

Contact-induced grammaticalization

Evidence from bilingual acquisition*

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It is widely acknowledged that developments in bilingual individuals parallel, and ultimately underlie, those taking place in the course of contact-induced change. In this paper we address the poorly understood relationship between the individual and community-level processes, focusing on the process of grammaticalization in circumstances of language contact and the corresponding developmental processes in bilingual acquisition. The phenomena chosen for discussion are drawn from Singapore Colloquial English (SCE) and from the Hong Kong Bilingual Corpus (Yip & Matthews 2000, 2007). Parallel developments in SCE and bilingual acquisition are analysed as cases of contact-induced grammaticalization as defined by Heine and Kuteva (2003; 2005), with some modifications. The emergence of *already* as a marker of aspect presents a case of 'ordinary' contact-induced grammaticalization, while the development of grammatical functions of *give* represents a case of replica grammaticalization. One implication of these findings is that bilingual first language acquisition is a possible route for substrate influence, both in general and specifically in the development of contact languages such as pidgins and creoles.

1. Introduction

It is a truth widely acknowledged that developments in bilingual individuals parallel, and ultimately underlie, those taking place in the course of contact-induced language change: 'the bilingual individual is the ultimate locus of language contact' (Romaine 1996: 573). In bilingual individuals we observe processes such as code-switching, transfer and other forms of grammatical interaction; in languages in contact, we observe processes such as lexical borrowing, calquing and contact-induced grammaticalization, while the outcomes include language shift, pidginization and creolization. Yet the relationship between the individual and language-level processes remains poorly understood, and this is especially so in the domain of grammaticalization.

In this paper we focus on the relationship between grammaticalization in circumstances of language contact, and the corresponding processes in bilingual development at the individual level. Particular reference is made to Singapore Colloquial English (SCE) as a contact language and the development of bilingual children acquiring Cantonese and English as described in Yip and Matthews (2000, 2007). We focus on two grammatical phenomena attested in SCE which are paralleled in bilingual development, and which we see as representative of two kinds of contact-induced grammaticalization: the emergence of *already* as a marker of aspect is a case of 'ordinary' contact-induced grammaticalization, and the development of grammatical functions of *give* a case of replica grammaticalization as defined by Heine and Kuteva (2003, 2005). A third case, the further grammaticalization of *one* in relative clauses, is discussed in Yip and Matthews (2007).

In Section 2, we outline a framework for analysis in which the relevant notions are defined and a modified model for contact-induced grammaticalization is suggested. This is followed by some background information on the bilingual children and data collection in Section 3. Section 4 discusses the emergence of *already* as a marker of aspect as a case of 'ordinary' contact-induced grammaticalization, while Section 5 treats the development of grammatical functions of *give* as a case of replica grammaticalization. Some conclusions are drawn in Section 6.

2. Contact-induced grammaticalization

Grammaticalization has traditionally been viewed as a process internal to a language, as opposed to 'external' or contact-induced changes such as structural borrowing, calquing and substrate influence. Indeed, linguists have often debated whether a particular development was to be attributed to contact or to internal development through grammaticalization. This dichotomy is still evident in current textbooks: for example, the treatment of contact-induced change in Thomason (2001) does not mention grammaticalization, while the treatment of grammaticalization in Trask (1996) does not mention language contact, and Winford (2003: 350) retains the traditional assumption that 'grammaticalization involves grammatical change that is internally motivated'. In recent work this dichotomy has begun to break down, due to findings in two areas in particular:

- a. areal typology, where it has become clear that similar instances of grammaticalization show strong geographical clustering, implicating mutual influence as a factor in the process (Ansaldo 1999; Bisang 1998; Dahl 2001; Enfield 2003; Heine and Kuteva 2005);

- b. creoles and other contact languages, where it has been observed that apparent cases of grammaticalization could result from substrate influence: “what at first sight looks like internal grammaticalization may well be due to influence from other languages as well” (Arends and Bruyn 1994: 120).

Both these points can be illustrated by the grammaticalization of the verb ‘say’. In certain linguistic areas such as West Africa and Southeast Asia, a verb originally meaning ‘say’ often serves as a complementizer meaning ‘that’. Typically this change occurs through reanalysis of a serial verb construction, as in Cantonese where the verb *waa6* ‘say’ follows another verb such as *gong2* ‘talk’ in (1):¹

- (1) Keoi5 tung4 ngo5 gong2 waa6 lei5 mou5 cin2
 he with me talk say you not.have money
 ‘He told me you had no money.’

While the second verb *waa6* ‘say’ appears redundant here, its structural function becomes clear where it introduces a complement clause following a verb such as *ji5wai4* ‘believe’ whose meaning does not involve speech at all:

- (2) Keoi5 ji5wai4 waa6 ting1jat6 heoi3 taam3 lei5
 she believe say tomorrow go visit you
 ‘She thought (that) she was visiting you tomorrow.’

Here *waa6* no longer means ‘say’ but serves as a complementizer, comparable to *that*. This grammatical use of ‘say’ recurs in many Chinese dialects with different ‘say’ verbs, which are grammaticalized as complementizers to different degrees: for example, in the case of *kóng* ‘say’ in Taiwanese Southern Min, the grammaticalization process is more advanced than in that of Cantonese *waa6* (Chappell 2008). Moreover, the same process applies to the verb *shuo* ‘say’ in the variety of Mandarin spoken in Taiwan (Cheng 1997a). Since this is not a general property of Mandarin Chinese, the grammatical use of *shuo* ‘say’ as complementizer appears to be the result of substrate influence from Taiwanese Southern Min — a *prima facie* instance of contact-induced grammaticalization.

In the extreme case of language contact represented by creole languages, some have questioned whether grammaticalization takes place at all in such cases. In Sranan the word *taki*, derived from English *talk*, is used as a complementizer meaning ‘that’ in a similar pattern to *waa6* ‘say’ in (2). The model is provided by West African languages such as Gbe and Twi in which the complementizer ‘that’ derives from the verb ‘say’ (Plag 1995). Bruyn (1996) suggested that such cases involve ‘apparent grammaticalization’, where the appearance of grammaticalization results from three steps:

- i. grammaticalization of item X has already occurred in language A

- ii. item Y in language B is identified with item X
- iii. a range of functions is transferred from item X to item Y

According to this model, no process of grammaticalization actually takes place in the contact language. Rather, a term such as ‘say’ in the lexifier language is identified with an equivalent in the substrate language, based on the lexical meanings of these words. Stage (ii) of Bruyn’s model formalizes the traditional notion of interlingual identification, as used by Weinreich (1953) and widely adopted in the field of second language acquisition. In step (iii), the whole range of functions of the substrate item X, including grammatical as well as lexical usages, is transferred to the developing contact language.

A similar view is implied by the Relexification model of creole formation, in which words of the lexifier language are assigned lexical entries from the corresponding lexical item in the substrate language, thus taking on the grammatical as well as lexical functions of the substrate item. In such a model, there is no need to assume that grammaticalization takes place (Lefebvre 1998: 40); instead, “what is being transferred into the creole is a lexical item with all of its functions, thus a multifunctional lexical entry” (Lefebvre 2004: 180). We shall question these assumptions on two grounds in particular:

- i. general properties of grammaticalization, such as persistence, can be seen to apply in the contact language (see especially Section 2.3);
- ii. what is transferred may not be the whole multifunctional lexical entry, but a segment of the pathway or continuum of functions associated with a single form. A similar point is raised by Siegel (2006: 31) who notes that “morphemes with forms from the L2 or lexifier often have only some of the properties of the corresponding morphemes in the L1 or substrate. In other words, transfer is often partial.”

2.1 ‘Ordinary’ contact-induced grammaticalization

Heine and Kuteva (2003; 2005) have taken on the challenge of re-thinking grammaticalization to take account of the role of language contact. They propose a relatively explicit model that makes a useful point of departure, though several aspects of this model invite debate. Their ‘ordinary contact-induced grammaticalization’ defines a process in which the initial steps (a) and (b) are similar to those of Bruyn’s (1996) ‘apparent grammaticalization,’ but in step (c) Heine and Kuteva invoke universal strategies of grammaticalization, implying that the usual principles of grammaticalization apply. The process assumes a model language M and a replica language R in which a grammatical phenomenon is reproduced.

'Ordinary' contact-induced grammaticalization (Heine and Kuteva 2005: 81)

- a. Speakers of language R 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 patterns available in R.
- c. this end, they draw on universal strategies of grammaticalization, using construction Ry in order to develop Rx.
- d. They grammaticalize category Ry to Rx.

The fact that this definition explicitly refers to what individual speakers do, as opposed to what happens in languages (the focus of much research on language contact), makes the model potentially applicable to bilingual acquisition. As it stands, however, the definition incurs a certain monolingual bias: 'Speakers of language R' in step (a) seems to imply that R is the first or privileged language for the speakers concerned.² To apply the model to bilingual acquisition we will need to replace 'Speakers of language R' with 'Speakers with knowledge of at least two languages, M and R'. There is also a question of metalinguistic awareness raised by 'notice' in step (a), which we shall discuss later in connection with replica grammaticalization.

An example given by Heine and Kuteva (2005) involves aspect marking in Bislama, the English-based pidgin of Vanuatu. The Austronesian languages serving as models for Bislama have a durative aspect marker, a prefix *u-* in the case of Vetmbao (Keesing 1991: 328)

- (3) Naji ng-u-xoel dram
 he he-DUR-dig yam
 'He's in the process of digging yams'

In Bislama, an equivalent category is formed by using the verb *stap* 'stay' (derived from English *stop*) before the main verb:

- (4) Em i stap pik-im yam
 he PRED DUR dig-TRS yam
 'He's in the process of digging yams'

This is a case of 'ordinary' contact-induced grammaticalization because step (c) involves a universal pathway of grammaticalization (STAY > Imperfective aspect) to create a new grammatical category in language R. The case of *already* as an aspect marker discussed in Section 2 below represents 'ordinary contact-induced grammaticalization' of this kind.

2.2 Replica grammaticalization

Replica grammaticalization is proposed as a special case of contact-induced grammaticalization in which not only is an equivalent grammatical category created in the replica language R, but it is derived through the same pathway of grammaticalization from lexical to grammatical (or from grammatical to more grammatical) as in the model language M:

- 'Replica grammaticalization' (Heine and Kuteva 2003: 539)
- a. Speakers of language R notice that in language M there is a grammatical category Mx.
 - b. They develop an equivalent category Rx, using material available in their own language (R).
 - c. To this end, they replicate a grammaticalization process they assume to have taken place in language M, using an analogical formula of the kind [My > Mx]: [Ry > Rx].
 - d. They grammaticalize category Ry to Rx.

We have already noted the monolingual bias of 'Speakers of language R' in step (a), for which we substitute 'Speakers with knowledge of at least two languages, M and R.' Similarly, for 'available in their own language (R)' in step (b) we would substitute the simpler 'available in language R.' Deeper problems with this model involve the assumptions that speakers 'notice' a grammatical category (step a) and 'replicate a grammaticalization process they assume to have taken place in language M' (step c). These formulations imply a metalinguistic awareness (in steps (a) and (c)) and a historical perspective (in step c), which are available to the linguist, but not (at least not directly) available to a bilingual speaker, let alone a bilingual child. In order for the model to be viable, these notions will have to be reformulated or glossed in such a way that it is plausible to attribute steps (a-d) to individual speakers. For step (a), it will suffice to say there is a pattern in language M which speakers try to adapt in order to express similar content in language R. A more profound problem is posed by step (c): the processual nature of the formula [My > Mx], meaning that a change has taken place in the model language (possibly centuries ago) cannot possibly be accessible to speakers without explicit study. To identify such a process (such as a shift from 'say' to 'that') requires evidence of a kind that for most languages is not available even to linguists, who in the absence of historical records can only hypothesize such changes. It is therefore not feasible to assume that speakers 'replicate a grammaticalization process *they assume to have taken place* in language M' (step (c) in the above model; our emphasis). It is as if the speakers responsible for the changes were budding historical linguists.³

What is available to the speaker is the implicit knowledge that a single phonological form is associated with more than one function: for example, the form

waa6 in Cantonese serves both as a verb meaning ‘say’ and as a complementizer ‘that’. We would therefore replace the analogical formula [My > Mx]:[Ry > Rx] in step (c) by a formula such as [My ~ Mx]:[Ry ~ Rx], where ~ represents a continuum from a lexical sense *y* to a grammatical function *x*, both associated with the same phonological form (or at least with phonologically relatable forms, to the extent that that grammaticalization is accompanied by phonological reduction). Such a continuum arises with the development from lexical ‘give’ to passive, where the pathway of grammaticalization is set out by Lord, Yap and Iwasaki (2002):

- (5) Lexical verb: Permissive: Passive:
 “give” > “allow” > “by”

As the arrows indicate, this schema represents a historical course of development, reconstructed on the basis of comparative evidence. It is, however, possible to state this situation in synchronic terms, thus avoiding the ‘budding historical linguist’ paradox.⁴

A synchronic manifestation of the pathway can be found in languages in which all three functions are performed by the same word as in the Min dialect of Chaozhou (Matthews, Xu and Yip 2005).

- (6) Ua tsau-ze? k’ɛ? i puŋ tsu
 I yesterday give 3SG CL book
 ‘I gave him a book yesterday.’ (lexical ‘give’)
- (7) I bo k’ɛ? ua t’ɔi tsi puŋ tsu
 3SG not give 1SG read this CL book
 ‘He didn’t let me read this book.’ (permissive ‘let’)
- (8) Puŋ tsu k’ɛ? naŋ boi k’u lau
 CL book give person buy RVC SFP
 ‘The book has been bought already.’ (passive)

We have already suggested that this should be seen as a continuum rather than, say, three distinct functions. Evidence for such a continuum comes from intermediate cases compatible with more than one interpretation of the ‘give’ verb:

- (9) K’ɛ? i t’ɔi tse? e
 give/let 3SG see one while
 ‘Give (it) to him to read for a while.’ (lexical ‘give’)
 or ‘Let him read (it) for a while.’ (permissive)
- (10) Mai k’ɛ? naŋ lia? tio? lu
 not-want let/PASS people catch RVC 2SG
 ‘Don’t let anyone catch you.’ (permissive)
 or ‘Don’t get (yourself) caught.’ (passive)

Such cases are termed *bridging contexts* by Evans and Wilkins (2000: 156) and incorporated as a crucial step in the grammaticalization process by Heine (2002). We shall see similar examples of bridging contexts in the bilingual acquisition data in Section 5.3.

2.3 Contact as catalyst and principles of grammaticalization

We have argued that in order to be viable, the model outlined by Heine and Kuteva (2003; 2005) must be reformulated without the assumption that diachronic processes are accessible to speakers. By reformulating their analogical formula in terms of synchronic polyfunctionality, we come closer to the alternative models of Bruyn (1996) and Lefebvre (1998) and to the polysemy copying model considered by Heine and Kuteva (2005: 100). We differ from Bruyn's notion of 'apparent grammaticalization' and Lefebvre's Relexification model in assuming that general principles of grammaticalization are applicable, not only to the substrate language(s) in which grammaticalization originally took place, but also to the contact language affected by it. These principles include the following (Hopper 1991):

- Directionality: change is overwhelmingly from lexical to grammatical, and grammatical to more grammatical, while changes in the converse direction are relatively rare;
- Persistence: a grammaticalized form may retain characteristics of the lexical source from which it derives;
- Divergence: grammaticalized forms gradually diverge from their lexical sources in form (for example, by undergoing phonological reduction) and other properties;
- Layering: grammaticalization introduces a new layer which coexists with older layers within the same functional domain, often resulting in specialization.

Because these principles are relevant to the language contact phenomena at issue, we retain the notion of *contact-induced grammaticalization*. Recall that different Chinese dialects have grammaticalized the 'say' complementizer to different extents (Section 1). This is equally true of the verbs with the lexical meaning 'acquire' which have developed modal and other grammatical functions in Southeast Asian languages (Enfield 2003). It is therefore not the case that the set of structures and functions associated with a grammaticalized item has been transferred wholesale from one language to the next, as Bruyn's and Lefebvre's models imply (see Section 2 above). Rather, the partial equivalences established on the basis of interlingual identification have led to parallel developments along a single pathway, or alternatively (as we argue in Section 4.4) along a number of related pathways of

grammaticalization. We thus see contact as a catalyst driving change along pathways of grammaticalization.

While the same general principles remain applicable, it is also possible that contact-induced grammaticalization in circumstances of intensive contact differs from typical ‘internal’ grammaticalization with respect to certain of these principles. One such difference involves whether grammaticalization involves filling a functional gap. In connection with layering, Hopper and Traugott observe:

Typically, grammaticalization does not result in the filling of any obvious functional gap. On the contrary, the forms that have been grammaticalized compete with existing constructions so familiar in function that any explanation involving “filling a gap” seems out of the question. (Hopper and Traugott 1993: 125)

By contrast, in contact-induced grammaticalization “gap-filling” is recognized as a motivating factor:

With the replication of a category on the model of another language, the replica language may acquire a category for which previously there was no or no appropriate equivalent. (Heine and Kuteva 2005: 124)

Contact-induced changes of this kind are system-altering changes (Aikhenvald 2006: 19). Heine and Kuteva (2005) give many examples from contact languages including pidgins and creoles; such changes are to be expected in an expanding pidgin such as Tok Pisin, where various grammatical categories may previously have been missing. In bilingual acquisition, especially where there is a dominant language, contact-induced grammaticalization may serve to fill temporary gaps where the target language structure has yet to be acquired: we shall see evidence for this in the case of verbal aspect (Section 4) and the passive (Section 5).

Another possible difference concerns the role of frequency. In classical cases of grammaticalization as internal change, items become grammaticalized in contexts in which they are used with high frequency. In the model proposed by Bybee (2003), such changes are conditioned by frequency: as a construction becomes frequently used, it becomes a distinct, autonomous new construction, and lexical items associated with the construction may become semantically bleached and/or phonologically reduced. Thus the construction *going to* [verb] loses the sense of motion and reduces to *gonna* in the course of grammaticalization as a marker of futurity. In contact-induced grammaticalization, however, the grammaticalized model already exists for bilingual speakers and can be transferred into the replica language, regardless of its frequency. We shall see that even relatively low-frequency grammatical usages such as the passive use of ‘give’ verbs in Chinese dialects can be transferred to the replica language (Section 5).

3. Data for this study

The data for this study come from a series of projects investigating grammatical development in Hong Kong Cantonese-English bilingual children. Longitudinal data for a total of six children between ages 1;03 and 4;06 are available in the Hong Kong Bilingual Child Language Corpus within the CHILDES archive (MacWhinney, 2000).⁵ All children were exposed to both languages from birth, and their parents adopted the one-parent-one-language strategy in addressing the children. The corpus is based on weekly or bi-weekly recordings of half an hour for each language during which the child is interacting with two research assistants (each speaking a different language) in their daily activities, sometimes with the parents, siblings and other caretakers present. Further details of the participants and data collection are given in Yip and Matthews (2007).

Although corpus data are currently available for six bilingual children, the data in this article come primarily from the authors' own three bilingual children (Timmy, Sophie and Alicia) for whom the longitudinal corpus data are supplemented by diary data. The availability of diary data for these three siblings enables us to address structures such as the 'give' passive (Section 5.3) which appear rarely, if at all, in the longitudinal corpus data. The diary was kept from 1;03–6;00 for Timmy, 1;06–5;06 for Sophie, and 1;00–5;04 for Alicia. The diaries include several entries per week and were intended to complement the video and audio recordings. Both parents were involved in recording the diary data in the two languages, although the coverage of English data was more extensive than for Cantonese. The contexts mostly involved interaction between the child and parents at home or occasionally away from home. Relevant contextual information was given as far as possible in the diary entries. We believe that the diary data are reliable to the extent that they are systematic: the patterns described here are all instantiated at least three times. Such recurrent patterns imply developing competence rather than performance alone. There is, however, inevitably a selection bias such that unusual and non-native-like utterances are more likely to be recorded than unremarkable and well-formed ones. For this reason, we use the diary data essentially for qualitative analysis, and do not base any quantitative claims on them.

4. *Already* as marker of perfective aspect

Tense and aspect constitute an area in which substrate effects are commonly identified in contact languages, as in the case of Bislama discussed in Section 2.1 above. An extreme case is offered by Singapore Colloquial English (SCE), where Bao (2005) argues for systemic transfer of the whole aspectual system from the

Chinese substrate. The development of *already* as a marker of perfective aspect in SCE is paralleled in the bilingual data. In terms of Heine and Kuteva's model, this constitutes a case of 'ordinary' contact-induced grammaticalization, whereby a category in the model language is replicated using equivalent material in the replica language, but without recapitulating the same pathway of grammaticalization.

4.1 Already in Singapore Colloquial English (SCE)

Several studies have described the use of *already* as an aspect marker in SCE. Ho and Platt (1993) and Bao (1995; 2005) relate this usage to perfective aspect marking in Hokkien and other Chinese dialects. A typical example cited in Bao (2005) is (11) where the verb *wash* is uninflected and *already* expresses perfective aspect:

- (11) I wash my hand *already*
'I have washed/washed my hands.'

Bao (2005) notes that whereas in English *already* can precede or follow the verb, in SCE *already* consistently follows the verb, as does the perfective marker *le* in Mandarin Chinese as in (12):

- (12) Wo xi-le shou
I wash-PFV hand
'I (have) washed my hands.'

Bao concludes that 'the substrate source of *already* is unmistakable' (Bao 2005: 243). His account of the SCE aspectual system relies heavily on comparisons with Mandarin, which itself played at most a minor role in the formation of SCE. In the case of the perfective aspect, however, the general argument remains valid since similar models exist in the relevant substrate dialects: in particular, the aspect marker *liau*, cognate with Mandarin *le*, is found in the Min dialects (Hokkien and Teochew) which were dominant in Singapore when SCE was developing.

In terms of Heine and Kuteva's (2005) model, this would be a case of 'ordinary' contact-induced grammaticalization (see Section 2.1): the Mandarin aspect marker *le* (and its equivalents in other dialects such as *liau* in Hokkien and *zo2* in Cantonese) lack a lexical sense which can be extended through replica grammaticalization as in the case of *give* discussed below (see Section 4).⁶ Instead, the nearest equivalent in English to the perfective aspectual category grammaticalized in the substrate Chinese dialects is sought in the adverb *already*.

4.2 Already in bilingual development

In her Singapore case study, (Kwan-Terry 1989) describes the use of *already* in her bilingual child Elvoo's development, as in the following examples:

- (13) You eat your cream already? (Elvoo 3;06)
 (14) Alice fell down in the hole already. (Elvoo 3;06)
 (15) Now my school is close already. (Elvoo 3;10)
 (16) The car is stop already. (Elvoo 4;00)

Kwan-Terry (1989: 38) related the use of the adverb *already* to the early acquisition of the Cantonese perfective marker *zo2*. In the following example Elvoo produced Cantonese *zo2* in a code-mixed sentence (17) which is syntactically parallel to an English sentence (18) with *already* (Kwan-Terry 1989: 39):

- (17) Ngo5 sik6 go3 cake zo2 (Elvoo 3;09)
 I eat CL cake PFV
 'I've eaten the cake already.'
 (18) I eat the cake already. (Elvoo 3;09)

Although it is ungrammatical to put the suffix *zo2* in sentence-final position as in (17), Cantonese *zo2* and *already* are apparently equivalent to Elvoo, who was observed to use both alongside each other, providing ample evidence for interlingual identification. In a dialogue with his mother, for example, Elvoo used the verb *die* together with *already* (Kwan-Terry 1989: 40):

- (19) Mother: O! Ngo5 sei2 zo2 laa3.
 Oh I die PFV SFP
 'Oh! I have died!' (i.e. Oh! I am dead!)
 CHI: Die, die already. (Elvoo 3;08)

Elvoo's English utterance is a translation of the mother's prior Cantonese utterance, with both *zo2* and *already* in the postverbal position, suggesting that the two forms are equivalent for him. Elvoo also used *already* with stative verbs to denote a new situation or state reached (Kwan-Terry 1989: 40):

- (20) The tongue red already, you see? (Elvoo 3;06)
 [The tongue has turned red, you see?]
 (21) Ze Ze is not here already. (Elvoo 3;08)
 [Sister isn't here anymore.]

Similarly, in our data from Hong Kong bilingual children, all three Cantonese-dominant siblings use *already* with uninflected verbs. They differ somewhat in the position of *already*, and in their use of combinations of *already* with adverbs such as *now* and *all*. Timmy uses *already* both before and after the verb, as in the following examples from diary data:

(22) I already eat. [pointing to plate of fruit] (Timmy 2;04;09)

(23) I find already the glasses. (Timmy 2;07;10)

Much as in SCE, the use of *already* expresses the perfective aspect: "I've found the glasses." Both the contexts of use and the time course of acquisition suggest that he is following the Cantonese model. The perfective marker *zo2* is consistently the first aspect marker to be acquired in Cantonese, and Timmy uses it productively by age 2:⁷

(24) Faan1 lai4 zo2, hei2 san1 zo2 (Timmy 2;01;16)
 come back PFV raise body PFV
 'I'm back, I've got up.'

Evidence that Timmy's use of *already* as an aspect marker is modelled on Cantonese *zo2* comes from an idiomatic usage of *already* following a modal verb:

(25) I give you to eat apple. Have to cut already first. (Timmy 2;11;16)

Here *already* is unexpected to the extent that the apple has yet to be cut, but corresponds exactly to the adult usage of the perfective marker *zo2* with a modal verb (Matthews and Yip 1994: 199) as in (26):

(26) Jiu3 cit3-zo2 sin1
 need cut-PFV first
 'You have to cut it first.'

Timmy also commonly uses the combination *already now*:

(27) I drink this already now. I drink already this. I drink this already now.
 [holding beer can] (Timmy 2;06;17)

(28) I open already now. [holding up opened present] (Timmy 2;07;04)

(29) I want balloon, the green one broke already now. (Timmy 2;07;30)

A possible model for the combination *already now* is the combination [V-*zo2 laa3*], where *zo2* is the perfective aspect and *laa3* a sentence particle expressing current relevance: *now* arguably represents the closest approximation to this meaning available in English. A pair of parallel utterances by Timmy, recorded on the same

day as (27), suggests that Timmy makes the interlingual identification that is a crucial step in all models of the process:

- (30) [To father] Lei5 sik6-zo2 laa3
 you eat-PFV SFP
 ‘You’ve eaten (already).’
 [To helper] He has eat already now. (Timmy 2;06;17)

Here, although the verb *eat* itself remains uninflected, the appearance of *has* in the position of perfect auxiliary shows Timmy on the way to developing a target-like tense/aspect system. Similarly, between ages 2 and 3, Sophie frequently uses an uninflected verb followed by *already*:

- (31) She wake already. (Sophie 2;06;09)
- (32) INV: Where are they?
 CHI: Eat already. (Sophie 2;07;22)
 INV: Ah, eat already. [laughs]
- (33) Daddy, I ask already. (Sophie 3;00;21)

At this stage Sophie has yet to acquire the English present perfect form as in *He’s gone* and the use of *already* fills the gap, as shown by the following exchange where the adult researcher models the target form *has gone* but Sophie persists in following her own grammar:⁸

- (34) INV: Where is monster now?
 CHI: He go already. He go already .
 INV: The monster < has gone already >.
 Brother: < He’s dead again > [<] dead again.
 INV: What did Timmy say?
 CHI: < He > [/] he go already the monster. (Sophie 2;10;21)

In addition to *laa3* which is comparable to sentence-final *le* in Mandarin and *liau* in Hokkien, Cantonese has the particle *saai3* indicating completion or exhaustive effect. The combination [V *saai3 laa3*] as seen in (35) appears to underlie the co-occurrence of *all* and *already* in Alicia’s and Sophie’s English:

- (35) Jam2 saai3 laa3!
 drink all SFP
 ‘I’ve drunk it all!’ [holding up glass] (Alicia 2;05;18)
- (36) Daddy drink all already? (Alicia 2;08;29)
- (37) CHI: He eat the... he eat all already. (Sophie 2;09;24)
 INV: He has < eaten > [/] eaten up all of the food. Okay...

A precocious example of ‘impromptu translation’ by Alicia shows how she treats the construction [V *saai3 laa3*] as equivalent to *already*, thus making the interlingual identification necessary for contact-induced grammaticalization (step (b) in Section 2.1):

- (38) Father: It’s dark already
 CHI: hak1 saai3 laa3!
 dark all SFP
 ‘It’s all dark already.’ (Alicia 1;10;16)

Other examples confirm Kwan-Terry’s observation that *already* following an adjective denotes a change of state:

- (39) [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;05)

Here the child is pointing out a change of state: instead of pink she is now wearing red. This is again consistent with the semantics of the Cantonese perfective aspect marker *zo2*, which gives an inchoative sense when used with a stative verb (Francis and Matthews 2005).

To summarize, the bilingual children’s development recapitulates the development of *already* as a marker of perfective aspect in SCE: *already* is used in postverbal or clause-final position to express perfective notions such as completion and change of state. Both in SCE and in the bilingual data, the question of the model is rather more complex than in cases of replica grammaticalization such as that of *give* (Section 5). In SCE, the aspect markers *le* (in Mandarin) and/or *liau* (in Hokkien) serve as the models; in Cantonese, the models include [V *zo2 laa3*] and [V *saai3 laa3*], all of which are grammatically optional: that is, there are variants such as [V *saai3*] and [V *laa3*]. Nevertheless there is strong evidence that the children are following the Cantonese models, including:

- i. parallel utterances and translations as in (19) and (30);
- ii. language-specific details such as the use of perfective marking with a modal verb as in (25) following the Cantonese model (26);
- iii. the inchoative use of *already* with adjectives as in (20) and (39).

5. Give-passives and replica grammaticalization

Replica grammaticalization is a special case of contact-induced grammaticalization where the development of grammatical functions in a lexical item follows the same pathway of grammaticalization as in the model language (Section 2.2).

This process may be illustrated by the development of grammatical functions of ‘give’ verbs in various Chinese dialects. Cantonese instantiates the three stages illustrated for Chaozhou in Section 2.2 above:

Cantonese *bei2* ‘give’ > permissive > passive

In Taiwanese southern Min (Tsao 1988), in addition to the passive, the permissive gives rise to a causative usage as in (40):

Taiwanese *ho* ‘give’ > permissive > passive
permissive > causative

- (40) I hō goá chin siong-sim (Cheng 1997b: 203)
he give me truly sad
‘He made me sad.’

Replica grammaticalization (as defined by Heine and Kuteva but with modifications as outlined in Section 2.2 above) can apply to any segment of these various pathways. For example, the progression [give > permissive > causative] can spread in the form of a polysemy [give ~ permissive ~ causative] or (more perspicuously, using lexical concepts) [give ~ allow ~ make]. A bidialectal speaker could, for example, apply the set of meanings and functions associated with *ho* ‘give’ in Taiwanese to *bei2* ‘give’ in Cantonese. The result would be that in this speaker’s Cantonese usage, *bei2* is grammaticalized, having causative functions alongside its lexical sense of ‘give’ and other grammaticalized functions.

A striking feature of these cases is the continued existence of the ‘give’ verb itself alongside its grammaticalized counterparts. It is characteristic of grammaticalization in Southeast Asian languages that the original lexical item remains in use alongside its grammaticalized counterpart. This relates to the typology of these languages (their ‘typological poise’ in the sense of Enfield 2003) in which (a) affixes are few and dispreferred, which does not favour the grammaticalized item becoming an affix, and (b) lexical tone must be preserved on all syllables, preventing phonological reduction of the grammaticalizing forms (Ansaldo 1999). The continued existence of the lexical verb thus inhibits divergence of the grammaticalized morpheme from the source lexical item. At the same time, it may facilitate interlingual identification on the basis of the lexical meaning; this in turn would help to explain why the Southeast Asian linguistic area is characterized to such an extent by recurrent patterns of grammaticalization (Heine and Kuteva 2005: 203; Matthews 2006b: 225).

Finally, the continued existence of the lexical verb makes it difficult to maintain that grammaticalization merely involves reanalysis, as suggested by Lefebvre (1998: 42). Grammaticalized verbs have acquired new functions, but have not necessarily been reanalyzed: for example, Cantonese *bei2* and Chaozhou *kè?*

'give' remain verbs in their permissive and arguably even in their passive functions (Tang 2001; Matthews, Xu and Yip 2005).

5.1 *Give*-passives in Malay contact varieties

Give-passives recur in several varieties of Malay, again with a number of different 'give' verbs. In at least some of these varieties it is clear that Chinese, specifically Southern Min and/or Cantonese influence is involved. Baba Malay, for example, has a clear Hokkien substrate and uses *kasi* 'give' in passives (Ansaldo and Matthews 1999):

- (41) Lu punya favourite girl nanti kasi lain orang book out
 you POSS favourite girl later give other man book out
 'Your favourite girl will be booked out by another man.'

In Kedah Malay the verb *bagi* is used similarly (Yap and Iwasaki 2003):

- (42) Rumah kita habis bagi api jilat!
 house we finish give fire lick
 'Our house was completely licked by the fire!'

A particularly Sinitic property of these 'give' passives is that the agent phrase (*api* 'fire' in (42)) is obligatory. This can be attributed to retention of the subcategorization of the lexical source verb 'give' as a three-place predicate (Matthews, Xu and Yip 2005). It is therefore a case of persistence, a puzzling but pervasive feature of grammaticalization (see Section 2.3). Note also that in Malay, as in Chinese, different verbs are used in each dialect; actual borrowing of forms is the exception to the rule that what is spreading is the pattern of grammaticalization.

5.2 The *give*-passive in Singapore Colloquial English

Bao and Wee (1999: 5) describe two passive constructions in SCE, *give*-passive as in (43) and the *kena* passive (where *kena* is borrowed from Malay) as in (44):

- (43) John give his boss scold.
 'John was scolded by his boss'
- (44) The durian kena eat by him already
 'The durian has been eaten by him'

As in the southern Chinese dialects discussed above, the agent *his boss* in (43) is required in the *give* passive, whereas in the *kena* passive it is optional. There is thus layering and specialization in the domain of the passive. The agent requirement

may be attributed to the ‘give’ passives in the Chinese substrate dialects as in Hokkien *hor* (as in (45), Bao and Wee 1999: 7) and Cantonese *bei* (46):⁹

- (45) Ah Hock tapai hor lang me
 Ah Hock always give people scold
 ‘Ah Hock always gets scolded by people.’
- (46) Keoi5 seng4jat6 bei2 jan4 laau6
 s/he always give people scold
 ‘He is always being scolded.’

While it is clear that the substrate Chinese dialects somehow underlie the *give* passive, it is not obvious whether this is a case of simple calquing or of contact-induced grammaticalization. Some observations on the SCE *give* passive made by Bao and Wee suggest that the functions of the substrate items are not simply transferred *en masse*:

We suggest that *hor/bei* and *give* may have undergone different degrees of grammaticalization. The lexical meaning of *give* or *hor/bei* requires an animate subject. In Hokkien or Cantonese, *hor/bei* is fully grammaticalized, losing the meaning of animacy. In SgE, *give* is only partially grammaticalized. As such, it is less productive, and retains the animacy requirement. (Bao and Wee 1999: 8)

The requirement for an animate subject is one that naturally applies to permissive functions: the sense ‘allow oneself to be scolded’ implies responsibility for the action. In SCE, however, the requirement for an animate subject extends to the *give*-passive. This is evidence of persistence, the phenomenon whereby the lexical source of a grammaticalized item constrains its grammatical functions (Hopper and Traugott 1993: 3) and thus consistent with Heine and Kuteva’s account in which general principles of grammaticalization (such as persistence) apply to contact-induced grammaticalization as they do to grammaticalization in general (see Section 2.1). This in turn argues for retaining the term ‘grammaticalization’ in such cases, and is consistent with the contact-as-catalyst model outlined in Section 2.3.

5.3 Ontogenetic grammaticalization of ‘give’ in bilingual children

Parts of the pathway of grammaticalization discussed above are paralleled in the language development of individual children. We may refer to this phenomenon as ontogenetic grammaticalization as discussed by Ziegeler (1997), or idiogrammaticization as defined by Mufwene (2008: 173–4): the innovation whereby an individual speaker uses an item in a new, incipiently grammatical function.

One question arising here is whether a bilingual child could use passive *give* without also using permissive *give*, thereby missing a step in the process. If we explain the phenomena in terms of the traditional notion of calquing, there would seem to be no reason why this should not occur. If contact-induced grammaticalization or idiogrammatization is taking place in ontogeny, however, then the following hypotheses can be derived:

- i. earlier stages of grammaticalization must exist for the child, subject to an implicational hierarchy: passive → permissive → lexical ‘give’;
- ii. bridging contexts must exist at the individual level in order for the child to extend lexical ‘give’ to permissive, or permissive to passive function.

These two hypotheses can be tested with corpus and diary data respectively. Table 1 shows the various uses of the verb *give* in the corpus data for six bilingual children (for details of the children and corpus, see Section 3 above and Yip and Matthews 2007).

Table 1. Frequency of *give* in lexical and permissive functions in the Hong Kong Bilingual Child Language Corpus

child	Lexical	permissive
Timmy	19	1
Sophie	35	3
Alicia	7	–
Llywelyn	12	–
Charlotte	37	2
Kathryn	15	1
Total	125	7

It can be seen that all six children use *give* in the lexical (‘transfer’) sense, and four out of six children are found to use it in a permissive sense at least once. A total of 125 tokens of lexical *give* and 7 tokens of permissive *give* are attested in the corpus data. The frequency of lexical *give* is much higher than that of permissive *give*. The corpus based on regular recordings is apparently not dense enough to capture the relatively infrequent passive usage of *give*, which is attested only in the diary data for Sophie. Diary data for Sophie show that she uses *give* in all the main functions associated with *bei2* ‘give’ in Cantonese, with the order of emergence being: lexical > permissive > passive. Lexical ‘give’ is attested from age 2;01:

- (47) Give you one. (Sophie 2;01;17)
- (48) I give you. I want to watch this one. [holding video] (Sophie 2;05)
- (49) You give me that one, one only. [pointing to after-shave] (Sophie 2;06)

The contextual indications show that the lexical meaning of transfer of possession is intended. The permissive use of *give* is attested from age 3;03:

- (50) You open give me see.
[giving Daddy Father's Day present] (Sophie 3;03;20)
- (51) Daddy I give you see.
[appearing in swimsuit] (Sophie 3;04;06)
- (52) If Timmy don't give me to play this one, then I not be her brother
[i.e. If Timmy doesn't let me play with this, I won't be his sister].
(Sophie 3;07;06)

Here the contexts indicate that transfer of possession is not involved, but *give* means 'let.' Passive uses of *give* are attested occasionally from 3;03 to 4;11:

- (53) [father holds up broken pen]
This one... give Timmy... give Timmy break it. (Sophie 3;03)
- (54) Here is give Timmy scratch [points to scratched leg] (Sophie 3;06)
- (55) Daddy, I already give the mosquito to bite [shows bite] (Sophie 4;09)
- (56) Father: How about your coat?
Child: Give Popo taken. (Sophie 4;11)

These examples are much less frequent than instances of the permissive usage of *give*, but this is equally true of child Cantonese, where only 1–2% of uses of *bei2* can be identified as passive (Wong 2003: 336). The diary data suffice to show that Sophie extends her use of *give* to passive functions, much as in SCE. She does so to fill a gap, in that at this stage (between ages 3 and 5) she does not command the English passive. This can be seen from her attempts to express passive meanings at age 5, which lack morphological or other indicators of passive voice:

- (57) Last night I bite here... The mosquito bite, last night.
[showing a mosquito bite] (Sophie 5;00;26)
- (58) Daddy, I cut! [showing a cut in her finger] (Sophie 5;00;28)

Just as we argued with regard to Chinese dialects (Section 2.2), Sophie's English shows evidence of bridging contexts — usages consistent with more than one interpretation along the pathway of grammaticalization. Thus the following examples can be read as lexical 'give' as in 'give it to me to see,' or permissive 'let' as in 'let me see':

- (59) Give me see, give me see (Sophie 2;02)

- (60) Daddy, I give you to drink *caa4-caa4* (i.e. tea).
I give you to drink my *caa4*. Okay Daddy... (Sophie 3;08)

Some later examples allow either a permissive or a passive reading:¹⁰

- (61) Daddy, wake up. Otherwise you got nothing to eat.
Give all body... everybody to eat already. (Sophie 4;11)

Here Sophie is warning her father that there will be nothing left to eat if he does not get up quickly. A passive reading '[The food] will have been eaten' is possible, but this can be seen as an extension of the permissive reading 'You'll let everyone eat it all (and it will be your fault)', where the subject retains responsibility for the action, as in the case of SCE discussed in Section 5.2 above.

To summarize, the developmental sequence seen in Sophie's English is consistent with contact-induced grammaticalization in:

- a. Order of acquisition: the lexical stage precedes the permissive and the passive usages of *give*;
- b. Mode of progression: bridging contexts mediate between the various senses in which *give* is used.

Under the view of contact as catalyst (Section 2.3), it is not predicted that a bilingual child should transfer the whole range of uses of Cantonese *bei2* to English *give*, as Sophie did. Rather, we expect to see segments of the pathway undergoing transfer. Consistent with this prediction, Timmy and Alicia used permissive *give*, but there are no clear examples of passive *give*:

- (62) Ghost have dinner, and give ghost eat dinner and... (Timmy 2;09;02)
- (63) How about a apple? I give you to eat apple. Have to cut already first.
Apple is this one for me, skin for you. (Timmy 2;11;16)
- (64) Give me go there [pulls Sophie's hand] (Alicia 2;09;19)

Timmy has no need of the *give* passive as a gap-filling strategy, since unlike Sophie, he produces target-like passives as early as 3;02:

- (65) My space rocket is crashed up. The house was crashed. This is broken. This
was crashed. This was crashed by the car. [referring to Lego models]
(Timmy 3;02;17)

Some relevant questions here concern monolingual Cantonese development: to what extent does the ontogenetic development of *bei2* recapitulate historical developments (see Ziegeler 1997)? Wong (2003; 2004) shows that the developmental sequence for *bei2* in monolingual Cantonese is as follows: transfer (lexical 'give') >

permissive > dative > passive. While this sequence is consistent with ontogenetic development recapitulating grammaticalization, Wong (2004: 337) notes that it also matches the frequency of the respective constructions, so that other explanations are possible, including those based on input frequency and syntactic complexity. For Wong's younger children (1;11–2;08), the lexical sense 'transfer' makes up 69%, permissive 12%, and passive only 1% (the remaining 11% is accounted for by dative *give* as discussed in 5.4 below). For older children (2;04–3;02) the percentage of permissive rises to 39% while the passive usage remains infrequent at around 2%.

In the bilingual data, the children's Cantonese exhibits all the relevant functions of *bei2* 'give' as well as bridging contexts such as the following, which appears intermediate between a permissive and passive interpretation:

- (66) Lei5 siu2sam1 m4 bei2 jan4 zuk1 lei5 aa3! (Timmy 2;09;01)
 you careful not give people catch you SFP
 'Be careful not to let people catch you/Be careful not to get caught.'

Although various translations are possible, there would seem to be no way to distinguish 'permissive' and 'passive' readings here (semantically, the utterance is vague rather than ambiguous). Indeed, such examples suggest that the functional continuum posited in Section 2 also exists as a continuum in the children's grammar.

5.4 Dative constructions with *bei2* 'give'

Apart from its permissive and passive functions, Cantonese *bei2* 'give' is grammaticalized as a dative marker (arguably becoming a preposition). This occurs when *bei2* appears as the second verb of a serial verb construction (Matthews 2006a: 77) as in (67):

- (67) Lei5 waan4 faan1 bei2 ngo5
 you return back give me
 'Give [it] back to me.'

This usage represents a separate pathway of grammaticalization from that which leads to the permissive and passive functions already discussed, in which it is *bei2* as the *first* verb in a serial verb construction that undergoes grammaticalization. Lord, Yap and Iwasaki (2002) recognize a second pathway of grammaticalization here: lexical 'give' > dative > benefactive. The Cantonese-dominant bilingual children transfer this usage too. Examples where they repeat the same message in both languages clearly demonstrate the equivalence between English *give* and Cantonese *bei2* in this function:

(68) I cut will give you [cutting water melon].
 Lei5 tsiah, ngo5 zoi6 cit3 bei2 lei5 sik6.
 you eat I again cut give you eat
 'Eat it, and I'll cut some more for you to eat.' (Timmy 2;11;21)¹¹

(69) Po4po2 buy give me.
 Po4po2 maai5 bei2 ngo5 ge3.
 grandma buy give me SFP
 'Grandma bought these for me.' (Alicia 3;02;26)

Another example suggests that Alicia treats *give* as equivalent to the preposition *for*:

(70) Daddy, this one give you. [presents dish of toy food]
 Daddy, this one for you. (Alicia 3;04;04)

A similar case is recorded in Sophie's diary data, where the mother's comment on her use of *give* prompts Sophie to reformulate her point using *for*:

(71) Child: This is give Mummy's.
 Mother: Keoi5 cyun4bou6 waa6 give ge3.
 she everything say give SFP
 'She says 'give' for everything.'
 Child: This one for Mummy, Daddy. (Sophie 3;07;09)

Alicia nevertheless continues to use dative *give*, especially in serial verb constructions parallel to the Cantonese as seen in (67):

(72) You know, I got a Swan Lake book give Lulu. (Alicia 4;05;15)

Later examples include the copular construction [*It's give NP*] which is no longer a serial verb construction but suggests a more advanced stage of grammaticalization:

(73) Father: What have you got?
 [A carries bag containing stamps]
 Child: It's give Lulu. Later. On Saturday. (Alicia 4;00;30)

The equivalent construction in Cantonese uses *bei2* 'give' without the copular verb:

(74) Ni1 di1 bei2 lei5, ni1 di1 bei2 lei5 laa1
 this CL give you this CL give you SFP
 'This is for you, this is for you.' (Alicia 3;02;01)

The case of dative *give*, alongside the permissive and passive *give* as already discussed, illustrates an important general point: different pathways of grammaticalization may be based on the same verb, occurring in different syntactic environments. This is a common pattern especially in isolating languages of Southeast Asia, as noted in Section 3.

6. Conclusions

We have shown that a range of developmental phenomena in bilingual children are compatible with Heine and Kuteva's model of contact-induced grammaticalization, subject to the modifications introduced in Section 2.1 and Section 2.2: in particular, the model cannot plausibly refer to speaker's knowledge of grammaticalization processes. Instead, what is transferred must involve synchronically identifiable patterns of polyfunctionality.

These parallel developments may also be compatible with other models such as the traditional notion of 'calquing', 'polysemy copying' as discussed by Heine and Kuteva (2005: 100) and Relexification (Lefebvre 1998). We have pursued the grammaticalization account because there is evidence that general principles of grammaticalization apply (such as persistence: see Section 2.3 and Section 4.2), and because the model makes the necessary steps more explicit than the traditional notion of 'calquing'. Whether we term these phenomena 'apparent grammaticalization' or 'contact-induced grammaticalization' may ultimately be a matter of terminology. What we have shown is that bilingual children can and do replicate the process by which certain grammatical patterns spread across languages: the process by which substrate influence of Chinese dialects affects Singapore Colloquial English (SCE), and by which patterns of polyfunctionality such as the 'epidemic' of 'acquire' modals spread throughout Southeast Asia (Enfield 2003). More specifically, we have verified several parts of the process as described by Heine and Kuteva (2005), including:

- Interlingual identification: the children's parallel usage as in the case of *already* (Section 4.2) and dative *give* (Section 5.4) demonstrates the perceived equivalence between the model and replica languages;
- Intermediate steps: children's development shows that *give*-passives develop via permissive usages, mediated by bridging contexts (see Section 5.3, cf. Heine and Kuteva 2005: 102);
- Gap-filling: the children create perfective (Section 4.2) and passive forms (Section 5.3) to plug gaps where they have yet to acquire the target language

strategies. Gap-filling is argued to be a motivation for contact-induced grammaticalization, especially in contact languages (Heine and Kuteva 2005: 124).

One implication of these findings is that bilingual first language acquisition is a possible route for substrate influence, both in general and specifically in the development of contact languages such as pidgins and creoles. Parallel phenomena in bilingual development and in SCE illustrate this possibility. In making these points we are not arguing that SCE is a creole, or that the bilingual children are developing a 'home creole'. While SCE has been in fact considered 'almost a creole' (Ho and Platt 1993; Gupta 1994), this is no longer an issue to the extent that creoles are no longer seen as a structurally distinct class of languages (Corne 1999; Mufwene 2001). The mechanisms of interaction between English and the substrate grammars remain the same, whether we consider the resulting language to be a variety of English, an English-lexifier creole, or some other form of mixed language.

A major difference between the bilingual acquisition data and the Singaporean counterparts involves resolution and differential outcomes. From age 5, the bilingual children attended international schools where the teachers and many of the children are more or less monolingual native speakers of English. In this environment, grammatical peculiarities such as Sophie's *give*-passive and uninflected verbs with *already* give way to more standard English voice and tense/aspect forms. The contact-induced features that occur as developmental stages in these children never develop into a contact language. But what would happen given a whole community of similar children? Just such a community is thought to have given rise to SCE, which has its origins in English-medium schools in ethnically mixed districts including Eurasians, Jews, Armenians and Straits Chinese (Gupta 1994: 33). The teachers included Chinese and Eurasians whose English may have been Chinese-influenced. The Straits Chinese spoke Baba Malay which was itself heavily influenced by Hokkien (Ansaldo and Matthews 1999). In such a social environment, features which develop through interactive development in bilingual and multilingual children can feed into the feature pool of a developing contact language.

Notes

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1. Cantonese examples are given in the *JyutPing* Romanization system, developed by the Linguistic Society of Hong Kong (Tang et al 2002) to meet both linguistic criteria and the constraints imposed by computer applications. IPA correspondences are given in Matthews and Yip (1994: 400). The numbers at the end of each syllable represent the tones: 1 (high level), 2 (high rising), 3 (mid level), 4 (low falling), 5 (high rising) and 6 (low level).
2. Heine and Kuteva (2005: 237ff) distinguish between L1>L2 replication, where the speaker's first language serves as the model and a second language as the replica language, and L2 >L1 replication, where the second language itself serves as model and the first as replica. However, this distinction still assumes first and second languages rather than simultaneous bilingualism. The distinction also proves difficult to draw, especially since in some situations the same language serves as both model and replica language (ibid: 239).
3. The problem here is analogous to that posed by the property of persistence, which refers to the way in which grammaticalized items apparently retain characteristics of the lexical item from which they developed (Hopper 1991). The paradox is that speakers cannot know that such a development has occurred. The challenge is to explain these phenomena without attributing such knowledge to speakers of the language. Either the properties of the grammaticalized item are somehow fossilized, or there must be some ontogenetic mechanism which recapitulates or mimics aspects of the historical development (Ziegeler 1997).
4. Those recognizing this problem sometimes appeal to a notion of 'panchrony' intended to subsume diachronic and synchronic perspectives. We avoid this concept since it circumvents the problem rather than tackling it head-on, and introduces intractable new problems (Newmeyer 1998: 284). We believe that the Jakobsonian insight of diachrony-in-synchrony can be more effectively pursued by distinguishing diachronic processes from (a) their synchronic reflexes, and (b) their ontogenetic counterparts (see also note 3).
5. The longitudinal corpus data are available at the CHILDES database <http://childes.psy.cmu.edu/> under the Bilingual folder.
6. The Malay *sudah* 'already' may be regarded as an adverb tending to grammaticalize into a marker of perfective aspect. To the extent that Malay *sudah* serves as an additional model for *already* in SCE (cf. Malay *kena* which provides one passive form, see 5.2), replica grammaticalization could be involved.
7. Timmy places the aspect marker *zo2* after the verbal complex (*faan1 lai4 zo2, hei2 san1 zo2*), whereas in adult usage it would attach to the first verb of each complex (*faan1-zo2 lai4, hei2-zo2 san1*). This developmental stage is also attested in monolingual children.
8. The use of right-dislocation as in *he go already the monster* (34) is highly productive in both child and adult Cantonese. Right-dislocation is also possible in English, as in *He's already gone, the monster*; the frequency of the phenomenon suggests Cantonese influence, although the

congruence between the English and Cantonese structures no doubt favours its use by the bilingual children.

9. The passive marker is commonly spelt *hor* in Singapore following English orthography, reflecting the Hokkien pronunciation [hɔ] with an open vowel.
10. Note that the use of the infinitive in *give...everybody to eat* is consistent with the passive reading, since some of Sophie's *give*-passives use the infinitive, as in *I already give the mosquito to bite* in (55).
11. Timmy uses the word *tsiah* 'eat' from the Chiu Chow dialect as spoken by his grandmother. This is one of the few Chiu Chow words that he uses, often for jocular effect.

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