

## The Too-many-solutions Problem on English Word-initial sC Clusters

► **Introduction:** Repair strategies for consonants in loanword adaptation and creolization vary from language to language. This study addresses the too-many-solutions problem (Kang 2011) on repair for English singleton [s] and word-initial sC clusters (C = obstruents) in Maori, Tahitian, and Sranan. We show a resolution to the problem by proposing two positional faithfulness constraints on word-initial sC clusters (henceforth,  $w_d[sC]$ ).

► **Data:** Our analysis assumes four types of languages about treatment of the singleton [s] and  $w_d[sC]$  clusters (See Table 1). Type I and II languages have no sibilants in their own consonant inventory. For the Type I, the singleton [s] is replaced by a particular consonant of each language, and the [s] of English  $w_d[sC]$  clusters is deleted. Maori and Tahitian belong to Type I languages. For the Type II, on the other hand, both of the singleton [s] and  $w_d[sC]$  clusters are replaced by a particular consonant. This is partly found in loanwords of Cook Islands Maori. Type III and IV languages have /s/ as a phoneme in their own consonant inventory. Type III languages such as Fijian and Tongan retain the singleton [s] and adopt  $w_d[sC]$  clusters via vowel epenthesis. Type IV deletes the [s] of  $w_d[sC]$  clusters while they retain the singleton [s]. This is observed in creolization of an English-based creole, Sranan. The too-many-solutions problem we address in this study is why Type I and IV languages delete the [s] of English  $w_d[sC]$  clusters rather than replace it by another consonant or retain it.

► **Analysis:** We assume the following constraint rankings for Type I & II and for Type III & IV. MAX-C stands for the anti-deletion constraint on consonants, and ID-[str] for the anti-substitution for strident consonants (i.e., [s]).

Type I & II	*s	,	MAX-C	»	ID-[str]	<i>favors substitution for singleton [s]</i>
Type III & IV	ID-[str]	,	MAX-C	»	*s	<i>adopts singleton [s]</i>

In order to capture the four types of languages, we propose two positional faithfulness constraints: (i) IDENT-[strident]/ $w_d[sC]$ , which is violated only if there is a featural change of [strident] of the sibilant /s/ between input and output, and (ii) DEP-V/ $w_d[sC]$ , which is violated only if there is a vowel between  $w_d[sC]$  clusters that has no correspondent in the input. Crucial rankings are presented below.

Type I	ID-[str]/ $w_d[sC]$	»	MAX-C	<i>favors deletion in <math>w_d[sC]</math></i>		
Type II	MAX-C	»	ID-[str]/ $w_d[sC]$	<i>adopts <math>w_d[sC]</math> via substitution</i>		
Type III	ID-[str]/ $w_d[sC]$	,	MAX-C	»	DEP-V/ $w_d[sC]$	<i>adopts <math>w_d[sC]</math> via vowel epenthesis</i>
Type IV	ID-[str]/ $w_d[sC]$	,	DEP-V/ $w_d[sC]$	»	MAX-C	<i>favors deletion in <math>w_d[sC]</math></i>

ID-[str]/ $w_d[sC]$  is distinguished from MAX-C, which can capture the difference between Type I and Type II. In Type I, the featural change of the initial sibilant of  $w_d[sC]$  clusters is disfavored over the featural deletion (See Tableau 1). On the other hand, Type II shows the opposite pattern (See Tableau 2). Type III requires a vowel to be epenthesized between  $w_d[sC]$  clusters. That is, DEP-V/ $w_d[sC]$  is ranked below MAX-C and ID-[str]/ $w_d[sC]$  (See Tableau 3). In Type IV, MAX-C should be outranked by DEP-V/ $w_d[sC]$  and ID-[str]/ $w_d[sC]$  because the initial sibilant of  $w_d[sC]$  clusters is subject to deletion (See Tableau 4).

► **Conclusion:** We propose two positional faithfulness constraints on  $w_d[sC]$  clusters, which can resolve the too-many-solutions problem that deletion in  $w_d[sC]$  clusters is preferred to replacement in Maori and Tahitian and to preservation in Sranan.

► Tables and Tableaux

Table 1: Adaptation and Creolization of English singleton [s] and wd[sC] clusters

Type	Languages	[s]	wd[sC]	cf.	References
I	Maori	soup → hupa	spoon → pu:nu	*hipu:nu	Ryan 1996
	Tahitian	Swiss → tuite	spoon → punu	*tipunu	Wahlroos 2002
II	CI Maori	soup → tiopu	scone → tikaoni	*kaoni	Rere 1951
III	Fijian	soap → sovu	scone → sikoni	*koni	Schütz 1978
	Tongan	soup → supo	spade → sipeidi	*peidi	Schütz 1970
IV	Sranan	soft → safu	speak → piki	*sipiki	Alber & Plag 2001

Tableau 1: Type I (e.g., Maori; Tahitian)

/sC <sub>2</sub> /	ID-[str]/wd[sC]	*s	MAX-C	ID-[str]
→ C <sub>2</sub>			*(s→∅)	
svC <sub>2</sub>		*(s)		
C <sub>1</sub> vC <sub>2</sub>	*(s→C <sub>1</sub> )			*(s→C <sub>1</sub> )

C<sub>1</sub> = a non-strident consonant  
v = an epenthetic vowel

MAX-C = MAX-CONSONANT

ID-[str] = IDENT-[strident]

ID-[str]/wd[sC] = IDENT-[strident]/wd[sC]

DEP-V/wd[sC] = DEP-VOWEL/wd[sC]

Tableau 2: Type II (e.g., Cook Is. Maori)

/sC <sub>2</sub> /	*s	MAX-C	ID-[str]/wd[sC]	ID-[str]
C <sub>2</sub>		*(s→∅)		
svC <sub>2</sub>	*(s)			
→ C <sub>1</sub> vC <sub>2</sub>			*(s→C <sub>1</sub> )	*(s→C <sub>1</sub> )

Tableau 3: Type III (e.g., Fijian; Tongan)

/sC <sub>2</sub> /	ID-[str]/wd[sC]	MAX-C	ID-[str]	*s	DEP-V/wd[sC]
C <sub>2</sub>		*(s→∅)			
→ svC <sub>2</sub>				*(s)	*(svC <sub>2</sub> )
C <sub>1</sub> vC <sub>2</sub>	*(s→C <sub>1</sub> )		*(s→C <sub>1</sub> )		

Tableau 4: Type IV (e.g., Sranan)

/sC <sub>2</sub> /	DEP-V/wd[sC]	ID-[str]/wd[sC]	MAX-C	ID-[str]	*s
→ C <sub>2</sub>			*(s→∅)		
svC <sub>2</sub>	*(svC <sub>2</sub> )				*(s)
C <sub>1</sub> vC <sub>2</sub>		*(s→C <sub>1</sub> )		*(s→C <sub>1</sub> )	

► References:

- [1] Alber, Birgit. and Ingo Plag. 2001. Epenthesis, deletion and the emergence of the optimal syllable in creole: the case of Sranan. *Lingua* 111: 811-840. [2] Kang, Yoonjung. 2011. Loanword phonology. *Companion to phonology*, ed. by Marc van Oostendorp, Colin J. Ewen, Elizabeth V. Hume, and Keren Rice, 2258-2282. Oxford: Wiley-Blackwell. [3] Rere, Taira. 1951. Rarotongan coined words, mainly from English. *Journal of the Polynesian Society* 60(4): 260-265. [4] Ryan, P.M. 1996. *The Reed Pocket Dictionary of Modern Māori*. Auckland, NZ: Reed. [5] Schütz, Albert. 1970. The phonological patterning of English loan words in Tongan. *Pacific linguistic studies in honour of Arthur Capell, Pacific Linguistics*, 409-428. Canberra: The Australian National University. [6] Schütz, Albert. 1978. English loanwords in Fijian. *Fijian Language Studies: Borrowing and Pidginization. Bulletin of Fiji Museum* 4: 1-50. [7] Wahlroos, Sven. 2002. *Tahitian-English English Tahitian dictionary*. Honolulu: Univeristy of Hawaii Press.