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Integrating sound symbolism with core grammar: The case of expressive palatalization

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Factbook

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A 1
1. Secondary palatalization

1.1 Southern Estonian babytalk

Babytalk in Southern Estonian (Finnic, Uralic) 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 [tʃ] or [ʃ]). 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 [kʃ]). In adult South Estonian speech, palatalization is contrastive in coronals only, being limited to word-final position. (Based on Pajusalu 2001: 86-92).

(a) 
[a. [tibu] → [tʰibu]~[tsʰi]\textsuperscript{p}j] ‘chick’
[kirp] → [kʰirbu] ‘flea’
[kakk]\textsuperscript{t} ‘meat’ (AS liha)
[kukro] → [kukk]\textsuperscript{t} ‘piggyback’
[piim] → [pʰi]\textsuperscript{p}p ‘milk’

[b. [lutt] → [luttu] ‘dummy’
[kardohkas] → [kaid]\textsuperscript{o}~[katt]\textsuperscript{u} ‘potato’
[jænøs] → [jæn]\textsuperscript{o}~[næn]\textsuperscript{o} ‘bunny’
[tillokano] → [tsʰi]\textsuperscript{l}po ‘tiny’
[orikas] → [or]\textsuperscript{t}o~[or]\textsuperscript{t} ‘barrow’

[c. [sus] → [sus]\textsuperscript{o}~[tsʰyts]\textsuperscript{o} ‘wolf’
[silm] → [slimm]~[slimm]~[tsʰimm] ‘eye’
[k\textsuperscript{t}iis]\textsuperscript{o}~[tʰiitsu]~[tsʰitsu] ‘kitty’ (AS kass)
[sysar] → [tsytsa]~[tsʰts]\textsuperscript{æ} ‘sister’

1.2 Kildin Saami diminutives

In the Kildin dialect of Saami (Finnic, Uralic), 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. (Based on Kert 1971: 83-87).

(1.2) a. [ʃa] → [ʃɑ]-a ‘salmon’
[suv] → [sv]-a ‘smoke’
[nɛmm] → [nɛm]-a ‘name’
[ɫɒɡɡ] → [ɫɡ]-a ‘ceiling’
[jiŋŋ] → [jiŋ]-a ‘ice’

b. [ɫu] → [ɫu]-a ‘bullet’
[kuss] → [kuz]-a ‘fur-tree’
[mann] → [man]-a ‘month’
[toɫ] → [tol]-a ‘fire’
[murr] → [mur]-a ‘tree’

1.3 Russian hypocoristics
In Russian (Slavic, Indo-European), hypocoristics are formed by the 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. [tje] ‘theme’ vs. [plje] ‘tribe’), palatalized velars are marginal and do not occur stem-finally. (Based on Soglasnova 2003: 68-70; see also Stankiewicz 1957).

(1.3) a. [stɛpan] → [stɔp]-a [jerɛm]-ej → [jerom]-a
[tɪx] → [tɪx]-a [anɪk]-ij → [anɪk]-a
b. [vɪtalj] → [vɪt]-a [vadɪm] → [vad]-a
[ɪvan] → [væŋ]-a [vɛnɪamɪn] → [vɛŋ]-a
c. [jurlj] → [jur]-a
[ɪɡɔ] → [gor]-a-[gor]-a

1.4 Greek babytalk
In Greek (Greek, Indo-European) 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). (Based on Pareskevas-Shepard 1985: 25-27).

(1.4) a. [psomi] → [sɔmi] ‘bread’
[okto] → [ot]- ‘eight’
[dzidzi] → [zɪz]-i
[θelis] → [slis] ‘you want’
[kimιθume] → [kimιs]-ume ‘we’ll sleep’
b. \([\text{lulu}\delta i] \rightarrow [\text{lulu}\theta i]–[\text{lulu}\theta 3]\) ‘flower’

\([\text{aku}\z i] \rightarrow [\text{aku}\z 3]\) ‘bear’

### 1.5 Japanese sound symbolism

In the sound symbolic stratum of Japanese (Isolate) vocabulary, palatalization of consonants is associated with ‘childishness’ and ‘uncontrolledness’. Palatalized variants of labials, velars, and the flap \([r]\) have secondary palatalization, while palatalized variants of anterior coronals \([t \, d \, s \, n]\) are posterior coronals (alveopalatals) \([\theta \, d\delta \, n]\). The usual structure of mimetic forms with palatalization is a reduplicated CVCV root. Only one consonant per root gets palatalized. This is typically a non-rhotic coronal (in roots with coronals and non-coronals or with two coronals).

(Based on Hamano 1986/1998; Kakehi et al. 1996; see also Mester & Ito 1989; Alderete & Kochetov 2009; Kurisu 2009). Alderete and Kochetov’s (2009) dictionary survey of mimetic reduplicative CVCV roots revealed a strong preference for the palatalization of coronal obstruents (81% of all forms) compared to coronal non-rhotic sonorants (11%), as well as for coronals in general (92%) compared to non-coronals (8%) and \(/r/\) (0%).

\[(1.5) \quad [\text{ʧ} \, \text{o} \, \text{ko} \, -\text{ʧ} \, \text{o} \, \text{ko}] \quad \text{‘moving like a small child’}

cf. \([\text{t} \, \text{o} \, \text{k} \, \text{oko}] \quad \text{‘trotting’}

[\text{ka} \, \text{ʧ} \, \text{a} \, -\text{ka} \, \text{ʧ} \, \text{a}] \quad \text{‘the sound of keys hitting against each other’}

cf. \([\text{k} \, \text{a} \, \text{ka} \, -\text{ka} \, \text{t} \, \text{a}] \quad \text{‘the sound of a hard object hitting the hard surface’}

[\text{p} \, \text{j} \, \text{o} \, \text{ko} \, -\text{p} \, \text{j} \, \text{o} \, \text{ko}] \quad \text{‘hopping around in a childish bobbing motion’}

cf. \([\text{p} \, \text{o} \, \text{k} \, \text{o} \, \text{oko}] \quad \text{‘making holes here and there’}

### 1.6 Polish diminutives and hypocoristics

Polish (Slavic, Indo-European) diminutives exhibit a complex set of alternations, some of which can be attributed to regular phonological palatalization, while others appear to be exclusively expressive. Among the latter, are changes of stem-final fricatives and affricates \([s \, z \, x \, z\text{t}\delta]\) to palatal fricatives \([\theta \, \z \theta]\) before diminutive suffixes \(-\text{o}, \ -\text{a}\). These changes are noted to be “frequently encountered in … ‘baby talk’” (Szpyra 1989: 167-168, 1995: 32). Similar changes appear in hypocoristics (Cyran & Szymanek 2010: 14), but seem to affect almost any stem-final consonant (1a). (Alternatively, \(-\text{ɕ} \) in these cases can be regarded as a hypocoristic suffix: Łubowicz et al. 2006). There is also evidence that in recent diminutive formations, expressive palatalization takes over ground from the regular phonological palatalization, particularly in cases of alternations that are not well-established in the lexicon (Czaplicki 2014ab). For example, the posterior coronal \(/\text{s}/\) prefers the diminutive suffix \(-\text{i} \text{k}\) (with the change to \([\text{ɕ}]\)) over \(-\text{i} \text{k} \text{or} \ -\text{e} \text{k}\) (which do not trigger palatalizing changes). Similarly, most anterior coronals and labials take \(-\text{i} \text{k}\) becoming palatal(ized), while most posterior (retroflex) coronals and velars take \(-\text{i} \text{k} \text{or} \ -\text{e} \text{k},\) resisting palatalization. In addition, the palatals \(/\text{s}/\) and \(/\text{ɕ}/\) in recent diminutives with \(-\text{e} \text{k}\) retain their palatalization. This is in contrast to earlier formations that favoured depalatalization of these consonants to \(/\text{n}/\) and \(/\text{s}/\) (Czaplicki 2013: 41-42).

\[(1.6) \quad \text{a. } \text{Adam} \ [\text{adam}] \rightarrow \text{Adaś} \ [\text{adaɕ}]

\text{Jan} \ [\text{jan}] \rightarrow \text{Jaś} \ [\text{jaɕ}]

\text{Zofi-a} \ [\text{zofia}] \rightarrow \text{Zosi-a} \ [\text{zoɕa}]

\text{Monik-a} \ [\text{monika}] \rightarrow \text{Monisi-a} \ [\text{moniɕa}]

\text{b. } \text{fundu}[^{\text{s}}] \ ‘\text{fund}’ – \text{fundu}[^{\text{ɕ}}]-\text{i} \text{k} \]
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klo[ʂ] ‘lampshade’ – klo[ɕ]-ik
arku[ʂ] ‘sheet’ – arku[ɕ]-ik

a. pie[ɲ] ‘stump’ – pie[ɲ]-ek
ogie[ɲ] ‘fire’ – ogie[ɲ]-ek
oko[ɲ] ‘perch’ – oko[ɲ]-ek
mi[ɕ] ‘bear’ – mi[ɕ]-ek,
Ja[ɕ] ‘proper name’ – Ja[ɕ]-ek,
Sta[ɕ] ‘proper name’ – Sta[ɕ]-ek

1.7 Marathi babytalk
In Marathi (Indic, Indo-European), babytalk involves a number of palatalizing changes: sibilant alveolars /ʦ ʣ s z/ become post-alveolars [ʧ ʤ ʃ], the sibilant post-alveolar fricative /ʃ/ becomes affricate [ʧʰ], dental stops /t ̪ d ̪/ become palatalized alveolars [t ̪ ʲ d ̪ ʲ], the liquids /r/ and /l/ become [ɭ]. Note that the resulting palatalized alveolars are novel sounds that are not part of the phonemic inventory; post-alveolars are marginally phonemic, commonly occurring in the standard language as allophones of /ʦ ʣ s z/ before front vowels. (Based on Kelkar 1964: 44)

(1.7) a. [ʦəvɡa] → [ʧəvɡa] ‘(no glosses provided)’
[ʣəvɑ̃] → [ʃəvɑ̃]
[ʃəkʰɭ] → [ʃəkʰɭ] → [ʧʰakʰɭ]
[ʃəhna] → [ʧʰaŋhna]
[ʧu] → [tɭu]
[ɭʰav] [dʰav]
[ɭuɑ̃] → [ɭuɑ̃]
[ɾam] → [ʃɐm]

2. Place shifts, typically coronals

2.1 Arandic babytalk
In Arandic (Pama-Nyungan, Australian) babytalk, all apical alveolar and retroflex consonants [t n l ʈ ɳ ɭ] are converted to laminal consonants that vary in place between dental and palatal [k-c ɡ-j ь-ь] (a). Given this, the contrast between laminal dentals and laminal palatals is also neutralized. At a later stage, apical alveolars are introduced, while the place contrasts within apicals and laminals remain to be neutralized. The rhotics are avoided in babytalk, with the retroflex approximant [ɭ] and the apical alveolar tap [ɾ] to glides ([w] or [j]) or deleting (b). (Based on Turpin, Demuth, & Campbell 2014).

(2.1) a. [ʃəˈtɔmə] → [ʃəm-ʃəm] ‘hit’
[ʃəɳɖən] → [ʃənɛm-ʃənɛm] ‘rock, hill’
[ʃəˈməŋə] → [ʃəm-ʃəŋə] ‘tucker’
[ʃələ] → [ʃəʌɛʃə] ‘sing’
b. [ʃəˈməŋə] → [ʃəmɪmɪ] (re duplicated) ‘mother-in-law’
[ʃəˈmɛnɛl] → [ʃəmɛnɛl] ‘clothes’
2.2 (Eastern) Basque diminutives and hypocoristics

2.2.1 In Eastern varieties of Basque (Isolate) (e.g. Baztan dialect), diminutives are produced by shifting apical and laminal dentals/alveolars [ʦ ʦ̺ ʂ ʂ̺ ʎ ɬ ʟ n] (<tz ts z s t d l n>) to posterior coronals of the same manner of articulation [ʧ ʃ ɕ ɲ ʎ l] (<tx x tt dd ñ ll>) (a). The shifts involving sibilants are noted to be most common, compared to palatalization of sonorants, which may be optional. The tap [ɾ] changes to [ʎ], [j], or fails to palatalize (b). The trill [r] and non-coronals never palatalize. (Based on Hualde & Urbina 2003: 39-40; Hualde 1991: 122; see also Hualde 2015).

(2.2.1) a. [ʂaŋu] → [ʃaŋu] ‘mouse’
   [ʂakur] → [ʃakur ~ ʧakur] ‘dog’
   [ɔtʂ] → [ɔʃ] ‘cold’
   [tanta] → [canca] ‘drop’
   [eder] → [ʃer] ‘beautiful’
   [labur] → [ʃabur–labur] ‘short’

b. [bero] → [beʃo–bejo–bero] ‘hot’

2.2.2 The same process applies in modern Basque hypocoristics. Sibilants in these forms are noted to be the most common targets (and outputs); the voiceless stop /t/ is commonly targeted as well, while the palatalization of /d/ and /n/ is restricted to eastern dialects, and the palatalization of /l/ is ‘not habitual’ (Salaberri Zaratiegi 2003: 330-331).

(2.2.2) A(g)ustina → Auxtina ~Auxtiña (ʂ → ʃ, n → ɲ)
Basilio → Basilio (ʂ → ʃ)
Egoitx → Egoitx (ʦ → ʧ)
Zumar → Xumar (ʂ → ʃ)
Antonio → Anttonio (t → c)
Bartolo(meo) → Bartolo (t → c)
Domingo → Ddomingo (d → ʃ)
Fernando → Ferrando (d → ʃ)
Andres → Anddex (d → ʃ, ʂ → ʃ)
Mari → Maddi (ɾ → ʃ)
Ana → Aña (n → ɲ)
Bernardo → Beñardo (n → ɲ)
Manuel → Mañuel (n → ɲ)
Dolores → Dollores ~ Dolorex (l → ʎ, ʂ → ʃ)

2.3 Eastern Basque babtalk

In Eastern varieties of Basque (Isolate), the consonant shifts mentioned in 2.2 above also apply in babtalk (the “care-taker language”). Here palatalization typically affects all palatalizable consonants in a phrase. (Based on Hualde & Urbina 2003: 39-40; Hualde 1991: 122; see also Hualde 2015).

(2.3) [ɔtʂ ɬen du] → [ɔʃ ɭɛʃ ʃu] ‘it is cold’
   [saʃi ɬa ɬeraʃu ʃortʃeko] → [ʃaʃi ɬa ɬeraʃu ʃortʃeko] ‘go and tell him/her to come’
   [ʃortʃen baʃar] → [ʃortʃen bafarə] ‘if you come’
2.4 Guridji Kriol babytalk
In Gurindji Kriol (an English creole based on Gurindji, a Pama-Nyungan language) babytalk register, the contrast between apical alveolar and apical post-alveolar consonants (stops, nasals, and laterals [t (d) n l]) is neutralized, with both sets becoming alveolopalatal ([ɟ ɲ ʎ]). The process applies in both Gurindji- or Kriol-derived words. The trill [r] and the tap [ɾ] become [ɟ], with the former also turning into [j], [w], or [l] intervocically. Apical alveolar and apical post-alveolar approximants [ɹ ɻ] become glides [w] or [j] (a). (Based on Jones & Meakins 2013: 178-180).

(2.4) a. [mʊdɪkɐ] → [mʊɟɪkɐ] ‘car’
[ɬɪŋ] → [ɬɪŋ] ‘ear’
[næŋɡɔt] → [næŋɡɔc] ‘goat’
[kɛŋɡɪŋɡo] → [kɛŋɡɪŋɡo] ‘stick-ERG’
b. [βɛɾɪm] → [βɛɹɪm] ‘bite’
[ɛɾɛt] → [ɛɾɛt] ‘that way’
[kɛɾʊ] → [kɛɾʊ ~ kɛwʊ] ‘child’
[kɛŋɡoʊo] → [kɛŋɡoʊo] ‘kangaroo’

2.5 Huave diminutives
Huave (Huavean) 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 n l]) to their posterior coronal counterparts ([c ɲ ʎ]), as shown in (a). Noncoronals [p b m w k ɲɡ kw] and rhotics [r ŋ] are never palatalized (b) (the change of [r] to [ɾ] occurs automatically before [i]). (Based on Kim 2008: 42, 320).

(2.5) a. [n-a-ŋdən] → [n-a-ɲjʊn] ‘blocked’
[soŋɡ] → [fʊŋɡ] ‘pile up’
[lohɛ] → [ɭuɦɛ] ‘pierce’
b. [-waʰsak] → [-wiʰfɪk] ‘twist’
[-soʊp] → [-ʃuˈp] ‘drizzle’
[-poɾoʃ] → [-pʊɾuʃ] ‘crunching sound’

2.6 Koryak diminutives
In Koryak (Northern Chukotko-Kamchatkan, Chukotko-Kamchatkan), the production of diminutives involves a shift of alveolars [t n l] to the corresponding palatals [c ɲ ʎ]. (Based on Comrie 1981: 243).

(2.6) [lewɔt] ‘head’ → [ɭawt-ɔpiʎ] ‘little head’

2.7 Warlpiri babytalk
Warlpiri (Pama-Nyungan, Australian) 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]) shift to the corresponding palatals [c ɲ ʎ] (ab). The rhotics
(the alveolar flap /ɾ/, 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. (Based on Laughren 1984: 74-80).

(2.7) a. [wita] → [wica] ‘small’
   [jani] → [jaʃi] ‘go’
   [jali] → [jaʃi] ‘that/there’

b. [wita cara pala jali-[a maŋu-kari-ja] →
   [wica caja pala jaʃi-ʃa maŋu-kaj-ja] ‘You two little ones, play over there!’

c. [ämara] → [jamaja] ‘ribs’
   [piʃaku] → [piʃaku] ‘satiated’
   [iɾa-paɾu] → [ǻjia-pawu] ‘mouth, diminutive’

2.8 Basque sound symbolism

Basque (Isolate) 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 [ʧ] and [ʃ] are particularly common (for example, accounting for over 70% of items with word-initial posterior coronals), while sonorants [n] and [ʎ] 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). (Based on Ibarretxe-Antuñano 2006: 9, 12, 17-18, 66-77).

(2.8) a. [ʧiki-ʧikia] ‘very small’
   [noporo] ‘small person’


   [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’

c. [apaʧ] ‘sit down’
   [ʧiʧi] ‘meat’

2.9 Mapuche sound symbolism

In Mapuche (Araucanian), the palatalizing changes [s θ] → [ʃ], [t tʃ] → [ʧ], [n] → [ɲ], [r] → [j] express “a difference in emotional value, in degree of formality and in size of the person or object referred to”. Among the changes, those involving fricatives are most common. (Based on Smeets 2008: 31-34).

(2.9) a. [kisu] → [kiʃu] ‘alone’
   [aθ] → [aʃ] ‘form, habit’
   [piθku] → [piʃku] ‘legume’
   [ʃotim] → [ʃotim] ‘son (of a man)’
   [tʃipa-] → [ʧipa-] ‘to leave’
[aʃɛˑɭpen] → [aʃɛˑɭpeɲ] ‘floating ashes’
[mirke] → [mijke] ‘roasted flour’

2.10 Cahuilla diminutives
Cahuilla (Takic, Uto-Aztecan), words with diminutive meaning are noted to have high incidence of ‘palatal consonants’ (with examples including [ʃ n ʎ]; it is not clear if [ʃ] is part of it), although diminutive sound symbolism is not fully productive. (Based on Hinton 1991: 147).

(2.10)  [ʔiɲıʃi] ‘little’
[-maɭ] ‘a diminutive affix’, cf. Luiseño [-mal]

2.11 Cupeño diminutives
In Cupeño (Takic, Uto-Aztecan), diminutiveness is characterized by palatal consonants, similarly to the closely related Cahuilla. (Based on Hill & Nolasquez 1973: 118; Hinton 1991: 147).

(2.11)  [puɭiɲ-iʃ-ʔəp] ‘I was a baby’, from [pulin] ‘to bear a child’ + diminutive [-iʃ]

2.12 Quechua diminutives and hypocoristics
In many dialects of Quechua (Quechuan), alveolars [s n l] shift to their posterior coronal counterparts [ʃ n ʎ] 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. The contrast between retroflex and palato-alveolar sibilants in Quechua is limited to expressive vocabulary, having been merged elsewhere. (Based on Adelaar 2004: 204 on Tarma Quechua, Cerron-Palomino 1977: 108 on Wanca Quechua, and Reuse 1986: 57-61 on Santiago del Estero Quechua).

(2.12)  a.  [ɬanu] ‘thin’ → [ɬanu] ‘very thin’
  b.  Santiago → [ʃanti]  Benedicto → [biʃi]
      Eustaquio → [ʃuta]  Alejandro → [aʃiku]
      Inosente → [ʃu]  Apolinario → [puʃi]
  c.  Absalón → [ʃafa]  Cecilio → [ʃiji]
      Gaspar → [ʃapa]  Bonifacio/Bonifacia → [biʃi]
      Isabel → [ʃa]  Juancito → [ʃwaʃi-ku]
      Zacarias → [ʃaka]  Manuel → [maʃu-ku]
      Segundo → [ʃiɡu]

2.13 Latvian babytalk
Latvian (Baltic, Indo-European) 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 [n ʎ r] (a) and (particularly) sibilant obstruents [ʃ ʒ 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 /r/ being marginal). (Based on Rūķe-Draviņa 1977: 239-251).

(2.13)  a.  [ʃam ʃam]~[ʃammaːt] ‘to eat’ (AS ēšt)
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[pA̱ńku pA̱ńku] ‘to bathe’ (AS mazgāties)
[r'u̱k r'u̱k]–[rukse] ‘little pig’ (AS cūka)

b. [tfufija:t] ‘to sleep’ (AS gulēt)
[aijɑ: 3uː3uː] ‘to make the baby sleep’ (interjection)
[tʃiʃiʃ]–[tʃiʃiʃ] ‘foal’ (AS kumeļš)
[kuz]-[kuʒ] ‘horse’ (AS zirgs)
[tuku tuku]–[tfuku tfuku] ‘train’ (AS vilciens)
[tsa]:[ʃiʃ]–[tʃa]:[ʃiʃ] ‘potato’ (AS kartupelis)
[tʃaputɔ]-[tʃapa:t] ‘to walk’ (AS iet, staigāt)
[tsu]:[ʃiʃ]–[tʃufiʃ] ‘(young) dog’ (AS suns)

(2.14)  [wiːhtikow-iʃiʃ] → [wiːhʃikowiʃiʃ] ‘little windigo’
[tʃapa-iʃiʃ] → [tʃapafa:iʃiʃ] ‘down below’
[iskwe:w-iʃiʃ] → [iʃkweʃiʃ] ‘girl’

2.15 Cree babytalk

Babytalk in Cree (Algonquian, Algic) involves a shift of alveolars, mainly obstruents [t s], to palato-alveolar affricate and fricative [ʃ] and [ʃ] respectively, or just to the affricate. The shift is often accompanied by obstruent voicing, resulting in a non-phonemic [ʤ]. (Based on Jones 1988: 141-148).

(2.15)  [ætum] → [ædʒum-ʃ] ‘doggie’
[nuːʃe:nhi] → [ʃuːʃe:nhi]–[ʃuʃu]–[dʒudʒu] ‘breastfeed’
[suzæn] → [dʒudʒan] ‘Suzan’
[ætum] → [ædʒum] ‘come’

2.16 Island Lake Ojibwa diminutives

The production of Island Lake Ojibwa (Algonquian, Algic) diminutives is characterized by a shift of stem-internal alveolar obstruents [t s] to palato-alveolar sibilants [ʧʃ], 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 [ʧ] (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. (Based on Shrofel 1981: 98-102).

(2.16)  a.  [kihtikan] → [kihtʃikan] ‘little garden’
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2.17 Latvian diminutives

In Latvian (Baltic, Indo-European), diminutive suffixes [-uk-] and [-el-] trigger a number of stem-final changes that are different from the regular palatalization alternations. With [-uk-], root-final anterior sibilants [s z ʦ ʣ] become posterior [ʃ ʒ ʧ ʤ] in both ‘palatalizing’ (a) and ‘non-palatalizing’ declensions (b) (while phonological palatalization applies only in the former, where it is triggered by a glided thematic vowel [i] - yod palatalization). Root-final velars [k ɡ] become [ʧ ʤ] (also in both types of declensions) (c). This is an unusual output, as phonological palatalization before front vowels produces [ʦ ʣ] and in certain special cases (loanwords) [c ɟ]. With [-el-], anterior sibilants [s z ʦ ʣ] become posterior [ʃ ʒ ʧ ʤ] (d), while non-diminutive e-initial suffixes (e.g. –en-) do not trigger palatalization. This diminutive palatalization normally targets the root-final sibilants, but can optionally apply non-locally (e). Root-final velars /k ɡ/ become palatales [c ɟ] (an output different from [-uk-]) (f). Note that phonological palatalization of velars before front vocoids produces a different output, [ʦ ʣ]. (Based on Urek 2016: 138-140; 141-143; 151-155)

(2.17) a. [ez-i-uk-s] → [ez-uk-s] ‘hedgehog’
    [pu:ts-e-uk-s] → [pu:ʧ-uk-s] ‘owl’
    [daʣ-e-uk-s] → [dadʒ-uk-s] ‘thistle’
  b. [daːrz-a-uk-s] → [daːrz-uk-s] ‘garden’
    [maːs-a-uk-s] → [maʃ-uk-s] ‘sister’
    [muts-a-uk-s] → [mutf-uk-s] ‘barrel’
  c. [zirq-a-uk-s] → [zirʤ-uk-s] ‘horse’
    [vilk-a-uk-s] → [vilʧ-uk-s] ‘wolf’
  d. [daːrz-a-el-i-s] → [daːrz-el-i-s] ‘garden’
    [maːs-a-el-i-s] → [maʃ-el-i-s] ‘sister’
    [muts-a-el-i-s] → [mutf-el-i-s] ‘barrel’
  e. [aːkst-el-i-s] → [aːkst-el-i-s] ~ [aːkʧ-el-i-s] ‘clown’
    [straus-el-i-s] → [straus-el-i-s] ~ [strausel-i-s] ‘ostrich’
    [sird-el-e] → [sird-el-e] ~ [ʃrd-el-e] ‘heart’
    [makst-el-e] → [makst-el-e] ~ [makʃt-el-e] ‘womb’
  f. [liː:dak-a-el-e] → [liː:dac-a-el-e] ‘pike’
    [zirq-a-el-i-s] → [zirʤ-el-i-s] ‘horse’
    [tsuː:k-a-el-e] → [tsuː:c-a-el-e] ‘pig’

2.18 Dakota babytalk


(2.18) [s z] → [ʃ ʒ]
2.19 Nuuchahnulth diminutives
In *Nuuchahnulth* (a.k.a Nootka; Southern Wakashan, Wakashan), alveolar and palato-alveolar coronal affricates [ʦ ʧ ʦ’ ʧ’] and fricatives [sʃ] shift to non-phonemic alveolopalatals [ʨ] and [ɕ] when “speaking of small people” or “small birds” (Based on Nichols 1971: 845, citing Sapir [1915] 1949: 182).

(2.19) [hin-tʃiʔ-weʔin] ‘he comes, they say’ → [hin-tɕiʔ-ʔiʔ-weʔin] ‘he, little man, comes, they say’ (with the diminutive suffix [-ʔi] → [-ʔie])

2.20 Persian babytalk
*Persian* (Iranian, Indo-European) babytalk is characterized by a number of consonantal shifts, including a change of alveolar fricatives to post-alveolars (or palatals). (Based on Paribakht 1978: 46-47).

(2.20) [sælɑːm] → [ʃælɑːm]~[çælɑːm] ‘hello’
[baːzi] → [baːʒi] ‘play’
[xoʃmaezaes] → [xoʃmaezæs] ‘is it delicious?’

2.21 Wanca Quechua babytalk
In *Wanca Quechua* (Quechuan) babytalk, retroflex sibilants [ʈʂ ʂ] shift to their palato-alveolar counterparts [ʧ ʃ]. (Based on Cerron-Palomino 1977: 108).

2.22 Santiago del Estero Quechua sound symbolism
In the *Santiago del Estero* dialect of *Quechua* (Quechuan), adjectival diminutives and some reduplicative sound-symbolic items show a shift of /s/ to /ʃ/. This appears to be an extension of the pattern observed in diminutives and hypocoristics (see 2.12). The phonetically unconditioned occurrence of [ʃ] in this dialect is mainly limited to diminutive sound symbolism. (Based on Reuse 1986: 57-61).

(2.22) [afɪ-ku] ‘smiling’, cf. [asi-] ‘to laugh’
[ʃatɪ-ku] ‘meddlesome’, cf. [sati-] ‘to insert’
[kuʃi-kuʃi] ‘a small ground spider that seems to run around as if it were happy’, cf. [kusi] ‘happy’
[ʃɪra-ʃɪra] ‘a solitary kind of wasp that builds nests under roofs’, cf. [ʃera] ‘to sew’

2.23 Jaqaru diminutives
In *Jaqaru* (Aymaran), alveolopalatal stops denote ‘smallness’ (occurring mainly in Quechua loans). /ʃ/ is phonemic, but does not seem to participate in sound symbolism (Based on Adelaar 2004: 315; Hardman 1966: 128-129).

(2.23) [ceahʃa] ‘small’ (from Central Peruvian Quechua [takʃa])
[uccuʃaqu] ‘goblin’ (from Central Peruvian Quechua [ufuʃ uʃaqu] ‘little man’)
[ucici] ‘small’
[uceica] ‘little’
[waʃkaʃa] ‘a little’

A 12
2.24 Wiyot diminutives

Wiyot (Wiyot, Algic) diminutives are produced by adding the affix [-oːʦ] (occasionally realized as [-oːʧ]), which triggers a number of stem-internal consonant changes, among them a shift of the alveolar fricative [s] to the post-alveolar [ʃ] and of the alveolar stop [t] to the affricate [ʦ] (a). In some words, the change is manifested without affixation (b). Note that the language also shows a sound-symbolic change of [t] to [ʧ], which is, however, limited to augmentative formations (Based on Teeter 1959: 41-42; 1964: 22, 30, 52; cf. Nichols 1971: 842).

(2.24) a. [loli-sw-il] ‘he sings’ [rori-ʃw-oːʦ-il] ‘he hums’
   [tawî-paʔil] ‘he sings’ → [tsawî-paʔrol-oːʦ] ‘twine’
   [lapoʔw] ‘cloud’ → [laptoʔaw-oːʦ] ‘little cloud’

b. [ditatk] ‘two roundish objects’ → [ditatsk] ‘two small roundish objects (such as peas)’

3. Affrication I: [ʧ]

3.1 Western Basque diminutives and Old Basque hypocoristics

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

(3.1) a. [pispildu] → [ʧispildu] ‘become happy after drinking, PRF’
   b. [Øiɲuri] → [ʧiɲuri] ‘ant’

3.1.2 Similar patterns have been observed in Old Basque hypocoristics, where “at least in the 15th and 16th centuries the palatalization of the name could consist of putting a ‘protetic’ affricate sound in the word-initial position” (Salaberri Zaratiegi 2003: 330).

(3.1) Ferran → Txerran (f →ʧ)
   Gabon → Txabon (g →ʧ)
   Grazia → Txaxi (gr →ʧ, ʃ →ʃ)
   Lope → Txope (l →ʧ)
   Madelel(a) → Txadalen (m →ʧ)
   Mari(a) → Txaria (m →ʧ)
   Peru → Txeru (p →ʧ)
   Ana → Txana (0 →ʧ)
   Andres → Txandres (0 →ʧ)
   Urdin → Txurdin (0 →ʧ)

3.2 Georgian diminutives

In Georgian (Kartvelian), 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). (Based on Neisser 1953: 41-44; cf. Nichols 1971: 831).
(3.2) a. [toto] ‘neugeboren Junges Tier (a newborn young animal)’ → [ʧoʧori] ‘Tierjunges (a cub)’
[pit’i] → [pit’i] ‘Honigscheibe (a honeycomb)’
kotani] ‘Topf’ → [koʦo] ‘kleiner Weinkrug, kleiner Topf (a small jug of wine, a small pot)’
[k’vni’i] → [k’vniʦ’i] ‘Bißchen (a bit)’, from [k’vnet’a] ‘nagen, beissen (to gnaw, to bite)’
b. [k’bena] ‘beißen (to bite)’ → [na-k’beʧa] ‘bebeißen, anbeißen (to bite into)’
[puri] ‘Kuh (a cow)’ → [puʧina] ‘Kälbchen (immer im Münder von Kindern) (a calf (when speaking to children))’
c. [nak’uk’i] → [naʧ’utʧ’i] ‘Schale (a shell, skin)’
kunkuri] → [ʧunfturi] ‘Beschäulung (covering)’
[u-k’mak’uri] → [u-ʦ’mats’uri] ‘unschön, schlecht (ugly, bad)’

3.3 Osage diminutives
In Osage (Siouan), anterior stops and affricates /t ht ts hʦ/ alternate with posterior affricates [ʧ hʧ] to convey diminutive meaning or (in kinship terms) endearment. Apart from their expressive usage, [ʧ hʧ] rarely occur in the regular vocabulary. The phenomenon is noted to be pan-Siouan. (Based on Quintero 2004: 34, 86).

(3.3) [wa-hóʃta-zi] → [wa-hóʧta-zi] ‘a little bit’; cf. [wa-hóʃta] ‘little, small’
[táaʰpa] ‘round’ → [ʧáaʰpa] ‘short and round, squat’
[wiʰʃʊʃpa] → [wiʰʧʊʃpa] ‘my grandchild’

3.4 Yurok diminutives
Yurok (Yurok, Algic) diminutives involve a shift of alveolar stop [t] to palato-alveolar affricate [ʧ]. (Based on Nichols 1971: 842, citing Haas 1970: 89 and Robins 1958: 14, 189 ff.).

(3.4) [pontet] ‘ashes’ → [pontʧet] ‘dust’

3.5 Bengali babytalk
In Bengali (Indic, Indo-European), the babtalk register involves a number of phoneme substitutions, including the affrication of the post-alveolar fricative [ʃ] to [ʧʰ]. The rhotic [r] gets deleted or changes to [l]. (Based on Dil 1971: 23)

(3.5) [ʃap] → [ʧʰap] ([~ tʰap/ʈʰap]) ‘snake’
[rɔʃʊgolla] → [rɔʧʊgolla] ([~ rɔtʰʊgolla]) ‘sweets’

3.6 Chukchi diminutives
Chukchi (Northern Chukotko-Kamchatkan, Chukotko-Kamchatkan) employs a shift [l] to [ʧ] in verbs to denote “special terms” and “single momentary actions” (as opposed to “generalized
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3.6 Ventureño Chumash diminutives

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

3.7 Japanese babytalk

In Japanese (Isolate) babytalk, anterior sibilant fricatives [s z] and the affricate [ʦ] are systematically replaced with the posterior (alveolopalatal) affricates [ʧ] and [ʤ]. The change of [s] to [ʃ] is also possible, seemingly denoting a lesser degree of ‘babyishness’. (Based on Chew 1969; Kochetov & Alderete 2011).

3.8 Havyaka Kannada babytalk

In Havyaka Kannada (Southern Dravidian, Dravidian) many lexical items specific to babytalk, exhibit a shift of coronal fricatives [s ɕ] to the palato-alveolar affricate [ʧ]. (Based on S. Bhat 1967: 36).

3.9 Karok diminutives

In Karok (Isolate), diminutive suffixes [-iʧ], [-aʧ], [-iʃ] trigger a shift of the dental fricative [θ] to the palato-alveolar affricate [ʧ] (among other changes). /s/, /t/, and other consonants do not palatalize. (Based on Bright 1956: 76-79; Nichols 1971: 842).
3.11 Korean babtalk

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

(3.11) \[\text{kiræs*}_A \rightarrow \text{kidæc*}_A\] ‘did so, said so’

3.12 Southern Sierra Miwok diminutives

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

(3.12) \[\text{ʔesel}:i\] ‘child’ \[\rightarrow \text{ʔeʧel}:i\] ‘baby’
\[\text{pu:si}\] ‘cat’ \[\rightarrow \text{pu:ʧi}\] ‘kitty’
\[\text{mus:a}\] ~ \[\text{mutf:a}\] ‘be ashamed’

3.13 Spanish babtalk and hypocoristics

3.13.1 Spanish (Romance, Indo-European) babtalk is characterized by a “widespread” shift of the alveolar fricative [s] to the palato-alveolar [ʧ] – the change that serves as “an identifying feature of baby talk” (Ferguson 1964: 105-106, 108, 109). This change is particularly commonly found in Latin American Spanish (b) (Boyd-Bowman 1955: 350-351).

(3.13.1) a. \[\text{beso}\] \[\rightarrow \text{betʧo}\] ‘kiss’
\[\text{vamos}\] (calle) \[\rightarrow \text{mamotʧ}\] ‘going out’
\[\text{susjo}\] \[\rightarrow \text{ʧuʧo}\] ‘dirty’

b. Mexican Spanish
\[\text{señor} \rightarrow \text{chenol}\ (s \rightarrow \text{ʧ})\]
\[\text{manzana} \rightarrow \text{manchana}\ (s \rightarrow \text{ʧ})\]

Argentine Spanish
\[\text{señora} \rightarrow \text{cheñora}\ (s \rightarrow \text{ʧ})\]
\[\text{zapato} \rightarrow \text{chapato}\ (s \rightarrow \text{ʧ})\]

3.13.2 Hypocoristics in (mainly Latin American) Spanish exhibit a number of phoneme substitutions including [s] \[\rightarrow \text{ʧ}\] (a). The change is commonly accompanied by the truncation of initial unstressed syllables. The affricate [ʧ] can also be inserted to mark the expressive meaning (b), thus acting as a default consonant. Sporadically consonants other than [s] change to [ʧ], with examples in the source including the single [t] and [d], as well as clusters [tj], [br], [xw], and [xj] (c). Rhotics [r] and [ɾ] are avoided in hypocoristics: these either change to [l] or delete. The palatalizing change [s] \[\rightarrow \text{ʧ}\] is noted to be related to the Spanish babtalk (see 3.13.1). (Based on Boyd-Bowman 1955: 348-351, 357; Lipski 1995: 392; 427; Piñeros 2008).

(3.13.1) a. Josefa \[\rightarrow \text{Chepa}\ (s \rightarrow \text{ʧ})\]
\[\text{Jesus} \rightarrow \text{Chuco}\ (s \rightarrow \text{ʧ})\]

b. Juan \[\rightarrow \text{Juancho}\ (0 \rightarrow \text{ʧ})\]
\[\text{Ramón} \rightarrow \text{Ramôncho}\ (0 \rightarrow \text{ʧ})\]
c.  

- **Bautista** → **Baucha** (t → ʧ)  
- **Martin** → **Máchin** (t → ʧ)  
- **Telmo** → **Chemo** (t → ʧ)  
- **Santiago** → **Chago** (tj → ʧ)  
- **Domingo** → **Chómin** (d → ʧ)  
- **Dionisio** → **Chonicho** (dj → ʧ)  
- **Gabriela** → **Chela** (br → ʧ)  
- **Eugenio** → **Cheno** (x → ʧ)  
- **Juan** → **Chano** (xw → ʧ)  
- **Sergio** → **Checho** (s → ʧ, xj → ʧ)

### 3.14 Chilean Spanish babytalk

In the *Chilean* variety of Spanish (Romance, Indo-European), the affective register (‘lenguaje cariñoso’) converts both [s] and [t] to [ʧ], thus extending the palatalization pattern noted in Spanish babytalk and hypocoristics (3.13). The standard Spanish diminutive suffix –*ito* has a common variant –*icho*. The change targeting [t] can be attributed the indigenous Araucanian influence. (Based on Boyd-Bowman 1955: 348-350).

(3.14)  
- **poquitito** [pokiˈtito] → **poquichicho** [pokiʧiʧo]  
- **toditito** [toʤiˈtito] → **toichicho** [toʤiʧiʧo]

### 3.15 Thai babytalk

In *Thai* (Kam-Tai, Tai-Kadai) babytalk, the alveolar fricative [s] shifts to the affricate [ʧ]. (Based on Nattaya Piriyawiboon, p.c. 01/20/2008).

(3.15)  
- *[sɯaj] → [ʧɯaj] ‘pretty’  
- *[sɔŋʃaːn] → [ʧɔŋʧaːn] ‘pity’  
- *[sua] → [ʧua] ‘shirt’  
- *[sipʃaːm] → [ʧipʧaːm] ‘thirteen’

### 4. Affrication I: ts

#### 4.1 Greek sound symbolism

In *Greek* (Greek, Indo-European), alveolar affricates [ʦ] and [ʤ], 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 [ʦ] arose from coronals [s] and [t], and from non-coronal [k] and (the sequence) [ps]. (Based on Joseph 1994: 224-231).

(4.1)  
- *[ʦita-tsiːta] ‘just barely’ (said of a tight fit)  
- *[ʦima-tsiːma] ‘right up to the edge, close’  
- *[ʦiːros] ‘th’thin person’ (“dried mackerel”)  
- *[ʣudzɛːs] ‘dwarf’  
- *[ʣingu-dziŋɡu] ‘drop-by-drop’ (West Crete dialect)
b. [-itsa], [-itsi], [-utsikos], [-dzikos] ‘affective diminutive for adjectives’, e.g. [ylik-os] ‘sweet’, [ylik-utsikos] ‘cute’

_Dimitrios_ → [mitsos]
_Konstandinos_ → [kotosos]

c. [tsatsa] ‘auntie’
 [tsiti] ‘meat’
 [tsis(i)a]~[dzis(i)a] ‘peepee’
 [pitsipitsi] ‘(act of) washing’
 [dz]~[ts] ‘peek-a-boo’

4.2 Western Swampy Cree and Plains Cree diminutives

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

(4.2)  [niteːm-isis] → [niteːmisisis] ‘my little horse’

4.3 Nez Perce diminutives

_Nez Perce_ (Sahaptian, Penutian) diminutives involve a shift of the alveolar fricative [s] to the affricate [ts] (among other non-palatalizing changes), with or without diminutive reduplication. (Based on Nichols 1971: 843, citing Haruo Aoki, p.c.).

(4.3)  [keːts] ‘spear’ → [katiːtskaːts] ‘toy spear’
 [waswasno] ‘chicken’ → [watswatsno] ‘saddle horn’

4.4 Northern Paiute diminutives

In _Northern Paiute_ (Numic, Uto-Aztecan) diminutives, alveolar fricatives [s z] shift to affricates of the same place, [ts dz]. (Based on Nichols 1971: 842, citing M. J. P. Nichols, ms.).

(4.4)  [tsizia] ‘big girls, teenagers’ → [tsidzi:a] ‘little girls’
 [isz] ‘wolf’ → [idza] ‘coyote’

References


Kim, Yuni. 2008 Topics in the phonology and morphology of San Francisco del Mar Huave. Doctoral dissertation, University of California, Berkeley.


