

**Patterns and scales of expressive palatalization:  
Typological and experimental evidence**

*Supplement*

Table A1. Surveyed languages and their genetic affiliation (SS = (diminutive) sound-symbolism, D = diminutive morphological constructions, BT = babytalk, HC = hypocoristics)

<i>Language</i>	<i>Type</i>	<i>Genus</i>	<i>Family (by continent)</i>
Warlpiri	BT	Pama-Nyungan	Australian
Basque, Eastern	D, BT	Basque	Basque
Basque, Western	D	Basque	Basque
Basque	SS	Basque	Basque
Koryak	D	Northern Chukotko-Kamchatkan	Chukotko-Kamchatkan
Chukchi	D	Northern Chukotko-Kamchatkan	Chukotko-Kamchatkan
Kannada, Havyaka	BT	Southern Dravidian	Dravidian
Latvian	BT	Baltic	Indo-European
Greek	BT, D	Greek	Indo-European
Persian	BT	Iranian	Indo-European
Russian	CH	Slavic	Indo-European
Spanish	BT	Romance	Indo-European
Georgian	D	Kartvelian	Kartvelian
Korean	BT	Korean	Korean
Thai	BT	Kam-Tai	Tai-Kadai
Estonian, Southern	BT	Finnic	Uralic
Saami, Kildin	D	Finnic	Uralic
Ojibwa, Island Lake	D	Algonquian	Algic
Cree, Moose and Eastern Swampy	D	Algonquian	Algic
Cree, Eastern	BT	Algonquian	Algic
Cree, Plains and Western Swampy	D	Algonquian	Algic
Yurok	D	Yurok	Algic
Wiyot	D	Wiyot	Algic
Chumash, Ventureño	D	Chumash	Chumash
Huave	D	Huavean	Huavean
Karok	D	Karok	Karok
Miwok, Southern Sierra	D	Miwok	Penutian
Nez Perce	D	Sahaptian	Penutian
Dakota	BT	Siouan	Siouan
Cahuilla	D	Takic	Uto-Aztecan
Cupeño	D	Takic	Uto-Aztecan
Paiute, Northern	D	Numic	Uto-Aztecan
Nuuchahnulth / Nootka	D	Southern Wakashan	Wakashan
Jaqaru	D	Aymaran	Aymaran
Quechua, Tarma	D	Quechuan	Quechuan
Quechua, Wanka	D, BT	Quechuan	Quechuan
Quechua, Santiago del Estero	D	Quechuan	Quechuan

## 1. Targets: Non-coronals and coronals

1.1 In *Kildin Saami*, diminutives are formed by adding the suffix [-a], accompanied by palatalization and degemination of the stem-final consonant. The process targets consonants of all places – labials, velars (a), and coronals (b), all of which acquire secondary palatal articulation. Palatalized consonants are phonemic in the language. (Source: Kert 1971: 83-87).

- (1.1) a. [ʃabb] → [ʃɔb<sup>j</sup>-a] ‘salmon’  
[suvv] → [suv<sup>j</sup>-a] ‘smoke’  
[nemmm] → [nem<sup>j</sup>-a] ‘name’  
[tɔgg] → [tɔg<sup>j</sup>-a] ‘ceiling’  
[jɪŋŋ] → [jɪr<sup>j</sup>-a] ‘ice’
- b. [tudd] → [tud<sup>j</sup>-a] ‘bullet’  
[kuss] → [kuz<sup>j</sup>-a] ‘fur-tree’  
[mann] → [man<sup>j</sup>-a] ‘month’  
[toH] → [to<sup>j</sup>-a] ‘fire’  
[murr] → [mur<sup>j</sup>-a] ‘tree’

1.2 *Southern Estonian* babytalk is characterized by extensive palatalization, which affects both non-coronals (a) (except /ʔ h v/) and coronals (b). On most consonants, palatalization is realized as addition of secondary articulation (while [ts] can shift to either [ts<sup>j</sup>] or [tʃ]). Depending on the dialect, palatalization can be realized “stronger” on word-final or word-initial segments. Notably, palatalized non-coronals are more limited in distribution, occurring before /i/ and word-finally; while palatalized coronals can also occur before back vowels. Many babytalk lexical items exhibit free variation between (plain or palatalized) sibilant fricatives, coronal stops, and affricates, indicative of a strong tendency to affricativization (c). This process can occasionally affect [k] (via [k<sup>j</sup>]). In adult South Estonian speech, palatalization is contrastive in coronals only, being limited to word-final position. (Source: Pajusalu 2001: 86-92).

- (1.2) a. [tibu] → [t<sup>j</sup>ib<sup>o</sup>]~[ts<sup>j</sup>ipp<sup>j</sup>] ‘chick’  
[kirp] → [k<sup>j</sup>irbu] ‘flea’  
[kakk<sup>j</sup>] ‘meat’ (AS *liha*)  
[kukro] → [kukk<sup>j</sup>] ‘piggyback’  
[piim] → [p<sup>j</sup>ipp<sup>j</sup>] ‘milk’
- b. [lutt] → [lutt<sup>j</sup>u] ‘dummy’  
[kardohkas] → [kaid<sup>j</sup>o]~[katt<sup>j</sup>u] ‘potato’

- [jænøʂ] → [jæn<sup>j</sup>o]~[næn<sup>j</sup>o] ‘bunny’  
 [tillokano] → [ts<sup>j</sup>ill<sup>j</sup>o] ‘tiny’  
 [orikas] → [or<sup>j</sup>o]~[or<sup>j</sup>ø] ‘barrow’  
 c. [susi] → [sus<sup>j</sup>o]~[ts<sup>j</sup>yts<sup>j</sup>o] ‘wolf’  
 [silm] → [s<sup>j</sup>imm]~[s<sup>j</sup>imm<sup>j</sup>]~[ts<sup>j</sup>imm] ‘eye’  
 [k<sup>j</sup>iis<sup>j</sup>o]~[t<sup>j</sup>iitsu]~[ts<sup>j</sup>iitsu] ‘kitty’ (AS *kass*)  
 [sysar] → [tsytsa]~[ts<sup>j</sup>its<sup>j</sup>æ] ‘sister’

**1.3** In *Georgian*, diminutives can be formed by a shift of various consonants to alveolar or post-alveolar affricates. Target consonants include coronal stops (a), coronal sonorants (b), and velar stops (c). (Source: Neisser 1953: 41-44; cf. Nichols 1971: 831).

- (1.3) a. [toto] ‘neugeboren Junges Tier’ → [tʃotʃori] ‘Tierjunges’  
 [pit<sup>j</sup>i] → [pitʃ<sup>j</sup>i] ‘Honigscheibe’  
 [kotani] ‘Topf’ → [kotsɔ] ‘kleiner Weinkrug, kleiner Topf’  
 [k<sup>j</sup>vnit<sup>j</sup>i] → [k<sup>j</sup>vnts<sup>j</sup>i] ‘Bißchen’, from [k<sup>j</sup>vnet<sup>j</sup>a] ‘nagen, beissen’  
 b. [k<sup>j</sup>bena] ‘beißen’ → [na-k<sup>j</sup>betʃa] ‘bebeißen, anbeißen’  
 [puri] ‘Kuh’ → [putʃina] ‘Kälbchen (immer im Munder von Kindern)’  
 c. [nak<sup>j</sup>uk<sup>j</sup>i] → [natʃ<sup>j</sup>utʃ<sup>j</sup>i] ‘Schale’  
 [kunkuri] → [tʃuntʃuri] ‘Beschälung’  
 [u-k<sup>j</sup>mak<sup>j</sup>uri] → [u-ts<sup>j</sup>mats<sup>j</sup>uri] ‘unschön, schlecht’

**1.4** In *Western* varieties of *Basque*, diminutives are often produced by shifting an initial consonant of any place of articulation to a palato-alveolar affricate [tʃ] (a), or by inserting a [tʃ] to fill in a syllable onset (b). (Source: Hualde & Urbina 2003: 39).

- (1.4) a. [pispildu] → [tʃispildu] ‘become happy after drinking, PRF’  
 b. [Øijuri] → [tʃijuri] ‘ant’

## 2. Targets: Coronal sonorants and obstruents only

**2.1** *Warlpiri* babytalk is noted for ‘heavy palatalization’, imitating speech of small children, commonly referred to as ‘*jacajaca-waŋkami*’ ‘speech sounding like [jacajaca] (syllables with palatal consonants)’. As part of babytalk, all alveolar and retroflex stops, nasals, and laterals ([t n l ɟ ŋ ʎ]) shift to the corresponding palatals [c ɲ ʎ] (ab). The

rhotics (the alveolar flap /r/, the retroflex tap /ɽ/, and the retroflex approximant /ɻ/) shift to the palatal glide [j] (c). This process effectively neutralizes a 3-way coronal contrast to a single palatal set. Non-coronals (labials and velars) remain unaffected. (Source: Laughren 1984: 74-80).

- (2.1) a. [wita] → [wica] ‘small’  
[jani] → [jaɲi] ‘go’  
[jali] → [jaɫi] ‘that/there’
- b. [wita cara pala jali-**la** maɲu-kari-ja] →  
[wica caxa paɫa jaɫi-**ɫa** maɲu-kaxi-ja] ‘You two little ones, play over there!’
- c. [ɽamara] → [jamaja] ‘ribs’  
[piɽaku] → [pijaku] ‘satiated’  
[ɽira-paɽu] → [ɫija-pawu] ‘mouth, diminutive’

## 2.2 Basque

2.2.1 In *Eastern* varieties of *Basque* (e.g. Baztan dialect), diminutives are produced by shifting apical and laminal dentals/alveolars [tʃ tʃ̺ ʃ̺ ɟ̺ ɟ̺̺ ɲ̺ ɲ̺̺] to posterior coronals of the same manner of articulation [tʃ̠ ʃ̠ c̠ ɟ̠ ɲ̠] (a). The shifts involving sibilants are noted to be most common, compared to palatalization of sonorants, which may be optional. The tap [r] changes to [ɫ], [j], or fails to palatalize (b). The trill [r] and non-coronals never palatalize. The same consonant shifts apply in babytalk (the “care-taker language”), as shown in (c). (Source: Hualde & Urbina 2003: 39-40; cf. Hualde 1991: 122).

- (2.2.1) a. [ʃ̺agu] → [ʃ̠agu] ‘mouse’  
[ʃ̺akur] → [ʃ̠akur ~ tʃ̠akur] ‘dog’  
[otʃ̺] → [otʃ̠] ‘cold’  
[tanta] → [canca] ‘drop’  
[eder] → [eɟer] ‘beautiful’  
[labur] → [ɫabur~labur] ‘short’
- b. [bero] → [beɫo~bejo~bero] ‘hot’
- c. [otʃ̺ iten du] → [otʃ̠ iceɲ̠ ju] ‘it is cold’

2.2.2 *Basque* sound symbolic vocabulary is characterized by a great incidence of consonants that are otherwise relatively infrequent in the language – lamino-alveolar and palato-alveolar sibilant fricatives and affricates, and palatal stops. Among the posterior coronals, the sibilants [tʃ̠] and [ʃ̠] are particularly common (for example, accounting for over 70% of items with word-initial posterior coronals), while sonorants [ɲ̠] and [ɫ] are

the least common. Many of reduplicative sound-symbolic items with posterior coronals have a clear diminutive connotation (a) and often contrast with items having anterior coronals (b) (cf. Japanese mimetic palatalization). Posterior coronals also occur frequently in babytalk-specific lexical items (c). (Source: Ibarretxe-Antuñano 2006: 9, 12, 17-18, 66-77).

- (2.2.2) a. [ʧiki-ʧikia] ‘very small’  
 [ɲoɲoro] ‘small person’
- b. [ʧapa-ʧapa] ‘walk taking small steps’, cf. [tapa-tapa] ‘tip-toeing’, [trapa-trapa] ‘walk’  
 [caka-caka] ‘walk taking baby steps’, cf. [taka-taka] ‘toddling’, [traka-traka] ‘walk, trot’  
 [coko-coko] ‘walk slowly taking small steps’, cf. [toko-toko] ‘walk step by step’  
 [cara-cara] ‘drag little by little’, cf. [tara-tara] ‘drag helter-skelter’  
 [ʃabu-ʃabuka] ‘swinging, rocking’, cf. [ʃabu-ʃabu] ‘teetering, tottering’
- c. [apatʃ] ‘sit down’  
 [ʧiʧi] ‘meat’

**2.3** *Huave* verbal diminutives, which denote attenuated versions of states and actions or add some affective connotation, are produced by raising all root-internal vowels to high and shifting root-internal alveolar consonants ([t<sup>h</sup> d<sup>h</sup> ts<sup>h</sup> s<sup>h</sup> n<sup>h</sup> l]) to their posterior coronal counterparts ([c<sup>h</sup> ʧ<sup>h</sup> ʃ<sup>h</sup> ɲ<sup>h</sup> ʎ<sup>h</sup>]), as shown in (a). Noncoronals [p<sup>m</sup> b<sup>m</sup> m<sup>w</sup> k<sup>h</sup> g<sup>w</sup> k<sup>w</sup> ŋ<sup>w</sup>] and rhotics [r<sup>h</sup> r] are never palatalized (b) (the change of [r] to [r<sup>h</sup>] occurs automatically before [i]). (Source: Kim 2008: 42, 320).

- (2.3) a. [n-a-<sup>h</sup>dan] → [n-a-<sup>h</sup>ɲɲ] ‘blocked’  
 [sono<sup>h</sup>g] → [ʃoɲu<sup>h</sup>g] ‘pile up’  
 [lohc] → [ʎuhc] ‘pierce’
- b. [-wa<sup>h</sup>tsak] → [-wi<sup>h</sup>ʧik] ‘twist’  
 [-sopop] → [-ʃupup] ‘drizzle’  
 [-poros] → [-puruʃ] ‘crunching sound’

**2.4** In many dialects of *Quechua*, alveolars [s<sup>h</sup> n<sup>h</sup> l] shift to their posterior coronal counterparts [ʃ<sup>h</sup> ɲ<sup>h</sup> ʎ<sup>h</sup>] to denote smallness or affection. The example in (a) is from Tarma Quechua. Data in (b) and (c) illustrate hypocoristic formation in Wanca Quechua and Santiago del Estero Quechua, respectively. In the latter dialect, the shift among fricatives is extended to adjectival diminutives and some reduplicative sound-symbolic items (d).

Notably, the phonetically unconditioned occurrence of [ʃ] in this dialect is mainly limited to diminutive sound symbolism and hypocoristics. Also, the contrast between retroflex and palato-alveolar sibilants in Wanca Quechua is limited to expressive vocabulary, having been merged elsewhere. (Sources: Adelaar 2004: 204 on Tarma Quechua, Cerron-Palomino 1977: 108 on Wanca Quechua, and Reuse 1986: 57-61 on Santiago del Estero Quechua).

- (2.4) a. [ʎanu] ‘thin’ → [ʎaɲu] ‘very thin’
- b. *Santiago* → [ʃanti]                      *Benedicto* → [biɲi]  
*Eustaquio* → [uʃta]                      *Alejandro* → [aʎiku]  
*Inosente* → [iɲu]                          *Apolinario* → [puʎi]
- c. *Absalón* → [abʃa]                      *Cecilio* → [ʃiʃi]  
*Gaspar* → [gaʃpa]                      *Bonifacio/Bonifacia* → [buɲi]  
*Isabel* → [iʃa]                              *Juanico* → [xwɲi-ku]  
*Zacarias* → [ʃaka]                      *Manuel* → [maɲu-ku]  
*Segundo* → [ʃigu]
- d. [aʃi-ku] ‘smiling’, cf. [asi-] ‘to laugh’  
[ʃati-ku] ‘meddlesome’, cf. [sati-] ‘to insert’  
[uʃa-ku] ‘lousy’, cf. [usa] ‘louse’  
[kuʃi-kuʃi] ‘a small ground spider that seems to run around as if it were happy’, cf. [kusi] ‘happy’  
[ʃira-ʃira] ‘a solitary kind of wasp that builds nests under roofs’, cf. [sera] ‘to sew’

**2.5** *Latvian* babytalk is characterized by a large number of register-specific lexical items, many of which are not directly derived from adult speech (AS) lexical items. Compared to the latter, babytalk items have considerably higher frequency of “palatalized” consonants – both sonorants [ɲ ʎ rʲ] (a) and (particularly) sibilant obstruents [tʃ ɕ ʃ ʒ] (b). Alveolar sibilant affricates are also common, often arising from alveolar stops and fricatives (c) (which are also the source of post-alveolar affricates (b)). All the resulting coronal palatal/palatalized consonants are phonemic in *Latvian* (with /rʲ/ being marginal). (Source: Rūķe-Draviņa 1977: 239-251).

- (2.5) a. [ɲam ɲam]~[ɲamma:t] ‘to eat’ (AS *ēst*)  
[pʎunku pʎunku] ‘to bathe’ (AS *mazgāties*)  
[rʲuk rʲuk]~[rukse] ‘little pig’ (AS *cūka*)
- b. [tʃuʃɲa:t] ‘to sleep’ (AS *gulēt*)

[aija: ʒu:ʒu:] ‘to make the baby sleep’ (interjection)

[tsigɨŋʃ]~[ʧigɨŋʃ] ‘foal’ (AS *kumelš*)

[kuze]~[kuʒa] ‘horse’ (AS *zīrgs*)

[tuku tuku]~[ʧuku ʧuku] ‘train’ (AS *vilciens*)

[sni:pis]~[ʃni:pitis] ‘nose’ (AS *dēguns*)

[tsa:ʧis]~[ʧa:ʧis] ‘potato’ (AS *kartupelis*)

[tsipatuot]~[ʧapart] ‘to walk’ (AS *iet, staigāt*)

[tsu:tsis]~[ʧuʃʧɨŋʃ] ‘(young) dog’ (AS *suns*)

c. [tsu:tse] ‘backside’ (AS *dibēns*)

[tizis]~[tita]~[tsisis]~[tsiʧa] ‘teat’ (AS *krūts* ‘mother’s breast’)

**2.6** In *Russian*, hypocoristics are formed by truncation of original names, often accompanied by palatalization of stem-final plain consonants. Stem-final palatalized consonants tend to retain palatalization. Only coronals, however, get palatalized or retain their original palatalization (a). Non-coronals do not get palatalized or lose their original palatalization (or shift to the hypocoristic ‘default’ sibilant fricative [ʃ]). Among the coronals, the trill /r/ shows some vacillation: in masculine names it is often depalatalized or palatalized optionally. The resulting palatalized coronal consonants are phonemic. While the language contrasts plain and palatalized labials (e.g. [tʲema] ‘theme’ vs. [pʲemʲa] ‘tribe’), palatalized velars are marginal and do not occur stem-finally. (Source: Soglasnova 2003: 68-70; cf. Stankiewicz 1957).

- (2.6) a. [stʲepan] → [stʲop-a]    [jerʲemʲej] → [jerʲom-a]  
           [tʲixon] → [tʲix-a]      [anʲikʲij] → [anʲik-a]  
       b. [vʲitalʲij] → [vʲitʲ-a]    [vadʲim] → [vadʲ-a]  
           [ivan] → [vanʲ-a]      [vʲenʲiamʲin] → [vʲenʲ-a]  
       c. [jurʲij] → [jur-a]  
           [igorʲ] → [gor-a]~[gorʲ-a]

**2.7** *Cahuilla* words with diminutive meaning are noted to have high incidence of palatal consonants (/ʃ ɲ ʎ/), although diminutive sound symbolism is not fully productive. (Source: Hinton 1991: 147).

- (2.7)    [ʔiɲiʃiʎ] ‘little’  
           [-maʎ] ‘a diminutive affix’, cf. Luiseño [-mal]

**2.8** In *Cupeño*, diminutiveness is characterized by palatal consonants, similarly to the closely related *Cahuilla*. (Source: Hinton 1991: 147, citing Hill & Nolasquez 1973: 118).

(2.8) [puɬɪŋ-iʃ-ʔəp] ‘I was a baby’, from [pulɪn] ‘to bear a child’ + diminutive [-iʃ]

2.9 In *Koryak*, the production of diminutives involves a shift of alveolars [t n l] to the corresponding palatals [c ɲ ʎ]. (Source: Comrie 19xx: 243 ).

(2.9) [lɛwət] ‘head’ → [ɬawt-əpiʎ] ‘little head’

### 3. Targets: Coronal obstruents (non-sibilants and sibilants) only

3.1 The production of *Island Lake Ojibwa* diminutives is characterized by a shift of stem-internal alveolar obstruents [t s] to palato-alveolar sibilants [tʃ ʃ], which is often (but not always) accompanied by an addition of the diminutive suffix [-enihs] (a). The (derived or underlying) palato-alveolar fricative [ʃ] is optionally shifted to the affricate [tʃ] (b). The process applies right-to-left, as evident in its optional application to consonants that are further away from the right edge of the word. The degree of right-to-left application of the process seems to be related to the “degree of diminution”, with, for example the second output form in (b) referring a smaller duck than the first form. (Source: Shrofel 1981: 98-102).

- (3.1) a. [kihtikan] → [kihtʃikan] ‘little garden’  
[ke:hte:-te:hsapo:n-enihs] → [ke:htʃe:tʃe:htʃapo:ne:nhtʃ] ‘little ancient chair’  
[ʃi:witʃi:hs(-enihs)] → [tʃi:witʃi:htʃ(e:nhtʃ)] ‘little candy’
- b. [ʃi:hʃi:p-enihs] → [ʃi:hʃi:pe:nhtʃ] ~ [tʃi:htʃi:pe:nhtʃ] ‘little duck’

### 3.2 Cree

3.2.1 Diminutives in *Moose Cree* and *Eastern Swampy Cree* are derived using the suffix [-iʃiʃ]. The addition of the suffix triggers a shift of stem-internal alveolar obstruents [t s] to palato-alveolar sibilants [tʃ ʃ]. (Source: Melnychuk 2003: 22-25).

- (3.2.1) [wi:htikow-iʃiʃ] → [wi:htʃikow-iʃiʃ] ‘little windigo’  
[si:pɪj-iʃiʃ-ihk] → [ʃi:pi:ʃiʃihk] ‘in the creek’  
[tapa-ʃi:ʃ] → [tʃapaʃi:ʃ] ‘down below’  
[iskwe:w-iʃiʃ] → [iʃkwe:ʃiʃ] ‘girl’

3.2.2 Babytalk in *Cree* involves a shift of alveolars, mainly obstruents [t s], to palato-alveolar affricate and fricative [tʃ] and [ʃ] respectively, or just to the affricate. The shift is



often accompanied by obstruent voicing, resulting in a non-phonemic [ɖʒ]. (Source: Jones 1988: 141-148 ).

- (3.2.2) [ætum] → [æɖʒum-ʃ] ‘doggie’  
 [nu:ʃæ:nhi] → [ʃu:ʃæ:nhi]~[ʃuʃu]~[ɖʒuɖʒu] ‘breastfeed’  
 [suzæn] → [ɖʒuɖʒæn] ‘Suzan’  
 [æʃtum] → [æɖʒum] ‘come’

**3.3** *Wiyot* diminutives are produced by adding the affix /-o:ts/, which triggers a number of stem-internal consonant changes, among them the shift of alveolar fricative [s] to post-alveolar [ʃ] and of alveolar stop [t] to affricate [ts]. (Source: Teeter 1959: 41-42; cf. Nichols 1971: 842).

- (3.3) [lolisw-iɬ] ‘he sings’ [roriʃw-o:ts-iɬ] ‘he hums’  
 [tawi:paʔliɬ] ‘he sings’ → [tsawi:paʔroɬ-o:ts] ‘twine’  
 [laptʔw] ‘cloud’ → [laptsoʔjaw-o:ts] ‘little cloud’

### 3.4 Greek

3.4.1 In *Greek* babytalk, consonants are noted to be “strongly palatalized”. This appears to refer exclusively to coronal obstruents acquiring secondary palatal articulation before front and back vowels (a). In some lexical items, dental or alveolar fricatives [ð z] shift to palato-alveolar [ʒ] (b). Neither palatalized coronals, nor [ʒ] are phonemic in Greek (although the former may occur allophonically before front vowels in some dialects). (Source: Pareskevas-Shepard 1985: 25-27).

- (3.4.1) a. [psomi] → [s<sup>j</sup>omi] ‘bread’  
 [okto] → [ot<sup>j</sup>o] ‘eight’  
 [ɖziɖziki] → [z<sup>j</sup>iz<sup>j</sup>iki]  
 [θelis] → [s<sup>j</sup>elis] ‘you want’  
 [kimiθume] → [kimis<sup>j</sup>ume] ‘we’ll sleep’  
 b. [luluði] → [luluzi]~[luluʒ] ‘flower’  
 [akuzi] → [akuʒ] ‘bear’

3.4.2 In *Greek*, alveolar affricates [ts] and [ɖʒ], which are marginal phonemes of the language, occur at a great frequency in expressive vocabulary, including sound symbolic items denoting ‘smallness’ (a), diminutive affixes (b), hypocoristics (c), and babytalk-specific lexical items (d). Diachronically, affricates have developed through a number of

“sporadic and irregular” changes: for example [ts] arose from coronals [s] and [t], and from non-coronal [k] and (the sequence) [ps]. (Source: Joseph 1994: 224-231).

- (3.4.2) a. [tsita-tsita] ‘just barely’ (said of a tight fit)  
[tsima-tsima] ‘right up to the edge, close’  
[tsiros] ‘thin person’ (“dried mackerel”)  
[ɟuɟes] ‘dwarf’  
[ɟingu-ɟingu] ‘drop-by-drop’ (West Crete dialect)
- b. [-itsa], [-itsi], [-utsikos], [-ɟikos] ‘affective diminutive for adjectives’, e.g.  
[ɣlik-os] ‘sweet’, [ɣlik-utsikos] ‘cute’  
*Dimitrios* → [mitsos]  
*Konstandinos* → [kotsos]
- c. [tsatsa] ‘auntie’  
[tsitsi] ‘meat’  
[tsis(i)a]~[ɟis(i)a] ‘peepee’  
[pitsipitsi] ‘(act of) washing’  
[ɟa]~[tsa] ‘peek-a-boo!’

#### 4. Targets: Coronal non-sibilant obstruents only

**4.1** In *Western Swampy Cree* and *Plains Cree*, an addition of the diminutive suffix [-isis] triggers a change of alveolar stop [t] to affricate [ts]. Unlike *Eastern Swampy Cree* and *Moose Cree* (which exhibit a shift of [t s] to [tʃ ʃ]), these dialects do not have phonemic palato-alveolars. (Source: Melnychuk 2003: 22, 35; cf. Hockett 1956: 203 on Plains Cree).

- (4.1) [nite:m-isis] → [nitse:misis] ‘my little horse’  
[nitsatsihkosis] ‘my little caribou’, cf. [nitatihk] ‘caribou’  
[atsimosis] ‘puppy’, cf. [atim] ‘dog’

**4.2** *Yurok* diminutives involve a shift of alveolar stop [t] to palato-alveolar affricate [tʃ]. (Source: Nichols 1971: 842, citing Haas 1970: 89 and Robins 1958: 14, 189 ff).

- (4.2) [pontet] ‘ashes’ → [pontʃɔʃ] ‘dust’

**4.3** In *Karok*, diminutive suffixes [-itʃ], [-atʃ], [-iʃ] trigger a shift of dental fricative [θ] to palato-alveolar affricate [tʃ] (among other changes). (Source: Nichols 1971: 842, citing Bright 1956: 76-79).

(4.3) [itʃani:p-itʃ] ‘small fur tree’, cf. [iθari:p] ‘fur tree’

**4.4** In *Jaqaru*, alveopalatal stops denote ‘smallness’ (occurring mainly in Quechua loans). (Source: Adelaar 2004: 315).

(4.4) [cahʃa] ‘small’ (from Central Peruvian Quechua [takʃa])  
[ucucuʎqu] ‘goblin’ (from Central Peruvian Quechua [utʃuk uʎqu] ‘little man’)

**4.5** *Chukchi* employs a shift [t̪] to [tʃ] in verbs to denote “special terms” and “single momentary actions” (as opposed to “generalized terms” and “continued actions”). The shift may also add diminutive connotation. (Source: Bogoras 1922: 834-835; cf. Nichols 1971: 831).

(4.5) [t̪eivu] ‘to walk’ → [tʃeivu] ‘to walk for a little while’  
[t̪iʎep] → [tʃiʎep] ‘to look’  
[t̪aʎaivu] → [tʃaʎaivu] ‘to strike’

## 5. Targets: Sibilant obstruents only

**5.1** *Ventureño Chumash* diminutives are produced by a shift of both alveolars [ts s] and palato-alveolar [ʃ] to palato-alveolar affricate [tʃ] (or sometimes to alveolar affricate [ts]). This process (and other non-palatalizing diminutive changes) sometimes applies in conjunction with the depreciative affix [-ʔiwaʃ] (which becomes [-ʔiwatʃ]). (Source: Harrington 1974: 8-9).

(5.1) [tʃjəwʃ] ‘his head’ → [tʃjəwətʃ] dimin., [tʃjəwətʃʔiwatʃ]) deprec. dimin.  
[ʔoxʃol] → [ʔoqtʃol]~[ʔoqtsol] ‘urine’  
[tskutet] → [tʃkutet] ‘he sucks’

**5.2** In *Nuuchahnulth (Nootka)*, alveolar and palato-alveolar coronal affricates [ts tʃ tsʻ tʃʻ] and fricatives [s ʃ] shift to non-phonemic alveolopalatals [tɕ tɕʻ] and [ç] when “speaking

of small people” or “small birds” (Source: Nichols 1971: 845, citing Sapir [1915] 1949: 182).

- (5.2) [hin-t-ʃit̪-weʔin] ‘he comes, they say’ → [hin-t-ʃit̪-ʔiʃ-weʔin] ‘he, little man, comes, they say’ (with the diminutive suffix [-ʔis] → [-ʔiʃ])

**5.3** In *Northern Paiute* diminutives, alveolar fricatives [s z] shift to affricates of the same place, [ts tʃ]. (Source: Nichols 1971: 842, citing M. J. P. Nichols, ms.).

- (5.3) [siziʔa] ‘big girls, teenagers’ → [tsidziʔa] ‘little girls’  
[isa] ‘wolf’ → [idza] ‘coyote’

**5.4** In *Havyaka Kannada*, many lexical items specific to babytalk, exhibit a shift of coronal fricatives to palato-alveolar affricate [tʃ]. (Source: S. Bhat 1967: 36).

- (5.4) [hase] → [hatʃe] ‘mat’  
[pa:jasa] → [pa:tʃa] ‘pudding’  
[gla:su] → [gatʃu] ‘glass’  
[pi:ʃakat:i] → [pi:tʃi] ‘knife’

**5.5** *Persian* babytalk is characterized by a number of consonantal shifts, including a change of alveolar fricatives to post-alveolars (or palatals). (Source: Paribakht 1978: 46-47).

- (5.5) [sæla:m] → [ʃæla:m]~[çæla:m] ‘hello’  
[ba:zi] → [ba:ʒi] ‘play’  
[xoʃmaeʒaes] → [xoʃmaeʒaes] ‘is it delicious?’

**5.6** *Dakota* exhibits a productive shift of alveolar fricatives [s z] to post-alveolars [ʃ ʒ] ‘when petting children’ (Source: Nichols 1971: 846, citing Boas & Deloria 1939: 112-113).

- (5.6) [s z] → [ʃ ʒ]

**5.7** *Southern Sierra Miwok* diminutives exhibit a shift of alveolar fricative [s] to palato-alveolar [tʃ], although the process is no longer productive. (Source: Nichols 1971: 843, citing Broadbent 1964: 20-21).

- (5.7) [ʔeseli:i] ‘child’ → [ʔetʃeli:i] ‘baby’  
[pu:si] ‘cat’ → [pu:tʃi] ‘kitty’  
[mus:a] ~ [mutʃ:a] ‘be ashamed’

**5.8** In *Wanca Quechua* babytalk, retroflex sibilants [tʃ ʃ] shift to their palato-alveolar counterparts [tʃ ʃ]. (Source: Cerron-Palomino 1977: 108).

- (5.8) [tʃ ʃ] → [tʃ ʃ] in babytalk

**5.9** *Spanish* babytalk is characterized by a “widespread” shift of alveolar fricative [s] to palato-alveolar affricate [tʃ] – the change that serves as “an identifying feature of baby talk”. (Source: Ferguson 1964: 105-106, 108, 109).

- (5.8) [beso] → [betʃo] ‘kiss’  
[vamos] (calle) → [mamotʃ] ‘going out’  
[susjo] → [tʃutʃo] ‘dirty’

**5.10** *Korean* babytalk is characterized by a shift of alveolar fricatives [s s\*] to affricates [c c\*] (which are laminal alveolars or post-alveolars), among other changes. (Source: Yoonjung Kang, p.c. 12/13/2007).

- (6.8) [kɪræs\*ʌ] → [kɪdæc\*ʌ] ‘did so, said so’

**5.11** In *Thai* babytalk, the alveolar fricative [s] shifts to the affricate [tʃ]. (Source: Nattaya Piriyawiboon, p.c. 01/20/2008).

- (6.9) [sǔaj] → [tʃǔaj] ‘pretty’  
[sǒŋsǎan] → [tʃǒŋtʃǎan] ‘pity’  
[sǔa] → [tʃǔa] ‘shirt’  
[sǐpsǎam] → [tʃɪptʃǎam] ‘thirteen’

**5.12** *Nez Perce* diminutives involve a shift of alveolar fricative [s] to affricate [ts] (among other non-palatalizing changes), with or without diminutive reduplication. (Source: Nichols 1971: 843, citing Haruo Aoki, p.c.).

- (5.11) [ketis] ‘spear’ → [katitskatits] ‘toy spear’  
[waswasno] ‘chicken’ → [watswatsno] ‘saddle horn’

## References (Appendix only)

- Adelaar, Willem, and P. C. Muysken. 2004. *The languages of the Andes*. Cambridge: Cambridge University Press.
- Bhat, Shankara D. N. 1967. Lexical suppletion in baby talk. *Anthropological Linguistics* 9:33–36.
- Boas, Franz, and Ella Deloria. 1939. Notes on the Dakota: Teton dialect. *International Journal of American Linguistics* 7:97–121.
- Bogoras, Waldemar. 1922. Chukchee. In *Handbook of American Indian languages* (BAE-B 40:2), 631–903. Washington: Smithsonian Institution.
- Bright, William. 1957. *The Karok language*. (UCPL, 13.) Berkeley & Los Angeles: University of California Press.
- Broadbent, Sylvia. 1964. *The Southern Sierra Miwok language*. (UCPL, 38.) Berkeley & Los Angeles: University of California Press.
- Cerron-Palomino, Rodolfo Marcial. 1977. Huanca-Quechua Dialectology. Doctoral dissertation, University of Illinois at Urbana-Champaign.
- Comrie, Bernard. 1981. *The languages of the Soviet Union*. Cambridge: Cambridge University Press.
- Ferguson, Charles A. 1964. Baby talk in six languages. *American Anthropologist, New Series*, 66:103–114.
- Ferguson, Charles A. 1977. Baby talk as a simplified register. In *Talking to children: Language input and acquisition*, ed. Catharine E. Snow and Charles A. Ferguson, 209–235. Cambridge: Cambridge University Press.
- Haas, Mary R. 1970. Consonant symbolism in northwestern California: A problem in diffusion. In *Languages and cultures of western North America: Essays in honor of Sven S. Liljebäck*, ed. Earl H. Swanson, Jr., 86–96. Pocatello: Idaho State University Press.
- Harrington John P. 1974. Sibilants in Ventureño. *International Journal of American Linguistics* 40:1–9.
- Hill, Jane H., and Rosinda Nolasquez. 1973. *Mulu'wetam: The first people, Cupeño oral history and language*. Banning, California: Malki Museum Press.
- Hinton, Leanne. 1991. Takic and Yuman: A study in phonological convergence. *International Journal of American Linguistics* 57:133–157.
- Hockett, Charles. 1956. Central Algonquian /t/ and /c/. *International Journal of American Linguistics* 22:202–207.
- Hualde, José Ignacio. 1991. *Basque phonology*. London: Routledge.
- Hualde, José Ignacio, and Jon Ortiz de Urbina. 2003. *A grammar of Basque*. Mouton de Gruyter.
- Ibarretxe-Antuñano, Iraide. 2006. *Sound symbolism and motion in Basque*. Munich: Lincom Europa.
- Jones, Linda M. 1988. Cree baby talk and universal baby talk. Doctoral dissertation, McMaster University.

- Joseph, Brian D. 1994. Modern Greek *ts*: beyond sound symbolism In *Sound symbolism*, ed. Leanne Hinton, Joanna Nichols, and John Ohala, 222–236. Cambridge: Cambridge University Press.
- Kert, G. M. 1971. *Saamskii iazyk (Kildinskii dialekt): Fonetika, morfologija, sintaksis*. Moscow: Nauka.
- Kim, Yuni. 2008. Topics in the phonology and morphology of San Francisco del Mar Huave. Doctoral dissertation, University of California, Berkeley.
- Laughren, Mary. 1984. Warlpiri baby talk. *Australian Journal of Linguistics* 4:73–88.
- Melnychuk, Teresa D. 2003. Diminutive consonant harmony in several dialects of Cree. Master's thesis, University of Manitoba.
- Neisser, Friedrich. 1953. *Studien zur georgischen Wortbildung*. (Deutsche morgenlandische Gesellschaft, Abhandlungen, 31:2.) Wiesbaden: Steiner.
- Nichols, Johanna. 1971. Diminutive consonant symbolism in Western North America. *Language* 47:826–848.
- Pajusalu, Karl. 2001. Baby talk as a sophisticated register: A phonological analysis of South Estonian. *Psychology of Language and Communication* 5:81–92.
- Pareskevas-Shepard, Cornelia. 1985. One-way talking: My Greek motherese. *Kansas Working Papers in Linguistics* 10:24–32.
- Paribakht, Tahereh. 1978. Persian babytalk. Master's thesis, McGill University.
- Reuse, Willem J. de. 1986. The lexicalization of sound symbolism in Santiago del Estero Quechua. *International Journal of American Linguistics* 52:54–64.
- Robins, R. H. 1958. *The Yurok language*. (UCPL, 15.) Berkeley & Los Angeles: University of California Press.
- Rūķe-Draviņa, Velta. 1977. Modifications of speech addressed to young children in Latvian. In *Talking to children: Language input and acquisition*, ed. C. Snow and C. A. Ferguson, 237–254. Cambridge: Cambridge University Press.
- Sapir, Edward. [1915] 1949. Abnormal types of speech in Nootka. In *Canada Geological Survey* 62, Anthropological Series 5. Ottawa. Reprinted in Sapir 1949:179–96.
- Shrofel, Salina M. 1981. Island Lake Ojibwa morphophonemics. Doctoral dissertation, University of Toronto.
- Soglasnova, Svetlana. 2003. Russian hypocoristic formation: A quantitative approach. Doctoral dissertation, University of Chicago.
- Stankiewicz, Edward. 1957. The expression of affection in Russian proper names. *Slavic and East European Journal* 1:196–210.
- Teeter, Karl V. 1959. Consonant harmony in Wiyot, with a note on Cree. *International Journal of American Linguistics* 25:41–43.