Supply, demand and... what?
Why some features are not borrowed

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Abstract

The canonical picture of how creoles emerge through language contact involves the source languages – superstrates, substrates and adstrates – providing the necessary grammatical and lexical input to shape emerging structures (Winford 2009: 22ff.). However, the lack of a certain grammatical feature in an emerging contact language does not automatically lead to its adoption from a source language, even though it might be available (Wurm and Mühlhäusler 1985: 114f.). Tok Pisin, the creole serving as Papua New Guinea's lingua franca, provides two examples.

I argue that there were language–internal and language–external influences impeding the adoption of these grammatical features in the forms present in the source languages. Showing how these impediments differed at various stages and how language–external and language–internal factors either worked in concert or against each other will help illustrate the complex origin of contact languages.

1 Introductory Remarks

The origin of this paper can be traced back to one of the "so what do linguists actually do all day" conversations that everyone in the field – and, I suspect, in many other scientific fields – is overly familiar with.[1] In this case, I was trying to explain how linguists working in language contact frequently will attempt to trace back elements of a contact language to their respective source languages, or how, vice versa, various source languages combine to contribute different features to an emerging contact language. This prompted my interlocutor to suggest that this phenomenon was "basically a supply and demand situation", with the emerging language having a need or demand for a feature, and the various contributing languages playing the role of supplier. This might seem like a reasonable assumption at first. However, just like in economics, breaking down complex processes into a simple equation bears the risk of glossing over important parts of said processes – such as why certain linguistic features do not get borrowed in spite of both supply being available and demand being present.

The simplified picture of how pidgins, creoles and other contact languages emerge through language contact involves the source languages – superstrates, substrates and adstrates – providing the necessary grammatical and lexical input to create and shape emerging structures (Winford 2009, 22ff.)[2]. In other words, both sides of the form–function equation stem from items, patterns and structures that exist within the source languages before they are introduced to the emerging language. An example is provided by the parts of the pronominal system of Jamaican Creole. Most of its elements can be traced back quite easily to that of its superstrate English, given that they are either entirely identical or at least very similar in either form and function, or both, as shown in Table 1 below:

[1] The current version of this paper, on the other hand, owes much to the extremely helpful feedback of two anonymous reviewers. I would like to thank them both for their input and suggestions.

[2] Or, to put it more accurately, for the speakers of the emerging contact language to create and shape these structures based on the structures of the languages they employ in the contact situation.

Table 1: Pronoun system of Jamaican Creole, adapted from Winford (2009, 323)

Number, person	**Subject**	**Object**
Sg, 1st person	mi	mi
Sg, 2nd person	yu	yu
Sg, 3rd person	im	im
Pl, 1st person	wi	wi
Pl, 2nd person	unu	unu
Pl, 3rd person	dem	dem

There is, however, no requirement for both form and function of a linguistic item or pattern to stem from the same source, nor is there one for the demand and/or supply to be introduced by the same source. A distinction has to be drawn between *categorial* supply and demand on the one side and *formal* supply and demand on the other. The former refers to the need of a language system to express a certain concept or category – such as past or future – (or the supply of such a concept or category by another language system). The latter refers to the demand for a structural means of expressing said function (or the supply of a form which expresses the function). While it is possible that a source language provides both categorial and formal supply, it is equally possible that contact with a source language only triggers categorial demand in the target language, but the structural means are provided by another language or the material already existent in the emerging contact language itself, as we will see below. In general, there are three common possible versions of a contact situation as described here[3]. First, for a source language to provide both formal and categorial supply for a concept or category not present in the target language, and for the target language to receive both from the source language. Second, a case in which the source language provides formal and categorial supply for a concept or category not present in the target language, triggering categorial and formal demand in the target language. However, formal supply in this case is sought elsewhere (e.g., a third language) or formal demand solved through innovation within the target language. Third, a case in which the target language already has formal supply for expressing a concept or category, which would mean that neither formal nor categorial demand exist. Borrowing formal material from the source language would, in this case, mostly happen due to language–external factors, since existing material would have to be replaced through the borrowing process.

The outcome of individual contact situations differ greatly as to how much material and which items, patterns or constructions each source language provides, with one distinction in outcomes being drawn between radical, basilectal and intermediate creoles (Winford 2000: 214f.). Said distinction depends on how much the structures of the contact language still resemble their superstrates. This factor is, in turn, dependent on how much of its grammatical and lexical structure the emerging contact language takes from each of its super–, sub– and adstrates, respectively. The less material is taken from the substrates, for instance, the more closely will the contact language resemble the superstrate and vice versa. The balance of these contributions is determined by a number of factors, including whether a grammatical function is available in none, one or more of the source languages. Even when multiple sources are available, however, the lack of a certain grammatical feature in an emerging contact language (i.e., the "demand") does not automatically lead to its direct adoption from a source language. Instead, such an emerging language may opt for one of three possible alternative strategies:

[3] Additional permutations of the categorial/formal supply/demand equation do, of course, exist, but these three shall suffice for the present argument.

- Forego grammatical encoding of the function
- Encode the function grammatically by using different structural material (innovation by recombination)
- Create new grammatical structures to encode the function (complete innovation)

Referring back to the notion of categorial and formal supply/demand above, categorial demand in the emerging contact language is triggered either by contact with one or more of the source language(s) – which provides categorial supply – or by internal developments of the contact language itself. Once categorial demand is present, formal demand follows. It can either be discarded (option 1 above), filled by formal supply from the source language(s) (option 2 above) or by innovation in the emerging language (option 3 above).

The notion of formal supply and demand, does, of course, also appear in works on multilingualism. Riehl (2015: 108 ff.), citing Matras (2009), for instance, differentiates between *matter borrowing* and *pattern replication*. The first relates to the transfer of linguistic matter, i.e. morphological or lexical material, from one language into the other. Pattern replication, on the other hand, refers to the borrowing of more abstract structures from one language into the other, such as the use of pronouns in pro–drop–languages. In terms of the distinction made between formal and categorial supply and demand above, both matter borrowing and pattern replication occur on the formal level. Whether grammatical markers are borrowed directly in form, as in matter borrowing, or whether more abstract structures such as word order are borrowed, both are formal expressions of a categorial need. The distinction here is made on whether such borrowing happens on a paradigmatic level (matter borrowing) or a syntagmatic level (pattern replication).

Tok Pisin, the contact language now serving as lingua franca in Papua New Guinea, provides two examples of situations in which the forms of grammatical structures were not (directly) taken from either the super–, sub– or adstrates: the nominal plural marker *ol* and the preposition *wantaim*, which, in modern Tok Pisin, serves both a comitative and an instrumental function. Both are innovations by recombination within the emergent language system of Tok Pisin. In other words, forms which served different functions in the superstrate English have come to be used in innovative functions within Tok Pisin.

2 The insufficiency of supply and demand

Nominal plural marking will serve as the first example. As Mühlhäusler (1985: 114) notes, morphological plural marking was available to be borrowed both from English and later from German during the development of Tok Pisin. Despite this viable supply of both form and function, it was not adopted as a productive feature. In modern Tok Pisin, it is merely present in fossilized lexical forms such as *anis* (ant) or *binen* (bee). Neither did Tok Pisin adopt the reduplication strategy of plural marking present in its Melanesian substrate languages, such as Tolai. Instead, it eventually came to expand the function of *ol*, the third person plural pronoun, to serving as a nominal plural marker as well. As examples 1 and 2 below show, the aforementioned fossilized lexical forms are now used with the nominal plural marker *ol*, indicating that the plural suffixes did not become productive and the plural morphemes have become fully fossilized.[4]

[4] For a table of abbreviations used to indicate grammatical categories in this paper, see the appendix.

(1) *No,* ***ol*** ***anis*** *i* *kaikai.* (ZC 00190)
no PL ant PM eat
No, the ants ate.

(2) *Orait* ***ol*** ***binen*** *i* *kamap.* (ZC 03600)
alright, PL bee PM appear
Alright, the bees appeared.

This observation has Mühlhäusler raise two important questions. First, why did Tok Pisin not borrow grammar from its contact languages when its speakers clearly had access to them, as evidenced by the fossilized forms? And second, why do grammatical rules such as *–s* pluralization not get borrowed until very late in the development of the language? Both of these questions will be explored below, after a brief examination of the issues with the emergence of *wantaim*.

As mentioned above, *wantaim* is the comitative and instrumental preposition in Tok Pisin. Examples 3 and 4 below show it being used in both of these functions:

(3) *Mangi* *bebi* *boi,* *ol* *i* go **wantaim** papa, na
young–people baby boy 3PL PM go PREP–C father CONJ
liklik *meri* *olsem* *ol* *i* *go* ***wantaim*** *ol* *mama.*
small woman likewise 3PL PM go PREP–C 3PL mother
The young people, the baby boys, they went with the father, and the small girls likewise went with the mothers.

(4) *Karim* ***wantaim*** *bet* *na* *ol* wokobaut nau**,** wokobaut
carry PREP–I stretcher CONJ 3PL walk–around now, walk–around
i *go* *na* *ol* *singaut.*
PM go CONJ 3PL call–out
They carried him with a stretcher and walked around now, they walked around and they called out.

As per these examples, modern Tok Pisin's *wantaim* seems functionally (or categorially) identical to English *with*. Structurally (or formally), however, *wantaim* seems to be adapted from English *one time*. Thus, its functions in modern Tok Pisin are not immediately apparent from the perspective of an English speaker. To her, it might seem peculiar that what looks like a temporal expression is being used to serve a comitative or an instrumental function. One possible explanation for this phenomenon would be that the form *time* itself could have been borrowed into Tok Pisin with a wholly different meaning, or stem from a different source language that happens to have a similar form attached to a different meaning. However, this is not the case. As is made evident by the example below, aside from *wantaim*, *taim* is used exclusively with a temporal meaning across the language (Mühlhäusler 2003, 267 & 274).[5]

[5] Glossing by source and adjusted for consistency within present paper, translation mine.

(5) *Mi stori ia* ***pastaim.*** *Bai yumi go lo* ***moningtaim.***
1SG story FOC first FUT 1PL–INC go PREP–L morning
First, my story. We will go in the morning.[6]

Further indication that Tok Pisin's comitative/instrumental preposition is an unusual case is found by comparing the source of comitative and instrumental prepositions of the 25 English–lexified languages in the Atlas of Pidgin and Creole Structures (Michaelis et. al, 2013):

Table 2: Instrumental and comitative prepositions and their sources in selected English–lexified languages in the APICS data

Language	**Comitative**	**Instrumental**	**Origin**
Sranan	nanga	nanga	English (along)
Saramaccan	ku	ku	Portugese (com)
Jamaican	wid	wid	English (with)
Bahamian Creole	with	with	English (with)
African American English	with	with	English (with)
Chinese Pidgin English	long	with	English (along, with)
Tok Pisin	wantaim	long, wantaim	English (along, one time along)
Bislama	wid	wid	English (along, with)
Hawai'i Creole	wid	wid	English (with)

As can be gleaned from the abridged Table 2 above[7], the common trend among English–lexified creoles is to adopt English *with* for the comitative and instrumental, with *(a)long* being the prime alternative choice. Even Bislama, which is so closely related to Tok Pisin that some have called it dialects of the same language, uses *wid*. In addition, to the best of the author's knowledge, there is no other case in which a temporal construction has been grammaticalized to serve as a comitative or instrumental preposition. As with the example of *ol*, the borrowing and grammaticalization process in the emergence of Tok Pisin seems to run counter to crosslinguistic tendencies and expectations. So how come these two grammatical items – *ol* and *wantaim* deviate in this regard?

3 The emergence of *ol*

In order to explain why Tok Pisin, or rather, its speakers, have opted for the path less travelled by, it is necessary to look at the diachronic development of both *ol* and *wantaim*. In varieties of the language dating back as early as the 1940s, the first already serves as both a plural marker and a third person plural pronoun. This is illustrated by example 6 below, which is taken from a September 1935 issue of Frend bilong mi, a Catholic Mission publication, and quoted from Mühlhäusler (2003: 71)[8]:

[6] In Tok Pisin, both *lo* and *long* are forms of the same preposition with an abstract spatial meaning roughly equivalent to English *at*. At various developmental stages of Tok Pisin, forms *long* can also be used with temporal expressions, equivalent to English *at night*.
[7] For the full table of all 25 data points, see the appendix.
[8] Glossing of original source adjusted for consistency within present paper, translation mine.

(6) *Taim* ***ol*** *misinare* *i* *kamap* *long* *Bismarck,* ***ol***
when PL missionary PM arrive PREP–L Bismarck PL
kanaka *i* *no* *lukim* *waitman* *yet,* *nau* *ol*
native PM NEG see whiteman yet then 3PL
i *kolim* *ol* *pikinini* *'Father'.*
PM call PL children father
When the missionaries arrived at Bismarck, the natives had not seen white men yet, they then called the children 'Father'.

Mühlhäusler (2003: 9f.) identifies four stages in the development of Tok Pisin: the jargon stage, the stabilisation stage and the early and late expansion stage, respectively. In these, pluralization developed as follows[9]:

• Jargon stage: no formal plural marker exists, category of plurality expressed through lexical means

(7) ***Plenty*** *little* *road* *along* *island.*
many small road PREP–L island
There are many small roads on this island.

• Stabilisation stage: *ol* is used as plural pronoun. Nominal plurality is implied by context (example 8, taken from Mühlhäusler 2003: 46) or indicated by lexical means (e.g., *plenty* in example 9)

(8) *Yu* *no* *lukaitum* *kumul* *yu* no sutim.
2SG NEG see bird 2SG NEG shoot
You will not find birds of paradise, you won't shoot them.

(9) ***Planti*** *liklik* *rot* *i* *stap* long ailan hia.
many little road PM exist PREP–L island here
There are many small roads on this island.

• Early expansion stage: Nominal plurality is expressed for animate nominals, especially in subject position, by preceding *ol*. Note that in example 10, the subject is inanimate and therefore lacks the pluraliser.[10]

(10) *I* *gat* *planti* *liklik* *rot* *long* *despela* *ailan* *long* *go*
PM are plenty little road PREP–L DT island PREP–F go
insait *long* *en.*
inside *PREP–D* *3SG*
There are many small roads on this island to go further inland.

[9] For all four examples featuring roads on islands, glossing of original source adjusted for consistency within present paper, translation mine.
[10] An example that illustrates the difference even more clearly can be found in Verhaar (1995: 348): *Ol pik I save bagarapim garden*, which Verhaar translates as 'Pigs usually destroy gardens'. Note how the animate pigs in subject position exhibit plural marking, while the inanimate gardens in object position do not.

• Late expansion stage: Nominal plurality is expressed for animate as well as inanimate and abstract entities and in subject position as well as oblique case etc., by preceding *ol*.

(11)	*Lo*	*tesela*	*ailan*	*i*	*gat*	*planti*	***ol***	*liklik*	*rot*	*lo*
	PREP–L	DT	island	PM	are	plenty	PL	small	road	PREP–F
	go	*insait*	*lo*	en.						
	go	*inside*	*PREP–D*	3SG						

There are many small roads on this island to go further inland.

In none of these stages, neither formal plural marking by suffixation or any other morphological means was productive. In theory, there are several possible explanations for Tok Pisin not adopting morphological plural marking in favour of expanding the functions of *ol*: the input could have been absent or insufficient. There could have been interfering input from other substrates, for instance the local Papuan languages. The input could have been incompatible with the emerging system. The first explanation we might discard in its strong form (input being entirely absent) by referring to the fossilized lexical plural forms such as *anis* and *binen* presented above. However, these two fossilized forms do not provide strong evidence for a widespread input of the plural *–s* suffix. After all, both ants and bees usually occur as not a single animal, but rather a whole group. It is therefore doubtful that the distinction between the English singular and plural forms would have been transparent.

Mühlhäusler and Wurm (1985: 114) do note, though, that "studies of the linguistic input in the formative years of Tok Pisin have shown that plural marking by means of the *–s* affix was a widespread feature of Pacific English Foreigner Talk." (Wurm and Mühlhäusler 1985: 114). But could the input have been insufficient instead? We will return to that idea below.

In terms of interfering input from Papuan languages, we have to consider that they exhibit two strategies[11]. Some have no nominal plural marking at all, and could have provided an absence for structural demand in the emerging Tok Pisin. In other words, they could have supplied the framework for a language system without *morphological* plural marking. The other set of Papuan languages has a very complex system of noun classes, with irregular marking of both dual and plural. Due to their complexity, they could not have been a model for Tok Pisin either, as their systems lack the criterion of transparency which we will return to below.

Next, let us examine what factors could have made morphological plural marking an unsuitable form in the emerging language structures of Tok Pisin. Mühlhäusler (Wurm and Mühlhäusler 1985: 115) makes two arguments as to this point:

> Affixation to signal plurality of nouns, as in English or German, clearly conforms to the principle that plural forms should, from the point of view of the ease of perception, be longer than singular ones. However, affixes are less accessible than free forms. Since the optimalisation of perception characterises the early development of a pidgin, one would not expect affixes to be borrowed until the pidgin is structurally and functionally comparable to a first language. It is for this reason that the free form ol [...] emerges in Tok Pisin, and that neither English –s nor German –en had a good chance of being borrowed.
>
> A second important argument [...] is the following: if a pidgin develops plural marking, it will appear first in the most natural environment (animates in subject position) and then spread to less natural ones. We find that the lexical items containing English or

[11] I would like to once more express my gratitude to an anonymous reviewer for pointing this crucial factor out in detail.

> German plural affixes do not provide a favourable environment for the spread of a plural rule.

To add to these arguments, there was no systemic precedent for formal morphological marking of any kind. Neither verbal nor nominal or adjectival inflection was present,[12] with functions such as pluralization, comparison or posession either being absent or being expressed by syntactical means, such as the possessive preposition *bilong*. The introduction of inflectional plural marking would therefore have meant the introduction of inflectional morphology as a concept and process, making plural inflection highly marked. As, for instance, deGraff (2001: 509ff.) and Muysken (1981) have argued, it is the unmarked option which usually prevails in creole grammar. This is also in line with the second morphological constraint Winford (2009: 96) proposes for languages in contact:

> The greater the degree of transparency of a morpheme, the greater the likelihood of its diffusion. By contrast, the more opaque (complex, bound, phonologically reduced) a morpheme is, the less likely it is to be borrowed.

An inflectional morpheme in a language that has no inflectional morphology certainly does not fulfill the criterion of transparency. This would put it at a disadvantage when competing with an isolated form, which is easier to parse. In addition, both *anis* and *binen* are likely to have entered Tok Pisin as plurals, since the entities they refer to are usually not encountered as single entities, and therefore far less likely to be referred to as such in language use. This relates back to the idea of insufficient input due to to the lack of transparency Winford describes, as neither *–n* nor *–s* in either of these items are likely to have been recognized by speakers as pluralising morphemes.

It was, of course, not entirely impossible for the emerging Tok Pisin to become a fusional language, or to at least adopt some morphological marking. As Matras (2007: 40) notes, "a number of languages show signs of movement between morphological types". However, he also remarks that "none of these developments seem to follow any predictable structural path, and the only common denominator is an accommodation to the patterns of a socially dominant contact language". However, the borrowing of inflectional morphology is something that, while having been observed (see Meakins 2011: 87), rarely occurs in language contact. In Field's (2002: 38) borrowing hierarchy, fusional affixes form the very end, being borrowed only after content items, function words and agglutinating affixes. Heath (1978: 105ff.) suggests that factors such as morpheme syllabicity, the sharpness of boundaries between morphemes, unifunctionality or morphemes and the categorical clarity of morphemes could disfavour the borrowing ore inflectional morphology. The first two of these factors, at the very least, would disfavour a borrowing of English plural *–s* in cases such as *anis*, where they are not perceived as individual morphemes, but as part of the lexical root.

Mühlhäusler further states that "[t]he question remains, why reduplication was not borrowed from Tolai as a plural–signalling device [...]" and concludes that "to this I do not have an answer" (Wurm and Mühlhäusler 1985: 115). I would suggest that a possible factor may have been the fact that reduplication was already in place as a means of lexical innovation. In the derivation of early Tok Pisin, it often expressed other functions than a grammatical plural, including continuous, reciprocal and repetitive actions in verbs such as *lukluk* 'look around' and *toktok* 'discuss', or variety in adjectives such as *kala–kala* 'many –coloured'. While these functions are related to plurality – *kala–kala*, as a variety of colours, for instance, by necessity

[12] Compare also Landtman (1918), who notes that "As a rule only the simplest indicative form of the English verb is used" and that it is only "in exceptional cases [that] such a form as "I says" may occur".

indicates the presence of more than one colour – they operate on a lexical level instead of a grammatical level.[13] Reduplication served a derivational function, not an inflectional one.

Aside from the structural factors explored above, the point of emergence for the *ol* plural marking is also significant for several reasons. According to Mühlhäusler's four stage development model for Tok Pisin, the plural marker emerged during the early expansion stage, after stabilization. This early expansion stage can be roughly dated to 1880–1914. During this stage, input of English from L1 speakers was limited because in 1884, the north–eastern part of New Guinea was annexed by the German Empire. Contact with speakers of English on one hand and speakers of other Melanesian Pidgins on the other was cut off as the German colonial administration stopped the labour trade with other plantations and pulled native New Guineans back to the main islands (Romaine 1992: 37) While German never came to be widely used by the local population, heavy investment into infrastructure by the German colonial supervision led to the spread of Tok Pisin to rural areas. Being cut off from its main lexifier led to internal developments in Tok Pisin relying on existing structures, such as adopting a personal pronoun as plural marker. In other words, once the categorial demand for plural marking was pressing, formal supply of the source language(s) was either absent or unsuitable. So even if the stabilization stage had led to a system that was stable enough to accept morphological plural marking, the input change from L1 English to L2 English would have made such a borrowing more unlikely[14]. It is also noteworthy that, as Smith (2002: 65) reports, "recently the –***s*** suffix has become increasingly used to signal plurality as Tok Pisin and English come into increasingly frequent contact". This lends credence to the argument that morphological plural marking is not entirely incompatible with Tok Pisin, but timing and the contact situation played an issue.

There is a further caveat, however, in that even in contemporary Tok Pisin, plural marking with *ol* is not obligatory. As Verhaar (1995: 346ff.) notes, rather than just providing a grammatical function of pluralization, *ol* can also be seen as marking the following noun as a collective. On the other hand, semantic plurality does not automatically require grammatical marking with *ol*. This may have been another factor that hindered complete adoption of English plural marking, which is obligatory. If the categorial demand was for a context–dependent collective marking rather than a context–independent plural marking based on semantic plurality, English obligatory plural marking would have been even less suitable.

4 The emergence of *wantaim*

In modern Tok Pisin, there are three different simple prepositions – *bilong*, *long* and *wantaim* – whose functions overlap to a certain extent, as the table below shows:

[13] Also note the argument in Hall (1943, 194) that reduplication served an onomatopoeic function.

[14] Note, however, that the fact that closely–related Bislama, which was not cut off from English entirely during that time, also adopted *ol* as plural marker going back at least as far as 1913, see Crowley (1998: 90) Therefore, the contact situation can not have been the only relevant factor.

Table 3: Prepositions and their functions in modern Tok Pisin

Prep.	Function(s)	Examples[15]
bilong	all purpose preposition; in modern Tok Pisin denotes possession, purpose, origin, charateristic trait	*Han **bilong** mi em i doti* 'My hand is dirty' Steinbauer 1969, 41
(a)long	mostly spatial relationships; used for English prepositions *in, on, at, to, from, by, about, because, for, during, with* (especially in instrumental function)	*Em i bengim ka **long** rot* 'He smashed the car on the road' (Steinbauer 1969, 23)
wantaim	corresponds to English *with* both in comitative and instrumental function	*Mi miksi muli wara **wantaim** ti* 'I mix lemon water with tea' (Steinbauer 1969, 119)

As has been mentioned above, there are several issues concerning the emergence and grammaticalization of *wantaim*. The first concerns its origin: how and why has what appears to be a form of English *one time* been adapted to serve as a comitative/instrumental function in Tok Pisin? The second is concerned with its status within the prepositional system. How and why has *wantaim* been able to assert itself as an independent preposition from the ubiquitous *long* while other complex prepositions such as *arere long* have not? A look at Bislama and Solomon Islands Pijin, which are the two most closely related languages to Tok Pisin, shows that the development itself – or at least its outcome – has been unique to Tok Pisin. As examples 12 (Bislama) and 13 (Solomon Islands Pijin) below show, their comitative construction is not related to *wantaim*.[16]

(12) *Hem i stap slip **wetem** tufela.* (Crowley 2004, 27)
3SG PM HAB sleep PREP–C PRN
He lives with the two of them.[17]

(13) *Mi nao mi faet **wet–em** olketa nomoa.* (Jourdan/Keesing 1997: 407)
me TOP 1SG fight with–TR them just
Me, I was just fighting with them. [18]

The answer to why Tok Pisin would use a seemingly outlandish construction such as *wantaim* lies in the very first of the functional stages in its grammaticalization, which was the adverbial construction *one time along*. To quote Mühlhäusler, "[w]antaim, originally an adverb meaning at the same time, is frequently used as a preposition translating the concepts of with, together with and with the use of" (Wurm/Mühlhäusler 1985: 367). However, while this tells us where it originally came from, it does not yet explain the further steps in its development, nor does it explain the motivation behind the reanalysis of a temporal adverbial as the comitative. For that,

[15] Translations for all three examples mine.
[16] As one anonymous reviewer remarks, Bislama *wetem* has been attested since 1914, being cited in an example *Me me go widim you* in Crowley (1998: 103). Later re–spelled *wetem*, the reviewer notes that it might be a fusion of English *with* and the transitivity marker *–im*. This sounds very plausible to me. One can only speculate about whether *wantaim* would have received an additional *–im* as well, had it not already possessed the ending.
[17] Glossing and emphasis mine, translation by original source.
[18] Glossing and translation by source cited. TOP = topical marker, TR = transitive marker.

we shall have to look at the further development. Its diachronic development through the emergence of Tok Pisin can be traced as follows:

- Stage 1: Temporal adverbial
- Stage 2: Temporal adverbial plus comitative preposition
- Stage 3: (Temporal adverbial plus) comitative preposition (plus instrumental preposition)
- Stage 4: Comitative preposition plus instrumental preposition

In regards to stage 2, early attested usage of prepositional *wantaim* and *one time along* is strictly comitative[19], as the examples below from Mead (1931: 42) and Steinbauer (1969, 183ff.) show:

(14) ***One time along*** *taro.*
PREP–C taro
With taro.

(15) *Long* *nait* *mi* *wokabaut* ***wantaim*** *sutlam.*
PREP–L night 1SG walk–around PREP–C flashlight
At night, I walk around with a flashlight.

(16) *Yu* *dring* *solmarasin* ***wantaim*** *wara.*
2SG drink epsom–salts PREP–C water
You drink epsom–salts with water.

Mihalic (1957: 159) still lists *long* as part of the construction, though it seems to have become optional by the time of his source data. The entry in his dictionary reads:

- with: wantaim, wantaim long; to work with him = wok wantaim (long) em

Meanwhile, the instrumental function was still being expressed almost exclusively by *long*:

(17) *Mi* *kisim* *rais* ***long*** *skel.* (Steinbauer 1969, 177)
1SG take rice PREP–I scale
I take rice with the scale.

(18) *Katim* *pepa* ***long*** *sisis.* (Steinbauer 1969, 175)
cut paper PREP–I scissors
F Cut the paper with the scissors.

At the same stage, the form *wantaim* served several functional uses, as the following excerpt of Mihalic's dictionary (1957: 159) shows:

> **wantaim**
> 1. one time, once
> *Mi mekim wantaim tasol.* = I did it only once
> 2. at the same time, with, together, and
> *go wantaim* = to go along with, to accompany
> *kisim pensil wantaim pepa* = to take pencil and paper

[19] For examples 14 through 16, glossing and translation mine.

pasim wantaim = to tie together
tupela wantaim = both together
wok wantaim = to work together, to work at the same time
3. to express similarity or equality *Tupela i–strong wantaim.* = The two are of equal strength.
This is an expression used to denote a tied score in a game, or of a battle evenly fought.

The third functional stage saw the expansion of *wantaim* to include the instrumental function, as in the examples below, taken from Wurm and Mühlhäusler (1985: 368) and Smith (2002), respectively[20]:

(19) *Ol* *nes* *i* *ken* *samapim* *maus* *bilong* *yu* ***wantaim*** *string.*
PL nurse PM can sew mouth PREP–P 2SG PREP–I string
The nurses can sew up your mouth with string.

(20) *Ol* *i* *sutim* *disla* *pig* *ia* ***wantaim*** *disla* *ol* *spia*
3PL PM shoot DT pig EMPH PREP–I DT PL spear
bilong *ol.*
PREP–P 3PL
They shot this pig with these spears of theirs.

Verhaar (1995: 251) notes that while instrumental *wantaim* is still rare, though Tok Pisin seems to mirror the development from comitative to instrumental that occurred in many languages. This development is further confirmed by Siegel/Smith (2013), who note that the usage of instrumental *wantaim* is increasing. They claim that "the general preposition long is most commonly used for instrumental and wantaim for comitative. But the use of *wantaim* for instrumental is increasing as a result of the effect of English." Meanwhile, the temporal adverbial *wantaim* has been increasingly replaced by *wanpela taim*, as in the example below[21]:

(21) ***Wanpela*** ***taim*** *tuple* *brata* *tuple* *stap* […] (Siegel/Smith 2013: 191)
NUM time NUM brother NUM be […]
Once, there were two brothers […]

Having established that the comitative use of *wantaim* predates the instrumental use, it is evident that in order to determine the origins of prepositional *wantaim*, the focus needs to be placed on the comitative. At the time of *wantaim*'s origin, *(a)long* was already in use as a preposition in addition to the earlier all–purpose preposition *bilong*. *One time along* was modelled on a pattern in which *along* combined with (mostly spatial) adverbs to form complex prepositions. *Long* formed the basic prepositional element and X further specified its reading, as in *arere long X* 'alongside X' or *aninit long X* 'underneath X'. The question, then, is what exactly *one time* specified in the construction of *one time along*. Essentially, there was a spatial concept – *long* – being supplemented with a temporal concept *one time*. As an adverbial construction, this was meant to signify 'at one time'. From there, the step to the comitative is, cognitively, not that far–fetched. Under the assumption that the basic cognitive functions of the comitative is 'same time plus same space', it is easy to see how a reanalysed reading of *one*

[20] For example 19, glossing mine and translation from original source. For example 20, both from original source, with glossing adjusted.
[21] Glossing mine, translation by original source.

time along may have become not ‘at one time’, but ‘same time at’ or ‘same time space’. In addition, *one* may easily have been read and reanalysed as applying to both elements, and been understood as ‘one place, one time’, or ‘same time, same space’. The suggested development is summarized below:

X + along ‘at X’
⇓
one time along ‘at one time’
⇓
one time along ‘same time at’
⇓
one time along ‘same time + space’
⇓
one time along ‘same time, same space’

The notion of *one* or *wan* expressing equality is strengthened by two observations from Mihalic’s (1957: 159) dictionary. The first is the third section of the entry under *wantaim*, which chronicles the following function[22]:

> 3. to express similarity or equality *Tupela i–strong wantaim.* = The two are of equal strength. This is an expression used to denote a tied score in a game, or of a battle evenly fought.

Secondly, there are a number of parallel constructions in the lexicon of Tok Pisin, all expressing an idea of being equal or identical (Mihalic 1957: 258):

same, *wankain*
- at the same time = *wantaim*
- from the same village = *wanples*
- from the same country = *wantok*
- living in the same house = *wanhaus*
- of the same age, class = *wanlain*
- of the same kind= *wankain*
- of the same name = *wannem*
- of the same nationality = *wantok*
- of the same size = *wanmak*
- of the same tribe = *wanpisin*
- speaking the same language = *wantok*

The productivity of the pattern *wan* + X is also the first of several factors that contribute to answering the second question posed above: that of why *wantaim* was able to assert itself as an independent, simple preposition over other complex prepositions. Of the latter, quite a few exist. For these other complex prepositions, Verhaar (1995: 236) reports: "aninit long ‘below, under, underneath’; antap long ‘on, on top of, over, above’; arere long ‘alongside (of)’; ausait long ‘outside’; baksait long ‘behind’, at the back of; bihain long ‘after’; bipo long ‘before [of time]’; inap long ‘until, as far as’; insait long ‘inside’; klostu long ‘near, close to’; namel long ‘between’; paslain long ‘before [of place], in front of; and raun long ‘around’". In none of these,

[22] While this function is absent from the samples drawn from the Z’graggen corpus, I am ensured by an anonymous reviewer that they witnessed this use ‘quite often during fieldwork in Papua New Guinea’.

wan + X or similarly frequent constructions occur. Therefore, if *wan* + X as an entrenched construction provided an advantage in the emergence of *wantaim* as a simple construction, these other prepositions would have lacked that advantage.

The major structural change from its early construction *one time along* to *wantaim* is the loss of the accompanying *long*, which is still obligatory for most of the other complex prepositions. In all of the constructions with *wan* cited in the dictionary excerpt above, however, *long* does not appear, for the simple reason that these are not prepositional constructions. Still, it seems possible that a process of analogization between these constructions and *wantaim* has contributed to the loss of *long* in the latter.

Another contributing factor may have been the frequency of *wantaim*, which is significantly higher than that of other constituents of complex prepositions, as this data from on a subcorpus of about 8.5 million tokens based on the recording of John Z'Graggen during the 1970s and 1980s (Z'graggen 2011) shows:[23]

Table 4: Number of occurrences of the first constituent of prepositional constructions

Preposition	**Occurrences (total)**	**Occurrences (per million words)**
antap	32136	3785
wantaim	29997	3533
insait	15655	1843
bipo	14012	1650
inap	12591	1483
bihain	9668	1139
klostu	8445	995
raun	3541	417
arere	2929	345
aninit	2222	262
baksait	1770	208

The third factor I would like to posit is the possibility that as its grammaticalization continued, the link between *wantaim* and the spatial dimension may have been weakened, which further encouraged the drop of *long*. Since the comitative has a spatial dimension alongside a temporal one, but is not exclusively spatial, the cognitive link between *long* and *wantaim* may have been weaker than, for instance, the link between *aninit* or *arere* and *long*. This is reflected in the fact that in the same subcorpus as above, *aninit* and *arere* are followed by *long* in 73.90 percent and 72.11 percent respectively, while *wantaim* is only followed by long in 2.06 percent of all cases. *Bipo*, which serves a primarily temporal function, is rarely followed by *long* in the data as well.

Table 5: Number and percentages of occurrence of complex prepositions

Preposition	**Occurrences followed by long**	**Primary function**
wantaim	619 (2.06%)	comitative
bipo	817 (5.83%)	temporal
aninit	1642 (73.90%)	spatial
arere	2112 (72.11%)	spatial

[23] Note, however, that due to the preliminary data and the fact that the corpus is not POS–tagged, these numbers include prepositional as well as adjectival and adverbial uses of these lexemes.

An additional issue which may have affected the development of other simple spatial prepositions might be competing serial verb constructions. For Tok Pisin, Verhaar (1990: 119) has reported the following, among others[24]:

(22)	*Yu*	*wantaim*	*ol*	*soldia*	*bilong*	*yu*	*i*	*mas*	
	2SG	PREP–C	PL	soldier	PREP–P	2PL	PM	must	
	wokobaut	***raunim***	*dispela*	*taun*	*wanpela*	*taim*	*long*	*olgeta*	*de.*
	walk–around	round	DT	town	NUM	time	PREP	DT	day

You and your soldiers must march around this town once every day.

(23)	*Lea*	*wantaim*	*ol*	*pikinini*	*bilong*	*en*	*i*	*mas*
	Lea	PREP–C	PL	child	PREP–P	3SG	PM	must
	wokobaut	***bihainim***	*tupela.*					
	walk–around	follow	PRN					

Lea and her children had to follow the two [girls].

In these examples, the second part of the serial verb construction serves a spatial or directive function which, in English, would have been fulfilled by a preposition. A similar competing serial verb construction that would function as comitative has, to my knowledge, not been attested. In addition, Sebba (1987: 214) notes that "most if not all of the serialising languages […] have prepositions corresponding to 'with' and 'of' or 'for.'" This indicates that there may actually be a common tendency for the comitative to be expressed by preposition rather than serial verbs. This would mean that in the overall development of *wantaim*, *long* actually served as kind of a catalyst. Its presence allowed a temporal adverbial to be grammaticalized into a comitative preposition. Once that function was achieved, factors such as the productivity of *wan*+X and the frequency of the construction as a whole may have led to increasing independence from *long* and the spatial context it implies, effectively eliminating the need for *long* at some point. As with *ol*, the point of emergence for *wantaim* is once again significant in terms of language external factors as well. There are no attestations for comitative or instrumental *wantaim* during the jargon and stabilization stages. Once again, being cut off from its main lexifier – and therefore the formal supply – led to internal developments in Tok Pisin, such as reanalysing a temporal adverbial as a comitative preposition, being more likely. The input change from L1 English to L2 English would have made such a borrowing more unlikely.

5 Conclusion

In summary, we can claim that for both *ol* and *wantaim*, there were both language–internal structural factors as well as extralinguistic factors that worked against the direct adoption of the super– and substratal systems. Instead, structural material that was already present in the emerging language was reanalysed to serve a different, additional function. However, in these cases the material was not junk, but still in use for other functions. The structures present in superstrates and substrates however, were not adopted for either the same or another function: there is no structure or construction in modern Tok Pisin matching English *with*, for instance.

[24] For both examples 22 and 23, glossing mine and translation supplied by original source.

Or, in other words: categorial demand is necessary to create new linguistic structures in contact languages, but not sufficient. Categorial supply is likely neither necessary nor sufficient, as emerging systems may develop a need (or demand) through internal processes. Formal supply is neither necessary nor sufficient to create new linguistic structures in contact languages, though formal demand certainly is necessary. Timing/suitability is necessary for the innovation of grammatical structures in contact languages, but not sufficient either. In regard to the earlier question of whether supply and demand are useful notions in contact linguistics, therefore, this leaves us with three options. Either we have to redefine demand as not merely the absence of a grammatical function, but an actual pressing need for this function, which would be harder (or even impossible) to prove.[25] Alternatively, we introduce a third and fourth factor aside from supply and demand, namely: timing and structural suitability. Or, as a third option, we agree on the position that supply and demand are inadequate and far too simplistic notions in linguistics in the first place.

In any case, I believe that more research into structural innovation in contact languages is worthwhile. If, as Roberge (2008: 131) and others claim, pidgins can give us a possible window on language evolution, it stands to reason that those instances in which the emerging structures are, to some extent, innovated instead of drawn directly from the super– and substrates, would be the ones that are most informative into the process of language evolution.

[25] Note also, once more, that languages as systems do not have a need to mark any linguistic category – it is their speakers who may feel the need to express concepts linked to that category.

Appendix

Table 6: Abbreviations used for grammatical categories

Abbreviation	Grammatical category	Type
1SG	First person singular pronoun	Personal pronoun
SG	Second person singular pronoun	Personal pronoun
SG	Third person singular pronoun	Personal pronoun
PL–INC	First person plural pronoun, inclusive	Personal pronoun
PL–EXC	First person plural pronoun, exclusive	Personal pronoun
PL	Second person plural pronoun	Personal pronoun
PL	Third person plural pronoun	Personal pronoun
PRN	Pronoun	Pronoun
DT	Determiner	Determiner
PL	Nominal plural marker	Marker
PM	Predicate marker	Marker
FUM	Future marker	Marker
NEG	Negation marker	Marker
EMPH	Emphatis marker	Marker
FOC	Focalizer	Focalizer
CONJ	Conjunction	Conjunction
NUM	Numeral	Numeral
PREP–C	Preposition, comitative	Preposition
PREP–D	Preposition, directional	Preposition
PREP–F	Preposition, final	Preposition
PREP–I	Preposition, instrumental	Preposition
PREP–L	Preposition, locative	Preposition
PREP–P	Preposition, possessive	Preposition

Table 7: Instrumental and comitative prepositions and their sources in the 25 English–lexified languages in the APICS data

Language	Comitative	Instrumental	Origin
Early Sranan	langa / nanga	langa / nanga	English (along)
Sranan	nanga	nanga	English (along)
Saramaccan	ku	ku	Portugese (com)
Nengee	anga	anga	English (along)
Creolese	wid	wid	English (with)
Vincentian Creole	wid	wid	English (with)
Jamaican	wid	wid	English (with)
Belizean	wid	wid	English (with)
San Andreas Creole English	wid	wid	English (with)
Nicaraguan Creole English	wid	wid	English (with)
Bahamian Creole	with	with	English (with)

Gullah	wid	wid	English (with)
African American English	with	with	English (with)
Krio	wit	wit	English (with)
Ghanaian Pidgin English	wit	wit	English (with)
Nigerian Pidgin	wit	wit	English (with)
Cameroon Pidgin English	wit	wit	English (with)
Pichi	wet	wet	English (with)
Chinese Pidgin English	long	with	English (along, with)
Singlish	with	with	English (with)
Tok Pisin	wantaim	long, wantaim	English (along, one time along)
Bislama	wid	wid	English (along, with)
Norf'k	lorng	???	English (along)
Kriol	wit	wit	English (with)
Hawai'i Creole	wid	wid	English (with)

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