

Stress adjustments in Shipibo-Konibo: noun loanwords from Spanish¹

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Abstract: This article documents and accounts for a currently disappearing pattern of main stress assignment in the Panoan language Shipibo-Konibo (SK) in nominal loanwords from Spanish. This pattern is quickly disappearing among younger bilingual speakers who have stopped rephonologizing those loanwords given their high degree of proficiency in Spanish. In the vanishing pattern, SK preserves the original position of stress in those loanwords under strict prosodic conditions. At a descriptive level, stress is preserved on the initial or the second syllable of a word if the second syllable is open. Otherwise, stress assignment must follow the SK native stress system. This study shows that the linguistic knowledge this pattern reflects can be easily modeled through a set of well-known metrical requirements in conflict with the need to preserve the original location of the Spanish stress. The proposed analysis is necessary for dealing with loanwords and it is independently required for the native vocabulary. The analysis also implies that while older speakers have incorporated those loanwords into the native lexicon, younger speakers prefer to assign Spanish loanwords to a special lexical stratum.

Keywords: loanwords, metrically-conditioned syllable weight, lexical stress, Spanish stress, Shipibo prosody

1. Introduction

Shipibo-Konibo (henceforth SK) is a Panoan language spoken by about 25000 speakers. The SK communities are located in the Peruvian amazon. Following Lewis (2009), SK belongs to the North-Central branch of the Panoan linguistic family, together with other very close Panoan languages like Capanahua and Isconahua. Of particular interest for the present study is that SK has been in contact with Spanish from the time of the Jesuit's arrival in the SK communities in the seventeenth century (Valenzuela 2003; von den Steinen 1904). Due to this contact, SK has incorporated many words from Spanish into its lexicon. As expected, when SK borrowed Spanish words, it altered them in various ways in order to

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comply with the phonology of the Panoan language. These modifications involved segmental changes² as well as changes in syllable structure and the relocation of stress when necessary. As an example, the Spanish word for ‘(Castilian) Spanish’, [kas.te.ˈja.no] (*castellano*), was borrowed into SK as [ˈkas.ti.tʃa.nu]. The data presented in this study come from the SK-Spanish dictionary by Lorient, Lauriault, & Day (1993) and my own field notes (SK communities of Calleria – Ucayali 1997-2003 and Cantagallo – Lima 2011).

Nowadays, the tendency to rephonologize Spanish loanwords has almost completely stopped. Young speakers of SK, as they are more fluent in Spanish and able to code-switch more efficiently between both languages than their parents and grandparents, use Spanish words in their daily SK. However, unlike their ancestors, they do not rephonologize them. The aim of this study is to describe these vanishing patterns of rephonologization before they are completely lost. In this study, I will focus on the relocation and preservation of main stress in Spanish nouns adopted by SK speakers.

Descriptively, the data in (1) are representative of three different stress patterns that SK uses to deal with Spanish-word stress. If the Spanish stress occurs beyond the second syllable, stress is relocated within the two initial syllables (pattern 1). Stress falls on the second syllable if the syllable is closed; otherwise, it falls on the initial syllable. This is also the pattern that corresponds to the SK native stress assignment. See data in (1.a-b).

The second pattern involves cases in which Spanish stress falls within the two initial syllables of the word. In these cases, the location of Spanish stress is preserved. See data in (1.c-d). Interestingly, the second pattern has an important condition: in order to preserve the location of Spanish stress, the second syllable of the word must be open. If the second syllable is closed and the Spanish stress is on the initial syllable, SK appears unable to preserve the location of the Spanish stress (pattern 3). This can be observed in (1.e-f) through the borrowing of the Spanish words for ‘pencil’ [ˈla.pis]

² The segmental inventory of SK contains 15 consonants: /p, t, k, β, s, ʃ, ʂ, h, ts, tʃ, dʒ, m, n, j, w/ and 4 vowels: /i, u, i, a/. The vowels can show length (e.g. [tiːja] ‘hardworking’). Only the segments /s, ʃ, ʂ, n/ can occur in coda.

(*lápiz*), and ‘Lucas’ [‘lu.kas] (a proper name), which were adopted in SK as [dʒa.‘pis] (not *[‘dʒa.pis]) and [dʒu.‘kas] (not *[‘dʒu.kas]).

(1)	SK Pronunciation	Spanish Pronunciation	Spanish Spelling	Gloss
a.	[‘a.dʒi.man]	[a.le.‘man]	Alemán	‘German’
b.	[is.‘pan.ju.dʒu]	[es.pa.‘jol]	Español	‘Spanish’
c.	[ka.‘dʒi.na]	[ka.‘ðe.na]	Cadena	‘Chain’
d.	[dʒus.‘mi.dʒa]	[lus.‘mi.la]	Luzmila	(Proper name)
e.	[dʒa.‘pis]	[‘la.pis]	Lápiz	‘Pencil’
f.	[dʒu.‘kas]	[‘lu.kas]	Lucas	(Proper name)

I propose that the stress patterns found in SK emerge from a conflict between two phonological forces: one that tries to preserve the original position of the Spanish stress and another set of forces that operate on the native metrical system of the language and that govern the weight and distribution of closed syllables as well as the size of metrical feet. SK resolves this conflict by allowing the Spanish lexical stress to be preserved only if the other metrical requirements are met. Otherwise, the position of the main stress must be relocated to comply with the general metrical requirements of the Panoan language.

This article is organized as follows. Section 2 provides a detailed description of the different patterns of stress observed in noun loanwords adopted by SK from Spanish. Section 3 examines the metrical forces that govern the location of the word main foot, the assignment of stress, and the weight of closed syllables in SK native vocabulary and loanwords. Section 4 analyses cases of lexical stress. Finally, section 5 presents the conclusions.

2. SK stress patterns shown for noun loanwords from Spanish

Stress in SK is generally predictable (Elías-Ulloa 2000, 2006; García-Rivera 1994; González 2003; Valenzuela 2003). It falls within a stress window embodied by the two initial syllables of the word. Stress in SK falls on the second syllable if it has a closed syllable (e.g. [ma.‘kaʃ] ‘foam’, [waʃ.‘mɪn] ‘cotton’). Otherwise, it falls on the initial syllable (e.g. [‘ʃu.βu] ‘house’, [‘tiʃ.ti.mis] ‘executioner, decapitator’). There are also a small number of words in the native vocabulary that have lexical stress, for

instance, the word [pa.'βi.ki] 'ear,' in which main stress occurs on the second syllable in spite of being open.

In order to study how stress is adjusted by SK phonology when a Spanish noun was incorporated into the language, two hundred and fifty-six Spanish loanwords were extracted from Lorient et al. (1993)'s dictionary of SK and elicited from native speakers. This list only contains nouns. Although the vast majority of noun loanwords (70%) complies with the stress principles of SK, there is a non-negligible percentage of them (30%) whose stress position does not follow those principles.

The data in (2) and (3), respectively, show examples of stress patterns that follow the native metrical system of SK and patterns that clearly reflect origin in the Spanish language. In (2.a-c), stress occurs on the initial syllable since the second syllable is open (that is, it does not have a coda). In contrast, in (2.d-f), the second syllable is closed and therefore stress is attracted to it.

(2)	SK Pronunciation	Spanish Pronunciation	Spanish Spelling	Gloss
a.	[hʊ.tʊ]	[fo.to]	Foto	'Photo'
b.	[in.hi.ni.dzʊ]	[iŋ.xe.'nje.ro]	Ingeniero	'Engineer'
c.	[sa.ta.nas]	[sa.ta.'nas]	Satanás	'Satan'
d.	[βa.'dʒan.sa]	[ba.'lan.sa]	Balanza	'Scale'
e.	[is.'pan.jʊ.dzʊ]	[es.pa.'ɲol]	Español	'Spanish'
f.	[ka.'dʒʊs]	['kar.los]	Carlos	(Proper Name)

The data in (2) look as if SK does not attach importance to where the stress was originally placed in the Spanish word. It just reassigns it according to its own stress rules. Sometimes the stress matches the Spanish assignment (see data in (2.a)) but only if the stress assigned by SK phonology coincides with that of Spanish. However, this is not always the case. SK can keep the Spanish stress location, even if it violates its own stress rules. As illustrated in (3), this occurs when the Spanish stress falls within the SK stress window (i.e. the two initial syllables) and the second syllable is open.

(3)	SK Pronunciation	Spanish Pronunciation	Spanish Spelling	Gloss
a.	[ka.'hi]	[ka.'fe]	Café	'Coffee'
b.	[ka.'βa.jo]	[ka.'βa.jo]	Caballo	'Horse'
c.	[is.'pa.dza]	[es.'pa.ða]	Espada	'Sword'
d.	[ban.'ti.ha]	[ban.'de.xa]	Bandeja	'Tray'

The cases shown in (3) are not marginal. They actually represent at least ninety six percent of the cases of unpredictable stress (that is, 28% of the whole sample). They are loanwords that preserved the original stress location of Spanish at the cost of violating the SK rules of stress assignment. That is, although the stress position is not predictable by SK stress principles, we can see the unpredictability occurs as a consequence of preserving the original location of the Spanish stress.

The remaining 2% of the sample corresponds to noun loanwords whose stress assignment has no explanation or whose explanation has been lost at an earlier stage of the language. First, we have the loanwords that preserved the original Spanish stress even at the cost of having it outside the SK stress window (namely, the two initial syllables of the word). Two out of the two-hundred fifty-six (0.8%) Spanish noun loanwords examined showed this pattern: [ka.na.'dza] from the Spanish [ka.na.'ða] (*Canadá*) 'Canada' and [βa.ta.'jon] from the Spanish [ba.ta.'jon] (*batallón*) 'battalion'.³

Second, we find Spanish loanwords that seem neither to follow the SK stress rules nor to preserve the position of the Spanish stress. Three out of the total number of noun loanwords (that is, 1.2%) extracted from Lorient et al. (1993)'s dictionary belong to this group. The first word, as reported by Lorient et al. (1993), is ['kum.pan.ji.dzu] from the Spanish [kom.pa.'je.ro] (*compañero*) 'mate, partner.' The position of the main stress is unexpected since it should occur on the second syllable as it is closed. However, the informants I have consulted pronounce this word as ['kum.pa.ni.dzu], in which the main stress is on the initial syllable but the second syllable is open.

The second word is [dzan.'sa] 'dance'. At first glance, it seems unexpected that in SK the stress appears on the second syllable instead of the initial syllable as it occurs in Spanish. However, the reason for the

³ It is likely that these loanwords were incorporated into SK at a later stage of the contact with Spanish.

stress to occur on the second syllable is that [dʒan.'sa] is a nominalized form of the verb /dʒansa-/ → ['dʒan.sa-] ‘to dance’ (Pilar Valenzuela p.c.)

The true exception is the word [ku.'ka.dʒa.tʃa] ‘cockroach.’ This word comes from the Spanish [ku.ka.'ra.tʃa] (*cucaracha*). In Spanish, the stress falls on the penultimate syllable. However, in SK, the stress has been moved to the second syllable instead of the initial syllable: *['ku.ka.ra.tʃa].

Putting aside the idiosyncratic cases just discussed, the patterns described above can be generalized as indicated in (4).

- (4) SK preserves the position of main stress in noun loanwords from Spanish only if it falls within its stress window (i.e. the initial disyllabic foot) and the second syllable is open. Otherwise, stress follows the native metrical system of the language: main stress falls on the second syllable if closed; or on the initial if the second syllable is open.

3. SK metrical system

The first step to account for the stress adjustments that loanwords from Spanish undergo when adopted by SK is to understand how the SK native stress system works. The analysis presented in this section is embedded in the theoretical framework of Optimality Theory (Prince & Smolensky 1993, 2004).

SK has an initial disyllabic stress window in which main stress appears. Disyllabicity is not only a characteristic of the initial foot but it is a recurrent pattern of SK footing throughout the Prosodic Word (PrWd) (see Elías-Ulloa 2005, 2006; González 2003). Several types of allomorphies in SK depend on disyllabic feet running from left to right within the PrWd. For example, the ergative suffix takes different forms in order to surface within a disyllabic foot. Thus, when attached to a stem with an even number of syllables, the ergative surfaces as [-n]. See examples in (5.a-b). However, when the stem has an odd number of syllables, the ergative suffix surfaces as [-nin] so it can provide an entire new syllable to form a disyllabic foot with the final syllable of the stem. See data in (5.c-d). The only environment where we can find a monosyllabic foot (a foot formed by a single syllable) is when the last syllable of a word is closed and could not be parsed as part of a bisyllabic foot.

- (5)a. /mapi +ergative/ → (ma.'pin), *('ma.pi)(,nin) 'shrimp'
 b. /junta +ergative/ → (jun.'tan), *('jun.ta)(,nin) 'girl'
 c. /atapa +ergative/ → ('a.ta)(pa.,nin),⁴ *('a.ta)(,pan) 'hen'
 d. /şuntaku +ergative/ → ('şun.ta)(ku.,nin),*('şun.ta)(,kun) 'young woman'

Foot disyllabicity is formalized through the constraint in (6).

- (6) *FOOT(σ): Do not have feet smaller than two syllables (Elías-Ulloa 2006).

3.1. Syllable Weight and Predictable Stress

Within disyllabic feet, head syllables are selected according to the two requirements in (7).

- (7) (i) Heavy syllables (i.e. bimoraic) cannot occur unstressed.
 (ii) Metrical feet cannot group together a heavy syllable followed by a light one (that is, SK bans (H.L)-feet)

The requirement in (7.i) is known in the literature as WEIGHT-TO-STRESS PRINCIPLE (WSP - Prince 1990). See definition in (8). The constraint WSP rules out forms in which a heavy syllable (indicated by the subscripted symbol [μ]) appears in a non-head position within the metrical structure, as in *('wi.taş μ), in favor of candidates like (wi.'taş μ) 'leg'.

- (8) Weight-to-Stress Principle (WSP): Heavy syllables occupy head positions ('If heavy, then stressed')

Note also that since in SK closed syllables are heavy (i.e. they are able to attract stress, a behavior formalized through their bimoraic content), the constraint WEIGHT-BY-POSITION (WBP – Broselow et al. 1997; Hayes 1989, 1994; Morén 2000) plays an important role in selecting the output form. The definition of WBP appears in (9). Thus, WBP penalizes candidates with light closed syllables, like *('wi.taş), in favor of candidates such as (wi.'taş μ) 'leg'.

- (9) WEIGHT-BY-POSITION (WBP): Codas should be moraic.

SK always places the main stress within the two initial syllables of a word. With the exception of the nouns in vocative, which requires the main stress to occur on the final syllable of a word, main stress in native words never appears beyond the second syllable counting from left to right. That is, the

⁴ Whereas main stress in SK is signaled by the presence of a high pitch, secondary stresses, particularly in fast speech, do not necessarily show high pitch.

main foot is, by default, aligned with the left edge of the prosodic word. This can be encoded through the constraint in (10).

- (10) ALIGN-MAINFOOT-LEFT: The main foot must be aligned with the left edge of the PrWd (McCarthy & Prince 1993).

When heavy closed syllables are not in play, SK is a trochaic system; that is, within a disyllabic foot, the leftmost syllable is chosen by default as the head: ('ʂu.βu) 'house', ('a.ta).pa 'hen'. This default pattern can be attributed to the effects of the constraint in (11).

- (11) Trochee: Head syllables are aligned with the left edge of a foot.

In SK, the satisfaction of having a trochaic foot (TROCHEE) is not as important as making sure codas are moraic (WBP). Thus, in SK, disyllabic feet can be iambic if that makes possible for a coda to be moraic while avoiding unstressed heavy syllables and metrical feet smaller than two syllables (see also González, this volume, on rhythm reversal in other Panoan languages). This can be observed, for example, in the SK word for 'leg', (wi.'taʂ_μ). This word contains a heavy closed syllable (which satisfies WBP) and has that heavy syllable stressed within a disyllabic foot (which satisfies WSP and *FOOT(σ) respectively). The alternative, *(wi.taʂ), would satisfy the requirement of having trochaic feet (i.e. TROCHEE) but at the cost of having the final coda without a mora.

The second requirement in (7) has also been reported cross-linguistically as a ban on uneven trochees (see, for example, Prince 1990 for English; Hayes 1995, McCarthy 1979, Mitchell 1960, Prince 1990 for Cairene Arabic; Churchward 1953, Feldman 1978, Hayes 1995 for Tonga; Elbert & Pukui 1979, Hayes 1995 for Hawaiian; and Dixon 1988, Hayes 1995, Schütz 1985 for Fijian). This study refers to the avoidance of (H.L)-feet as *Grouping Harmony* (GH - Prince 1990; Prince & Smolensky 1993). See definition in (12).

- (12) Grouping Harmony (GH): Do not have uneven trochees (i.e. (H.L) feet).

The effects of GH in SK can be observed in CVC.CV words (e.g. ('wiʃ.pu) 'tibia'), in which the initial closed syllable is not allowed to have a moraic coda since, given the requirement of having disyllabic feet, it would create (H.L)-feet. Evidence for the weight of the initial closed syllable can be found in the behavior of stress and the ergative suffix (for additional

evidence, see Elías-Ulloa 2006). Thus, when the ergative suffix is added to a root like /wɨʃpʊ/ ‘tibia’, it surfaces as [-n] instead of [-nin]: (wɨʃ.ˈpʊn_μ) ‘tibia’ (ergative). As mentioned earlier in this section, the ergative suffix wants as much as possible to be parsed within a metrical foot. If the initial syllable of the root /wɨʃpʊ/ ‘tibia’ were to surface as a heavy closed syllable, then when the ergative is added, we would wrongly expect it to surface as [-nin]: *(ˈwɨʃ_μ)(pʊ.nin_μ). Although the study refers to the phrasal suffix /-n/ as ‘ergative,’ this suffix also fulfills the instrumental function and may also code genitive, locative and other obliques (see Valenzuela 2003).

The behavior of stress also provides evidence of the avoidance of uneven trochees in SK. Observe that the output form when the root /wɨʃpʊ/ and the ergative suffix are combined is (wɨʃ.ˈpʊn_μ), with the stress on the second syllable. If the initial closed syllable were heavy, then we would expect one of the following forms to surface: *(ˈwɨʃ_μ.pʊn), with a heavy initial stressed closed syllable; or *(ˈwɨʃ_μ)(.pʊn_μ), with both closed syllables heavy and each one stressed; or *(ˈwɨʃ_μ.pʊn_μ), with both closed syllables heavy and the stress on the initial one.

The latter two forms are ruled out because they have either an unstressed heavy syllable (WSP) or feet smaller than two syllables (*FOOT(σ)). As for *(ˈwɨʃ_μ.pʊn), it satisfies both WSP and *FOOT(σ), but it has a fatal problem. It contains an uneven trochee: the (H.L)-foot. In contrast, the form (wɨʃ.ˈpʊn_μ) not only satisfies WSP and *FOOT(σ) but also, by forcing the initial syllable to have a non-moraic coda (which violates WBP) and moving the stress to the second heavy syllable avoids the creation of an uneven trochaic foot and thus it satisfies GH. Thus, avoiding the creation of a (H.L)-foot is more important in SK than inhibiting a coda from becoming moraic.

3.2. Noun loanwords from Spanish

Loanwords from Spanish, like those shown in (13), underwent stress reassignment so that stress occurs within the two initial syllables as it occurs in the native words of SK. In the following paragraphs I will show that the same set of constraints that govern the stress assignment in the native vocabulary of SK is also in charge of the stress in noun loanwords.

(13)	SK Pronunciation	Spanish Pronunciation	Spanish Spelling	Gloss
a.	['ka.dʒa.βʊ.sʊ]	[ka.la.'βo.so]	Calabozo	'Jail cell'
b.	['kas.ti.tʃa.no]	[kas.te.'ja.no]	Castellano	'Spanish'
c.	[is.'pin.ta.nʊ]	[es.pin.'ta.na]	Espintana	(Type of wood)
d.	[is.'pan.jʊ.dʒʊ]	[es.pa.'ɲol]	Español	'Spanish'

The stress in Spanish words like [ka.la.'βo.so] 'jail cell,' which is located beyond the second syllable of the word, is relocated within the SK stress window: ('ka.dʒa)(βʊ.sʊ). The reason is that in SK the main foot is required to be the initial one; that is, aligned with the left edge of the word (ALIGN-MAINFOOT-LEFT). Since feet are disyllabic, main stress cannot be preserved beyond the second syllable or it would fall outside the initial/main foot. Any candidate that fails to position its main foot at the left edge of the word is ruled out by SK. This occurs even if the reason for the candidate to position the main foot away from the left edge is to preserve lexical stress. This can be observed in tableau (14).

(14)	/kadʒaβʊsu/	ALIGN-MAINFT-LFT
a.	☞ ('ka.dʒa)(βʊ.sʊ)	
b.	ka.dʒa.(βʊ.sʊ)	*!

The effect of the constraint GH, which penalizes the occurrence of uneven trochees, is presented in tableau (15) through the adaptation of the Spanish word [kas.te.'ja.no] 'Spanish,' adopted by SK as ['kas.ti.tʃa.no]. The form ('kas.ti)(tʃa.no) is selected as the output because it has a light initial closed syllable. The alternative candidate, *('kas_μ.ti)(tʃa.no), is rejected because it contains a (H.L)-foot. Another alternative would be to allow the closed syllable to be heavy and form its own foot, *('kas_μ)(ti.tʃa).no, but this would create a monosyllabic metrical foot that violates *FOOT(σ).

(15)	/kastitʃanʊ/	GH	*FOOT(σ)	WBP
a.	☞ ('kas.ti)(tʃa.no)			*
b.	('kas _μ)(ti.tʃa).no		*!	
c.	('kas _μ .ti)(tʃa.no)	*!		

As in the case of the native vocabulary, the selection of the allomorph of the ergative suffix and the assignment of stress in CVC.CVC-words show

that SK avoids uneven trochees. For the word ('kas.ti)(tʃa.nʊ), the ergative surfaces as [-n]: ('kas.ti)(tʃa.nʊ-n). If the initial closed syllable were heavy and formed its own foot, then we would wrongly expect the ergative surfacing as [-nin]: *('kas_μ)(,ti.tʃa)(nʊ-,nin).⁵

The avoidance of uneven trochaic feet also plays a crucial role in accounting for the stress pattern of loanwords from Spanish found in words that begin with two closed syllables. In this case, the first one emerges as light and the second, heavy. This can be observed in the Spanish word [es.pin.'ta.na] (a regional word from Peruvian Amazonian Spanish for a type of wood; it is also pronounced as [es.pin.'ta.no]). This word has been borrowed by SK as: [is.'pin.ta.nʊ]. See tableau (16).

If both initial closed syllables were heavy, *('is_μ.pin_μ)(,ta.nʊ), one of them would have occurred unstressed. Therefore, it is ruled out by WSP. If each closed syllable were heavy and formed its own foot, then WSP would be satisfied but this violates the requirement of footing syllables into disyllabic feet. Therefore, the form *('is_μ)(,pin_μ)(,ta.nʊ) is eliminated, as well.

The candidate *('is_μ.pin)(,ta.nʊ) not only has the advantage of complying with both WSP and *FOOT(σ) but also with TROCHEE. However, it is ruled out because it contains an uneven trochee (GH): the initial closed syllable is heavy and the second light and both have been footed together into a (H.L)-foot.

In contrast, the form (is.'pin_μ)(,ta.nʊ) in (16.a) is selected as the winning candidate because it manages to comply with WSP, GH and *FOOT(σ), although it violates a lower ranked constraint: it has a closed syllable with a non-moraic coda (this goes against WBP) and the head of the initial foot is not aligned with the left edge (this offends TROCHEE).

(16)	/ispintanʊ/	WSP	GH	*FOOT(σ)	WBP	TROCHEE
a.	☞ (is.'pin _μ)(,ta.nʊ)				*	*
b.	(*('is _μ)(,pin _μ)(,ta.nʊ)			*!*		
c.	(*('is _μ .pin)(,ta.nʊ)		*!		*	
d.	(*('is _μ .pin _μ)(,ta.nʊ)	*!				

⁵ In addition to ['kas.ti.tʃa.nʊn], Lorient et al. (1993) reports the existence ['kas.ti.tʃa.nʊ.nin] as a variant found in Konibo speakers.

4. Lexical stress

SK has a small number of native words with exceptional stress.⁶ In all those cases, the stress occurs on the second syllable in spite of it being an open syllable: [a.'wa.pa] (a type of feline), [ka.'βu.dzi] (a type of turtle), [pa.'βi.ki] 'ear', [ku.'pi.tsu] (a type of turtle). Interestingly, this is the only configuration under which exceptional stress is allowed to occur. There are no words in which the second syllable is closed but lexical stress occurs on the initial syllable (that is, *'CV.CVC). Lexical main stress cannot be preserved beyond the second syllable either (that is, *CV.CV.'CV). This study will refer to the constraint in charge of preserving lexical main stress as FAITH-STRESS.

(17) FAITH-STRESS: A vowel specified as a main stress bearer in the input is also a main stress bearer in the output.

I would like to highlight that the constraint FAITH-STRESS used in the analysis is an IO-faithfulness constraint that evaluates whether a specification of lexical stress present in the input has a correspondent in the output. FAITH-STRESS should not be confused with the constraint MATCHSTRESS (Davidson & Noyer 1997), which is a constraint that requires that the stress falls on the same vowel as in a loanword. This constraint runs into a number of problems. First it is only active for loanwords and it requires for a native speaker to have an intermediate to an advance knowledge of the phonology of the language from which she is borrowing words so that she can determine what counts as stress in the source language (see Broselow (2009) for an in-depth discussion of this type of constraint and an alternative in terms of perceptual grammars).

An interesting question that arises is how SK native speakers obtained those lexical specifications in the first place. In SK, main stress is phonetically cued by a combination of high pitch and a phonetic increase of vowel duration (Elías-Ulloa (2011); *cf.* Couto in this volume on the prosody of Saynáwa). Spanish uses the same cues to signal stress syllables (Hualde 2003).⁷ Thus, since SK speakers tend to preserve the correct

⁶ I selected one hundred contiguous pages from Lorient et al. (1993)'s dictionary and manually counted a total of 1224 main lexical entries. I only found twelve cases of native words with exceptional stress (that is, about 1% out of the total).

⁷ Although Spanish uses the same cues for stressed syllables as SK, there are important differences on

location of the Spanish main stress in the words they borrow, this suggests that they pay attention to the phonetic increase in vowel duration as a cue for the stressed status of vowels as well as to the presence of a high pitch usually associated with stressed syllables in Spanish.

SK speakers already do this for the words in their native vocabulary that possess lexical stress. Although those words constitute a small number, compared to the majority of words that follow general principles of stress assignment, native speakers of SK must obtain anyway a phonology that deals with cases of lexical stress even before encountering loanword data from Spanish. On the other hand, nowadays many SK speakers are completely bilingual in SK and in Spanish. So for them, it is not a problem to determine where the stress is in a new loanword from Spanish that they want to incorporate into SK. As mentioned in the outset of this article, young SK speakers tend not to rephonologize loanwords anymore.

In SK, FAITH-STRESS is not an undominated constraint. The fact that lexical stress cannot be preserved on initial syllables when the second syllable is closed or beyond the second syllable of a word means that the satisfaction of FAITH-STRESS is not as important as the satisfaction of the constraint requiring closed syllables to be heavy (that is, WBP – ‘closed syllables have moraic codas’). It also means that FAITH-STRESS is more important than TROCHEE. Let us explain why.

If we had a hypothetical input like /'witaʃ/, with lexical stress on the first vowel, the ranking of constraints would output the form: (wi.'taʃ_μ). The form *('wi.taʃ), in spite of preserving the lexical stress (FAITH-STRESS), is ruled out because it has a closed syllable with a non-moraic coda and this offends the more important constraint WBP. If the closed syllable had a moraic coda and lexical stress was also preserved, *('wi.taʃ_μ), the form would still be ruled out since it upsets WSP: it has an

the alignment of H tones in Spanish that are not found in SK. In standard Peruvian Spanish (as spoken in the capital city, Lima), for instance, words that occupy the final position of a declarative phrase may receive a L+H tonal accent with the high tone (H) realized within the stressed syllable. In non-final position, the same word, unless it has been left unaccented or received focus, also obtains a L+H tonal accent but this time the high tone will begin its realization within the stressed syllable and get its peak during the post-tonic one (Beckman et al. 2002; Hualde 2003). Those subtleties on the alignment of H tones in Spanish are completely ignored by SK speakers when they speak Spanish (Eliás-Ulloa, in preparation).

unstressed heavy syllable. If each syllable formed its own metrical foot so the heavy closed syllable could be stressed, *('wi)(,taʂ_μ), *FOOT(σ) would rule it out because it has metrical feet smaller than two syllables. In contrast, the form (wi.'taʂ_μ), although it does not preserve the lexical stress, it does satisfy WBP (it has a heavy closed syllable), WSP (the heavy syllable appears stressed) and *FOOT(σ) (it only contains disyllabic feet).

Lexical stress could not be preserved beyond the second syllable, either. For a hypothetical form like /ata'pa/, the ranking of constraints outputs ('a.ta).pa. An output that would preserve lexical stress beyond the second syllable, like *a.(ta.'pa), would not have the main foot aligned with the left edge of the word. This violates the constraint ALIGN-MAINFOOT-LEFT.

However, lexical stress is preserved only if all the constraints above FAITH-STRESS are satisfied. For example, the input /pa'βiki/ 'ear' does preserve the lexical stress, (pa.'βi).ki. The reason is that the form (pa.'βi).ki complies with those requirements that are more important than the preservation of lexical stress: it has (i) the main foot aligned with the word left edge, (ii) disyllabic feet and (iii) it does not have unstressed heavy syllables or (iv) a light closed syllable. The main foot has the head syllable aligned with the right edge, which offends TROCHEE, but this is allowed since FAITH-STRESS is more important than TROCHEE.

The ranking relationships discussed thus far are shown in (18).

(18) ALIGN-MNFT-LFT, WSP, GH, *FT(σ) >> WBP >> FAITH-STRESS >> TROCHEE⁸

4.1. Preservation of lexical stress in noun loanwords

The data in (19) presents examples of noun loanwords from Spanish in which the stress falls within the SK stress window but its location in that window does not follow the SK metrical system. The cases shown in (19) correspond to words where the second syllable is open and stressed. In those cases, SK preserves the location of Spanish stress.

⁸ For a full formal analysis of SK metrical system (including restrictions on the distribution of heavy syllables), see Elías-Ulloa 2006; González 2003, 2005). For the purposes of this study, the analysis has been limited to those constraints that are crucial to metrical stress assignment.

(19)	SK Pronunciation	Spanish Pronunciation	Spanish Spelling	Gloss
a.	[ka.'hi]	[ka.'fe]	Café	'Coffee'
b.	[pi.'dʒʊ.ta]	[pe.'lo.ta]	Pelota	'Ball'
c.	[a.'mi.kʊ]	[a.'mi.yo]	Amigo	'Friend'
d.	[βin.'ta.na]	[ben.'ta.na]	Ventana	'Window'
e.	[kas.'ti.kʊ]	[kas.'ti.yo]	Castigo	'Punishment'

The two exceptions found (0.8% of the whole sample), in which the Spanish location of stress was on a second open syllable but SK reassigned the stress according to its own stress rules, correspond to the Spanish words: [sa.'lu.ðo] (*saludo*) 'greetings' and [an.'ti.ywo] (*antiguo*) 'very old.' They were adopted by SK as ['sa.dʒʊ.dʒʊ] and ['an.ti.kʊ.ʊ].

Although the words ['sa.dʒʊ.dʒʊ] and ['an.ti.kʊ.ʊ] are categorized by the analyst as exceptions to the pattern of preservation of the Spanish stress, from the point of view of a SK speaker, they are not exceptions. They simply follow the SK stress rules: main stress occurs on the initial syllable since the second syllable is open. The presence or absence of a lexical stress on the first vowel does not make any difference in the selection of the output form. The same is true for loanwords from Spanish such as ['βʊ.dʒʊ] 'donkey' or ['dʒa.dʒi.ʊ] 'radio' (which come from Spanish ['bu.ro] (*burro*) and ['ra.ðjo] (*radio*) respectively).

The vast majority of cases in which the location of Spanish stress is preserved can be accounted for by positing a lexical stress on the second vowel and computing the input through the ranking proposed in (18). This can be observed in tableau (20) for [a.'mi.kʊ] 'friend' (from the Spanish word [a.'mi.yo] (*amigo*)).

(20)	/a'mikʊ/	ALIGN-MAINFT-LFT	FAITH-STRESS	TROCHEE
a.	☞ (a.'mi).kʊ			*
b.	('a.mi).kʊ		*!	
c.	a.('mi.kʊ)	*!		

The form *a.('mi.kʊ) in (20.c) preserves the Spanish stress but it is ruled out because it has the main foot misaligned with the left edge of the word. In contrast, both candidates (20.a) and (20.b) do have the main foot aligned

with the left edge so that SK has to decide whether it should preserve the lexical stress or not. This is the only case in which the presence of a lexical stress does matter for the ranking in (18). Since the preservation of lexical stress (FAITH-STRESS) is more important than having trochaic feet (TROCHEE), candidate (20.b), *('a.mi).kʊ, is eliminated and the winning candidate, (a.'mi).kʊ, ends up with the main stress on the second syllable.

In section 3.2, we have presented cases of stress assignment in loanwords that in Spanish have the stress beyond the second syllable. We have seen that stress is relocated within the SK stress window (i.e. the initial foot). For instance, the stress in Spanish words like [ka.la.'βo.so] 'jail cell,' which is located beyond the second syllable of the word, is relocated within the SK stress window: ('ka.dʒa)(.βo.so). It does not matter whether the input has either a lexical stress (i.e. /kadʒa'βo.sʊ/) or not (i.e. /kadʒaβo.sʊ/). Since in SK it is more important to have the main foot aligned with the left edge of the word than preserving lexical stress, a lexical specification for stress that occurs beyond the second syllable will never be able to occur. This can be observed in tableaux (21) and (22). The former considers the computation for an input with lexical stress whereas the latter considers it for an input without lexical stress.

(21)	/kadʒa'βo.sʊ/	ALIGN-MAINFT-LFT	FAITH-STRESS	TROCHEE
a.	☞ ('ka.dʒa)(.βo.so)		*	
b.	ka.(dʒa.'βo).sʊ	*!		*

(22)	/kadʒaβo.sʊ/	ALIGN-MAINFT-LFT	FAITH-STRESS	TROCHEE
a.	☞ ('ka.dʒa)(.βo.so)			
b.	ka.(dʒa.'βo).sʊ	*!		*

In the case of (a.'mi).kʊ, presented above, the two initial syllables are open. However, the grammar in (18) preserves the lexical stress on a second open syllable even if there is an initial closed syllable. An example of this pattern is found in the Spanish word [kas.'ti.ɣo] (*castigo*) 'punishment' that was adopted into SK as [kas.'ti.kʊ].

Tableau (23) shows the computation for the input /kas'tiku/, which crucially has a lexical stress on its second vowel. Unlike the winning

candidate, (kas.'ti).kʊ, the form *(kas_μ.'ti).kʊ, shown in (23.e), has its initial closed syllable heavy but unstressed. That is, this candidate, while complying with the requirement of codas being moraic (WBP), violates a more important requirement: the avoidance of unstressed heavy syllables (WSP). Thus, candidate (23.e) is ruled out.

The form *('kas_μ.ti).kʊ satisfies WSP by moving the main stress onto the heavy syllable. However, this candidate, (23.d), is still eliminated. It now contains an uneven trochaic foot, violating the constraint GH. Footing the initial heavy syllable alone, *('kas_μ)(,ti.kʊ), does not help since it would create a monosyllabic foot, which is penalized by *FOOT(σ).

Thus, two candidates are left: (23.a) and (23.b). The former, *(kas.'ti).kʊ, preserves the lexical stress of the input whereas the latter, *('kas.ti).kʊ, ignores the lexical stress and complies with the default stress pattern of the language: a trochaic stress. Since for SK, the preservation of lexical stress is more important, candidate (23.b) is ruled out in favor of (23.a).

(23)	/kas'tikʊ/	WSP	GH	*FOOT(σ)	WBP	FAITH-STRESS	TROCHEE
a.	☞(kas.'ti).kʊ				*		*
b.	('kas.ti).kʊ				*	*!	
c.	('kas _μ)(,ti.kʊ)			*!		*	
d.	('kas _μ .ti).kʊ		*!			*	
e.	(kas _μ .'ti).kʊ	*!					

4.2. Failure to preserve lexical stress within the SK stress window

The ranking in (18) preserves the original location of Spanish stress even if that means contravening its own stress rules. However, two conditions must be fulfilled in order for the grammar in (18) to be able to preserve the original position of Spanish stress: first, the location of Spanish stress must fall into the initial (disyllabic) foot in SK (that is, the SK stress window). Secondly, lexical stress on the second syllable of a word can be preserved if that syllable is an open syllable (e.g. (a.'mi).kʊ 'friend,' (kas.'ti).kʊ 'punishment').

Observe that it is not enough for the Spanish stress to coincide with the SK stress window. SK is unable to preserve lexical stress on the initial

syllable of a word if the second syllable is closed: /'CVCVC / → (CV.'CVC), *(CV.CVC). See data in (24).

(24)	SK Pronunciation	Spanish Pronunciation	Spanish Spelling	Gloss
a.	[ka.'dʒʊs]	['kar.los]	Carlos	(Proper name)
b.	[dʒa.'pis]	['la.pis]	Lápiz	Pencil
c.	[dʒu.'kas]	['lu.kas]	Lucas	(Proper name)
d.	[dʒu.'nis.ni.ti] ⁹	['lu.nes]	Lunes	Monday

The grammar in (18) accounts for the pattern observed in the data in (24). Lexical stress cannot be preserved on an initial syllable if the second syllable is closed because for SK to have a stressed heavy closed syllable occurring within a disyllabic foot is more important. To put it in terms of the ranking in (18), the constraint in charge of lexical main stress (FAITH-STRESS) cannot override the effects of the constraints requiring closed syllables to have moraic codas (WBP) and those governing the distribution of heavy syllable (i.e. WSP and GH) and the grouping of syllables in disyllabic feet (*FOOT(σ)).

This is shown in the tableau in (25). This tableau assumes an input with a lexical stress on the first vowel, but the same output would be obtained if there was no lexical stress (i.e. /dʒapis/) or there was lexical stress on the second vowel (i.e. /dʒa'pis/).

(25)	/dʒapis/	WSP	WBP	FAITH-STRESS	TROCHEE
a.	☞ (dʒa.'pis _μ)			*	*
b.	('dʒa.pis)		*!		
c.	('dʒa.pis _μ)	*!			

Why is the closed syllable in (dʒa.'pis_μ) 'pencil' allowed to attract stress (i.e. to be heavy) and thus triumph over the preservation of lexical stress whereas the closed syllable in (kas.'ti).ku is not allowed to attract stress and forced to succumb before the urgency of preserving lexical stress? This is an interesting question since in the ranking in (18) the requirement

⁹ The SK word [dʒu.'nis.ni.ti] 'Monday' is a compound structured out of two words: [dʒu.'nis] and ['ni.ti]. The former comes from the Spanish word ['lu.nes] 'Monday' and the latter, ['ni.ti], corresponds to the SK word for 'day.'

of having moraic codas is more important than safeguarding lexical stress (WBP >> FAITH-STRESS).

The answer is in the crucial role that the avoidance of uneven trochees (GH) plays in SK (i.e. GH >> WBP >> FAITH-STRESS). Whereas the stressed heavy closed syllable in (dʒa.'pis_μ) does not offend the constraint GH, a stressed heavy closed syllable in *('kas_μ.ti).kʊ would. That is why SK has to abandon its ambitions of having the coda of the initial closed syllable moraic and yields (kas.'ti).kʊ before the preservation of lexical stress.

Conclusions

This article had as an aim to document and analyze a disappearing pattern of re-phonologization of noun loanwords in Shipibo-Konibo. Many younger SK speakers are nowadays completely bilingual in their native language and in Spanish from early stages in their lives. They can easily code-switch between SK and Spanish when they talk among themselves and use many Spanish words when they speak in SK. For them, new loanwords brought into the language tend to maintain the segments, syllable structure and stress position of the original words in Spanish.

In contrast, older native speakers that do not show an advanced degree of bilingualism seem to prefer the use of rephonologized loanwords. The Spanish-like pronunciation does not come easy for them. In this article, I have tried to model their phonological knowledge on how noun loanwords of Spanish origin are rephonologized into SK in terms of stress assignment.

In modeling that linguistic knowledge, I have shown that the same metrical forces that assign main stress to SK native words determine the position of main stress in loanwords. SK can only preserve the original location of Spanish main stress under very strict prosodic conditions. See ranking in (18).

I have argued that the faithfulness constraint FAITH-STRESS does not evaluate whether the stress in a loanword coincides with the stress location in the source language (in this case Spanish). In this article, FAITH-STRESS is satisfied when the SK input form (either the representation of a native word or the representation of a loanword into SK) has a lexical stress specification and the output form also has a correspondent one. Given that in both SK and Spanish, stress syllables are phonetically cued by a longer duration of vowels

and the presence of a high pitch, I assume that SK native speakers lexically mark stress in loanwords from Spanish, when necessary, using those two phonetic cues to determine what syllables bear stress (that is, what syllables occupy a strong position in the prosodic structure of the word).

The preservation of lexical stress, however, does not occur across the board in SK. It can only be obtained if the output of the phonological component satisfies metrical requirements of well-formedness; that is, heavy syllables (=bimoraic syllables) cannot be left unstressed nor can they form an uneven trochaic foot; metrical feet must be disyllabic and always appear aligned to the left edge of the prosodic word.

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