re-analysis of certain particles (Clements 2009), which can involve a process referred to as ordinary contact-induced grammaticalization by Heine and Kuteva (2003, 2005). The mechanisms involved in the transfer of grammatical concept or structure from the model language (M) to the replica language (R) in ordinary contact-induced grammaticalization are as follows:

(38)   Ordinary contact-induced grammaticalization (Heine and Kuteva 2005: 81)
   a.   Speakers notice that in language M there is a grammatical category Mx.
   b.   They develop an equivalent category Rx in language R on the basis of the use patterns available in R.
   c.   To this end, they draw on universal strategies of grammaticalization, using construction Ry in order to develop Rx.
   d.   They grammaticalize category Ry to Rx.

To put it another way, speakers of language M would expect the same grammatical distinctions in language R when they acquire the latter as a second L1 or an L2. Consequently, they would search for equivalents in language R to categories in language M with which they are already familiar. This process, according to Hickey (2010: 155), is "an unconscious one and persists even with speakers who have considerable target language proficiency".

The use of *already* as a perfective aspect marker in Singlish is an example of ordinary contact-induced grammaticalization, in which a new grammatical category was developed in the replica language (Singlish, a contact variety of English) due to transfer from the model languages (Southern Sinitic and Malay varieties). Compared to Standard English, Singlish seldom employs inflectional morphology. Its aspectual system, as Bao (2005: 237) puts it, is "essentially the Chinese system filtered through the morphosyntax of English". For example, *already* occurs after uninflected verbs to mark perfective aspect without involving any inflectional morpheme. This is consistent with the use of the perfective aspect marker *liau* in Hokkien, one of the most important substrate languages in the formation of Singlish (Ansaldo 2009):

(39)   *He eat already*. [Singlish]
   'He has eaten.'

(40) *I   tsiah png **liau*** [Hokkien]
     3SG eat   rice PFV
     'He has eaten.'

In this case, the Singlish speakers grammaticalized a lexical item into an aspect marker instead of using inflectional morphology to mark perfective aspect, following the aspect-marking strategy of the substrate languages.

    Given the similar languages involved in the formation of Singlish and Cantonese-English bilingual development, it may not be surprising to find a parallel development of perfective *already* in the bilingual children (see Section 2), which is also arguably a case of ordinary contact-induced grammaticalization (Matthews and Yip 2009). In analyses based on the model of contact-induced grammaticalization, one needs to first establish the model (M) and the recipient (R) languages. Given that the bilingual children in this study were exposed to both Cantonese and English simultaneously since birth, it may seem difficult to tell which language serves as the M language. Nonetheless, we maintain that Cantonese is the M language in Heine and Kuteva's (2003, 2005) sense, at least in perfective aspect marking. Why? Because these children know how to express perfective aspect in their Cantonese by age 1;06, at which point they are far from acquiring the English *have* perfect. Note that this could be true even for children for whom Cantonese is not dominant. Since Cantonese monolinguals use *zo2* from before age 2;00, whereas English monolingual children acquire the *have* perfect around 2;07, there is a developmental asynchrony involved. Consequently, the perfective *already* emerges in the bilingual children based on its Cantonese counterpart to fill the gap. Thus, both language dominance and developmental sequence have to be taken into account when studying contact-induced grammaticalization in bilingual development.

    As mentioned in Section 1, the emergence of perfective 'already' is not only found in English-lexified contact languages. In addition to Singlish, there are a number of other contact languages in the region with a European lexifier and Southeast Asian substrates. Particularly common are the Portuguese-lexified creoles, in which the adverb *já* 'already' has developed into a perfective marker:

(41) *Ilôtro **já**   faze* [Makista]
     3PL   PFV do
     'They did.'
     (Ferreira dos Santos 1996: 242)

(42) *Eli　**ja**　bai　mar* [Papiá Kristang]
　　　3SG　PFV　go　sea
　　　'S/he went fishing.'
　　　(Baxter 2013)

(43) *Ki　　merkesia　　Sinyor **dja** tridji　djuntadu*? [Batavia Creole]
　　　what　merchandise　Sir　　PFV　bring　together
　　　'What sorts of merchandise have you brought with you?'
　　　(Maurer 2013)

Akin to the case of Singlish, a new grammatical category was developed in the above Portuguese-lexified creoles based on the use patterns available in their Southeast Asian substrates. Even though these Portuguese-lexified creoles show parallel grammaticalization pathways of 'already' with Singlish and Cantonese-English bilingual development, a noteworthy fact is that Asian-Portuguese creoles are by no means uniform in tense-aspect marking–if we shift our focus from Southeast Asia to the Indian subcontinent, where the morphologically rich Indo-Aryan and Dravidian languages predominate, we can find Portuguese-lexified creoles like Korlai (44) and Diu Indo-Portuguese (45), which mark tense/aspect inflectionally. Such a difference highlights the relevance of substrate typology to contact outcomes. We will further address this issue in Section 4.

(44) *Ku　Lwidz　difludz　hika-**d***
　　　OBJ　Lwidz　cold　　become-PFV
　　　'Lwidz has gotten a cold.'
　　　(Clements 2013)

(45) *Maŋa　　lɛ̌ut-**o**　　foy　　trabay*
　　　morning　get.up-PST　go.PST　work
　　　'In the morning (I) got up and went to work.'
　　　(Cardoso 2013)

4 Bilingual development and creole studies

It should now be clear that the development of perfective aspect in Southeast Asian creoles shows remarkable parallels with Cantonese-English bilingual acquisition, which reflect substrate influence from the isolating languages in the region. In this section, we will attempt to move beyond perfective aspect and

discuss how the grammaticalization phenomena observed in bilingual acquisition may shed light on creole studies.

4.1 Transient grammaticalization and decreolization

While Meisel (1989) presents evidence suggesting that bilingual children can easily separate the two linguistic systems before or around age 2;00 and show no qualitative differences with their monolingual counterparts thereafter, the Cantonese-English bilingual children in Yip and Matthew's (2007) study show a number of interesting grammatical peculiarities in their English not attested in monolingual development, such as the use of prenominal relative clauses, passive-marking *give*, and the perfective-marking *already* discussed in this study, even after age 3;00. Although close parallels of such "non-target" development are also observed in English-lexified contact languages such as Singlish and Chinese Pidgin English, a crucial difference between the two cases is that such phenomena persist in the contact languages even among adult speakers, but gradually disappear in the bilingual children after they attend school. In our case, the grammaticalized use of *already* is later replaced by the standard English *have* perfect when the bilingual children have acquired the target-like tense/aspect forms. We coin the term "transient grammaticalization" to describe the transient use of grammaticalized items in the replica language based on model constructions provided by the model language in the early developmental stage of the bilingual children.

The reasons why the grammaticalization phenomena in the bilingual children are only transient merit further discussion. We focus on the use of 'already' as a perfective aspect marker in our discussion as this is the main theme of this study. In both the Cantonese-English bilingual children and Southeast Asian creole speakers, the motivation for developing 'already' into a perfective aspect marker is arguably the same–the isolating typology of the substrate/replica language(s) poses an obstacle to the acquisition of inflectional morphology involved in the target-like tense/aspect marking, triggering the development of 'already' into a perfective aspect marker to fill the gap. Given the similarities between the internal ecology of the formation of these creoles and the development of English in the bilingual children, the transience of the contact phenomena found in the bilingual children is likely due to the external ecology under which their English develops.

Instead of acquiring their parents' language *in toto*, recent studies in language evolution generally agree that language is characterized by variation and is acquired piecemeal and selectively (Croft 2000; Mufwene 2001; Ansaldo

2009); one's communication network plays a pivotal role in one's language development because one will select and recombine linguistic features encountered in different instances of "linguistic interbreeding" (idiolectal interaction) to arrive at an individual grammar. In a multilingual and informal ecology of transmission, one will typically receive diverse and rich input, which favors creative innovations. By contrast, in a monolingual and normative ecology of transmission, where educational institutions may enforce grammatical norms to eliminate deviant features, idiolectal variation tends to be limited and creative innovations may be kept at bay (Ansaldo 2009: 100–101).

While Hong Kong English is increasingly recognized as a post-colonial English variety with Cantonese influence (Bolton 2002; Schneider 2007), it is arguably not of direct relevance to the present study. Despite its official status, English is only used by less than 5% of the Hong Kong population as their usual language (Census and Statistics Department, Hong Kong Special Administrative Region 2017) and is rarely used for everyday communication among the vast majority of Hong Kong people. Hong Kong English generally refers to the L2 English variety spoken by Hong Kong Cantonese speakers in limited contexts, but not the "standard" English spoken by the small number of native speakers. Therefore, although the bilingual children in this study receive input of two languages from birth, after attending an international school at around age 3, their English essentially developed in a monolingual and normative ecology: the children mostly received input from more or less monolingual English-speaking teachers and peers. The deviant features of the bilingual children's English may gradually disappear under such an environment, where "standard" English grammatical features predominate in the feature pool, while the deviant features are marginalized or even stigmatized. This implies that, whether a bilingual child's language develops in a monolingual-like manner depends significantly on the availability of formal instruction of the language concerned (cf. Kupisch and Rothman 2016; Bayram et al. 2017). In this regard, the development of the bilingual children's English after attending school may have close parallels with the emergence of an acrolectal variety in a creole, which shows convergence towards the lexifier language from which it is descended, i.e. decreolization.[10] Such a phenomenon is common when a creole maintains contact with its lexifier language. For instance, although Singlish seldom employs inflectional morphemes, the past tense marker -ed can be found in its acrolectal variety:

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10 It is noteworthy that an acrolectal variety is not necessarily a result of decreolization. In some cases, the acrolectal variety emerged in early stages of creolization when there was a strong presence of the lexifier language (Lalla and D'Costa 1990; Mufwene 1994).

(46) *Then they quarrel-**ed***
      then   they quarrel-PST
      'Then they quarreled.'
      (Fong 2004: 80)

Similarly, verbal inflectional morphology is also found in Makista, especially among speakers with a high degree of contact with Portuguese (Pinharanda Nunes 2012). Thus in (47) the verb shows the standard Portuguese inflection on the verb *morreu*:

(47) *Agora all my friends ja   morr-**eu***
      now   all my friends already die-PST.PFV
      'Now, all my friends have already died.'
      (Pinharanda Nunes 2012: 306)

In short, the transient grammaticalization phenomena observed in the bilingual children are consistent with Mufwene's (2006) notion that grammaticalization stems from idiogrammaticalization, and whether the latter can spread to the community depends on the contact ecology.

4.2 Implications for creole genesis

As reviewed in Section 3, perfective aspect develops through grammaticalization of an adverb with the lexical meaning 'already' in a number of contact languages, including Singlish and some Asian-Portuguese creoles. In addition to reaffirming the strong link between bilingual development and contact language formation, we argue that the close parallels between the two areas provide support for the ecological account of creole genesis (Mufwene 2001, Mufwene 2008), where the feature pool is the sum of every individual linguistic system in a given linguistic setting, and the linguistic features which are prominent, frequent, and typologically congruent in the given setting are likely to get replicated and propagated (Ansaldo 2009). The specific linguistic composition and social factors vary across time, space, and situations, resulting in a unique feature pool and thus a unique creole in each contact situation. A great appeal of this theoretical framework lies in its universality–it can account for change in all kinds of linguistic varieties, regardless of whether they are (artificially) labelled as languages, dialects, vernaculars, creoles, or pidgins, and whether language transmission at the individual or communal level is involved. The remarkable differences between a creole and its input languages can be

attributed to the fact that creoles emerge in highly multilingual environments with low normative tendencies, leading to elevated mutation rates in the replication process (Aboh and Ansaldo 2007). Similarly, in bilingual development, the emergence of innovative and non-target-like features can be perceived as the result of linguistic features from different input languages competing in the child's mind. It is therefore not surprising to find parallels between bilingual development and contact language formation, especially if the input languages involved are typologically similar. Moreover, under this framework, language is a dynamic system; the later reconvergence of the bilingual children's English with the standard variety is a result of the high degree of monolingualism and normative tendencies in the ecological setting of an international school.

Meanwhile, other well-known theories on creole genesis, such as the Language Bioprogram Hypothesis (Bickerton 1984) and Creole Prototype theory (McWhorter 1998, McWhorter 2002), both of which maintain that creoles are a structurally distinct class of languages created by children with impoverished linguistic input, cannot adequately explain the notable differences between different creoles and do not take multilingualism into account, making it impossible to link bilingual development with creole genesis. For example, Portuguese-lexified creoles in South Asia like Korlai (48) and Diu Indo-Portuguese (49) are known to feature nominal case markers. Such a feature is typical of Indo-Aryan and Dravidian grammars (Ansaldo 2009) but not attested in Portuguese or the Portuguese-lexified creoles in West Africa.[11]

(48) *Yo ulyo **ku** padgar*
      1SG see.PST OBJ priest
      'I saw the priest.'
      (Clements 2013)

(49) *Vay   ve   **pə** leyt*
      go.NPST see.INF ACC milk
      '(You) go check on the milk.'
      (Cardoso 2013)

On the other hand, the Relexification Hypothesis (Lefebvre 1998, Lefebvre 2004) argues that immigrant adults retain the grammar of the substrate languages

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11 This feature is also present in Portuguese-lexified creoles in Southeast Asia like Papiá Kristang and Batavia Creole, despite its absence in their Sinitic and Sunda–Sulawesi substrates. We suspect this is due to the historical connection between the Indo-Portuguese and Southeast-Asian Portuguese creoles.

while adopting the lexicon of the lexifier (superstrate) language, forming a new language (i.e. a creole). Although this hypothesis acknowledges substrate influence, it downplays the role of L1 acquisition in creole genesis (see Adone 2012 for discussion on how creole-acquiring children may go beyond the input they receive). Moreover, as Kouwenberg (2006) argues, the assignment of new grammatical functions to superstrate materials (i.e. contact-induced grammaticalization) in creole genesis cannot be attributed to L2 acquisition. Kouwenberg's (2006) argument is supported by the fact that while inflectional morphemes are often omitted in Hong Kong English (an L2 variety) (Setter et al. 2010), the use of perfective *already* is not attested, unlike what we observe in Cantonese-English bilingual children and the Southeast Asian creoles in question.

4.3 Bilingual children as "laboratories" for studying contact outcomes?

The significant parallels between English in contact with Chinese at the communal level (Singlish) and the individual level (Cantonese-English bilingual children) suggest that similar language combinations may yield similar contact outcomes. However, as Thomason (2001, 2008) demonstrates, there are no absolute linguistic constraints in contact-induced change, and "social factors are ultimately more influential than linguistic factors in guiding contact-induced change" (Thomason 2008: 52). As social factors relevant to contact-induced change consist of a wide range of complex variables like demographics, social networks, language attitude, and language policy (to name but a few), it is impossible to have two contact scenarios with identical social circumstances in every aspect. Therefore, a seemingly pessimistic conclusion is that contact outcomes are essentially unpredictable (Thomason 2008: 54). Yet, as discussed below, bilingual development can still shed light on the study of language contact in many ways.

First, it is pivotal to establish what kind of contact scenarios bilingual development mimics. In cases of simultaneous bilingual acquisition like the Cantonese-English bilingual children studied in Yip and Matthews (2007), the children receive input from both languages regularly since birth. This is comparable to contact scenarios where the emergent creole maintains considerable contact with both the lexifier and substrate languages. Such a scenario is by and large consistent with the contact ecology of Singlish, which may explain why it shares so many common contact phenomena with Cantonese-English bilingual children. A phenomenon commonly observed in creoles all around the globe is that they tend not to inherit the indefinite article directly from the

lexifier, but use the numeral 'one' as an indefinite article instead (Velupillai 2015). This phenomenon, which is probably a result of limited exposure to the lexifier language, is not observed in Singlish or Cantonese-English bilingual development, nor in other English-lexified contact varieties[12] like Trinidad English Creole, Gullah, and African American English, where the lexifier language is readily available in the contact ecology and the indefinite article can readily be acquired.

Further evidence highlighting the effect of lexifier presence on creole grammar comes from Smith's (2012) study on the word order features of Ibero-Asian creoles, where he demonstrates that there is a strong negative correlation between the degree of substrate influence and the strength of the lexifier presence. In other words, the word order features of a creole would be closer to those of its lexifier if the latter is more readily accessible in the contact ecology. Therefore, given the high degree of accessibility of English in its ecology, we would expect Singlish to exhibit word order features similar to those of its lexifier. Based on his analysis on the Singlish aspectual system, Bao (2005) argues that a "lexifier filter" is at work in contact language formation, which strains out those parts of the substrate system which do not conform to the (surface) structural requirements of the lexifier language. For example, while stative imperfective (50) and verbal reduplication for attenuating functions[13] (51) are present in the Sinitic grammar, they are unproductive or even unacceptable in Singlish (Bao 2005: 261–262).

(50) *They sitting talked.
      Intended reading: 'They sat and talked/They talked while seated'

(51) *Let me read-read that book.
      Intended reading: 'Let me take a look at that book.'

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12 As the Portuguese indefinite article *um* itself is derived from the numeral 'one', we cannot tell whether the indefinite articles in Portuguese-lexified creoles are directly inherited from the lexifier or developed through the grammaticalization of 'one'. We therefore restrict our attention to the English-lexified ones in this case.
13 This claim is debatable given that reduplication is widely acknowledged to be characteristic of Singlish grammar (Ho 1999; Lim and Wee 2001; Ansaldo 2004; Wee 2004). According to Bao (2005: 262), "Singapore English has reduplicatives, but reduplication remains *informal* and unproductive [emphasis added]", suggesting that reduplication is a feature more prominent in the mesolectal and basilectal varieties.

The absence of such utterances in the Cantonese-English bilingual children corpus data may suggest that a "lexifier filter" is also at work in bilingual development.

Despite the remarkable parallels between Singlish and Cantonese-English bilingual children,[14] notable differences do exist. First, although both completive and inchoative meanings are associated with the perfective *already* of Singlish and Cantonese-English bilingual children, the inceptive meaning (i.e. the start of an action) is only observed in Singlish (52a). This clearly reflects substrate influence, as the Hokkien perfective marker *liau* can also express inceptivity[15] (52b), while the Cantonese [*zo2...laa3*] construction cannot (52c).

(52a)   *It rain already*.   [Singlish]
        'It has started to rain.'
        (Bao 2005: 241)

(52b)   *Loh   hoo   liau*   [Hokkien]
        drop rain   PFV
        'It has started to rain.'

(52c)[16] *Lok6-zo2   jyu5   laa3*   [Cantonese]
        drop-PFV   rain   SFP
        'It has rained.'

The use of discourse particles is another case in point. Singlish has quite a rich repertoire of discourse particles (53), many of which have a Cantonese origin (Lim 2007).

(53a)   *You hold on a²⁴*.
        'Hold on (if that's okay with you).'

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14 Regarding the use of *already*, Singlish and Cantonese-English bilingual children have another interesting parallel not directly related to aspect marking – *already* is a positive polarity item in standard English, but not in Singlish, e.g. 'The wall not white already'; a parallel phenomenon is also evident in the bilingual children, e.g. 'She don't live already' (Sophie 3;00). We thank an anonymous reviewer for raising this issue as well as highlighting other aspectual functions of perfective *already* in addition to marking completion.
15 Both (52a) and (52b) are ambiguous as the perfective marker in these sentences can also express a completive meaning, i.e. 'It has rained'.
16 To convey an inceptive reading, *zo2* has to be omitted, i.e. *lok6 jyu5 laa3* 'It has started to rain'.

(53b) *The most I have fewer kids* **lɔ³³**.
'At the very worst, I'll have fewer children.'

(53c) *You are very rich* **hɔ²⁴**?
'You are very rich, aren't you?'

(53d) *My parents very old fashion* **a²¹**? *Then your parents* **le⁵⁵**?
'Are you saying that my parents are old-fashioned? Then what about your parents?'

(53e) *No* **la²¹**! *He's using Pirelli, you don't know* **mɛ⁵⁵**?
'No, he has Pirelli tyres; didn't you know that?'
(Lim 2007: 449–451)

Given that discourse particles are very easily transferred in contact situations (Matras 2000), it may come as a surprise that the Cantonese particles seldom feature in the bilingual children's English utterances. This may constitute an important difference between bilingual development and contact language formation. The direct importation of grammatical markers from substrate languages, such as the Malay-origin *kena* passive and Sinitic-origin particles, is evident in Singlish. While contact-induced grammaticalization is common in bilingual development, the direct importation of grammatical markers from another language seems relatively rare. It could be the case that in bilingual development, a child receives ample input from both languages and can separate the lexicon of the two languages quite well; when asymmetry in grammatical development occurs, contact-induced grammaticalization will normally take place to fill the gap. On the other hand, when a contact language emerges in a multilingual environment, a significant proportion of its speakers may not have much access to the lexifier language; and as a result, they have to resort to incorporating grammatical markers from their dominant language(s) to the emergent language to fill the gap (i.e. L2 transfer).[17] As we observe, some Hong Kong Cantonese speakers with low English proficiency would often use Cantonese particles in their spoken English even when they are trying to communicate with foreigners (who don't understand the functions of such particles). We suspect that ordinary contact-induced grammaticalization is more likely to occur if the speaker has a certain level of proficiency in the target language;

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17 This does not rule out the possibility of direct incorporation of grammatical markers in contact scenarios where the lexifier language is fully accessible. See Thomason (2007) for cases of "deliberate change".

below this level of proficiency, the direct "borrowing" of grammatical markers from the source language is more likely to take place.[18]

To sum up, bilingual development may share significant parallels with creole genesis if (i) similar (types of) languages are involved and (ii) the lexifier language is readily accessible in the contact ecology. Meanwhile, it is important to acknowledge that "there is no reason to expect that *every* kind of contact-induced change will occur in *every* contact situation" (Thomason 2008: 44). Every unexpected discrepancy observed between bilingual development at the individual level and contact outcomes at the communal level may potentially open up significant research questions which lead us to achieving a deeper understanding of the various linguistic and social factors at play in language contact.

5 Conclusions

Cantonese-English bilingual children, like many Southeast Asian creoles, use 'already' to mark perfective aspect. The prevalence of such a development is a consequence of the inherent conceptual link between 'already' and the sense of perfectivity, as well as the incompatibility of the verbal morphology of European languages with the isolating typology of Southeast Asian languages. Further, the presence of morphophonologically stable grammatical markers in both Cantonese-English bilingual children and Southeast Asian creoles supports the notion that grammaticalization is a type-specific phenomenon which can spread to other languages through bilingual development, areal diffusion, and/or contact language formation.

The close parallels between the Cantonese-English bilingual children and Southeast Asian creoles further confirm the strong link between bilingual acquisition and creole genesis. Moreover, the transience of the contact phenomena found in the bilingual children is reminiscent of the decreolization phenomenon, highlighting the importance of the role of external ecology in language evolution.

Although contact outcomes are admittedly unpredictable in the strict sense, our analyzes suggest that similar language combinations tend to yield similar contact outcomes in bilingual development and contact language formation. Therefore, bilingual children can serve as powerful "laboratories" for studying

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18 This claim remains largely speculative as we don't have enough data to back it up at this stage. We will leave this issue for future studies.

contact outcomes at the communal level, through which we can make probabilistic predictions judiciously. Granted, it may be an unrealistic target to arrive at a single predictive theory for contact-induced change, given the multitude of complex social factors involved. Nonetheless, we share Thomason's (2008: 54) view that "the lack of neatness and predictability is one of the most interesting things about language change" –through investigating the similarities and differences between bilingual development and contact-induced language change at the communal level, we can have a better idea about how various factors may interact to affect contact outcomes, which can surely throw new light on a host of research questions in the realm of language contact.

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