Retained inflectional morphology in pidgins: A typological study

SARAH J. ROBERTS and JOAN BRESNAN

Abstract

It is commonly accepted that the process of pidginization leads to a loss of inflectional morphology, but this loss is often not total. Lexifier inflections instead follow a cline of reduction: full retention – partial retention – partial lexicalization – full lexicalization – full loss. This article examines the retention of inflection in 29 languages that reflect a history of pidginization in their development, comparing the morphological richness of pidgins with their respective lexifiers. The results indicate an asymmetry between the retention of inherent and contextual inflections, such that pidgins express fewer grammatical categories via contextual inflection than do their lexifiers. The authors suggest that this may reflect a role of markedness (semantic relevance) in the preservation of inflection.

Keywords: *diachrony, inflectional morphology, language contact, markedness, pidgins*

1. Introduction

One oft-cited characteristic of pidgins is a lack of inflectional morphology. According to Romaine (1988: 24), the process of language reduction which underlies pidginization strips everything from the lexifying language "but the bare essentials necessary for communication", eliminating redundant and non-essential categories such as grammatical gender and agreement, while employing word order conventions to express syntactic relations. As Holm (2000: 127) notes, some have even claimed that pidgins and creoles are "languages without any inflectional morphology whatsoever". Most specialists rightly reject such a sweeping and inaccurate generalization, but pidgin and creole inflections are still generally treated as isolated exceptions to general patterns of language re-

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duction. Some regard them as the residue that sneaked past the restructuring process of pidginization because of idiosyncratic factors (McWhorter 2005: 64), while others view their existence in creoles as evidence against the view that creole genesis involves the kind of "break in transmission" that occurs in pidginization (see DeGraff 2001: 232, 2003: 399 with respect to Haitian Creole French).

As it turns out, inflections are not at all uncommon in pidgins. In an earlier study on pidgin morphology, Bakker (2003) found that pidgins have even richer inflection than creoles though much of this may be due to the fact that most creoles are lexified by European languages. About half the pidgins surveyed in that paper have some form of inflectional morphology. But the following generalization does hold for all pidgins (as well as creoles): No pidgin has MORE inflectional morphology than its respective lexifier(s), and most (if not all) pidgins have comparatively fewer inflections. This is the basis for the claim that pidginization involves a reduction of inflectional morphology, though usually such reduction is far from total.

There are at least three ways in which inflections may become established in the synchronic grammar of a pidgin: innovation in pidginization or subsequent development, borrowing from other languages in contact, and inheritance from the lexifying language. In the first instance inflections are products of the pidginization process itself, created through grammaticalization or metatypy (i.e., the copying of patterns from other languages without copying the forms themselves). One well-studied example is *-pela* in Australian and Melanesian pidgin Englishes. Derived from English *fellow*, it has come to function as a pronoun pluralizer and general classifier suffixed to adjectives, quantifiers, and demonstratives in various languages (Mühlhäusler 1996, Baker 1996). Innovated inflections may sometimes express or reinforce grammatical categories in the other languages in contact (Keesing 1988, Siegel 1998).

Inflections may also be borrowed from substrate or adstrate languages; for instance, some varieties of Kenyan Pidgin Swahili have adopted two verbal affixes from other Kenyan Bantu languages: *-anga* for habitual and *-ko* for polite imperative (Heine 1991: 37). Inflections may also be borrowed at a later time from the lexifier itself once the pidgin has emerged. This is one characteristic feature of "depidginization" and has been observed in modern varieties of Fiji Pidgin Hindustani (Siegel 1987: 251).

Most pidgin inflections however are retentions from lexifying languages. The amount of retention varies from pidgin to pidgin, as the process of pidginization leads to different outcomes across different contexts. The degree to which the lexifier is morphologically reduced depends on the many linguistic and social factors governing the development of the contact language. In general terms, pidgins are isolating languages and pidginization may involve a shift from synthetic to analytic morphosyntax (along with other forms of

grammatical change).[1] But in a few cases the amount of retained inflectional morphology may be quite substantial, as evidenced by languages such as Kituba and LiNgala, which are sometimes classified as expanded pidgins (Smith 1995: 357) and sometimes as koines (see the discussion in Mufwene 1997a: 46–48). Although reduced in comparison to their lexifiers, these languages are morphologically quite complex and do not classify easily.[2] Rather than limit discussion to a sharply defined category of prototypical pidgins, we prefer to recognize that there is a cline of morphosyntactic reduction that spans between a significant subset of contact languages, with the greatest amount of reduction evidenced by languages traditionally classified as pidgins.

The goal of this article is not to establish the existence of retained inflections in pidgins, which is uncontroversial and well documented in previous work (Bakker 2003), but rather to uncover certain patterns in the retention of inflectional morphology across contact languages that experienced a process of structural reduction (as part of a process of pidginization) in their genesis. This involves a systematic comparison between the inflectional systems of a given pidgin and its lexifier(s). The preservation of individual bound morphemes is often examined with the local linguistic situation in mind, such as the degree of typological homogeneity in the languages of the contact situation or accidental homophony between inflections in two or more of the languages (Thomason & Kaufman 1988). But there appears to be more to the preservation of inflectional morphology than idiosyncratic circumstances, as some kinds of inflections are more likely to be retained than others across pidgin languages. The data in this article will show that CONTEXTUAL inflections such as case marking on nouns and nominal agreement on verbs are retained slightly less often than INHERENT inflections such as number and definiteness on nouns and tense and aspect on verbs (see Section 3 for an explanation of the terminology).

This bias in reduction actually builds on a similar asymmetry found in the lexifiers themselves and thus suggests that pidginization is not indifferent to the typology of the languages involved. The asymmetry also reflects more general linguistic principles since inherent inflections exhibit greater semantic rel-

1. Along the lines of Vincent 1997, the analytic and synthetic parameters should be understood as pertaining to individual morphosyntactic constructions and not to the languages as a whole.
2. Michael Meeuwis (2001, 2002, 2006) has recently uncovered historical records of early Li-Ngala that indicate that LiNgala subsequently regained rather than retained its inflectional morphology. These records show that prior to 1884, pidgin Bobangi had undergone a serious reduction in its nominal prefix system, syntactic concordance, and verbal inflection. It was after the language spread outside its original territory that it underwent expansion by drawing on the inflectional paradigms of other (but related) languages than Bobangi. Meeuwis (personal communication, January 9, 2008) concludes that "the more complex language is thus younger, more recent, than the simplified one". This evidence, if reliable, illustrates that subsequent development may obscure the early inflectional profile of a pidgin.

evance to the stem than contextual inflections, as Section 5 will bring out in further detail. Most past studies examine markedness as a potential principle in the simplification of the lexifier and the loss of morphology itself (Thomason & Kaufman 1988, Mufwene 1990, Siegel 1997). Haiman (1985) in particular points to evidence of the role of markedness constraints in the loss of pronominal inflections in pidgins, and Bresnan (2004) shows how an Optimality Theoretic model can account for these and related phenomena. In this article we will examine the role of markedness in the preservation of inflectional morphology. Our approach, informed by principles in Optimality Theory, assumes that the probability of retention is enhanced if the inflection is unmarked in certain ways.

2. Pidgins and language typology

Unlike linguistic taxonomies based on genetic or areal affiliation, the classification of pidgins and creoles as a group is based on their sociolinguistic history. Most would agree that they are languages that emerge in sustained contact situations demanding a mutually accessible means of communication, such as trade, war, colonialist expansion, and slavery. In such situations there is often a reduced motivation or opportunity to acquire full competence in the socially dominant language and speakers are instead motivated to negotiate a common linguistic medium (Baker 1997). According to Thomason (1997: 76):

> [T]he main goal of facilitating intergroup communication dictates a no-frills grammatical system, without (for instance) elaborate embeddings and varied stylistic resources. The process of creating a new contact language in a new contact situation involves cross-language compromise and therefore tends to eliminate unshared hard-to-learn features, such as inflectional morphology and complex syntactic structures.

Pidgins develop as auxiliary languages and thus lack native communities, at least initially. Creoles, on the other hand, serve as community vernaculars and are usually acquired as first languages. They are not structurally restricted, as they must serve the complex needs of their speakers. Some creoles (such as Pitcairn English Creole and Unserdeutsch) are thought to have emerged at once as community vernaculars, while others (such as Tok Pisin, Grand Ronde Chinook Jargon, and Sango Creole) developed from formerly restricted pidgins (Grant 1996, Samarin 1997, Thomason 1997, Mühlhäusler 1997). In the latter circumstance, the pidgin may vernacularize before it has nativized and undergo significant structural expansion without yet serving as a community's native language. The term EXPANDED PIDGIN is often used to refer to such languages, but the lack of clear-cut structural differences between expanded pidgins and creoles has led some to regard the term as introducing "a fairly empty ter-

minological distinction" (Thomason 1997: 79; McWhorter 1999, 2000). The differences can primarily be justified on social criteria (Bakker 2003: 7).[3]

Do pidgins and creoles constitute a structurally unique type of language? McWhorter (2005) finds three properties present only in pidgins and creoles in combination: (i) the lack of inflectional morphology, (ii) the lack of productive derivational morphology, and (iii) the lack of contrastive use of tone. McWhorter regards the presence of these features in most creoles as a result of prior pidginization, and while this claim has proved to be highly contentious (cf. Goyette 2000, Ansaldo & Matthews 2001, DeGraff 2001, 2005, Plag 2001, Ansaldo et al. (eds.) 2007), most creolists nonetheless agree that pidgins generally exhibit analytic morphosyntax and depend on word order and function words to convey grammatical information. No pidgin has polysynthetic morphology and only the quasi-pidgin languages of LiNgala and Shaba Swahili approach anything close to synthetic morphosyntax (Knappert 1979, de Rooij 1995).

The categorization of pidgins is slippery on several fronts. As noted above, there is a rather fuzzy boundary between pidgins and creoles which the category of expanded pidgin attempts to circumvent (see Bakker 2003 for a list of sociolinguistic parameters and Thomason 1997: 85–86 for a discussion on fuzzy boundaries between categories). The category of SEMI-PIDGIN (as proposed in McWhorter 1999) similarly accommodates contact languages that do not undergo radical structural reduction. Mufwene (1997) also points out that some classify contemporary LiNgala as a koine, revealing a slipperiness between pidgins and koines depending on the degree to which the "languages" in contact may be regarded as dialects of the same language. Some pidgins are also classified as jargons if they lack linguistic stability (Romaine 1988). Much of the confusion is due to the use of both structural and social criteria in defining these categories.

Another problem in the study of pidgins is empirical. Some pidgins (such as Tok Pisin, Chinook Jargon, and Hiri Motu) are very well documented, while others are known from a single study. Only a few scraps of data exist for Icelandic Pidgin Basque, Pidgin Haida, and Pidgin Ngarluma (Bakker et al. 1991, Grant (to appear), Dench 1998), while no linguistic data (beyond isolated lex-

3. Bakker (2003) treats pidgins, creoles, and pidgincreoles (roughly equivalent to "expanded pidgins" in creolist nomenclature) as synchronic categories distinguished from each other by current sociolinguistic function. The intermediate category of pidgincreole (proposed by Philip Baker) is clearly defined in Bakker's model by specific parameters: unlike pidgins, pidgincreoles are capable of expressive function whereas unlike creoles, pidgincreoles do not serve as ethnic or political group languages. In other areas where pidgins and creoles sociolinguistically contrast, pidgincreoles may side with either category. Our article does not use the same parameters in categorizing contact languages, as the focus is on genesis rather than eventual sociolinguistic status.

ical items) exists for such varieties as Broken Slavey and Jargon Loucheux (Bakker 1996).[4] Our examination of pidgin inflections will be based on only the best-known varieties and not a random selection of pidgins.

The reduction of inflectional morphology occurs early in pidgin genesis through simplification of the target language (Thomason 1997: 76, Mühlhäusler 1997: 142–143), and thus its effects are usually visible in more mature pidgins and creoles.[5] However the leveling of retained inflections may continue through the lifespan of the pidgin/creole and so early-stage pidgins make better witnesses of the process of language reduction than more mature ones. To provide the most representative sample of pidgins, we will include examples from the four types discussed above (jargons, pidgins, expanded pidgins, creoles, as well as from "semi-Pidgins" like Kituba and LiNgala) but the emphasis will be on socially restricted pidgins and jargons. Given that our concern is on the retention of inflection, our sample also focuses on pidgins that have morphologically rich lexifiers. Our sample includes pidgins whose lexifiers are from the following language families: Indo-European (5), Afro-Asiatic (2), Niger-Congo (6), Austronesian (3), Papuan/Trans-Guinea (2), Papuan/Sepik-Ramu (2), Australian/Pama-Nyungan (2), Eskimo-Aleut (2), Na-Dene (1), Penutian (1), Algic (2), and Muskogean (1).[6]

Table 1 displays information on the 27 pidgins surveyed in this paper, including name, location, classification, the morphological type of its main lexifier(s), and the source of information on each respective language. The only creoles included in Table 1 are those which developed from former restricted pidgins such as Nubi and Sango. The classification is based mostly on the work of Smith 1995.

3. The retention of inflectional morphology in pidgins

Inflections tend to occur further from the stem than derivational morphemes and generally they contribute syntactic information to the sentence (Anderson 1982). Booij (1994, 1996) has posited two main categories of inflection: INHERENT INFLECTION, which signals grammatical properties intrinsic to the word itself and which is not governed by syntax, and CONTEXTUAL INFLECTION, which signals syntactic relationships between words. The following is a

4. An anonymous reviewer notes however that recent research by Craig Mishler has improved the documentation of Jargon Loucheux, which we hope will allow this language to be included in future surveys of pidgin morphology.
5. Winford (2000: 141–142) notes that in the case of Pidgin Delaware, native Unami Delaware speakers "simplified their language to create the pidgin, while Europeans contributed by attempting to use their own basic variety of Unami", resulting in a language that "has none of the extensive inflectional morphology of Unami".
6. The genetic classification of the languages in our sample is in accord with Gordon 2005.

Table 1. *Pidgins under consideration in this paper, with information on location, classification (according to Smith 1995; PJ = jargon, P = stable pidgin, PE = expanded pidgin, C = creole), main lexifier, the most common morphology utilized in the lexifier, and principal sources on each pidgin.*

Name	Location	Classification	Main lexifier	Typical morphology	Sources
Asmara Pidgin Italian	Eritrea, Africa	P	Italian (Indo-European)	synthetic/fusional	Marcos 1976
Bilkiire	northern Cameroon	PE	Fula (Niger-Congo)	agglutinating	Noss 1979
Broken Ojibwe	Wisconsin, USA	P	Ojibwe (Algic)	polysynthetic	Nichols 1995
Chinook Jargon	Pacific Northwest, USA	P, PE, C	Lower Chinook (Penutian)	polysynthetic	Silverstein 1972, Thomason 1982
Fanagalo	southern Africa	P	Zulu-Nguni (Niger-Congo)	agglutinating	Mesthrie 1989
Greenlandic Pidgin Eskimo	Greenland	PJ	West Greenlandic Eskimo (Eskimo-Aleut)	polysynthetic	van der Voort 1996, 1997
Gulf Pidgin Arabic	Persian Gulf	P	Gulf Arabic (Afro-Asiatic)	synthetic/fusional	Smart 1990
Herschel Island Trading Pidgin	Alaska and the Yukon	PJ	Iñupiaq Eskimo (Eskimo-Aleut)	polysynthetic	Stefansson 1909
Hiri Motu	Papua New Guinea	PE	Motu (Austronesian)	analytic/isolating	Dutton 1985, 1997
Kenyan Pidgin Swahili	Kenya (eastern Africa)	P	Swahili (Niger-Congo)	agglutinating	Duran 1979, Heine 1991
Kituba	Zaire (central Africa)	PE	Kikongo (Niger-Congo)	agglutinating	Mufwene 1997
Koriki Hiri Trading Pidgin	Papua New Guinea	PJ, P	Koriki (Papuan)	analytic/isolating	Dutton 1983, 1985
Jargon Kaurna	South Australia	PJ	Kaurna (Australian/Pama-Nyungan)	agglutinating	Simpson 1996
Kyakhta Pidgin Russian	Kyakhta (Siberia)	P	Russian (Indo-European)	synthetic/fusional	Wurm 1992
LiNgala	Zaire, Congo	PE	Bobangi (Niger-Congo)	agglutinating	Dzokanga 1979, Meeuwis 1998

Name	Location	Classification	Main lexifier	Typical morphology	Sources
Mobilian Jargon	east of Mississippi River	P	Choctaw, Chickasaw, Alabama (Muskogean)	agglutinating	Drechsel 1997
Nagamese	Nagaland (India)	PE	Assamese (Indo-European)	fusional	Sreedhar 1985, Boruah 1993
Nubi-Juba Arabic	southern Sudan, Uganda, Kenya (eastern Africa)	PE, C	Egyptian/Sudanese Arabic (Afro-Asiatic)	synthetic/ fusional	Owens 1991, 1997
Pidgin Delaware	New England, USA	P	Unami Delaware (Algic)	polysynthetic	Goddard 1997
Pidgin Fijian	Fiji	P	Fijian (Austronesian)	analytic/isolating	Siegel 1987
Pidgin Haida	Pacific Northwest, USA	P	Haida (Na-Dene)	polysynthetic	Grant, to appear
Pidgin Hawaiian	Hawaii	P	Hawaiian (Austronesian)	analytic/isolating	Roberts 2003, to appear
Pidgin Ngarluma	Northwestern Australia	PJ, P	Ngarluma (Australian/ Pama-Nyungan)	agglutinating	Dench 1998
Russenorsk	northern Norway	PJ, P	Norwegian, Russian (Indo-European)	synthetic/fusional	Broch & Jahr 1981, Fox 1983
Sango	Central African Republic	PE, C	Ngbandi (Niger-Congo)	agglutinating	Samarin 1970, Pasch 1997
Taimyr Pidgin Russian	Taymir Peninsula, Russia	P	Russian (Indo-European)	synthetic/fusional	Wurm 1992, Stern 2001, 2005
Toaripi Hiri Trading Pidgin	Papua New Guinea	PJ, P	Toaripi (Papuan)	analytic/isolating	Dutton & Kakare 1977
Yimas-Alamblak Trading Pidgin	Papua New Guinea	PJ, P	Yimas, Alamblak (Papuan)	polysynthetic	Williams 2000
Yimas-Arafundi Trading Pidgin	Papua New Guinea	PJ, P	Yimas, Arafundi (Papuan)	polysynthetic	Foley 1988

partial but useful list of common grammatical categories indicated by verbal and nominal inflections:

(1)			
	Inherent	V:	1a. TENSE/ASPECT, 1b. MOOD, 1c. NEG(ATION)
		N:	2a. NUM(BER), 2b. GEND(ER), 2c. DEF(INITENESS)
	Contextual	V:	3a. AGR(EEMENT)-V (incl. PERS(ON)/NUM/etc.), 3b. DIR(ECTION)
		N:	4a. CASE, 4b. AGR-N

Tense/aspect, mood, and negation are expressed by inherent verbal inflections, classified as such because they directly modify the underlying verbal semantics. Inherent nominal inflections include specifications for number, grammatical gender (as well as noun class), and definiteness, where these are marked directly in the morphology.[7]

Contextual inflections build syntactic relationships in the sentence. Examples of such inflections on verbal stems include agreement affixes and bound pronominals (which mark the person, number, gender features of nominal arguments), and direct and inverse markers which signal relational information about subject or object. In languages such as Swahili, the bound pronominal also specifies the grammatical function of the argument (i.e., AGR +GF). Contextual inflections on nominal stems specify the grammatical function of the nominal (i.e., case morphology). Head nouns also can bear an AGR +GF suffix when they furnish syntactic information for the noun's possessor.

Morphological retention itself is somewhat gradient. Some inflections may survive in the pidgin fully intact. But others undergo some change in meaning and form. In other cases the segment remains but without discernable meaning. The single most important criterion establishing the retention of an inflection is the survival of semantic content in the segment, as this is the defining property of morphemes. Lexifier inflections may therefore have one of the following outcomes in the pidgin:

(2)
a. FULL RETENTION: The morpheme is incorporated into the pidgin with little or no change.
b. PARTIAL RETENTION: The morpheme is retained in the pidgin but with either semantic reanalysis or structural change.
c. PARTIAL LEXICALIZATION: The morpheme is retained in form only and remains contrastive only as an empty word class marker.

7. Gender is not always marked directly in the morphology; in many languages it manifests itself only through agreement morphology. Our criterion thus is limited only to cases where gender is overtly marked, as in Arabic or in Bantu noun classes.

d. LEXICALIZATION: The morpheme is resegmented as a non-contrastive part of the stem (or another morpheme) through morpheme-boundary reanalysis, resulting in loss of all semantic content of the original morpheme.
e. FULL LOSS: No trace of the morpheme remains in the pidgin.

Only the first two consequences (2a, b) will be considered retentions in this article. The other three outcomes result in substantial loss of semantic content. Lexicalization is especially common in pidgins drawn from inflectionally rich lexifiers or languages which lack citation forms of nouns, verbs, and other parts of speech. If items from a particular word class enter into the pidgin with fairly regular inflections (such as imperative or hortative for verbs, which is of common occurrence in trade or labor situations), the morpheme may continue to be contrastive as a word class marker. In Yimas-Alamblak Trading Pidgin all verbs obligatorily carry the prefix *nampu-* which likely derives from Yimas *mpan-/kampan-*, the marker for 1st person agents when they act on second person patients (Williams 2000: 52). In Russenorsk, nouns tend to end in *-a* or *-ka* (which derives from the Russian feminine and feminine diminutive suffixes) and verbs tend to end in *-om*, a suffix of uncertain origin but likely representing a convergence between the Russian 1st person present-future suffix, the Swedish hortative suffix (both *-om*), and possibly the pidgin English transitive suffix *-im* (Holm 1989, Fox 1983). These are considered cases of partial lexicalization.

If counted individually, inherent inflections are preserved about twice as often as contextual inflections in the contact languages surveyed in this paper. This section will explore the retention of inherent and contextual inflections by the word class of the stem.

3.1. *Retained inherent verbal inflections*

Inflections for tense/aspect and modality occur in most lexifiers and these are very often preserved in pidgins. Asmara Pidgin Italian utilizes past participle *-ato* as a general past marker (Marcos 1976), while Bilkiire preserves imperative *-u*, future *-an*, negative future *-taa*, and negative past *-aay* (Noss 1979). The Arabic non-past indicative prefix *b-*, which occurs as a future marker in Egypt and the Levant especially (Mitchell & al-Hassan 1994: 13), is retained in Kenyan Nubi as future *bi-* (Owens 1997). Nearly all Bantu-lexifier pidgins and creoles retain at least one tense/aspect or mood affix: i.e., Fanagalo past *-ile* and future *-zo-* (which functions as an analytic preverbal marker),[8] Kenyan Pidgin Swahili non-future *na-* and future *ta-*, Kituba anterior *-á(k)a*

8. Because of the syntactic status of the morpheme in the pidgin, this is regarded as a partial retention along the lines of (2b).

(in part from Kikongo *á-*), and LiNgala perfective *-i* and future *-ko* (Sebba 1997, Duran 1979, Heine 1991, Mufwene 1997b, Meeuwis 1998). Sango also optionally preserves the Ngbandi use of tone to mark irrealis (Pasch 1997: 231). Nagamese inherited present *-ɔse*, past *-se*, *-sile*, and future *-bo* from Assamese (Sreedhar 1985, Boruah 1993), and Taimyr Pidgin Russian preserves most lexifier verbal inflections (Stern 2005). The Yimas-Arafundi Trading Pidgin retains future *-k* and non-future *-nan* (Foley 1988, personal communication July 3, 2002), while the Koriki Hiri Trading Pidgin retains future, intentive *-varia* (Dutton 1983, 1985). Broken Ojibwe has also preserved future *da-,* and obligative *gaa-* (Nichols 1995).

In some lexifiers, negation is fused with tense/aspect (i.e., Fula) while in others it occurs as a separate affix (i.e., Swahili, West Greenlandic, Yimas). Negation seems to be retained only in tense/aspect morphology (i.e., Bilkiire negative future *-taa*, negative past *-aay*).

3.2. *Retained inherent nominal inflections*

The morphological expression of number and gender/noun class is frequently retained in pidgins. Pidgins lexified by languages with elaborate gender systems exhibit varying levels of reduction: LiNgala retains half of the Bobangi system to mark animacy distinctions, Fanagalo and Kenyan Pidgin Swahili both reduce 15 classes to six (Heine 1973: 185–186), and Broken Ojibwe preserved to some extent the animate/inanimate distinction in the plural.[9] The complex noun class system of agreement in Yimas is nonetheless lost in Yimas-Arafundi Trading Pidgin and Yimas-Alamblak Trading Pidgin (Williams 2000, Foley personal communication July 3, 2002). In Fanagalo, Kenyan Pidgin Swahili, Kituba, and Broken Ojibwe, the inflections were principally retained for the marking of number, such as Fanagalo plurals *zi-, ma-,* and *ma-* from noun class 6 in Kenyan Pidgin Swahili.

Other number affixes retained in pidgins include Sango plural *á-*, Nubi and Juba Arabic plurals *-á* (from the Arabic feminine plural *-át*), *-ín* (from the masculine plural), Gulf Pidgin Arabic plurals *-át*, *-ín*, and Nagamese plural *-bilak* (Owens 1997, Smart 1990, Sreedhar 1985, Boruah 1993).

Definiteness is expressed inflectionally in a number of lexifiers, such as in Arabic *al-* and Assamese definitives which are fusional in terms of number, noun class, and definiteness. Nagamese *-bilak*, a generalized human/animate/inanimate plural definitive in Assamese (Goswami 1982: 246), does not specify

9. According to Nichols & Nyholm (1995: xiii), Ojibwe animate nouns bear plural suffixes terminating in *-g* and inanimate nouns are suffixed with plurals ending in *-n*, and this pattern is reflected in the Broken Ojibwe data in Nichols 1995, e.g., *waawan-oon* 'egg' + PL (cf. Nichols & Nyholm 1995: 117) and *nishnaabe-wag* 'Indian' + PL (cf. Nichols & Nyholm 1995: 10). It is unclear however whether there was any significant variability in their usage.

for definiteness. The North Russian definite suffix *-to* is retained in Govorka, but with some shift in meaning (Stern 2001).

3.3. *Retained contextual verbal inflections*

Most pidgins and creoles eliminate bound pronominals and agreement morphology on both verbs and nouns. The loss of such morphology tends to be categorical within a given pidgin (unlike the partial preservation of noun classes in several Bantu-lexified pidgins) and occurs regardless of whether the affixes reference the grammatical function of the signified argument. Independent pronouns usually occur in their place, as shown in the pairings of corresponding lexifiers and pidgins in (3) to (9):

(3) a. Zulu
ngi-ya-ku-bona
1SG-PRES-2SG-see
'I see you.' (Ngcongwane 1985: 7; cf. Sebba 1997: 59)

b. Fanagalo
mina bona wena
1SG see 2SG

(4) a. Kikóngo
ka-ku-zól-elé
3SG.SUBJ-2SG-like-ASP
'He/she likes you.' (Mufwene 1997b: 176)

b. Kituba
yándi zola ngé
3SG like 2SG

(5) a. Swahili
h-a-fik-i leo
NEG-3SG.SUBJ-arrive-NEG today
'She doesn't arrive today.' (Heine 1991: 46)

b. Kenyan Pidgin Swahili
yeye hapana fika leo
3SG NEG arrive today

(6) a. Arabic
masha le al-suug
3SG.MASC.SUBJ-go to DEF-market
'He went to the market.' (Owens 1991: 25)

b. Nubi
úwo rúwa fu sú
3SG go LOC market

(7) a. Russian
ja po-kupaju rybu
1SG.SUBJ PRF-buy.1SG fish
'I buy fish.' (Holm 1989: 624)

b. Russenorsk
moja kupom fiska
1SG buy fish

(8) a. Yimas
na-ka-tupul
3SG.PAT-1SG.AGT-hit
'I hit him.' (Foley 1988: 171)

b. Pidgin Yimas
ama min namban
1SG 3SG toward
kratiki-nan
hit-NONFUT

(9) a. Choctaw
chi-bashli-li-tok
2SG.ACC-cut-1SG.NOM-PST
'I cut you.' (Drechsel 1997: 302)

b. *esno eno basle taha*
2SG 1SG cut PST

In many pidgins, inflections that facilitate agreement or function as bound pronouns in lexifying languages are lexicalized in the verb stem. The Gulf Arabic prefix *y(V)-* '3rd person masculine singular' occurs on 54 % of verbs regardless of reference. The example in (10) attests the use of a 1st person plural pronoun with a *y(V)*-prefixed verb, impossible in the lexifier with the intended meaning:

(10) Gulf Pidgin Arabic
niḥna mā yifham
1PL NEG understand
'We do not understand.' (Smart 1990: 97)

In the following example from Kyakhta Pidgin Russian, the verb is inflected for 3SG past tense († indicates that the indicated content has been lost) but occurs with a 1SG subject:

(11) Kyakhta Pidgin Russian
mo'ya piri'shol 'esa
1SG come.†3SG PRES
'I come.' (Wurm 1993: 262)

Lexicalized pronominal inflections are also found in Herschel Island Trading Jargon, Greenlandic Pidgin Eskimo, and Pidgin Delaware, which are shown in (12) to (14) with their corresponding lexifiers:

(12) a. Iñupiaq Eskimo
kaak-tok
hungry-3SG
'He is hungry.' (van der Voort 1997: 376)

b. Herschel Island Trading Jargon
íla kaktuña
3SG hungry.†1SG

(13) a. West Greenlandic Eskimo
oqaluttuup-pa-kkit
tell-1SG.SUBJ.2SG.OBJ-MOD
'I told you.' (van der Voort 1996: 250)

b. Greenlandic Pidgin Eskimo
awonga igbik okaktuk
1SG 2SG talk.†3SG

(14) a. Unami Delaware
k-'níh'l-a-w
2-kill-DIR-3
'You killed him.'
(Goddard 1997: 49)

b. Pidgin Delaware
jwní entaami
3 rise.up
'He got up.' (Goddard 1997: 67)

In (14) the verb *entaami* 'rise up' occurs with a 3rd person singular subject though prefixed with 1st person *n-*. In (15), the Chinook Jargon verb *maλayt* 'live' contains the 2nd person singular prefix *m-* where Lower Chinook would instead require *t-/u-* to indicate a 3rd person plural subject, and likely derives from the 2nd person singular imperative form *mλait*:

(15) Chinook Jargon
t'alap'as pi lilú λaska maλayt ixt-ixt λaska xaws
coyote and wolf 3PL live one-one 3PL house
'A coyote and a wolf lived with their houses side by side.' (Thomason 1983: 847)

Of the 29 pidgins surveyed, only 5 show any systematic and productive use of lexifier pronominal inflections. The least pidgin-like of these, LiNgala, retains the full inventory of Bobangi pronominal affixes. Example:

(16) Bobangi
Ngai, na-ko-ke o mboka no-tonga ndako
1SG 1SG.NOM-FUT-go to village INF-build house

(17) LiNgala
Ngai, na-ko-kənda na mboka ko-tónga ndako
1SG 1SG.NOM-FUT-go PREP village INF-build house
'Me, I'm going to the village to build a house.' (McWhorter 1999: 13)

Sango retains the 3rd person singular subject prefix *à-* for indefinite-impersonal-nonhuman subjects, which in the lexifier Ngbandi often refers to human subjects as well (Pasch 1997: 232). LiNgala was one of the principal contributing languages to Sango and it contains a very similar prefix for singular human subjects.

(18) a. Ngbandi
bì à-vu
night SUBJ.3 dark
'The darkness spread.' (Pasch 1997: 232–233)

b. Sango
bì à-vu
night SUBJ.3-dark

In Govorka (Taimyr Pidgin Russian), verbs are suffixed for tense and variably agree with subjects in number and gender:

(19) Taimyr Pidgin Russian

a. *minjá pajdú túndra tarabá*
1SG go.1SG tundra side
'I will go to the north.' (Stern 2005: 310; romanization as given in Stern 2001)

b. *alén' tibjá čúm staraná šló*
caribou 2SG teepee side go.PST.NEUT.SG
'The caribou went away to your camp site.' (Stern 2005: 300)

It is not altogether clear, however, whether the inflections were retained in the formative stages of Govorka or represent recent developments in the obsolescence of the language.

The central dialect of Hiri Motu is closer to the lexifier in vocabulary and morphosyntax, retaining possessive case and optional object marking on verbs. These features are absent in Non-Central Hiri Motu. Example:

(20) a. Non-Central Hiri Motu
lau itaita oi
1SG see 2SG

b. Central Hiri Motu
lau ita-mu
1SG see-2SG

c. Motu
na ita-mu
1SG see-2SG
'I see you.' (Foley 1986: 33–35)

This feature may represent a later development in the history of the language. The dialectal distinction in Hiri Motu developed when the original pidgin expanded into new geographical regions, bringing Central Hiri Motu speakers in closer contact with speakers of the lexifier. If this is the case, then the object suffixes represent later borrowings, not retentions. However, Taylor (1978) shows that object suffixes occurred occasionally in early texts of Simplified Motu (the jargon stage of the language), so this feature may have remained in Hiri Motu as a retention.

Bound pronominals are also found in Broken Ojibwe, which preserves the person proclitics from the lexifier (unspecified for grammatical function) and recasts them as subject pronouns. Independent pronouns are used for grammatical objects:

(21) a. Ojibwe
gi-daa-nis-in
2-OBLG-kill-INV

b. Broken Ojibwe
ni-daa-nitoon giin
1-OBLG-kill 2SG
'I should kill you.' (Nichols 1995: 12)

Direction morphology constitutes another contextual inflection occurring on verbs. Unami Delaware and Ojibwe both possess direct and inverse markers

(i.e., direct *-a* and inverse *-in* in examples (14a) and (21a)), but these were lexicalized or lost in Pidgin Delaware and Broken Ojibwe.[10] In (21b), the person proclitic would have been *gi-* if the pidgin had retained the inverse suffix *-in*.

3.4. *Retained contextual nominal inflections*

Inflection for nominal possessor may be found in many lexifiers, including Arabic, Assamese, Chinook, Greenlandic, and Delaware. In nearly every case these were lost in the pidgin. Example:

(22) a. Fijian

na *tama-mu*

DEF name-2SG.POSS

'your father' (Siegel 1987: 110)

b. Pidgin Fijian

na *tamana* *koiko*

DEF father 2SG

The Pidgin Fijian form also lexicalizes the Fijian 3rd person singular possessive pronoun suffix *-na* which lacks independent meaning in the pidgin. The central dialect of Hiri Motu is the only pidgin which retains bound pronouns for possession, such as *tama-gu* 'my father' (Holm 1988: 586).

The expression of case on nominals is most extensively retained in Nagamese, which preserves accusative *-k*, dative *-ke*, and locative *-te* (Sreedhar 1985: 103).[11] Case is lost entirely in Govorka, Kyakhta Pidgin Russian, Pidgin Ngarluma, and Jargon Kaurna.[12]

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10. In the case of Broken Ojibwe, the verbal prefix or proclitic expresses the person of the subject only (with the grammatical object indicated via freestanding pronouns), reflecting a general loss of the Ojibwe direction system in which the prefix is unspecified for grammatical function. According to Lochbihler (2007: 2), it is the Ojibwe direct/inverse suffix that "relays information about grammatical function within the clause" on the basis of a hierarchy of persons, whereas the proclitic "does not give information about grammatical function." Nichols (1995: 12–13) notes two exceptions in the loss of direction morphology in the pidgin, one of which is non-productive (i.e., representing expressions imported from the lexifier as wholes). The other is the isolated marking of Ojibwe subjectless verbs with *-igoo*, a variant directional suffix in the lexifier, but in light of the loss of the direction system apart from this morpheme (e.g., *-(i)n*, *-ig(o)*, *-ā*) it is probable that *-igoo* has a different function in the pidgin, e.g., as a passive marker. In other words, the function of the inflection appears to be one of altering a transitive verb's argument structure rather than contextually assigning a relational role to the person proclitic (which in the pidgin is otherwise specified as the grammatical subject). This is a simplification that may be regarded as a partial retention with a loss of the original contextual function of the inflection.
11. The locative is here regarded as having both inherent and contextual properties. The inflection marks the referent of the suffixed noun as located in space but it also "identifies the location or spatial orientation of the state or action identified by the verb" (Fillmore 1968: 25), and thus it constructs a grammatical relationship between the locative noun, the verb, and the argument which has the location specified by the inflection.
12. Bakker (2003: 17) notes that "Pidgin Hawaiian retained one Hawaiian case", but the case marker was not an inflection in either the lexifier or the pidgin (and it was used as an all-purpose preposition), whereas Bilkiire has preserved dative case as a preposition.

4. Quantitative patterns of inflection retentions

The above picture reveals that retentions of inherent inflections are more common than retentions of contextual inflections. There is also evidence that this pattern is quantitatively significant as well. Treating the two dialects of Hiri Motu separately and focusing on case and bound pronouns/agreement (i.e., contextual morphology) on the one hand and verbal tense/aspect/modality and nominal number marking (i.e., inherent morphology) on the other, we find that the 6 of the 30 languages in our sample have retained contextual inflections while 14 contain inherent inflections (Table 2). However, a number of these pidgins lack these features in their lexifiers (such as verbal agreement and TAM inflections in Hawaiian), so the extent of retention is actually 6 of 27 languages (22.2 %) in the case of the specified contextual inflections and 14 of the 29 languages (48.3 %) in the case of inherent inflections.

Although the relative proportion size is small, the disparity between the two groups of inflections with respect to their retention is statistically significant (Fisher's exact test, $P(O < E) = 0.03892$, left-tailed). Table 3 also indicates that the proportion is still significant if we exclude jargons from the sample ($P(O < E) = 0.03589$), and near significant if semi-pidgins (including LiNgala and Kituba) or both are removed from the sample. However, if we group the inflections by lexical category of the stem (thus placing TAM in the same group as agreement), all significance disappears (Table 4). This suggests that one of the factors affecting the retention of inflections is the contextual/inherent morphological type, or the relevance of the inflection to the stem.

Another way of approaching the problem is to consider how the grammatical categories in (1) are expressed via inflectional morphology in both the lexifiers and the resultant pidgins. Since retention may involve a partial loss of semantic content and since a single form may encode multiple categories (such as Yimas *-ka* which indicates grammatical function, person, and number), such an approach offers a more fine-grained view of patterns of retention in pidginization. Table 5 examines the lexifiers for each of the pidgins and indicates whether grammatical categories present in lexifier inflections continue to be expressed through inflection in the contact language. To assess the extent to which inherent inflections are differentially retained with respect to contextual inflections, the features expressed by these two types of inflection are separately classified.

For example, Gulf Arabic marks tense/aspect and person/number via verbal inflection, e.g., *y(V)-* for 3rd person singular masculine imperfect, and definiteness and gender by nominal inflection. Although Classical Arabic has case suffixes (i.e., *-u(n)* for nominative, *-i(n)* for genitive, *-a(n)* for accusative), these do not survive in Gulf Arabic (Holes 1990: 115). There are also Arabic nominal inflections with distinctions for definiteness, gender, and number. In Gulf

Table 2. *Retention of bound pronouns, verbal agreement, and case morphology (column A) and retention of tense/aspect/modality inflections and nominal number marking (column B) in the survey of pidgins.*

Name	A	B
Asmara Pidgin Italian	−	+
Bilkiire	−	+
Broken Ojibwe	+	+
Chinook Jargon	−	−
Fanagalo	−	+
Greenlandic Pidgin Eskimo	−	−
Gulf Pidgin Arabic	−	+
Herschel Island Trading Pidgin	−	−
Hiri Motu (non-central)	−	−
Hiri Motu (central)	+	−
Kenyan Pidgin Swahili	−	+
Kituba	−	+
Koriki Hiri Trading Pidgin	N/A	+
Jargon Kaurna	−	−
Kyakhta Pidgin Russian	−	−
LiNgala	+	+
Mobilian Jargon	−	−
Nagamese	+	+
Nubi, Juba Arabic	−	+
Pidgin Delaware	−	−
Pidgin Fijian	−	−
Pidgin Haida	−	−
Pidgin Hawaiian	N/A	N/A
Pidgin Ngarluma	N/A	−
Russenorsk	−	−
Sango	+	+
Taimyr Pidgin Russian	+	+
Toaripi Hiri Trading Pidgin	−	−
Yimas-Alamblak Trading Pidgin	−	−
Yimas-Arafundi Trading Pidgin	−	+

Pidgin Arabic as described in Smart 1990, *-āt*, *-ín* continue to mark plurality and gender, but the marking of tense/aspect and person/gender on verbs has been lost. Thus in Table 5 we see that a total of 5/9 grammatical categories expressed via inflection, whereas Gulf Pidgin Arabic has retained inflections that indicate only 2/9 categories.

When the number of categories expressed by inherent and contextual inflections is tabulated, we find a statistically significant difference between pidgins

Table 3. *Statistical significance of retention differences between inherent and contextual inflections*

	Bound morphology		Significance
	retained	not retained	
Complete sample:			
pronominal AGR, case	6	21	$P(O < E) = 0.03892$,
TAM, nominal NUM	14	15	left-tailed Fisher exact test
Excluding "semi-Pidgins"			
pronominal AGR, case	4	20	$P(O < E) = 0.056$,
TAM, nominal NUM	12	15	left-tailed Fisher exact test
Excluding "jargons":			
pronominal AGR, case	5	19	$P(O < E) = 0.03589$,
TAM, nominal NUM	14	12	left-tailed Fisher exact test
Excluding both:			
pronominal AGR, case	4	18	$P(O < E) = 0.05304$,
TAM, nominal NUM	12	12	left-tailed Fisher exact test

(including expanded pidgins/creoles like Nubi Arabic) and their lexifiers. A total of 124/251, or 49.4 % of the surveyed features are expressed via inflection in the lexifiers whereas only 38/251 (15.1 %) of them occur in retained inflections in the corresponding pidgins. This represents a two-thirds reduction in the expression of grammatical categories via inflection (86/124, 69.3 %), confirming the tendency for pidgins to exhibit a general loss in inflectional morphology. Moreover, inherent categories in pidgins account for a higher proportion of categories in total expressed morphology. The data in Table 5 shows that 81.6 % of total categories expressed in pidgin inflections (i.e., a 31/38 proportion) occur in inherent inflections as compared to a smaller 63.7 % proportion (79/124) in their lexifiers.[13]

In Table 6 we see that the higher proportion of inherent inflections in pidgins continues a similar disparity in the lexifying languages. This indicates that the process of pidgin formation does not break from this pattern and favors a greater reduction of inherent inflections, resulting in contact languages with higher proportions of contextual inflections. Despite the heavy loss of inflection in pidgin genesis, a greater proportion of inherent reflections are retained than contextual inflections.

13. The difference between these two proportions is significant at the 0.05 level ($\chi = 4.26$; $p \leq 0.05$).

Table 4. *Statistical significance of retention differences between nominal and verbal inflections*

	Bound morphology		Significance
	retained	not retained	
Complete sample:			
nominal NUM	9	16	
TAM, pronominal AGR	14	15	
			$P(O < E) = 0.3230$
Excluding "semi-Pidgins":			
nominal NUM	7	16	
TAM, pronominal AGR	12	15	
			$P(O < E) = 0.3008$
Excluding "jargons":			
nominal NUM	9	13	
TAM, pronominal AGR	14	12	
			$P(O < E) = 0.3862$
Excluding both:			
nominal AGR	7	13	
TAM, pronominal AGR	12	12	
			$P(O < E) = 0.3603$

The two-sample proportion test can also indicate whether the disparity between expressing inherent and contextual categories via inflection in pidgins differs from the similar disparity in the lexifiers. The results show that there is indeed a significant similar disparity in the lexifiers. The results show that there is indeed a significant difference ($p < 0.004151$), suggesting that the distribution of categories in pidgins is not simply a duplication of the pattern in lexifying languages but an amplification of it.

5. Discussion

Pidgins, commonly defined as functionally-restricted contact languages native to no one, are developed primarily to facilitate communication between speakers of different language groups when acquisition of the lexifier is unnecessary or undesirable. The lack of motivation or opportunity to learn the lexifier is the very *raison d'être* of pidgin genesis and introduces the need for structural reduction. The amount of reduction that actually occurs, however, depends on other factors in the social situation – particularly who needs to learn it and what the pidgin is designed the do in the various situations it is used in. The formation of pidgin grammar involves the resolution of these two conflicting factors. Pidgins may still therefore retain structure considered to be universally

Table 5. *Comparison of pidgins and lexifiers according to expression of grammatical categories in inherent and contextual inflections (+ = presence of the feature; − = absence; 0 = status of the feature uncertain; (+) = judged present with some uncertainty; T = tense/aspect/mood, N = number, G = gender, D = definiteness, NG = negation; AV = Agreement on verbal stems, DR = direction, C = case, AN = Agreement on nominal stems)*

	Inherent					Contextual					Inherent					Contextual			
	T	N	G	D	NG	AV	DR	C	AN		T	N	G	D	NG	AV	DR	C	AN
Gulf Arabic	+	+	+	+	−	+	−	−	+	Gulf Pidgin Arabic	−	+	+	−	−	−	−	−	+
Egyptian Arabic	+	+	+	+	−	+	−	−	+	Nubi	+	+	−	−	−	−	−	−	−
Inupiaq Eskimo	+	+	−	−	+	+	−	+	+	Herschel Island Trading Jargon	−	−	−	−	−	−	−	−	−
Assamese	+	+	−	+	−	+	−	+	+	Nagamese	+	+	+	−	+	−	−	+	−
Choctaw, et al.	+	−	−	−	+	−	−	−	+	Mobilian Jargon	−	−	−	−	−	−	−	−	−
BoBangi	+	+	+	−	−	+	−	−	−	LiNgala	+	+	+	−	+	+	−	0	−
Fijian	−	−	−	−	−	−	−	−	+	Pidgin Fijian	−	−	−	−	−	−	−	−	−
Fula	+	+	+	−	+	+	−	−	−	Bilkiire	+	−	−	−	+	−	−	0	−
Hawaiian	−	−	−	−	−	−	−	−	−	Pidgin Hawaiian	−	−	−	−	−	−	−	−	−
Italian	+	+	−	−	−	+	−	−	−	Asmara Pidgin Italian	+	−	−	−	−	−	−	−	−
Japanese	+	−	−	−	+	−	−	−	−	Yokohama Pidgin Japanese	−	−	−	−	−	−	−	−	−
Kaurna	+	+	−	0	+	0	−	+	−	Jargon Kaurna	−	−	−	0	−	0	−	−	−
KiKongo	+	+	+	−	−	+	−	−	−	Kituba	+	+	+	−	−	−	−	0	−
Koriki	+	0	0	0	+	−	−	−	−	Koriki Hiri Trading Pidgin	+	0	0	0	−	−	−	−	−
Lower Chinook	+	+	+	0	−	+	−	−	+	Chinook Jargon	−	−	−	0	−	−	−	−	−
Motu	+	−	−	−	−	+	−	−	−	Hiri Motu (non-central)	−	−	−	−	−	−	−	−	−
Motu	+	−	−	−	−	+	−	−	−	Hiri Motu (central)	−	−	−	−	−	+	−	−	+
Ngbandi	+	+	−	−	−	+	−	−	−	Sango	−	+	−	−	−	+	−	−	−
Ojibwe	+	+	+	−	+	+	+	−	+	Broken Ojibwe	+	+	+	0	−	+	−	−	−
Russian	+	+	+	−	−	+	−	+	−	Taimyr Pidgin Russian	+	−	−	−	−	+	−	−	−
Russian	+	+	+	−	−	+	−	+	−	Kyakhta Pidgin Russian	−	−	−	−	−	−	−	−	−
Russian, Norwegian	+	+	+	−	−	+	−	+	−	Russenork	−	−	−	−	−	−	−	−	−
Swahili	+	+	+	−	+	+	−	−	−	Kenyan Pidgin Swahili	+	+	+	−	−	−	−	−	−
Toaripi	+	0	0	0	−	+	−	+	−	Toaripi Hiri Trading Pidgin	−	0	0	0	−	−	−	−	−
Unami Delaware	+	+	+	0	+	+	+	(+)	+	Pidgin Delaware	−	−	−	0	−	−	−	−	−
West Greenlandic	+	+	−	−	+	+	−	+	+	Greenlandic Pidgin Eskimo	−	−	−	−	−	−	−	−	−
Yimas	+	+	+	−	+	+	−	+	−	Yimas-Alamblak Trading Pidgin	−	−	−	−	−	−	−	−	−
Yimas	+	+	+	−	+	+	−	+	−	Yimas-Arafundi Trading Pidgin	+	−	−	−	−	−	−	−	−
Zulu (Nguni)	+	+	+	−	+	+	−	−	−	Fanagalo	+	+	+	−	−	−	−	−	−

Table 6. *Statistical significance of difference between lexifiers and pidgins in the expression of grammatical categories in inflections*

	Inherent inflections	Contextual inflections	Significance
Lexifier			
number of categories expressed	79	46	
number of categories unexpressed	57	69	
			$P(O \geq E) = 0.003117$, right-tailed Fisher exact test
Pidgin			
number of categories expressed	31	7	
number of categories unexpressed	105	108	
			$P(O \geq E) = 0.0001467$, left-tailed Fisher exact test

marked, typologically complex, or infrequent. There is no reason to assume that pidginization should uniformly and completely eliminate such structure.

For example, as Thomason & Kaufman (1988) point out, the degree of homogeneity between the languages in contact plays a prominent role in pidgin formation. In the case of Chinook Jargon, most of its syntactic and phonological features are readily "explained by reference to typological characteristics shared by Pacific Northwest Amerindian languages" (1988: 29). Universally marked features like glottalized stops and pleonastic subject pronouns rose to prominence as a result of mutual accommodation between speakers of languages where such features are common.[14] Since such features were already widespread in the languages spoken by the early users of Chinook Jargon, they had less priority in the reduction process than areally less common features in the lexifier.

According to Bresnan 2004, morphosyntactic reduction in pidginization can be modeled within Optimality Theory as occurring when low-ranked markedness constraints are reranked above the higher-ranked faithfulness constraints that conflict with them. These formerly inactive constraints spring into action and begin eliminating the morphosyntactic structures they penalize. This phenomenon, called the "emergence of the unmarked", is well-known crosslinguistically in non-pidgin languages, as Bresnan 2004 documents for pronominal forms. For another example, Lee (2000, 2001) discusses the suppression of marked word order in cases of ambiguous reference in Hindi and Korean. When viewed as involving markedness constraint promotion, pidginization no longer appears to be such an exotic and unique process and may be more readily compared to other synchronic and diachronic processes in non-pidgin languages.

Bresnan further observes that not all markedness constraints are targeted for reranking in pidgin formation. Constraints penalizing structures difficult to learn or understand are readily promoted to a higher rank, while constraints marking easily understandable forms have less priority. The marked phonological and morphosyntactic features retained in Chinook Jargon are precisely the ones we would expect because these were already well-known to many of its early speakers. Siegel (1997) points out, however, that other factors appear to be involved in the selection of features that end up in pidgin and creole grammar, including perceptual salience, semantic transparency, economy, and regularity. All these factors may actually be represented through constraints in OT, as they relate to structural form in either production or comprehension (see Kusters 2003). In fact, the compromises that occur in pidgin genesis are rem-

14. Thomason & Kaufman (1988) and Mufwene (1991) also note that pidgins may develop structures that are more universally marked than structures in lexifiers. Tok Pisin for instance has developed dual and trial pronouns and an inclusive-exclusive distinction in the 1st person plural, universally marked categories absent in the English lexifier (Thomason & Kaufman 1988: 30). These features occur in the Austronesian substrate.

iniscent of the compromises between markedness and faithfulness constraints in language in general.[15]

Thomason & Kaufman (1988) also note that pidgins and other mixed languages develop when there is a break in transmission of a language from one generation to the next. The preponderance of unmarked structures in pidgins is thus not plausibly explained by gradual erosive change; this bias towards the unmarked can be better explained by contact-induced constraint re-ranking in the formative phase.[16] By adopting a functionally-motivated OT approach, we may assume that markedness reduction in pidginization arises from active cognitive processes and principles (Bresnan & Aissen 2002). This approach differs from those of others (like Newmeyer 2003) who regard markedness as residing principally in the consequences of diachronic patterns of historical change. The advantage of this approach is that we are able to appeal to markedness as a force within the grammar that is sensitive to the characteristics of the contact situation and accordingly privileges some structures over others on account of the social factors mentioned previously. Kusters (2000, 2003: 249–302) convincingly demonstrates that the morphological simplification seen in varieties of Quechua cannot be plausibly explained by gradual historical erosion but rather in terms of contact-induced constraint re-ranking, leading to greater morphological transparency and economy. To the extent that functionally motivated constraints are not narrowly domain-specific, they are available even where specific linguistic evidence to the learner is absent.

However, we also found in this study a more general pattern in consequences of pidginization that goes beyond the individual contact situation. The observed

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15. One effect of the demotion of faithfulness constraints is the loss of semantic contrasts formerly marked structurally. One dramatic example of this can be found in the pronoun inventory of Pidgin Fijian. The lexifier contains at most 135 forms of the independent pronoun, exhibiting a four-way distinction in number (singular, dual, paucal, plural), as well as distinctions in inclusiveness, person, and case. The inventory was reduced to only 6 pronouns in Pidgin Fijian, eliminating distinctions of dual and paucal number, inclusiveness, and case in the process (Siegel 1987). Prepositions also commonly lose semantic contrasts in pidginization, as evidenced by the generalized preposition *ma* in Pidgin Hawaiian (derived from the locative, but used also for ablative and direction) and *nà* in Sango which, according to Thornell 1997, is semantically vague and occurs with locative, temporal, instrumental, and comitative nouns.
16. Thomason (2002) has since modified her characterization of pidgin development, allowing for gradual development in varieties like Hiri Motu which developed from jargon or foreigner-talk Motu over several generations. However, since a stable pidgin crystallizes features variably present in earlier jargon varieties, and since many pidgins did emerge abruptly (such as Yokohama Pidgin Japanese, which developed between 1859 and 1879 according to Holm 1988: 593–594), the general tendency to lose inflectional morphology is best explained as a consequence of model simplification in the formative stage. Siegel (1997: 142–143) has characterized unmarkedness as among the "availability constraints" that "affect which features of the superstrate and substrate actually become available as models for the newly developing variety". Even if the pidgin is slow to crystallize, the same universals may later play a secondary role in selecting which features are integrated into the grammar.

asymmetry in the retention of inherent and contextual inflections suggests that the promotion of markedness constraints in pidginization is sensitive to another countervailing factor. The difference between inherent and contextual inflections is best captured by the notion of semantic relevance, which refers to "the extent to which the meaning of the affix directly affects the meaning of the stem" (Bybee 1985: 4).[17] For example, number is a relational concept that directly pertains to the material referent of a nominal root and is commonly expressed typologically via inflection. Tense/aspect is far less relevant to nominal referents than to the action or state expressed by the verb, and thus is typologically highly rare as a nominal inflectional category (see Nordlinger & Sadler 2004a, b for a survey and discussion). With respect to tense/aspect and agreement in verbal inflection, Bybee (1985: 15) writes:

> Aspect represents different ways of viewing the internal temporal constituency of an action or state (Comrie 1976: 3). Since a verb stem describes an action or state, aspect is highly relevant to verbs. Subject agreement is somewhat less relevant to the verb, since it refers to an argument of the verb, and not to the action or state described by the verb itself.

Relevance thus predicts that the packaging of concepts together lexically or via affixation is partly biased by the strength of their mutual semantic relationship. Bybee (1985: 41) describes relevance as a universal synchronic principle implemented in historical change and OT provides a framework for formalizing relevance in the grammar.

Bresnan's (2004) account proposes a formal OT model which relates pronominal inventories in pidgins to markedness as seen in asymmetrical neutralizations of pronominal contrasts within individual languages, but that account does not consider other inflectional categories documented in the wide range of pidgins the present study. Kusters's (2003) account also incorporates a detailed OT model of contact-induced simplifications in verbal morphology documented in Arabic, Scandinavian, Quechua, and Swahili varieties, and it explicitly models the semantic relevance principle in terms of a universal hierarchical ranking of markedness constraints, among which faithfulness constraints can be interleaved to derive implicational generalizations. Nevertheless, it is limited to verbal inflectional morphology and concerned more broadly with contact-induced change. (See the Appendix for further discussion of OT analyses.) Our own study has examined a wide range of pidgins and creoles with pidgin origins for both verbal and nominal morphology, distinguishing inherent from contextual morphology. We have found evidence that, far from be-

17. Bybee's concept of semantic relevance, however, falls short of covering the contextual/inherent distinction unless the term "semantic" is applied very broadly to include purely formal grammatical properties of the stem, as with formal gender classes.

ing marked by extreme variance and typological incoherence, pidgins belong within the typological space of all languages.

6. Conclusion

In the preceding survey of verbal and nominal inflection in pidgins, we have encountered evidence that the reduction of inflection is asymmetric and not always total. Inflections that contribute semantic and grammatical information pertaining to the stem are retained slightly but significantly more often than inflections that pertain more to building the syntax of the sentence outside of the word. On similar evidence, Bakker (2003: 23) presented his own analysis of the relative frequencies of inflectional retention, summarized as follows:

(23) Nominal inflections: number > case > gender[18]

(24) Verbal inflections: TAM > valence > number > person > gender

Bybee's principle of relevance provides an explanatory rationale for the asymmetries seen in the data. The pattern of language reduction seen in pidgin formation thus abides by the same general principles found elsewhere, but is distinctive in a way that sets pidgins typologically apart from the lexifiers in a consistent manner.

As noted earlier, there may also be typologically marked inflections which result from the pidginization process itself and do not represent a residue of marked lexifier structures retained in the pidgin. These may enhance communication when they reproduce structure already familiar to a significant number of speakers. This is certainly the case with borrowed inflections, and innovated ones may express substratal morphosyntactic structure. Since pidginization is primarily driven by mutual accommodation and since linguistic accommodation is sensitive to external factors that shape language contact, the results may vary along the typological space. But when examined as a whole, the reduction of inflection is not random. Some types of inflections seem to be more often targeted for loss than others.

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Correspondence address: Department of Linguistics, Margaret Jacks Hall, Stanford University, Stanford, CA 94306, USA; e-mail: sarahjr@stanford.edu, bresnan@stanford.edu

18. On Bakker's analysis, inherited case is more common in pidgins than inherited gender. This however includes languages like Pidgin Hawaiian where case is syntactic, not inflectional.

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Abbreviations: ACC accusative, AGR agreement, AGT semantic agent, ASP aspect, DEF definite, DIR direct, FUT future, INF infinitive, INV inverse, LOC locative, MASC masculine, MOD modal, NEG negation, NOM nominative, NUM number, OBJ object, OBLG obligative, PAT semantic patient, POSS possessive, PREP preposition, PRES present tense, PAST past tense, SUBJ subject, TAM tense/aspect/modality.

Appendix
A sketch of an OT approach to inflection loss and retention in pidgins

To illustrate how OT can provide a model for these generalizations, we will utilize Bresnan's (2004) OT analysis of the wider use of free pronouns vs. pronominal inflections in pidgins, which itself incorporates insights from Haiman 1985. Bresnan (2004: 160) first assumes a hierarchical gradation of pronominal expressions from zero (null expression in phonology or syntax) to affixal (inflectional expression on a head) to clitic (phonologically bound to a host with specialized syntactic positions) to weak (freestanding expression in positions that cannot receive primary sentence accent) to free (freestanding expression that can receive primary sentence accent). In particular, pronominal affixes violate an iconicity constraint requiring lexical expression of distinct semantic referents: **af* [PRO]. This penalizes candidates that realize pronominal content (including semantic properties of anaphoricity, shifting reference, and classification by person, number, and/or gender) non-lexically via bound affixes. An opposing faithfulness constraint, which we may simply refer to as FAITH [PRO, (TOP)], preserves content in the input that is contrastive between different expressions. Topic anaphoricity, for instance, is a pronominal feature that is preserved in the specialization of reduced forms as expressions of topical referents. When FAITH [PRO, (TOP)] outranks **af* [PRO], pronominal inflections are admitted into the language's inventory of pronominal expressions along with the unmarked freestanding pronouns X^0 [PRO], and the two kinds of pronominal expression are functionally differentiated by topical vs. contrastive uses:

(1) Bound: ⟨*af*, [TOP, PRO]⟩
Free: ⟨X^0, [PRO]⟩

A pidgin that has a higher ranking of **af* [PRO] will have only the freestanding pronoun for both functions, as (2) shows schematically:

(2) a. Ranking with [PRO, TOP] in the input

Input [PRO, TOP]	*af [PRO]	FAITH
Bound: [PRO, AGR]	*!	*
Bound: [PRO, TOP, AGR]	*!	
Bound: [PRO]	*!	*
☞ Free: [PRO, AGR]		*

b. Ranking with [PRO] in the input

Input [PRO]	*af [PRO]	FAITH
Bound: [PRO, AGR]	*!	
Bound: [PRO, TOP, AGR]	*!	
Bound: [PRO]	*!	*
☞ Free: [PRO, AGR]		

Here the FAITH [PRO, TOP] constraint has been demoted below the **af* [PRO] constraint, permitting only the unmarked freestanding pronoun as a valid expression of all types of pronominal content.

Drawing on Bybee's work on semantic relevance in verbal inflection, Kusters (2003: 73) suggests that markedness constraints such as **af* should be specified with a hierarchical ranking that reflects the semantic relevance of inflections to verbal stems. On account of the finding that pronominal agreement inflections are more distantly positioned with respect to verbal stems than tense/aspect/modality inflections (Bybee 1985: 15), Kusters's proposal allows one to postulate that constraints of the type **af* [PRO] (forbidding the expression of PRO via an affix) will universally outrank constraints of the type **af* [TAM] in the domain of verbal inflections (i.e., **af* [PRO/V] ≫ **af* [TAM/V]). Opposing the markedness constraint **af* [TAM/V] is a faithfulness constraint requiring expression of input TAM features in the output, which may provisionally be called FAITH [TAM]. Thus languages which inflect verbs for TAM will have FAITH [TAM] outranking **af* [TAM/V], and languages which do not will have the reverse ranking.

We have seen at least three consequences of contact in the retention of inflections for PRO and TAM: (partial) retention of inflectional expression of both PRO and TAM, retention of only expression of TAM, and loss of both. The rankings responsible for these may be schematized in (3).

(3) a. Ranking in Broken Ojibwe and modern LiNgala (least common)

Input [PRO]	FAITH [PRO, TOP]	*af [PRO/V]
Free: [PRO, AGR]	✓	

Input [PRO, TOP]	FAITH [PRO, TOP]	*af [PRO/V]
Bound: [PRO, TOP, AGR]	✓	*

Input [V ⟨TAM⟩]	FAITH [TAM]	**af* [TAM]
TAM/V inflection	✓	*

b. Ranking in Kenyan Pidgin Swahili, Nagamese, Nubi, etc. (fairly common)

Input [PRO]	**af* [PRO/V]	FAITH [PRO, TOP]
Free: [PRO, AGR]	✓	

Input [PRO, TOP]	**af* [PRO/V]	FAITH [PRO, TOP]
Free: [PRO, AGR]	✓	*

Input [V ⟨TAM⟩]	FAITH [TAM]	**af* [TAM]
TAM/V inflection	✓	*

c. Ranking in Mobilian Jargon, Greenlandic Pidgin Eskimo, etc. (most common)

Input [PRO]	**af* [PRO/V]	FAITH [PRO, TOP]
Free: [PRO, AGR]	✓	

Input [PRO, TOP]	**af* [PRO/V]	FAITH [PRO, TOP]
Free: [PRO, AGR]	✓	*

Input [V ⟨TAM⟩]	**af* [TAM]	FAITH [TAM]
Zero expression	✓	*

This is of course a simplified presentation lacking alternative candidates and constraints for selection. The ranking of FAITH [PRO] ≫ **af* [PRO/V] in the first tableau of (3a) yields both a bound pronominal and a free pronoun for different inputs, whereas the **af* [PRO/V] ≫ FAITH [PRO] ranking in (3b) yields only the free pronoun for both inputs. A similar result holds for the expression of TAM information, with the most common circumstance being represented in (3c) where the ranking of **af* [TAM] ≫ FAITH [TAM] forbids the selection of TAM inflections as optimal candidates. Such a ranking would also allow the free (syntactic) expression of TAM information, so a fuller account would need to posit other constraints to control for the avoidance or appearance of TAM in the grammars of specific pidgins.[19] See Kusters (2003: 344–356) for a detailed OT analysis comparing Kenyan Pidgin Swahili with other Swahili varieties.[20] By means of its factorial re-ranking of all possible constraints, OT formally

19. Kusters also pursues a stochastic model of OT, which views constraint ranking in probabilistic terms (see Boersma 1998, Boersma & Hayes 2001). This approach would permit a more nuanced account of the retention of inflections, as often the retention is only partial (e.g., the survival of some but not all noun class distinctions in Kenyan Pidgin Swahili).
20. On Bakker's analysis, inherited case is more common in pidgins than inherited gender. This however includes languages like Pidgin Hawaiian where case is syntactic, not inflectional.

defines a typological space within which all languages may be positioned and crosslinguistic asymmetries in the distributions of features may be captured.

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