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Accountability in morphological borrowing: Analyzing a linguistic subsystem as a sociolinguistic variable

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ABSTRACT

Principles of structural borrowing have been proposed, relating to structures of the languages involved and sociodemographic circumstances of their respective societies. This article quantitatively evaluates the roles of both linguistic and social factors in structural borrowing via examination of language contact data from Aruba and Curaçao, where creole Papiamentu is in contact with Spanish, Dutch, and English. Variationist methods, rooted in Labov's Principle of Accountability, are applied in a novel way to the system of verbal morphology to flesh out factors promoting borrowing. Linguistic factors are found to be quantitatively stronger, and only one nonlinguistic factor was found to promote borrowing. Results are discussed in light of prevailing theories of language contact. Findings contribute to our understanding of the long-term consequences of language contact and the relationship of contact-induced change to a more general sociolinguistic theory of language variation and change.

LANGUAGE CONTACT AND THE QUANTITATIVE PARADIGM

The quantitative paradigm was designed to analyze linguistic variation. This approach begins with the linguistic variable—one or more ways of saying the same thing—and uses rigorous scientific method to determine what influences the occurrence of one variant over another. The statistical validity of the results depends upon the application of the Principle of Accountability (PofA) (Labov, 1972), which states that all occurrences *and nonoccurrences* of a variable must be analyzed.

Although a qualitative approach offers valuable insights, alone it is not suitable for analyzing variation. Conclusions reached qualitatively are generally logically sound, but many have not held up to quantitative scrutiny.[1] The discrepancy between conclusions reached via these two methods is because the relative, and sometimes

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interacting, influences of the factors conditioning variation are masked when the PofA is not applied. Given this limitation, I argue that qualitative data alone are insufficient for evaluating variation, which can only properly be understood via *accountable, quantitative* analysis. Therefore, it is reasonable (necessary) to seek to confirm qualitative conclusions regarding variation via quantitative analysis.[2]

One area where quantitatively untested[3] accounts of variation abound is language contact (despite the admirable efforts of, for example, Ruth King [2000] and Shana Poplack [e.g., 1993, 1997]). A major debate in the field, and the subject of many of these untested accounts, concerns the causes of and constraints on structural borrowing, with particular attention to the relative weights of internal and external (that is, linguistic vs. social/demographic) factors. This article quantitatively evaluates some widely accepted, qualitatively based proposals regarding factors conditioning structural borrowing.

The rest of the article is organized as follows. I begin by defining structural borrowing. I enumerate my objections to qualitative approaches and the benefits of strictly applying the PofA to language contact data. I then introduce and motivate the specific contact situation under study, the corpus, the dependent linguistic variable, and the social and linguistic factors considered. I describe the innovation to variationist methods used, present results, and discuss their implications for the fields of language contact and sociolinguistics.

DEFINITIONS

Structural borrowing is the adoption of structural material of one language (language A, or source language) by speakers of another language (B, or recipient language) and used productively in B as part of B.[4] *Structural material* is any nonlexical aspect of language, including bound, functional morphemes,[5] and it is "adopted" when it becomes productive in the recipient language.[6] To identify a borrowing, then, we need real-time evidence and a measure of productivity. There will be no trace of a form in precontact B, but after contact begins, a *borrowing* consists of a form attributable to A used productively in B.[7] I describe the measure of productivity in the Methodology section.

WHY EXISTING PROPOSALS ARE INSUFFICIENT

Three aspects of previous analyses of structural borrowing are problematic. The first is how linguistic factors purported to affect structural borrowing are identified, defined, and supported. Many "universals of borrowing" were proposed without benefit of the PofA, but because a "universal" process applies always (invariably), one cannot be identified unless both occurrences and nonoccurrences are counted. Other universals, such as "structural compatibility" are only vaguely defined.

The second problematic aspect is the claim, led by Thomason and Kaufman (1988), that social factors can explain *all* structural borrowing. The existence of counterexamples to all proposed linguistic constraints, they argue, proves that

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those constraints are invalid. This position is weak on several grounds. First, the idea of violable constraints is widely accepted in linguistics (e.g., Prince & Smolensky's [2002] Optimality Theory, first developed in the early 1990s), so it is *not* a given that one counterexample invalidates a constraint. Second, even if we assume that the linguistic constraints remain valid, despite the existence of counterexamples, Thomason and Kaufman's position is that social factors outweigh linguistic ones in conditioning structural borrowing, but all available quantitative studies contradict this. For example, in monolingual communities, linguistic factors are stronger than social and stylistic factors in conditioning linguistic variation (Preston, 1991). Similarly, in the available quantitative studies of contact situations, the structures of the languages in contact (linguistic factors) determine the possible linguistic outcomes of contact-induced change, and individual speakers' sociolinguistic histories (social factors) place speakers within those bounds (Silva-Corvalán, 1994, 1995).

The third troubling aspect revolves around Thomason and Kaufman's borrowing scale, which is probably both the most cited and most criticized tenet of contact theory. In "*Predicting* extent and kinds of interference" (1988:46, emphasis mine), Thomason and Kaufman provide a rubric in which levels of contact intensity (e.g., a scale from "casual" to "extreme cultural pressure") are intended to indicate what types of borrowing (lexical, structural) are possible and the extent to which they will occur. The authors created the schema by first identifying a certain type and amount of lexical or structural borrowing, then describing the sociohistorical circumstances of the contact situation in which it occurred, but they later note, "Promising sociohistorical *generalizations* that might help to distinguish cases of moderate structural borrowing from those of heavy structural borrowing *are hard to establish*" (1988:94, emphasis mine).[8] Some studies have attempted to provide quantitative support for Thomason and Kaufman (e.g., Hauge, 2002), but they have done so backwards. They assume that the presence of certain types of borrowings is, in itself, evidence of a particular level of intensity of contact, which does not hold given the way the scale was constructed. Ultimately, the scale is circular—intensity of contact is meant to predict the degree of borrowing possible, but the scale is employed by assuming that a given level of intensity exists when certain types of contact-induced structural change are observed.

Generally, then, my objections to Thomason and Kaufman's scale are philosophical—to say that more intense contact leads to more intense structural borrowing is logical, but lacks predictive force as long as we cannot objectively measure contact intensity and show that increasing levels of structural borrowing are statistically correlated with increases in contact intensity.

BENEFITS OF APPLYING QUANTITATIVE METHODS AND THE PRINCIPLE OF ACCOUNTABILITY

The problems presented in the previous section can be addressed via an accountable, quantitative analysis. Carefully redefining the proposed linguistic

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factors to make them quantifiable also eliminates vagueness, and the subsequent application of the PofA allows "universality" to be assessed. The question of whether linguistic or social factors are stronger is straightforwardly answered by the statistics—the range of VARBRUL weights for each factor group is a direct measure of that group's strength. Finally, Thomason and Kaufman's borrowing scale can be tested by objectively measuring contact intensity, and attempting to statistically correlate it to types of borrowings. One accountable, quantitative analysis cannot definitively solve these problems, but after more such studies, a pattern should emerge. Investigating structural borrowing quantitatively requires the PofA and related variationist methods to be applied in a unique manner, described in the following sections.

THE CONTACT SITUATION, DATA, AND VARIABLES

Contact situation

Because one of my goals is to assess the effects of different linguistic structures and different social circumstances on structural borrowing, I selected the contact situation on the Caribbean islands of Aruba and Curaçao,[9] where Papiamentu (Iberian creole), Dutch, Spanish, and English (American and Caribbean varieties) are in contact. I take Papiamentu as the recipient language for borrowings from any or all of the other language varieties.[10] The role of linguistic structure can be assessed because borrowings can come from four structurally distinct language varieties. The roles of social/demographic factors can be assessed because the social circumstances of Aruba and Curaçao are distinct and have each undergone drastic changes in the 20th century.

The corpus

The real-time data used in the present study come from 171 written texts,[11] 54 from Aruba and 117 from Curaçao (Table 1). Papiamentu stabilized during the first part of the 18th century, and creolization was complete by the early 18th century (Munteanu, 1996). The earliest extant text is from 1776. Thus, any foreign forms that first appear in the 19th or 20th centuries are borrowings, not the result of creolization.[12]

Textual data is supplemented with sociolinguistic interviews recorded by the author in 2003 (50 from Aruba, 52 from Curaçao) with speakers aged 18 to 82. Assuming no major changes in an individual's grammar after age 20 (Labov, 1994; Sundgren, 2002), interviews provide evidence for Papiamentu as spoken from 1941 to 2003. The analysis here largely reflects forms as used in the texts; interviews were only used to confirm the findings in texts and to fill in information for those periods when a sufficient number of texts was unavailable.[13]

The verb phrase as a locus for the dependent variable

To obtain an accountable analysis of structural borrowing, the PofA must be applied at a structural level. I focus on a structural subsystem—verbal

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TABLE 1. *Number of texts according to period and island*

Time Period	Number of Texts		
	Aruba	Curaçao	Total
1. 1775–1837	1	4	5
2. 1844–1862	1	4	5
3. 1863–1899	0	29	29
4. 1900–1912	2	2	4
5. 1913–1943	3	24	27
6. 1944–1960	10	8	18
7. 1961–1980	2	13	15
8. 1981–1992	5	27	32
9. 1993–2001	30	6	36
Total	54	117	171

morphology[14]—in which borrowing is comparatively difficult (e.g., Campbell, 1993; Thomason & Kaufman, 1988), but has been observed in Papiamentu (e.g., Dijkhoff, 2000; Munteanu, 1996; Sanchez, 2000, 2002, 2005a, 2005b, 2006; Wood, 1971). I propose the following variable rule:

An element of verbal morphology is borrowed.

The dependent variable is whether or not a form or function from the verbal morphology of Dutch, Spanish, or English is borrowed into Papiamentu.

To evaluate whether or not form and function are borrowed separately, they are coded separately. I distinguish between the phonological form of a morpheme and the function or grammatical category it represents.[15] For periphrastic forms, I distinguish among the phonological form of lexical items comprising the periphrasis, their lexical meaning, and the function expressed by the entire periphrasis so that I can distinguish among a calque (a borrowing of the framework or template of a periphrasis expressed via phonological forms from the recipient language), borrowing of a phonological form, borrowing of a function represented by a single form or periphrasis, or any combination. For example, the Dutch passive is composed of the passivizing verb *worde*, which has the lexical meaning "become," and a past participle. The phonological form *worde* with its function as a passivizer may be borrowed, creating a syntactic passive where none existed before. The phonological form *worde* may be borrowed as a marker of an existing passive construction. A passivizer may be calqued on the lexical meaning "become" and its passivizing property adopted, or a calque of *worde* may be used as a marker of an existing passive construction.

The list of possible borrowings, all commonly used[16] elements of the verbal paradigms of Dutch, Spanish,[17] English, and Caribbean English Creole (CEC), is given in Table 2. Abstract structural elements and functions are indicated by CAPS, phonological forms are in normal font, and periphrasis templates are in

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CAPS and ITALICS. In the far right column of Table 2 are forms used in the Papiamentu verb system in 1837. Many of these can be traced to a foreign source, incorporated during creolization in the 17th century. To the left of that are foreign forms used productively in 2000. All 1837 forms are still in use in 2000, and none of the 2000 forms were productive in 1837. Where both columns are filled, the 1837 form is currently used in addition to the newer, borrowed form.

When one language does not make a distinction made by another, there is no line dividing the categories in Table 2 for the language without the distinction. When a language does not mark something marked by another language, the relevant space is filled with a dash(—). Finally, the categories listed are those overtly marked by at least one language, and they are listed as marked (e.g., as a combined tense/aspect category).[18] There are 191 possible borrowings: 21 from English, 22 from CEC, 38 from Dutch, and 110 from Spanish.[19]

Social/demographic variables

Table 3 lists quantifiable social factors purported to influence structural borrowing.[20] "Intensity of contact" is indicated by "length" and "amount of bilingualism" (Table 3; 1 and 2, respectively) (Thomason, 2001; Thomason & Kaufman, 1988; for quantitative studies, see Mougeon & Beniak, 1996; Nagy, 1997; Silva-Corvalán, 1993, 1994). The census provides no statistics on bilingualism, but historical and ethnographic studies show that bilingualism increased as the population of L1 speakers of other languages increased in the 20th century (Fouse, 2002; Goslinga, 1979, 1990; Green, 1974; Hartog, 1961a, 1988; Haviser, 1991; Klomp, 1986; Pietersz, 1985). I assume that the proportion of L1 speakers of a language indicates the "amount of bilingualism" in that language, and "length" can be measured by assuming that bilingualism began when appreciable numbers of L1 speakers of a language first immigrated (weight of "2" or more, explanation follows).[21]

To quantify demographic changes, or amount of bilingualism, I assigned a weight (0–9) according to the estimated number of L1 speakers of each language (Table 3; a–d). Table 4 shows how the weights were assigned, and Table 5 shows the specific weight assigned to each language in each period. Periods were determined as follows: periods 1 and 2 are separated by several years for which no texts are extant. The breaks after periods 2 and 3 are marked by major social events (emancipation, and the turn of the 20th century). Breaks between the 20th century periods correspond to years in which census data was collected. For example, period 4 ends in 1912, when the first modern census was taken; period 5 ends in 1943, when the second census was taken, and so on. Relative changes in language contact during the 20th century are shown in Figures 1 and 2; population figures are given in Tables 6 and 7 (Alofs & Merkies, 2001; Central Bureau of Statistics, 1993a, 2001a, 2002a; Central Bureau voor de Statistiek, 1983, 1994; Goslinga, 1990; Hartog, 1961c; Hawley, 1960; Hiss, 1943; Pietersz, 1985).

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TABLE 2. *Verbal morphemes of the languages in the contact situation*

		English	CEC	Dutch	Spanish	Papiamentu	
						2000	1837
Person/number category		3SG, OTHER	—	1SG, 2/3SG, 2/3PL	1SG, 1PL, 2SG, 3SG, 3PL	—	—
Infinitive		to + V	a + V	-en	-ar, -er, -ir	—	—
Copula	Copula A	be, is, am, are, was were	be, da	ben, bent, is, zijn, was, waren	ser, soy, eres, es, somos, son, era, eras, era, éramos, eran		ta, tabata
	Copula B				estar, estoy, estás, está estamos, están, estaba, estabas, estabámos, estaban		
Present participle		V-ing		V-ende	V-ando, V-iendo	V-ando, V-iendo	—
Past participle		V + -ed		ge-V-d/ t/en; GE + V + SUFFIX	V-ado, V-ido		*STRESS CHANGE*, he-+ V
Imperfective	Progressive	*AUX + PRES PART*	de, di, a	AUX + aan 't + INF, aan 't	*AUX (ESTAR) + PRES PART*	TMA (ta/ tabata) + PRES PART	TMA (ta/ tabata) + V
	Habitual		juuzto, doz				
Passive		*AUX + PP*		word, wordt, worden + PP; *WORDE + PP*	*AUX (SER) + PP*	TMA + wordu + PP; TMA + ser + PP	TMA + PP
Present		V + -s		V + -t, -en	-o, -as, -a, -amos, -an, -es, -e, -emos, -en, -imos		ta + V

Continued

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TABLE 2. *Continued*

		English	CEC	Dutch	Spanish	Papiamentu	
						2000	1837
Past Tense	Preterit	V + -ed	bin, ben, min, en, wen	V + -te, ten	-é, -aste, -ó, -amos, -aron, -í, -iste, -io, -imos, -ieron		a + V
	Imperfective		e, a		-aba, -ía, -ábamos, -ában, -íamos, -ían		tabata + V
Future		will	IMP + go, o, wi, wã; *IMP + GO*	zal, zult, zullen	-aré, -arás, -ará, -aremos, -arán -eré, -éras, -erá, -eremos, -erán, -iré, -irás, -irá, -iremos, -irán		lo + V
Perfect(ive)		have, has, had + PP; *HAVE + PP*	don, kaba	heb, hebt, hebben, had, hadden + PP; *HEB +PP*	he, has, ha, hamos, han + PP; *HABER + PP*		a + V
Conditional		would		zou/ zouden + PP; *ZOU + PP*	-aría, -arías, -aríamos, -arían, -ería, -erías, -eríamos, -erían, -iría, -irías, -iríamos, -irían		lo tabata + V
Subjunctive					-e, -es, -emos, -en, -a, -as, -amos, -an, -ara, -aras, -aramos, -aran, -iera, -ieras, -ieramos, -ieran	—	—

Note: AUX = auxiliary, IMP = imperfective, INF = infinitive, PL = plural, PP = past participle, PRES PART = present participle, SG = singular, TMA = tense, mood, aspect marker (includes Papiamentu *ta, tabata, a*, and *lo*, unless otherwise specified), V = verb.

TABLE 3. *Social factors that may influence structural borrowing*

Proposal	Explanation	Factor Groups
1. Length of bilingualism	The longer bilingualism exists, the more extensive the structural borrowing.	a. % of L1 speakers of Dutch b. Spanish c. English d. Papiamentu
2. Amount of bilingualism	The more widespread the bilingualism (in terms of numbers of speakers), the more likely/extensive the structural borrowing.	a. % of L1 speakers of Dutch b. Spanish c. English d. Papiamentu

TABLE 4. *Assignment of weights to population*

Weight	% Population
0	0
1	0.1– 1.5
2	2–8
3	9–15
4	16–20
5	20–25
6	56–69
7	69–77
8	77–89
9	89–100

Linguistic variables

Linguistic variables chosen for study (Table 8) were gleaned from work in language contact, second language acquisition, historical and comparative linguistics, and related fields. They were proposed in the literature as structural universals (Table 8; 3–5), functional motivations for borrowing (Table 8; 6–7), or as descriptions of transfer (Table 8; 8–9) or contact-induced change (Table 8; 10–11). I included all factors that I could reliably quantify in order to test the logical possibilities as per the PofA. Below, I explain the factors as proposed in the literature and the factor groups I used to quantify them (Table 8; e–o). In most cases, I quantified factors with one or more independent factor groups; several of the groups I created are used to quantify multiple proposals from the literature.

Three borrowing universals are proposed in the literature. "Structural compatibility" (Table 8; 3) (Aitchison, 1981; Allen, 1980; Bickerton, 1981; Ebert, 1978; Jakobson, 1938; Meillet, 1921; Vachek, 1972; Weinreich, 1953) is tested via three factor groups (Table 8; e, f, g). In "word order" (Table 8; e), I code for whether or not Papiamentu and the source language have the same word order[22] surrounding a possible borrowing (compared by grammatical

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TABLE 5. *Weights assigned for proportions of native speaking populations of each of the four major languages spoken on Aruba and Curaçao*

		Aruba				Curaçao			
Period	Census Year	Papiamentu	Dutch	Spanish	English	Papiamentu	Dutch	Spanish	English
1	(1837)	-	-	-	-	-	-	-	-
2	1863	-	-	-	-	-	-	-	-
3	1900	-	-	-	-	-	-	-	-
4	1911/1912	9	1	1	1	9	2	2	0
5	1943	6	2	2	4	8	3	3	2
6	1960	7	2	1	2	8	3	1	1
7	1981	8	2	2	3	9	2	2	1
8	1991/1992	8	2	2	3	9	3	2	2
9	2000/2001	7	2	3	2	8	3	2	2

Note: Data for 1911–1960 are estimates of "language most spoken at home" based on census reports of "nation of birth"; data for 1981–2000 are based on census reports of "language most spoken at home." "Other" languages include Haitian Creole French, Portuguese, and Chinese, as well as "language not known or not reported." In periods 4, 8, and 9, Aruba and Curaçao conducted their respective censuses in successive years.

category or sentential role, as appropriate) as in (1) and (2). Languages with the same word order as Papiamentu are bolded.

(1) *Progressive* Papiamentu TMA MARKER + VERB + [OBJ] + [adverb]

Spanish **AUX (ESTAR) + VERB-PRESPART+ [OBJ]**
English **AUX (BE) + VERB-PRESPART + [OBJ]**
Dutch AUX (BEN) + [OBJ] + *aan het* + VERB (INF)
CEC **TMA MARKER (DE, DI, A) + VERB + [OBJ]**

(2) *Copula A* Papiamentu SUBJECT + COPULA + PREDICATE

Spanish **SUBJECT + COPULA + PREDICATE**
English **SUBJECT + COPULA + PREDICATE**
Dutch SUBJECT + ADJ/NOUN + COPULA
CEC **SUBJECT + COPULA + PREDICATE**

In (1), Spanish, English, and CEC share word order with Papiamentu. The Dutch OBJECT and preposition *aan het* "on the" intervene between the auxiliary and verb in main clauses, making the word orders of Dutch and Papiamenetu different.[23] In (2), only the Dutch surface form in main clauses (SUBJECT + PREDICATE + VERB) is different from Papiamentu, which is SUBJECT + COPULA + PREDICATE.

In "affix type" (Table 8; f), I code for whether the foreign morpheme is free or a bound prefix or suffix.[24] In "category marking" (Table 8; g), I code for whether or

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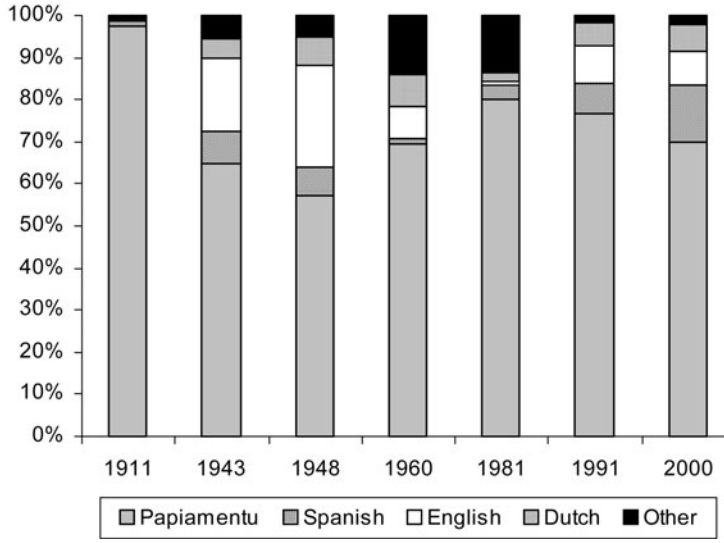


FIGURE 1. Proportion of Aruban population by "language used most often at home."

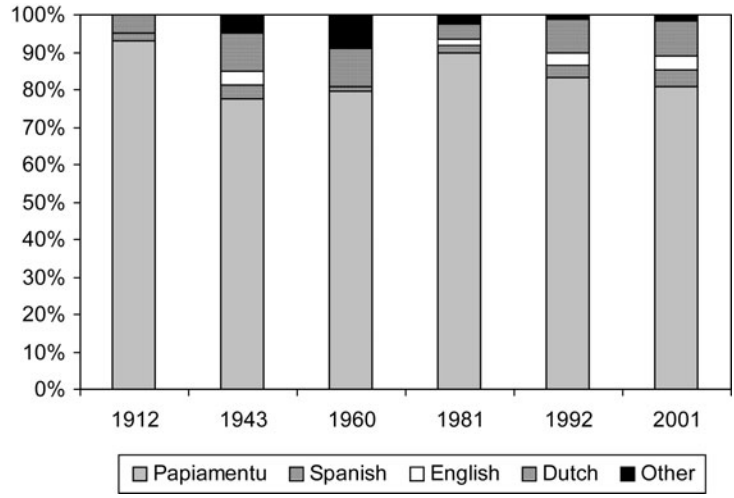


FIGURE 2. Proportion of Curaçao population by "language most spoken at home."

not Papiamentu and the source language mark grammatical categories in the same way (e.g., Spanish verbal morphology marks first, second, and third person singular and plural; Papiamentu marks none of these). This is a binary category.

The second proposed universal, "reduction of allomorphy" (Table 8; 4) (Coteanu, 1957; Heath, 1978; Maher, 1985; Vogt, 1948 Weinreich, 1953; see Bubenik, 1995, for counterargument), is tested via "allomorphy" (Table 8; h).

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TABLE 6. *Total population of Aruba in the 20th century*

1911	1943	1948	1960	1981	1991	2000
9,616	36,064	47,585	53,199	60,312	66,687	90,505

TABLE 7. *Total population of Curaçao in the 20th century*

1912	1943	1960	1981	1992	2000
32,926	73,943	125,094	147,388	144,097	130,627

I code for whether borrowing of a morpheme would result in a reduction in allomorphy, the same amount of allomorphy, or increased allomorphy.

The final universal, "structural simplification" (Table 8; 5), is simply a more general statement of allomorphy. It is tested via (h) and an additional group, "complexity" (Table 8; i), which marks whether the borrowing of a morpheme would result in the introduction of an additional grammatical category, an additional distinction within a grammatical category, or no new distinction.

Two functional motivations of borrowing were proposed: that a grammatical gap is filled by borrowing, and that borrowing serves as a kind of morphological renewal. A grammatical gap occurs when one language expresses a grammatical category or distinction that another does not. "Fill grammatical gap" (Table 8; 6) (Campbell, 1987; Campbell & Mithun, 1981; Hale, 1971; Heath, 1978; Hill & Hill, 1981; Karttunen, 1976; Mithun, 1980; Vachek, 1972; see Brody, 1987:508, for counterargument) is tested via "fill gap" (Table 8; j). Here (examples (3)–(5)), I code foreign morphemes as (a) expressing a category or distinction that Papiamentu does not express specifically and explicitly in any way (italicized),[25] (b) expressing a category or distinction morphologically that Papiamentu expresses in an alternate (nongrammaticalized) way (i.e., with adverbs; underlined), or (c) expressing a category or distinction morphologically that Papiamentu also expresses morphologically (variably or always; bolded). The remaining examples are those in which neither Papiamentu nor the other language expresses a category morphologically (e.g., person/number in the Papiamentu and CEC verb phrases); in some cases, neither language expresses the category at all.

(3) PROGRESSIVE Papiamentu TMA + VERB + [OBJ] + [adverb]

Spanish	AUX (ESTAR) + VERB-PRESPART+ [OBJ]
English	AUX (BE) +VERB-PRESPART
Dutch	AUX (BEN) +[OBJ] + *aan het* + VERB (INF)
CEC	TMA (DE, DI, A) + VERB

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(4) PERSON/NUMBER Papiamentu NO MARKING ON VERB

Spanish	*1SG, 1PL, 2SG, 3SG, 3PL*
English	*3SG, OTHER*
Dutch	*1SG, 2/3SG, 2/3 PL*
CEC NO	MARKING ON VERB

(5) Copula (A) Papiamentu SUBJECT + COPULA + PREDICATE

Spanish	**SUBJECT**	**+ COPULA**	**+ PREDICATE**
English	**SUBJECT**	**+ COPULA**	**+ PREDICATE**
Dutch	**SUBJECT**	**+ ADJ/NOUN**	**+ COPULA**
CEC	**SUBJECT**	**+ COPULA**	**+ PREDICATE**

For a borrowed morpheme to result in "morphological renewal", it should replace a native form without introducing additional distinctions or nuances, and it should be of the same type as the native form (i.e., a bound form should replace a bound form; a prefix should replace a prefix, etc.). "Morphological renewal" (Table 8; 7) (Heath, 1978; Lightfoot, 1981; Sommerfelt, 1980; Thomason & Kaufman, 1988; Weinreich, 1953) is thus tested via two factor groups previously proposed, (g) and (i), and "renewal" (Table 8; k). In (k), I code for whether the foreign morpheme (a) has no Papiamentu counterpart, (b) is synonymous with a native form of a different type, or (c) is synonymous with a native form of the same type.

Factors that promote transfer may lead to borrowing (Siegel, 1999). "Parallel surface word order" (Table 8; 8) (Prince, 1988) is said to promote transfer. It is defined here by the previously specified factor groups (e) and (f). "Perceptual salience" (Table 8; 9) (Siegel, 1999, 2003) holds that salient items are transferable and, therefore, borrowable. I test this via the binary factor group "perceptual salience" (Table 8; l), where free and stressed bound morphemes are salient.

Other contact situations have exhibited convergence and the effects of paradigmatic coherence. "Convergence" (Table 8; 10) (Aikhenvald, 2002; Gumperz & Wilson, 1971; Hock, 1986; Lindstedt, 2000; Mougeon & Beniak, 1991; Silva-Corvalán, 1994), the falling together of surface word orders, is tested via "shared features" (Table 8; l), and three previously proposed groups (e), (f), (g). In (m), I code for whether one, two, or three languages in the contact situation have a morphological form marking a particular function. Two languages are said to have a form marking the same function if and only if the languages are structurally compatible with each other, but not necessarily with Papiamentu (as per the criteria used to test "structural compatibility" [Table 8; 3 (e), (f), (g)]) with respect to the morphemes in question. As we can see in example (1), English and Spanish both mark the progressive and are both structurally compatible with each other (with respect to this feature), so in this case, two languages in the contact situation are said to share features.

Finally, I consider the possible effects of "paradigmatic coherence" (Table 8; 11). Van Hout and Muysken (1994) found that (nominal) functional items in tight paradigms (e.g., pronouns, as opposed to the general class of nouns) are more difficult to borrow than items in broader classes. Here I examine verbal

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TABLE 8. *Linguistic factors that may influence structural borrowing*

	Purported Constraint	Explanation (from the literature)	Factor Groups
Universals of Borrowing	3. Structural compatibility	Borrowing can only occur between two languages whose structures are compatible.	e. Word order f. Affix type g. Category marking
	4. Reduction of allomorphy	Borrowing reduces allomorphy in the recipient language.	h. Allomorphy
	5. Structural simplification	Borrowing simplifies structure in the recipient language.	i. Complexity h. Allomorphy
Functional Motivations	6. Fill grammatical gaps	When one language has something that another does not, the "gap" in the impoverished language is filled by borrowing.	j. Fill gap
	7. Morphological renewal	When two languages have morphemes with similar functions, one borrows the other's counterpart to replace the recipient's morpheme, or to be used in addition to it.	g. Category marking i. Complexity k. Renewal
Promoters of Transfer	8. Parallel surface word order	Parallel surface word orders promote transfer from one language to another; precede discourse-pragmatic borrowing.	e. Word order f. Affix type
	9. Perceptual salience	Salience (free morpheme or stressed bound morpheme) promotes transfer.	l. Perceptual salience
Effects of Language Contact	10. Convergence	Structures or surface word orders of languages in contact tend to become more alike over time.	m. Shared features e. Word order f. Affix type g. Category marking
	11. Tight paradigm	Items in tight functional paradigms less likely to be borrowed than those in open classes.	n. Other item in paradigm borrowed o. Alone in paradigm

morphology, where almost all the items may be said to belong to tight paradigms. Given Van Hout and Muysken's findings, perhaps items alone in a paradigm are easier to borrow, or perhaps items in a tight paradigm are borrowed together. Perhaps both are true. I consider the following question: To what extent are the set of morphemes that mark the same tense/aspect category in one language likely to be borrowed together? This is tested via two additional, binary factor groups: "other item in paradigm borrowed" (n) and "alone in paradigm" (o). In (n),

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another item in the tense/aspect paradigm of the same language is borrowed or not. In (o), the item in question is alone in the paradigm or not.

METHODOLOGY

As per the PofA, occurrences and nonoccurences of the dependent variable were considered. I coded each foreign form in Table 2 as "not borrowed" or "borrowed" (used productively). *Productive* means occurring at least three times in one text or one or more times per text in at least three texts during a given period. Additionally, for bound morphemes, *productive* means the morphemes are found with more than one verb.[26] Previous work suggests that speakers on Aruba and Curaçao use separate dialects (Howe, 1994; Kouwenberg & Murray, 1994; Kouwenberg & Muysken, 1994; Munteanu, 1996; Ratzlaff, 1992), so I ran data from the two islands separately.[27]

Most variationist analyses count tokens, or every instance of a particular morpheme (Paolillo, 2002). However, this investigation deals with possible *types* of borrowings from among the entire system of verbal morphology, so each of the 191 forms in Table 2 were coded as borrowed or not once (i.e., as types) per period, for a total of 1719 tokens from 9 periods.[28] The data (1528 tokens per island—excluding tokens in the first [control] time period in which there were no borrowings) were analyzed with the Goldvarb 2001 statistical program (Robinson, Lawrence, & Tagliamonte, 2001).

RESULTS

The following forms were borrowed: gerundive *-ando* and *-iendo*, the periphrastic progressive *AUXILIARY + PRESENT PARTICIPLE* (6), the passivizing verbs *wordu* and *ser*, and the passive constructions *WORDU + PAST PARTICIPLE* (7) and *AUX (SER) + PAST PARTICIPLE* (8) (Table 9). The constructions *AUX + PRESENT PARTICIPLE* and *AUX + PAST PARTICIPLE* exist in both English and Spanish with progressive and passive functions, respectively. When Papiamentu speakers use one of these constructions productively, I counted it as a borrowing from both the English and Spanish periphrasis templates.[29] This makes a total of nine borrowed items (two bound morphemes, two free morphemes, one periphrastic template from one language, and two periphrastic templates each common to two languages in the contact situation).

(6) *Nos* ***ta yegando*** *fin di aña…*
we IMP arrive-GER end of year…
"We are approaching the end of the year …"(92:1).

(7) *… diferente vez el a hay'é na peligro di* ***ser maltratá*** *pa pueblo.*
different time he PERF find-himself in danger of be mistreated by village
"… different times he (fiscal leader of the colony) found himself in danger of being mistreated by the people." (Hoyer, 1933:24).

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TABLE 9. *Earliest attestations and first productive uses of borrowed items on Aruba and Curaçao*

Borrowed Item	Source(s)	Function	Earliest Attestation		Productive Use	
			Aruba	Curaçao	Aruba	Curaçao
-ando, -iendo	Spanish	gerund	1803	1844	1862	1865
AUX+ PRES PART	Spanish/ English	progressive	1943	1893	1943	1916
wordu	Dutch	passive	1862	1852	1862	1871
WORDU + PP	Dutch	passive	1862	1852	1862	1871
ser	Spanish	passive	1960	1933	1960	1954
AUX (SER) + PP	Spanish/ English	passive	1960	1933	1960	1954

TABLE 10. *Borrowings per period per island*

Period	Aruba	Curaçao	Borrowed Items
2. 1844–1862	0/191	0/191	
3. 1863–1899	4	4	*-ando, -iendo, wordu, WORDU + PP*
4. 1900–1912	4	4	
5. 1913–1943	6	9	Both: *AUX + PRES PART* (Sp.), *AUX + PRES PART* (Eng.) Curaçao: *ser, AUX + PP* (Sp.), *AUX + PP* (Eng.)
6. 1944–1960	9	9	Aruba: *ser, AUX + PP* (Sp.), *AUX + PP* (Eng.)
7. 1961–1980	9	9	
8. 1981–1992	9	9	
9. 1993–2001	9	9	

(8) *E naseemeentoe di Hesoe Kriestoe* ***ta worde célébraar*** *pa noos dia di fieesta…*
the birth of Jesus Christ IMP PASS celebrate by our day of celebration…

"The birth of Jesus Christ is celebrated by our day of celebration" (Kuiperi, 1862:16).

Table 10 shows borrowings per island for each of eight periods (excluding the earliest, which was included to show postcreolization, precontact Papiamentu). The borrowed items ($n = 9$) are the same on both islands, though some were integrated (became productive) later on Aruba than on Curaçao. Once a foreign form becomes productive, it remains productive.[30]

We begin with the constraint model for Aruba (Table 11). The items in verbal morphology favored for borrowing are synonymous with native morphemes (k), perceptually salient (l), belong to the same paradigm as other borrowed items (o), and are shared by more than one language in the contact situation (m). "Fill gap" (j) was also significant, but the factor indicating that a grammatical gap is filled by borrowing was excluded from the statistical analysis (knockout). Instead, borrowing is favored when one language expresses something (periphrastically, e.g., with adverbs) that the other language expresses via

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TABLE 11. *Goldvarb results for Aruba*

Group	Factor	Weight
k. Renewal	Synonymous, same type	.969
	No recipient counterpart	.065
l. Perceptual salience	yes	.733
	no	.211
j. Fill gap	Expression w/o morpheme	.916
	Expression with morpheme	.379
o. Other borrowed	yes	.999
	no	.433
m. Shared features	2 languages	.897
	3 languages	.757
	1 language	.32
c. % L1 English speakers	3 (weights)	.60
	2	.57
	4	.418
	1	.28

Note: Log likelihood = −61.792; Input = 0.000; χ^2 per cell = 0.5343

morphological encoding; in this case, the morphological encoding is likely to be borrowed. This could be characterized as "grammaticalization (of an existing structural distinction) via a foreign morpheme" (Bybee, Perkins, & Pagliuca, 1994). The "fill gap" factor is always a knockout. Hereafter, when the factor group "fill gap" is significant, it is the "expresses without morpheme" factor that favors borrowing.

The weakest constraint deals with L1 English speakers (c), but is more likely related to "length" rather than "amount of bilingualism." Table 4 shows a weight of "1" in 1911, "4" in 1943, then "2" or "3" for every census year after that (regarding proportion of L1 English speakers on Aruba). If we take these numbers as a measure of "amount of bilingualism," we would have to say that borrowing is favored with 2–15% of English speakers, but disfavored with more or fewer English speakers. If they instead refer to "length of bilingualism," we can say that borrowing is more likely to occur after longer periods of contact, which is a more reasonable claim, and which adds weight to the idea proposed by Thomason (2001), among others, that the length of time that speakers are bilingual may affect structural borrowing.

Table 12 gives significant constraints for Curaçao. Borrowing is favored in forms synonymous with some form of the same type in Papiamentu (k), constructions shared by two or more languages in the contact situation (excluding the recipient language) (m), perceptually salient forms (l), forms in paradigms with other borrowed forms (o), and forms that produce increased

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TABLE 12. *Goldvarb 2001 results for Curaçao*

Group	Factor	Weight
k. Renewal	Synonymous, same type	.90
	No recipient counterpart	.15
m. Shared features	2 languages	.91
	3 languages	.83
	1 language	.30
l. Perceptual salience	yes	.76
	no	.18
o. Other borrowed	yes	.99
	no	.43
c. % L1 English speakers	2	.55
	1	.55
	0	.26
h. Allomorphy	Increased	.60
	Same amount	.42

Note: Log likelihood = −59.380; Input = 0.001, χ^2 per cell = 0.5279

allomorphy (h). Only one nonlinguistic factor group was significant: "% L1 English speakers" (c). Borrowings are favored in periods with weights of "1" or "2," or 1943 and every census year after that for Curaçao. As with the Aruba data, this more likely refers to "length" rather than "amount of bilingualism."

Some factors and factor groups were excluded from the statistical analysis because they showed insufficient variation for evaluation by the program (knockouts). Because my purpose is to uncover constraints on borrowing, and because a factor with no rule applications indicates that some constraint on rule application is never violated in this data, I discuss the eliminated factors, which I argue represent strong constraints on morphological borrowing.[31]

As mentioned earlier, in "fill gap" (j), there are no cases of borrowings that fill a grammatical gap in this data, despite the presence of 15 gaps (4 between Papiamentu and English, 4 gaps with Dutch, 6 with Spanish, and 1 with CEC). There are no cases where an abstract verb category (i.e., person or number marking) was borrowed (k); 11 of these could have been borrowed. Finally, there were no borrowings when the source and recipient languages did not have the same word orders surrounding the possible borrowing (e) (of 104 cases with different word orders). Because this factor group is binary, the entire group was excluded from statistical analysis, but in the other cases, only the specific factors mentioned were excluded.

Two nonlinguistic factors were excluded due to insufficient variation: time period 1 (1775–1837) and CEC. Period 1 reflects precontact Papiamentu when borrowings were not expected. The lack of borrowings from CEC suggests that

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prestige may be a relevant factor. Caribbean English Creole ("village talk") is the only language variety in the contact situation that is consistently viewed negatively. Speakers of this variety are strongly linguistically insecure, though they refer to "village talk" fondly and continue to speak it. That Papiamentu speakers do not borrow from CEC suggests that speakers do not borrow from a language that is uniformly perceived negatively. However, the borrowings from Spanish, Dutch, and English suggest that borrowing is possible if a language has any sort of prestige, even if it is not uniformly or always considered prestigious.[32]

CONTRIBUTIONS OF THE PRINCIPLE OF ACCOUNTABILITY

Table 13 summarizes the findings for systematic borrowing and their relationship to the constraints proposed in the literature. Factors marked with "X" were never violated, those with "2" were significant for both Aruba and Curaçao, those with "1" were significant for only one island, and those with "0" were not significant. The statistically significant factors support the following proposed constraints on borrowing: morphological renewal, perceptual salience, convergence, other paradigm-member borrowed, and length of bilingualism. Grammatical gaps were not filled by borrowings, but foreign forms were adopted and grammaticalized. Finally, morphological borrowing leads to increased, rather than decreased, allomorphy. In this section, I show how these results address the problems with previous analyses presented in the "Why existing proposals are insufficient" section.

Types of linguistic factors proposed

Of the three borrowing universals proposed, none were significant as proposed in the literature. One factor group evaluating "structural simplification" was significant because "increased allomorphy" (as opposed to proposed "decreased") favors borrowing. Clearly, none of these are truly universal characteristics of structural borrowing.

Increased allomorphy deserves further consideration, however. This factor is only significant when an increase in allomorphy makes the recipient language isomorphic with all three of the other languages in the contact situation. This is an increase in "complexity" only from the perspective of the grammar of a monolingual speaker of the recipient language, but 80% of L1 Papiamentu speakers are fluent in four languages. Thus, this apparent increase in complexity in a monolingual grammar could really be a simplification for the multilingual speaker. In other words, convergence may serve to lighten the multilingual speaker's cognitive load.[33] This claim should be addressed in more detail in future work. Here, however, I can provide preliminary support for it if I can show that multilingual speakers are more likely to use the specific forms that increase allomorphy, *-ando, -iendo, wordu*, and the progressive and passive constructions that contain them. Indeed, I have shown in previous work that younger speakers, who are more likely to be multilingual, are more likely to use

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TABLE 13. *Proposed factors and significance of factor groups*

		Not violated		Significant: Strong ↔ Weak								Not significant						
	Proposed factor groups → Purported constraints ↓	e. Word Order	j. Gaps filled	k. Renewal	l. Perceptual salience	m. Shared features	n. Other borrowed	c. % L1 English speakers	j. Fill gap(grammaticalization)	h. Allomorphy	f. Affix type	g. Category marking	i. Complexity	o. Alone in paradigm	a. % L1 Dutch speakers	b. % L1 Spanish speakers	d. % L1 Papiamentu speakers
Not violable?	3. Structural compatibility	X									0	0					
	8. Parallel word order	X									0						
Predictors	7. Morphological renewal			2								0					
	9. Perceptual salience				2												
	10. convergence	X				2					0	0					
	11. Tight paradigm						2							0			
	1. Length of bilingualism							2									
	6. Fill gap		X						1								
	5. Structural simplification									1						0	
	4. Reduction of allomorphy									1							
n.s.	2. Amount of bilingualism														0	0	0

Note: Proposed factor groups are ranked from left to right in order of strength as determined by subtracting the lowest factor weight from the highest within each factor group. When a factor group was significant in two models, the strengths were added together. "Shared features" and "other borrowed" tied. Nonsignificant items are in the bottom row and far right columns.

progressive *-ndo* (Sanchez, 2005a). Passive *wordu* is not frequent enough in speech to be analyzed quantitatively, but in texts, it occurs most frequently in periods when L1 Dutch speakers are numerous (Sanchez, 2005a).

Two functional motivations were proposed, but only "morphological renewal" was signficant—the existence of a foreign form synonymous with a native form of the same morphological type promotes borrowing. Although no grammatical gaps

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were filled by borrowings here, foreign forms were grammaticalized. These motivations for borrowing can be interpreted in terms of transfer. Andersen's (1983) "Transfer to Somewhere" principle requires that speakers identify an equivalence point common to both of their languages in order for something to be transferred from one to the other. Such an equivalence point can be found for "morphological renewal" and for "grammaticalization via a foreign morpheme," but by the very definition of "grammatical gap," such an equivalence point cannot exist, which may explain why "fill gap" does not occur.

Factors that promote transfer appear to promote borrowing. "Perceptual salience" was significant. "Parallel word order" was a knockout, but was unviolated: all borrowings found here had parallel word orders in the source and recipient languages. Factors associated with contact-induced change are also significant. "Convergence" and "tight paradigm" are both significant. This means that shared features in languages in contact are likely to be transmitted to another, and although items in a tight paradigm are difficult to borrow, when they are borrowed, they are borrowed together.

Prevalence of linguistic factors

Here we saw that linguistic factors primarily determine what morphemes get borrowed. There is no strong evidence that social factors play a deterministic role in borrowing, apart from the existence of contact, which is an inescapably social fact.

The only significant external factor appears to be "length of bilingualism," but this finding is indirect. Assuming that it *is* significant, it is a quantitatively weaker influencer of borrowing than the linguistic factors discussed. This goes against Thomason and Kaufman's view of the deterministic role of social factors in contact-induced change but has the advantage of showing that linguistic and social constraints in contact situations operate exactly as they do in monolingual situations (i.e., with linguistic factors quantitatively outweighing social ones [Preston, 1991]), which is a more satisfying finding for the study of linguistic variation (see Sanchez, 2005a, for further similarities).

Thomason and Kaufman's borrowing scale

Contrary to Thomason and Kaufman's proposal, most social and demographic factors were not selected as significant at the systemic level. More specifically, Thomason and Kaufman attribute a causal role to "intensity of contact" as reflected in "amount and degree of bilingualism," but here "amount of bilingualism" (Table 8; 2) was not selected as significant, and "degree of bilingualism" could not be quantified due to lack of data. Only percentage of L1 English speakers, a possible measure of "length of bilingualism," was significant. Proponents of Thomason and Kaufman may argue that this contact situation is not "intense" enough to show social factors overriding linguistic ones, but without an objective measure of "intensity," there is no way to settle the matter.

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If Thomason and Kaufman's scale is to be useful, for example, to predict what kinds of borrowing may occur in a certain kind of contact situation, there needs to be some objective measure of intensity, and the scale should hold up to quantitative scrutiny. With the measure of intensity that I used, the scale is not supported quantitatively, and although this measure may not be the best estimator of contact intensity, I am not convinced that other data would lead to different results, given that linguistic factors are shown here to condition the borrowing and integration of foreign forms so overwhelmingly.

DISCUSSION AND CONCLUSIONS

Relationship of form and function

There is much controversy surrounding the borrowability of "pure" structure, or architectural aspects of grammar unaccompanied by (morpho-) phonological form. Can structure be borrowed by itself, or must it always be accompanied by some concrete lexical item or morpheme? In this aspect, the value of the variationist approach is clear: a methodical, quantitative examination of all the abstract categories of the verb systems of these languages shows no cases of transmission of abstract elements alone. Even though I found that abstract grammatical categories cannot be borrowed (or at least are not borrowed here), the morphophonological encoding of such a category *can* be borrowed when that category is independently expressed in the recipient language. Previously, I defined structural borrowing broadly to include any nonlexical aspect of linguistic structure, such that the borrowing of a bound, functional morpheme constitutes structural borrowing. In saying so, I assumed that the abstract function represented by the morpheme is borrowed with the morpheme. Here, however, the morphological encoding of structure was borrowed separately from the abstract structure it represents. Thus, it appears that in some cases, the borrowing of even bound, functional morphemes may be largely lexical.[34]

Methodological innovation

Typically, the PofA is applied to a variable rule describing a specific and limited set of linguistic variants, such as the deletion of word-final *-t/-d* in English (Guy, 1980). However, because the selection of structural elements for borrowing occurs at the systemic level, I have attempted to apply the PofA systemically as well. I proposed a variable rule, stating that an element of a linguistic subsystem is borrowed, then I looked for occurrences and nonoccurrences of each element in the subsystem (Table 2) in diachronic data.

Conclusions

Borrowing is shown here to happen only under specific linguistic circumstances, with one relevant social factor. Borrowing universals and functional motivations are, generally speaking, not valid constraints in this contact situation, at least as

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they were proposed in the literature. However, factors affecting transfer or contact-induced change are significant. (Note that many in the latter group came from other quantitative studies.) Thus, it is structural factors, not social ones, that play a deterministic role in borrowing.

These findings are surprising: I expected some combination of linguistic and social factors to be significant, as is typical of the conditioning of variation and change in monolingual communities. However, the overwhelming presence of linguistic factors in the constraint model indicates that structural considerations are paramount in determining what structure eventually is borrowed. In other work, I have shown how borrowed forms can become sensitive to social factors over time, and in these cases, variables show the same sociolinguisitc patterns found in monolingual situations (Sanchez, 2005a). Only one of the earliest borrowings showed stylistic variation (Sanchez, 2005a). I argue that Preston's (1991) hierarchy of conditioning factors (linguistic >> social/status >> stylistic) can be applied to structural borrowing temporally: borrowing is based on linguistic factors. Once a borrowing becomes a productive part of the grammar of the recipient language, it may become sensitive to social status, but will vary only inasmuch as linguistic factors permit variation. Finally, an integrated foreign form that varies by status (e.g., has become a sociolinguistic "indicator") may then be socially evaluated and subject to stylistic variation (e.g., transition to "marker" status). The amount of stylistic variation will be contained within the status variation, which is itself contained within the bounds of the linguistic variation.

DIRECTIONS FOR FURTHER RESEARCH

I tackled only one subsystem of structure here. Investigations of all levels of structure will provide a better picture of structural borrowing, but this very proposal introduces additional methodological issues. Should all levels/subsystems of structure be considered on par with each other or as separate units? I assumed here that all structural elements of the verbal morphology and the phonological forms that represent them have an equal chance at being borrowed. Can phrase structure patterns or verb movement rules be considered in the same model as morphology? Can nominal morphology be combined in a model with verbal morphology even though the two types by definition do not apply to the same structures? Additionally, there is the question of contact intensity: What is the best objective measure of intensity of contact? Does proportion of L1 speakers work or is something else more appropriate? Solving these problems will expand our knowledge of grammar and contribute what is known about structural borrowing.

NOTES

1. For example, all of the following cases have been shown to have a counterfunctional effect, or at least a nonsignificant functional effect: plural *-s* in Spanish noun phrases (Poplack, 1980), Portuguese subject-verb agreement (Scherre, Pereira, & Naro, 1991, 1992), subject expression in relation to

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morphological ambiguity due to *-s* deletion in Spanish (Cameron, 1993), and morphological ambiguity due to *-s* deletion in Portuguese (Guy, 1981).

2. A similar position is held by Hamers and Blanc (2000). In regards to code switching (a variable, bilingual behavior), they note, "since we are dealing with performance data, as opposed to competence, probabilistic models are better than absolute ones" (2000:261).

3. Here, I am referring to qualitatively reached conclusions that have not been evaluated in an accountable, variationist statistical analysis.

4. Borrowing is opposed to code switching, in which speakers alternate between the use of the grammar and lexicon of Language A and the grammar and lexicon of Language B (Poplack, 1993).

5. This may include a phoneme, phonological rule, bound morpheme, free grammatical/functional morpheme, grammatical category, distinction within a grammatical category, syntactic information associated with a lexical item, discourse-pragmatic strategy (e.g., focus), and/or the syntactic structure associated with it (e.g., fronting), or word order pattern. This is a theoretical definition and is purposefully broad so as to include all of the logical possibilities, but is not intended to imply that all of these types of structure have been documented as borrowings. I assume that any element of structure *may* be borrowed, but I also require conclusive empirical evidence to declare something to be an example of structural borrowing.

6. I have shown elsewhere via diachronic evidence that the actual integration of structural material is a multistep process. Others have made the same observation based on synchronic evidence (Goss & Salmons, 2000; Poplack, 1997; Riionheimo, 2002), but researchers do not agree on the specifics of the process. Because the integration process is not relevant to this article, I do not discuss it further here. I simply require evidence of productive use for a grammatical element to be termed "borrowed," which is equivalent to later stages of the integration process proposed by myself and others.

7. A purely internal change, which can be identified as such when it exists in a non- or precontact variety, can be accelerated by contact. I consider this a contact-induced change, but not a borrowing (see also Silva-Corvalán, 1986, 1993).

8. Part of the controversy results from the seemingly arbitrary and subjective scale of "intensity of contact."

9. The same contact situation also exists on the neighboring island of Bonaire, but there are too few texts from this island for it to be included in the analysis.

10. It is possible for any one language to influence any other in the contact situation. Papiamentu was arbitrarily selected for analysis as the recipient language.

11. Genres include letters, fiction, newspaper articles, poetry, plays, and songs.

12. Nor are they the result of decreolization. Because Papiamentu is in contact with languages other than its lexifier, and because the lexifier is not the official language of the islands, there is no creole continuum and no decreolization (Sanchez, 2005a).

13. For example, Aruba texts from 1913 to 1943 contained no examples of one of the purportedly borrowed forms, but the oldest speakers interviewed, who would have been in their 20s by 1943, did in fact use the form. I coded this form as being productive as of 1943 on the basis of the apparent time data. It is possible that the form was not productive in 1943, and that the oldest speakers acquired it when they were well into their adulthood, but because this kind of change is rare in adults (Labov, 1994; Sundgren, 2002) the coding represents the more likely explanation for this data.

14. This study assumes that all elements of the verbal morphology are equally borrowable.

15. King (2000) illustrates lexical items borrowed with structural features.

16. The compound verb tenses and clitics of Spanish were omitted.

17. When verbs were phonologically integrated into the creole, most, but by no means all, retained (a semblance of) the original Iberian theme vowel. There is no use of theme vowels in conjugations in Papiamentu as there are no conjugations in which to use them. Because there is no evidence that Iberian theme vowels are meaningful as such in Papiamentu, I assume that there are no theme vowels in Papiamentu. I decided to treat the theme vowels as potentially borrowable.

18. The traditional analysis of the Papiamentu verbal system is that *ta* is a present tense marker but *tabata* marks the past imperfect and *a* marks the preterit (e.g., Goilo, 1953). More recently, Andersen (1990) argues that *ta* is a general imperfective marker, *tabata* marks the past imperfective, and *a* marks the perfective. As I have indicated previously (e.g., Sanchez, 2005a), Andersen's analysis appears to fit my data better. Given the controversy over what the existing categories are, however, I have chosen not to attempt to assess whether or not any tense/aspect category has been borrowed. Table 2 is organized according to the tense and aspect markings of Spanish, English, Dutch, and

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CEC. There is only one Papiamentu *a* +V, which is used to mark the European categories of preterit and perfect. The same is true for *ta* and *tabata*.

19. To illustrate: English regularly marks two person/number categories on verbs. It has one infinitive marker, six commonly used copula forms, and one bound morpheme marking each of the following: gerund, past participle, present tense, past tense, future tense, and the conditional. English has two periphrastic forms: the progressive (*COPULA + GERUND*) and the passive (*COPULA + PAST PARTICIPLE*). The component parts of the periphrases (e.g., forms of the copula), were counted earlier, so here we simply count each periphrastic pattern once. The final category for English is the perfect. This is formed with a form of the verb "have" and a past participle. English commonly uses "have," "has," and "had." I count each phonological form of "have" once, because Papiamentu speakers could borrow any one of them to use in this construction, and I count the combination *[HAVE] + PAST PARTICIPLE* once, because Papiamentu speakers might also calque this periphrasis. This gives a total of 21 possible borrowings from English. Forms from the other languages were considered in this way as well.

Spanish has the most possible borrowings because it marks more person, number, and tense/mood/aspect categories than the other languages, and it has three verb "themes" (*-ar, -er*, and *-ir*), which may each have their own set of inflectional markings. It is purely coincidental that English and CEC have approximately the same number of possible borrowings: CEC marks fewer categories overall, but has greater variation in the number of possible forms for the categories that it does mark.

20. I could find no objective means of quantifying the following factors proposed in the literature: degree of bilingualism, relative socioeconomic power of groups, restrictions on domains of use of each language, cultural/linguistic identity, cultural pressure. Classic social factor groups such as social class and age of speaker were not considered in this analysis as the data came primarily from texts and social information was not available for most authors.

21. Once Dutch, Spanish, and English immigrants established themselves on the islands, they established speech communities as well. Bilingualism in these languages continues to exist in the present.

22. Here, and elsewhere, I examine "structure" as represented in surface forms, because it is not clear what sort of abstract representation L2 speakers will assign to these languages.

23. Dutch word order in subordinate clauses is different. Here, I only considered the main clause word order, as it is likely to be the most commonly used in a contact situation.

24. I count elements of the Dutch circumfix (in the past participle) as a prefix and suffix separately. I cannot compare the affix type of foreign forms with that of Papiamentu because Papiamentu largely does not mark verbal categories with bound morphemes, if it marks them at all.

25. This includes the expression via one morpheme or via a periphrasis.

26. The 1844 Gospel of Matthew contains 80 examples of gerundive *-ndo*, all with *bisa* "say." The affix is thus not productive at this time. The 1865 Gospel of Mark also contains many examples of *bisando* "saying," but as there are additional examples of *-ndo* with *grita* "yell," *kamna* "walk," *laga* "let," *papia* "speak," and *predika* "preach," *-ndo* has become productive.

27. VARBRUL results are accurate so long as the program is being used to delineate one system—one cannot run two separate systems together with a factor group naming the systems (A and B, or Aruba and Curaçao) as the constraint hierarchies will compete with each other. It is better to run suspected separate systems separately: if they are truly separate, this will be reflected in different constraint hierarchies, and if they are the same, this will be evident from their identical constraint hierarchies.

28. I do not code 191 tokens with period as a separate factor group because this would not allow me to indicate a change in the borrowing status. The way I have coded allows me to consider the linguistic and social situation when an item is not borrowed separately from when it becomes borrowed and used productively. All borrowed items remain productive here, but if any were to fall out of use, this could also be accounted for with this procedure.

29. I indicated that two or more languages in the contact situation shared a construction in (Table 8; 1).

30. It is conceivable that a borrowed form may fall out of use, but because all of the lexical items or constructions considered here continue to be used productively through the present, they were all counted this way.

31. This is not to say that these constraints are "inviolable," only that they are not violated in this contact situation.

32. I could not find a way to code for prestige because Dutch, Spanish, and English have both high and low prestige simultaneously. For example, many Antilleans have a family member who married a Venezuelan, so they maintain close family ties with Spanish speakers and the Latin American mainland, and thus esteem these Spanish speakers. On the other hand, recent immigrants, who tend to be poor and without much education, are looked down upon. Similarly, European Dutch is

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prestigious, but Surinamese Dutch is not. American English is prestigious, as are wealthy American tourists. However, today many American tourists come from the working or middle classes and visit the islands to enjoy their natural beauty and beaches rather than to shop for duty-free jewelry and other expensive items. Such tourists do not contribute to the islands' economies the way wealthy American tourists once did and so are not held in the same esteem.

33. Though not a focus of this research, I have anecdotal evidence of other cases of convergence in this contact situation, but with Papiamentu influencing one of the European languages. One interviewee and language expert reports speaking and hearing Dutch with subject-verb-object order in main clauses instead of the canonical subject-object-verb (Joubert, interview).

34. This is not always the case. King (2000) reports on functional items borrowed *with* their abstract grammatical properties. These properties have structural ramifications for the recipient language, but King argues that they are ultimately the result of lexical borrowing.

REFERENCES

Aikhenvald, Alexandra Y. (2002). *Language contact in Amazonia*. Oxford: Oxford University Press.

Aitchison, Jean. (1981). *Language change: Progress or decay?* London: Fortuna.

Allen, Cynthia L. (1980). *Topics in diachronic English syntax*. New York: Garland.

Alofs, Luc, & Merkies, Leontine. (2001). *Ken ta Arubiano? Sociale integratie en natievorming op Aruba, 1924–2001*. Oranjestad, Aruba: VAD/De Wit Stores.

Andersen, Roger W. (1983). Transfer to somewhere. In Susan M. Gass & L. Selinder (eds.), *Language transfer in language learning*. Rowley, MA: Newbury House. 177–201.

_____ (1990). Papiamentu tense-aspect, with special attention to discourse. In John Singler (ed.), *Pidgin and creole tense-mood-aspect systems*. Amsterdam: Benjamins. 59–96.

Bickerton, Derek. (1981). *Roots of language*. Ann Arbor. MI: Karoma Publishers, Inc.

Brody, Jill. (1987). Particles borrowed from Spanish as discourse markers in Mayan languages. *Anthropological Linguistics* 29(4):507–521.

Bubenik, Vit. (1995). On typological changes and structural borrowing in the history of European Romani. In Y. Matras (ed.), *Romani in contact: The History, structure and sociology of a language*. Amsterdam Benjamins. 1–24.

Bybee, Joan, Perkins, Revere, & Pagliuca, William. (1994). *The Evolution of grammar: Tense, aspect, and modality in the languages of the world*. Chicago: University of Chicago Press.

Cameron, Richard. (1993). Ambiguous agreement, functional compensation, and nonspecific tú in the Spanish of San Juan, Puerto Rico, and Madrid, Spain. *Language Variation and Change* 5:305–334.

Campbell, Lyle. (1987). Syntactic change in Pipil. *International Journal of American Linguistics* 53:253–280.

_____ (1993). On proposed universals of grammatical borrowing. In Henk Aertsen & Robert Jeffers (eds.), *Historical Linguistics 1989: Papers from the 9th International Conference on Historical Linguistics*. Amsterdam: Benjamins. 91–109.

Campbell, Lyle, & Mithun, Marianne. (1981). Syntactic reconstruction: Priorities and pitfalls. *Folia Linguistica Historica* 1/2:19–40.

Central Bureau of Statistics. (1993). *Third population and housing census: Netherlands Antilles 1992*. Vol. 1. *Methodology, main results, code books and questionnaires.* Willemstad, Curaçao: Central Bureau of Statistics.

_____ (2001a). *Fourth population and housing census, October 14, 2000: Selected tables*. Oranjestad, Aruba: Central Bureau of Statistics.

_____ (2002a). *Fourth population and housing census: Netherlands Antilles 2001, volume 1*. Willemstad, Curaçao: Central Bureau of Statistics.

Central Bureau voor de Statistiek. (1983). *Senso '81: Tweede Algemene Volks en Woningtelling Nederlands Antillen Toestand per 1 Februari 1981*. Willemstad, Curaçao: Census Bureau voor de Statistiek.

_____ (1994). *Censusatlas 1992: Curaçao en Sint Maarten*. Willemstad, Curaçao: Central Bureau voor de Statistiek.

Coteanu, I. (1957). *A propos des langues mixtes (sur l'istro-roumain)*. Bucharest: Mélanges linguistiques.

Dijkhoff, Mario. (2000). *Gramatica di Papiamento*. Oranjestad, Aruba.

Ebert, Peter. (1978). *Historische syntax des Deutschen*. Stuttgart, Germany: Sammlung Metzler.

Fouse, Gary C. (2002). *The story of Papiamentu: a Study in slavery and language*. Lanham, MD: University Press of America.

Goilo, E.R. (1953). *Gramatica Papiamentu*. Curacao: Hollandsche Boekhandel.

https://doi.org/10.1017/S0954394508000124 Published online by Cambridge University Press

Goslinga, Cornelius Ch. (1979). *A short history of the Netherlands Antilles and Surinam*. The Hague, the Netherlands: Martinus Nijhoff.

_____ (1990). *The Dutch in the Caribbean and in Surinam 1791/5–1942*. Assen/Maastricht, the Netherlands: Van Gorcum.

Goss, Emily L., & Salmons, Joseph C. (2000). The evolution of a bilingual discourse marking system: Modal particles and English markers in German. *International Journal of Bilingualism* 4(4): 469–484.

Green, Vera. (1974). *Migrants in Aruba: Interethnic migration*. Assen, the Netherlands: Van Gorcum and Co. B.V.

Gumpertz, John, & Wilson, Robert. (1971). Convergence and creolization: a Case from the Indo-Aryan/Dravidian border in India. In Dell Hymes (ed.), *Pidginization and creolization of languages*. Cambridge: Cambridge University Press. 151–168.

Guy, Gregory. (1980). Variation in the group and in the individual: the Case of final stop deletion. In William Labov (ed.), *Locating language in time and space*. New York: Academic. 1–36.

_____ (1981). *Linguistic variation in Brazilian Portuguese: Aspects of the phonology, syntax, and language history*. PhD dissertation, University of Pennsylvania.

Hale, Kenneth. (1971). Gaps in grammar and culture. In Dale Kinkade, Kenneth Hale, & Oswald Werner (eds.), *Linguistics and anthropology in honor of C. E. Voegelin*. Lisse, the Netherlands: Peter de Ridder. 295–313.

Hamers, Josiane F. & Blanc, Michel H.A. (2000). *Bilinguality and Bilignualism*. Second edition. Cambridge: Cambridge University Press.

Hartog, Johan. (1961a). *Aruba: Past and present*. Translated by J. A. Verleun. Oranjestad, Aruba: D. J. De Wit.

_____ (1961b). *Curaçao: van kolonie tot autonomie. Deel II (na 1816)*. Oranjestad, Aruba: D. J. De Wit.

_____ (1988). *Aruba: Short history*. 5th rev. ed. Aruba: Van Dorp.

Hauge, K. (2002). At the boundaries of the Balkan Sprachbund-pragmatic and paralinguistic isomorphisms in the Balkans and beyond. *Mediterranean Language Review* 14:21–40.

Haviser, Jay B. (1991). *The first Bonaireans*. Reports of the Archaeological-Anthropological Institute of the Netherlands Antilles 10. Curaçao: Archaeological-Anthropological Institute of the Netherlands Antilles.

Hawley, Amos H. (1960). *The population of Aruba: A Report based on the census of 1960*. Aruba: n.p.

Heath, Jeffrey. (1978). *Linguistic diffusion in Arnhem Land*. Canberra: Australian Institute of Aboriginal Studies.

Hill, Jane, & Hill, Kenneth C. (1981). Regularities in vocabulary replacement in Modern Nahuatl. *International Journal of American Linguistics* 47(3):215–226.

Hiss, Philip Hanson. (1943). *Netherlands America: the Dutch territories in the West*. New York: Duell, Sloan, & Pearce.

Hock, Hans Hendrick. (1986). *Principles of historical linguistics*. Berlin: Mouton de Gruyter.

Howe, Kate. (1994). *Papiamentu reader*. Kensington, MD: Dunwoody Press.

Hoyer, W. M. (1933). *Algun pagina tuma fo'I historia di Curaçao*. Curaçao: Drukkerij Scherpenheuvel.

Jakobson, Roman. (1938). Sur la théorie des affinités phonologiques des langues. In *Actes du Quatrième Congrès de Linguistes*. Copenhagen: Einar Munksgaard. 48–59.

Joubert, Sidney. (2003). Interview. Curaçao.

Karttunen, Frances. (1976). Uto-Aztecan and Spanish-type dependent clauses in Nahuatl. In Stanford B. Steever, Carol A. Walker, & Salikoko S. Mufwene (eds.), *Papers from the parasession on diachronic syntax*. Chicago: Chicago Linguistics Society. 150–158.

King, Ruth. (2000). *The lexical basis of grammatical borrowing: a Prince Edward Island French case study*. Amsterdam: Benjamins.

Klomp, Ank. (1986). *Politics on Bonaire: an Anthropological study*. Translated by Dirk H. van der Elst. Assen, the Netherlands: Van Gorcum.

Kouwenberg, Silvia, & Murray, Eric. (1994). *Papiamentu*. Munich, Germany: Lincom Europa.

Kouwenberg, Silvia, & Muysken, Peter. (1994). Papiamento. In Jacques Arends, Pieter Muysken, & Norval Smith (eds.), *Pidgin and creoles: an Introduction*. Amsterdam: Benjamins. 205–218.

Kuiperi, Nicolaas Adrianus. (1862). *Katekismoe of sienjansa di berdad i di mandameentoe nan di religioon di kriestiaan nan pa oesoe di protestant nan na Aruba*. Curaçao: A. L. S. Muller & J. F. Newman wz. Reprinted by the Fundashon pa Planifikashon di Idioma di Curaçao. (2001). Postscriptum by Henry Coomans. Bloemendaal, the Netherlands: Stichting Libri Antilliani.

Labov, William. (1972). *Sociolinguistic patterns*. Philadelphia: University of Pennsylvania Press.

_____ (1994). *Principles of linguistic change*. Vol. 1. *Internal factors*. Oxford: Blackwell.

https://doi.org/10.1017/S0954394508000124 Published online by Cambridge University Press

Lightfoot, David. (1981). Explaining syntactic change. In N. Hornstein & D. Lightfoot (eds.), *Explanation in linguistics*. London: Longman. 209–240.
Lindstedt, Jouko. (2000). Linguistic Balkanization: Contact-induced change by mutual reinforcement. In Dicky Gilbers, John Nerbonne, & Jos Schaecken (eds.), *Languages in contact*. Amsterdam: Rodopi. 231–246.
Maher, Julianne. (1985). *Contact linguistics: the Language enclave phenomenon*. PhD dissertation, New York University.
Meillet, Antoine. (1921). Le problème de la parenté des langues. In *Linguistique historique et linguitique générale*. Paris: Champion. 76–101.
Mithun, Marianne. (1980). A functional approach to syntactic reconstruction. In Elizabeth C. Traugott et al. (eds.), *Papers from the 4th International Conference on Historical Lingusitics*. Amsterdam: Benjamins.
Mougeon, Raymond, & Beniak, Édouard. (1991). *Linguistic consequences of language contact and restriction: the Case of French in Ontario, Canada*. Oxford: Clarendon Press.
_____ (1996). Social class and language variation in bilingual speech communities. In Gregory Guy, Crawford Feagin, Deborah Schiffrin, & John Baugh (eds.), *Towards a social science of language*. Vol. 1. *Variation and change in language in society.* Amsterdam: Benjamins. 69–99.
Munteanu, Dan. (1996). *El Papiamento, Lengua Criolla Hispánica*. Madrid: Editorial Gredos, S. A.
Nagy, Naomi. (1997). Modeling contact-induced language change. In Charles Boberg, Miriam Meyerhoff, & Stephanie Strassel (eds.), *University of Pennsylvania Working Papers in Linguistics* 4(1):399–418.
Paolillo, John. (2002). *Analyzing linguistic variation: Statistical models and methods*. Stanford, CA: CSLI.
Pietersz, Jorge A. (1985). *De Arubaanse Arbeidsmigratie 1890–1930: Drie studies over de trek van arbeiders in het caraibische gebied voor de tweede wereldoorlog*. Leiden, the Netherlands: Caraïbische Afdeling Koninklijk Instituut voor Taal-, Land- en Volkenkunde.
Poplack, Shana. (1980). The notion of the plural in Puerto Rican Spanish: Competing constraints on /s/ deletion. In William Labov (ed.), *Locating language in time and space*. New York: Academic Press. 55–68.
_____ (1993). Variation theory and language contact. In Dennis R. Preston, John Fought, Frank Parker, Herbert Penzl, John Rickford, Arnold Zwicky, Dwight Bolinger, & Charles Hocket (eds.), *American dialect research*. Amsterdam/Philadelphia: Benjamins. 251–286.
_____ (1997). The sociolinguistic dynamics of apparent convergence. In Gregory R. Guy, Crawford Feagin, Deborah Schiffrin, & John Baugh (eds), *Towards a social science of language: Papers in honor of William Labov, Volume 2*. Amsterdam: John Benjamins. 285–309.
Preston, Dennis. (1991). Sorting out the variables in sociolinguistic theory. *American Speech* 66(1):33–56.
Prince, Alan, & Smolensky, Paul. (2002). Constraint interaction in generative grammar. ROA-537–0802, Rutgers Optimality Archive, http://roa.rutgers.edu.
Prince, Ellen. (1988). On pragmatic change: the Borrowing of discourse function. *Journal of Pragmatics* 12:505–518.
Ratzlaff, Betty. (1992). *Papiamentu/Ingles dikshonario bilingual*. Ephrata, PA Fundashon di Dikshonario TWR.
Riionheimo, Helka. (2002). How to borrow a bound morpheme? Evaluating the status of structural interference in a contact between closely-related languages. *SKY Journal of Linguistics* 15.
Robinson, John, Lawrence, Helen, & Tagliamonte, Sali. (2001). *Goldvarb 2001: a Mulitvariate analysis application for Windows*. York: University of York. http://www.york.ac.uk/depts/lang/webstuff/goldvarb/.
Sanchez, Tara. (2000). *The Papiamentu progressive: Syntactic conditioning and dialect variation*. Master's thesis, University of Pennsylvania.
_____ (2002). The interacting influences of Spanish and English on the creole Papiamentu. In Daniel Ezra Johnson & Tara Sanchez (eds.), *University of Pennsylvania Working Papers in Linguistics* 8(3):235–247. Selected Papers from NWAV 30, Raleigh, NC.
_____ (2005a). *Constraints on structural borrowing in a multilingual contact situation.* PhD dissertation, University of Pennsylvania. Available from UMI Microfilms and Institute of Research in Cognitive Science Technical Report #05-01. http://repository.upenn.edu/ircs_reports/4/.
_____ (2005b). The (socio-)linguistics of morphological borrowing: a Quantitative look at qualitative constraints and universals. In Suzanne Evans Wagner (ed.), *University of Pennsylvania Working Papers in Linguistics* 11(2):147–160. Selected Papers from NWAV 33, Ann Arbor, MI.

https://doi.org/10.1017/S0954394508000124 Published online by Cambridge University Press

_____ (2006). The progressive in the spoken Papiamentu of Aruba. In Ana Deumert & Stephanie Durrleman (eds.), *Structure and variation in contact languages*. Creole Language Library Series. Philadelphia: Benjamins. 291–314.
Scherre, Maria, Pereira, Marta, & Naro, Anthony. (1991). Marking in discourse: "Birds of a feather." *Language Variation and Change* 3:23–32.
_____ (1992). The serial effect on internal and external variables. *Language Variation and Change* 4:1–13.
Siegel, Jeff. (1999). Transfer constraints and substrate influence in Melanesian Pidgin. *Journal of Pidgin and Creole Languages* 14:1–44.
_____ (2003). Substrate influence in creoles and the role of transfer in second language acquisition. *Studies in Second Language Acquisition* 25:185–209.
Silva-Corvalán, Carmen. (1986). Bilingualism and language change: the Extension of *estar* in Los Angeles Spanish. *Language* 62:587–608.
Siegel, Jeff (1993). On the permeability of grammars: Evidence from Spanish and English contact. In William Ashby et al. (eds.), *Linguistic perspectives on Romance languages*. Philadelphia: John Benjamins Publishing Company. 19–43.
_____ (1994). *Language contact and change: Spanish in Los Angeles*. Oxford: Clarendon Press.
_____ (1995). The study of language contact: an Overview of the issues. In Carmen Silva-Corvalán (ed.), *Spanish in four continents: Studies in language contact and bilingualism*. Washington, DC: Georgetown University Press. 3–14.
Sommerfelt, Alf. (1980). External versus internal factors in the development of language. *Norsk Tidsskrift for Sprogvidenskap* 19:296–315.
Sundgren, Eva. (2002). *Aterbesok I eskilstuna: en undersokning av morfologisk variation och forandring I nutida talsprak [Eskilstuna revisited: an Investigation of morphological variation and change in present-day spoken Swedish]*. Dissertation Abstracts International, C: Worldwide 63:4, 634-C-635-C. Uppsala University.
Thomason, Sarah G. (2001). *Language contact: an Introduction*. Washington, DC: Georgetown University Press.
Thomason, Sarah G., & Kaufman, Terrence. (1988). *Language contact, creolization, and genetic linguistics*. Berkeley: University of California Press.
Vachek, Joseph. (1972). On the interplay of external and internal factors on the development of languages. In Bertil Malmberg (ed.), *Readings in modern linguisitcs*. Stockholm: Lärmedelsförlagen. 209–223.
Van Hout, Roeland, & Muysken, Pieter. (1994). Modeling lexical borrowability. *Language Variation and Change* 6:39–62.
Vogt, Hans. (1948). Language contacts. *Word* 10:365–374.
Weinreich, Uriel. (1953). *Language in contact: Findings and problems*. New York: Mouton.
Wood, Richard. (1971). The Hispanization of a Creole Language: Papiamentu. *Hispania* 55:857–64.

https://doi.org/10.1017/S0954394508000124 Published online by Cambridge University Press