

Chapter 7

Appendices

7.1 Classification of Languages in the Database of Gurevich (2004)

The following table lists how each language in the database of Gurevich (2004) is classified along the parameters relevant to the discussion in §2. A total of 16 languages were excluded because segment inventories were not provided in the database: Cuna; British English; Cockney English; Liverpool English; London, Leeds, & Fife English; New Zealand English; Haitian Creole; Icelandic; Southern Italian; Middle Chinese; Northern Corsican; Numic; Proto-Germanic; Mexico City Spanish; Tigrinya; Yuman.

Each language is classified for each place of articulation at which the language has either a voiceless stop or a voiced stop. In the broader groupings above, ‘labials’ include labials; ‘coronals’ include dentals, alveolars, and retroflexes; and ‘dorsals’ include velars. ‘Labio-X’ and ‘palato-X’ are classified in the same way as

‘X’.

In the field ‘Lenition of T’, I indicate what (if any) lenition processes applies to the relevant voiceless stop. The possibilities are ‘voicing’, ‘spirantization’, ‘both’, and ‘other’. ‘NA’ indicates that the language lacks a voiceless stop at the relevant place of articulation.

In the field ‘Spirantization of D’, I indicate whether the relevant voiced stop spirantizes or not. If spirantization is rare, this is so indicated in the table, and the language is considered to spirantize that stop for the purposes of the typology above. If voiced stops flap, this is also indicated. This information is included because in some languages (such as Malayalam), there is spirantization of voiced stops at most places of articulation, but some coronals undergo flapping instead of spirantization. These coronals are considered to not undergo spirantization for the purposes of the classification above, except in one case. In Senoufo, there is also intervocalic voicing of voiced stops; here, flapping clearly allows the language to avoid neutralization of /t/ and /d/. Thus, Senoufo coronals are counted as spirantizing in the table that lists spirantizing languages by whether or not they also have intervocalic voicing (but not in the other tables). Again, ‘NA’ indicates that the language lacks the relevant voiced stop.

In the field ‘Presence of Z’, I indicate whether the relevant voiced spirant is phonemically present in the language or not. A second entry in parentheses accompanies some places of articulation; these entries contain information on voiced spirants that are not usually the result of spirantization but are sufficiently similar to warrant investigation. For labials, the ‘extra’ spirant is [v]; for alveolars, it is [z]; for palatals, it is [ʒ] (as opposed to [j], the true palatal fricative).

Language	POA	Len. of T	Len. of D	Presence of Z
Amele (Haia)	labial	spir.	none	no (no)
	alveolar	none	none	no (no)
	velar	NA	none	no
	labiovelar	none	none	no
Ancient Greek	labial	spir.	none	no (no)
	alveolar	spir.	none	no (no)
	velar	spir.	none	no
Ao (Chungli)	labial	voicing	NA	no (no)
	alveolar	voicing	NA	no (yes)
	palatal	none	NA	no
	velar	voicing	NA	no
Apalai	labial	none	NA	no (no)
	alveolar	none	NA	no (yes)
	velar	voicing	NA	no
Apatani	labial	none	spir.	no (no)
	alveolar	none	none	no (no)
	velar	none	none	no
Arabic (Egyptian)	labial	NA	none	no (no)
	alveolar	none	none	no (yes)
	velar	none	none	no
	uvular	none	NA	yes
Arabic (Safi:di Egyptian)	labial	NA	none	no (no)
	alveolar	none	none	no (yes)
	velar	none	none	no
Arbore	labial	none	none	no (no)
	alveolar	none	none	no (yes)
	velar	none	none	no
Assamese	labial	spir.	spir.	no (no)
	alveolar	spir.	none	no (yes)
	velar	none	none	no
Babine	labial	NA	none	no (no)
	alveolar	none	none	no (yes)
	velar	none	none	yes
	uvular	none	none	yes
	labiouvular	none	none	yes
Badimaya	labial	none	NA	no (no)
	dental	both	NA	no
	alveolar	none	NA	no (no)
	retroflex	none	NA	no

Language	POA	Len. of T	Len. of D	Presence of Z
	palatal	both	NA	no (no)
	velar	none	NA	no
Balti (Purki)	labial	none	none	no (no)
	dental	none	spir.	no
	alveolar	none	none	no (yes)
	velar	none	none	no
	uvular	none	NA	yes
Bashkir	labial	none	spir.	no (yes)
	alveolar	none	none	yes (yes)
	velar	none	none	no
	uvular	none	NA	yes
Basque (Souletin)	labial	none	spir.	no (no)
	alveolar	none	spir.	no (yes)
	palatal	none	spir.	yes (yes)
	velar	none	spir.	no
Blackfoot	labial	none	NA	no (no)
	alveolar	none	NA	no (no)
	velar	none	NA	no
Bontoc	labial	none	none	no (no)
	alveolar	none	none	no (no)
	velar	none	none	no
	uvular	none	NA	no
Bulgarian	labial	none	none	no (yes)
	alveolar	none	none	no (yes)
	palatal	none	none	no (yes)
	velar	none	NA	no
Canela-Krahô	labial	voicing	NA	no (no)
	alveolar	voicing	NA	no (no)
	velar	voicing	NA	no
Car Nicobarese	labial	none	NA	no (no)
	alveolar	none	none	no (no)
	retroflex	none	NA	no
	velar	none	NA	no
Catalan (Eastern)	labial	none	spir.	no (no)
	alveolar	none	spir.	no (yes)
	velar	none	spir.	no
Dahalo	labial	none	spir.	no (yes)
	dental	none	none	no
	alveolar	none	spir.	no (no)

Language	POA	Len. of T	Len. of D	Presence of Z
	velar	none	none	no
	labiovelar	none	none	no
Djabugay	labial	voicing	NA	no (no)
	alveolar	voicing	NA	no (no)
	palatal	voicing	NA	no (no)
	velar	voicing	NA	no
Efik (Calabar- Creek)	labial	NA	spir.	no (no)
	alveolar	none	flapping	no (no)
	velar	both	NA	no
	labiovelar	none	NA	no
English (American)	labial	none	none	no (yes)
	alveolar	other	flapping	yes (yes)
	velar	none	none	no
English (Cardiff)	labial	none	spir.	no (yes)
	alveolar	none	none	yes (yes)
	velar	none	none	no
Estonian (Southern)	labial	voicing	NA	no (no)
	dental	voicing	NA	no
	alveolar	voicing	NA	no (no)
	velar	voicing	NA	no
Faroese	labial	voicing	NA	no (yes)
	alveolar	voicing	NA	no (no)
	palatal	voicing	NA	no (no)
	velar	voicing	NA	no
Finnish	labial	none	none	no (no)
	alveolar	none	none	no (no)
	velar	none	none	no
French (Périgourdin)	labial	none	none	no (yes)
	alveolar	voicing	spir.	no (yes)
	velar	none	none	no
Gbeya	labial	none	none	no (yes)
	alveolar	none	none	no (yes)
	velar	none	none	no
	labiovelar	none	none	no
Georgian	labial	none	none	no (yes)
	alveolar	none	none	no (yes)
	palatal	none	none	no (yes)
	velar	none	none	no
	uvular	none	NA	yes

Language	POA	Len. of T	Len. of D	Presence of Z
Gitksan	labial	voicing	NA	no (no)
	alveolar	voicing	NA	no (no)
	velar	voicing	NA	no
	labiovelar	voicing	NA	no
	uvular	voicing	NA	no
Gojri	labial	none	other	no (no)
	alveolar	none	other	no (yes)
	retroflex	none	other	no
	palatal	none	other	no (no)
	velar	none	other	yes
	uvular	none	NA	no
Gooniyandi	labial	voicing	NA	no (no)
	dental	voicing	NA	no
	alveolar	voicing	NA	no (no)
	retroflex	voicing	NA	no
	palatal	voicing	NA	no (no)
	velar	voicing	NA	no
Gothic	labial	none	spir.	no (no)
	alveolar	none	spir.	no (yes)
	velar	none	spir.	no
Greenlandic (West)	labial	none	NA	no (yes)
	alveolar	none	NA	no (no)
	palatal	NA	none	no (no)
	velar	none	none	no
	uvular	spir./both	NA	no
Guayabero	labial	none	none	yes (no)
	alveolar	none	none	no (no)
	velar	none	NA	no
Gujarati	labial	none	spir.	no (no)
	alveolar	none	spir.	no (yes)
	retroflex	none	spir.	no
	velar	none	spir.	no
Hebrew (Tiberian)	labial	spir.	spir.	no (no)
	alveolar	spir.	spir.	no (yes)
	velar	spir.	spir.	no
	uvular	none	NA	no
Kabardian (Terek)	labial	none	none	no (yes)
	alveolar	none	none	no (yes)
	palatal	none	none	yes (yes)

Language	POA	Len. of T	Len. of D	Presence of Z
	labiovelar	none	none	no
	uvular	none	NA	yes
	labiouvular	none	NA	yes
Kagate	labial	none	spir.	no (no)
	alveolar	none	none	no (no)
	retroflex	none	none	no
	velar	none	other	no
Kaliai-Kove (Kandoka- Lusi)	labial	none	NA	yes (no)
	alveolar	none	NA	no (no)
	velar	none	spir.	no
Kanakuru	labial	other	none	no (no)
	alveolar	other	none	no (no)
	labioalveolar	none	none	no
	palatal	NA	none	no (no)
	velar	other	none	no
	labiovelar	none	none	no
Kannada	labial	voicing	NA	no (no)
	alveolar	voicing	NA	no (no)
	retroflex	none	NA	no
	velar	voicing	NA	no
Kanuri	labial	none	spir.	no (no)
	alveolar	none	none	no (yes)
	velar	none	spir.	no
Karao	labial	spir.	none	no (no)
	alveolar	spir.	other	no (no)
	velar	none	none	no
	labiovelar	NA	other	no
	uvular	spir.	NA	no
Kashmiri	labial	none	none	no (no)
	alveolar	none	none	no (yes)
	retroflex	none	flapping	no
	velar	none	none	no
Kirghiz	labial	none	none	yes (no)
	alveolar	none	none	no (yes)
	velar	none	none	no
Korean	labial	voicing	NA	no (no)
	alveolar	voicing	NA	no (no)
	velar	voicing	NA	no
Kuna (Paya)	labial	none	spir.	no (no)

Language	POA	Len. of T	Len. of D	Presence of Z
	alveolar	none	spir.	no (yes)
	labioalveolar	none	none	no
	velar	none	spir.	no
	labiovelar	none	none	no
Kupia (Sujanakota)	labial	spir.	none	no (no)
	alveolar	none	none	no (no)
	retroflex	other	flapping	no
	velar	none	none	no
Ladakhi (Central)	labial	none	spir.	no (no)
	alveolar	none	spir.	no (yes)
	retroflex	none	none	no
	velar	none	spir.	no
Lahaul (Pattani)	labial	none	none	no (no)
	alveolar	none	none	no (yes)
	retroflex	none	flapping	no
	palatal	none	none	no (no)
	velar	none	none	no
Lama	labial	other	NA	no (no)
	alveolar	none	NA	no (no)
	palatal	none	NA	no (no)
	velar	none	NA	no
	labiovelar	none	NA	no
Lamani	labial	none	none	no (no)
	alveolar	none	none	no (no)
	retroflex	none	flapping	no
	velar	none	none	no
Laotian (Vientiane)	labial	none	none	no (no)
	alveolar	none	none	no (no)
	palatal	none	NA	no (no)
	velar	none	NA	no
	labiovelar	none	NA	no
Lezgian	labial	voicing	none	no (no)
	alveolar	voicing	none	no (yes)
	labioalveolar	voicing	NA	no (yes)
	velar	voicing	none	no
	labiovelar	voicing	none	no
	uvular	both	NA	yes
	labiouvular	both	NA	yes
Limbu	labial	voicing	other	no (no)

Language	POA	Len. of T	Len. of D	Presence of Z
(Phedāppe)	alveolar	voicing	NA	no (no)
	velar	voicing	NA	no
Lotha	labial	none	NA	no (yes)
	alveolar	voicing	NA	no (yes)
	velar	voicing	NA	no
Lowland	labial	none	spir.	no (no)
Murut (Timugon)	alveolar	none	flapping	no (no)
	velar	none	spir.	no
Macushi	labial	voicing	NA	no (no)
	alveolar	voicing	NA	no (no)
	velar	voicing	NA	no
Maidu	labial	other	none	no (no)
	alveolar	other	none	no (no)
	velar	other	NA	no
Malayalam	labial	voicing	spir.	no (no)
	dental	voicing	spir.	no
	retroflex	voicing	flapping	no
	velar	voicing	spir.	no
Manobo (Ata)	labial	none	spir.	no (no)
	alveolar	none	spir.	no (no)
	velar	none	spir.	no
	uvular	none	NA	no
Maori	labial	none	NA	no (no)
	alveolar	none	NA	no (no)
	velar	spir.	NA	no
Marathi (Halabi)	labial	none	none	no (no)
	alveolar	none	none	no (no)
	retroflex	none	flapping	no
	palatal	none	none	no (no)
Mataco (Noctenes)	labial	none	NA	no (no)
	alveolar	none	NA	no (no)
	labiovelar	none	NA	no
	uvular	none	NA	no
Maxakalí	labial	other	NA	no (no)
	alveolar	other	NA	no (no)
	palatal	other	NA	no (no)
	velar	other	NA	no
Mbabaram	labial	voicing	NA	no (no)

Language	POA	Len. of T	Len. of D	Presence of Z
	dental	voicing	NA	no
	alveolar	voicing	NA	no (no)
	labioalveolar	voicing	NA	no
	palatal	voicing	NA	no (no)
	velar	voicing	NA	no
Modern Irish	labial	none	none	no (no)
	alveolar	none	none	no (no)
	velar	none	none	no
Moghamo (Batibo)	labial	none	none	no (no)
	alveolar	none	flapping	no (no)
	velar	none	spir.	no
Mohawk (Akwesasne)	alveolar	voicing	NA	no (no)
	velar	voicing	NA	no
Mongolian (Kalkha)	labial	none	spir.	no (no)
	alveolar	none	none	no (no)
	velar	none	spir.	no
Navajo	labial	NA	none	no (no)
	alveolar	none	none	no (yes)
	velar	none	none	yes
Nepali	labial	spir.	spir.	no (no)
	alveolar	none	other	no (no)
	retroflex	none	flapping	no
	velar	spir.	other	no
Newari	labial	none	none	no (no)
	alveolar	none	none	no (no)
	velar	none	none	no
Nez Perce	labial	none	NA	no (no)
	dental	none	NA	no
	alveolar	spir.	NA	no (no)
	velar	spir.	NA	no
	uvular	spir.	NA	no
Nkore-Kiga	labial	none	spir.	no (yes)
	alveolar	NA	none	no (yes)
	velar	none	none	no
Nyawaygi	labial	NA	none	no (no)
	alveolar	NA	none	no (no)
	palatal	NA	none	no (no)
	velar	NA	none	no
Páez	labial	none	none	yes (no)

Language	POA	Len. of T	Len. of D	Presence of Z
	alveolar	none	none	no (yes)
	palatoalveolar	none	none	no (no)
	velar	none	none	yes
Panyjima (Mijaranypa)	labial	none	NA	no (no)
	dental	none	NA	no
	alveolar	none	NA	no (no)
	retroflex	other	NA	no
	palatal	none	none	no (no)
	velar	none	NA	no
Pawnee (South Bend & Skiri)	labial	none	NA	no (no)
	alveolar	none	NA	no (no)
	velar	none	NA	no
Pipil (Cuisnahuat)	labial	none	none	no (no)
	alveolar	none	none	no (no)
	velar	none	none	no
Proto-Ainu	labial	none	NA	no (no)
	alveolar	none	none	no (no)
	velar	none	other	no
	uvular	none	NA	no
Proto-Bantu	labial	none	spir.	no (no)
	alveolar	none	other	no (yes)
	velar	none	spir.	no
Ptolemaic Greek	labial	none	none	no (no)
	alveolar	none	none	no (yes)
	velar	none	spir.	no
Punjabi	labial	spir.	none	no (no)
	alveolar	none	none	no (yes)
	retroflex	none	none	no
	palatal	none	none	no (no)
	velar	none	none	no
Purki	labial	none	none	no (no)
	dental	none	spir.	no
	alveolar	none	flapping	no (yes)
	velar	none	none	no
	uvular	none	NA	yes
Quechua	labial	none	NA	no (no)
	alveolar	none	NA	no (no)
	velar	spir.	NA	no
	uvular	spir.	NA	no

Language	POA	Len. of T	Len. of D	Presence of Z
Russian	labial	none	other	no (yes)
	alveolar	none	other	no (yes)
	velar	none	other	no
Saek	labial	none	none	no (no)
	alveolar	none	none	no (no)
	palatal	none	NA	no (no)
	velar	none	NA	yes
Sanuma	labial	voicing	NA	no (no)
	alveolar	voicing	NA	no (no)
	velar	voicing	NA	no
Sawai	labial	none	none	no (no)
	alveolar	none	flapping	no (no)
	velar	none	none	no
Sekani	labial	none	NA	no (no)
	alveolar	none	NA	no (yes)
	velar	none	NA	yes
Senoufo	labial	voicing	spir.	no (yes)
	alveolar	voicing	flapping	no (yes)
	velar	voicing	spir.	no
	labiovelar	none	none	no
Serbo-Croatian	labial	none	none	no (yes)
	alveolar	none	none	no (yes)
	palatoalveolar	none	none	no
	velar	none	none	no
Shapsug (Düzce)	labial	none	none	no (no)
	dental	none	none	no
	alveolar	none	none	no (yes)
	palatal	none	none	yes (yes)
	velar	none	none	yes
	labiovelar	none	none	no
	uvular	none	NA	yes
labiouvular	none	NA	yes	
Shina	labial	none	spir.	no (yes)
	alveolar	none	spir.	no (yes)
	retroflex	none	flapping	yes
	velar	none	spir.	yes
Shoshone (Tümpisa)	labial	spir./both	NA	no (no)
	alveolar	spir./both	NA	no (no)
	palatal	spir./both	NA	no (no)

Language	POA	Len. of T	Len. of D	Presence of Z
	velar	spir./both	NA	no
	labiovelar	spir./both	NA	no
Somali	labial	NA	spir.	no (no)
	alveolar	none	spir.	no (no)
	retroflex	NA	flapping	no
	velar	none	spir.	no
	uvular	none	NA	no
Sotho (Southern)	labial	none	spir.	no (yes)
	alveolar	none	none	no (no)
	velar	none	NA	no
Southern Tati (Chali)	labial	none	none	no (yes)
	alveolar	none	none	no (yes)
	velar	none	none	no
	uvular	both	NA	no
Southern Tati (Eshtehardi)	labial	none	none	no (yes)
	alveolar	none	none	no (yes)
	velar	none	none	no
	uvular	none	NA	no
Southern Tati (Takestani)	labial	none	none	no (yes)
	alveolar	none	none	no (yes)
	velar	none	spir.	no
	uvular	none	NA	no
Southern Tati (Xiaraji)	labial	none	none	no (yes)
	alveolar	none	none	no (yes)
	velar	none	none	no
	uvular	none	NA	no
Spanish (Andalusian)	labial	none	spir.	no (no)
	alveolar	none	spir.	no (no)
	velar	none	spir.	no
Tahltn (Iskut)	labial	NA	none	no (no)
	dental	voicing	none	no
	alveolar	voicing	none	yes (yes)
	retroflex	voicing	none	no
	palatal	voicing	none	yes (no)
	velar	voicing	none	yes
	labiovelar	voicing	none	no
	uvular	voicing	none	yes
Taiwanese	labial	both	none	no (no)
	alveolar	other	NA	no (no)

Language	POA	Len. of T	Len. of D	Presence of Z
	velar	both	none	no
Tamazight	labial	NA	spir.	no (no)
Berber (Ayt	alveolar	none	none	no (yes)
Ayache)	velar	spir.	spir.	no
	uvular	none	NA	yes
Tamazight	uvular	none	NA	yes
Berber (Ayt				
Ndhir)				
Tamazight	labial	NA	spir.	no (no)
Berber (Ayt	alveolar	none	none	no (yes)
Seghrouchen)	velar	none	none	no
	uvular	none	NA	yes
Tamil	labial	both	none	no (yes)
	alveolar	both	none	no (no)
	retroflex	other	none	no
	velar	both	none	no
Tatar	labial	none	spir.	no (yes)
	alveolar	none	spir.	no (yes)
	velar	none	spir.	no
Tauya	labial	none	none	no (no)
	alveolar	none	NA	no (no)
	velar	other	none	no
Thai	labial	none	none	no (no)
	alveolar	none	none	no (no)
	palatal	none	NA	no (no)
	velar	none	none	no
Tharu	labial	spir.	spir.	no (no)
(Chitwan)	alveolar	none	none	no (no)
	retroflex	none	flapping	no
	velar	none	none	no
Toba Batak	labial	other	none	no (no)
	alveolar	other	none	no (no)
	velar	other	none	no
Tojolabal	labial	none	none	no (no)
	alveolar	none	none	no (no)
	palatal	none	NA	no (no)
	velar	none	spir.	no
Totonac	labial	voicing	NA	no (no)
(Misantla)	alveolar	voicing	NA	no (no)

Language	POA	Len. of T	Len. of D	Presence of Z
	velar	voicing	NA	no
	uvular	voicing/spir.	NA	no
Tsou (Tfuya)	labial	none	NA	no (yes)
	alveolar	none	NA	no (yes)
	velar	none	NA	no
Turkana	labial	none	none	no (no)
	alveolar	spir.	none	no (no)
	palatal	none	none	no (no)
	velar	none	none	no
Turkish	labial	none	none	yes (yes)
	alveolar	none	none	no (yes)
	velar	none	spir.	no
Tzeltal	labial	none	spir.	no (no)
	alveolar	none	spir.	no (no)
	velar	none	spir.	no
Uradhi	labial	both	NA	yes (no)
	dental	none	NA	no
	alveolar	both	NA	yes (no)
	palatal	none	NA	no (no)
	velar	both	NA	yes
Urdu	labial	none	none	no (yes)
	alveolar	none	none	no (yes)
	retroflex	none	flapping	no
	palatal	none	none	no (yes)
	velar	none	none	yes
	uvular	none	NA	no
Urubu-Kaapor	labial	voicing	NA	no (no)
	alveolar	voicing	NA	no (no)
	velar	voicing/both	NA	no
	labiovelar	none	NA	no
Uyghur	labial	none	spir.	no (yes)
	alveolar	none	none	no (yes)
	velar	spir.	spir.	no
	uvular	spir.	spir.	no
Uzbek	labial	spir.	other	no (no)
	alveolar	none	none	no (yes)
	velar	none	none	yes
	uvular	spir./both	NA	no
Vietnamese	labial	NA	none	no (yes)

Language	POA	Len. of T	Len. of D	Presence of Z
(Vinh)	alveolar	none	none	no (yes)
	palatal	none	NA	no (no)
	velar	none	NA	yes
Warndarang	labial	voicing	NA	no (no)
	dental	none	NA	no
	alveolar	voicing	NA	no (no)
	retroflex	voicing	NA	no
	palatal	voicing	NA	no (no)
	velar	voicing	NA	no
West Tarangan	labial	NA	none	no (no)
	alveolar	none	none	no (no)
	velar	other	NA	no
Wiyot	labial	none	none	no (no)
	alveolar	none	NA	no (no)
	velar	none	none	no
Yakut	labial	voicing	none	no (no)
	alveolar	none	none	no (no)
	velar	spir.	none	no
Yana	labial	voicing	NA	no (no)
	alveolar	voicing	NA	no (no)
	velar	voicing	NA	no
Yindjibarndi	labial	other	NA	no (no)
	dental	other	NA	no
	alveolar	none	NA	no (no)
	retroflex	other	NA	no
	palatal	none	NA	no (no)
	velar	other	NA	no
Yolngu (Djapu)	labial	other	NA	no (no)
	dental	other	NA	no
	alveolar	none	NA	no (no)
	retroflex	none	none	no
	palatal	other	NA	no (no)
	velar	other	NA	no

7.2 Stimuli for Experiment 1

7.2.1 Nasal-Stop Stimuli

Voiced Stops					
LABIALS		CORONALS		DORSALS	
<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>
amber	0.517	bandage	0.278	anger	0.336
ember	0.200	bandit	0.295	finger	0.436
limber	0.177	brandish	0.395	hunger	0.616
lumber	0.204	brandy	0.270	langor	0.181
mamba	0.443	pendant	0.394	linger	0.309
member	0.730	plunder	0.374	monger	0.053
number	0.618	ponder	0.348		
samba	0.438	slender	0.208		
slumber	0.621	tandem	0.327		
timber	0.551	thunder	0.264		

Voiceless Stops					
LABIALS		CORONALS		DORSALS	
<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>
campus	0.360	banter	0.144	anchor	0.167
compass	0.339	bounty	0.262	bonkers	0.639
hamper	0.232	canter	0.113	bunker	0.345
limpid	0.388	center	0.169	bunkum	0.147
pamper	0.227	counter	0.664	conquer	0.370
scamper	0.296	enter	0.394	donkey	0.558
scampi	0.250	jaunty	0.504	monkey	0.227
simper	0.317	saunter	0.273	pinkie	0.166
trumpet	0.388	shanty	0.350	rancor	0.126
whimper	0.363	vintage	0.454	tinker	0.175

7.2.2 Lenition Stimuli

Voiced Stops					
LABIALS		CORONALS		DORSALS	
<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>
auburn	0.194	audit	0.195	beggar	0.182
baby	0.319	body	0.185	buggy	0.106
cabbage	0.265	cheddar	0.267	cougar	0.154
cabin	0.443	giddy	0.169	dagger	0.346
fiber	0.251	ladder	0.198	eager	0.260
labor	0.197	lady	0.201	ogre	0.105
lobby	0.250	odor	0.115	soggy	0.162
neighbor	0.228	radish	0.191	stagger	0.339
rabbit	0.225	rowdy	0.197	tiger	0.367
ribbon	0.450	shudder	0.294	trigger	0.405
rubber	0.263	spider	0.347	vigor	0.191
ruby	0.271	steady	0.228	yoga	0.435

Voiceless Stops					
LABIALS		CORONALS		DORSALS	
<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>
copper	0.103	atom	0.207	acre	0.221
copy	0.137	attic	0.319	bacon	0.235
epic	0.326	autumn	0.268	bracket	0.352
guppy	0.224	beauty	0.379	broker	0.235
leopard	0.299	critic	0.300	bucket	0.396
opus	0.260	glitter	0.329	circuit	0.340
paper	0.179	item	0.347	flicker	0.340
puppet	0.364	lettuce	0.262	focus	0.470
rapid	0.311	pattern	0.362	khaki	0.223
super	0.190	pretty	0.297	package	0.223
topic	0.372	stutter	0.276	reckon	0.442
viper	0.174	votive	0.221	ticket	0.265

7.2.3 CVC Stimuli

Diphthongs							
[eɪ]		[oʊ]		[aɪ]		[aʊ]/[ɔɪ]	
<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>
bake	0.046	boat	0.054	bike	0.063	bout	0.050
base	0.055	coat	0.044	bite	0.044	doubt	0.096
cake	0.052	code	0.049	dice	0.069	douse	0.068
date	0.051	cope	0.051	fight	0.057	gout	0.047
fade	0.059	doze	0.068	height	0.052	pouch	0.085
gate	0.055	goat	0.059	hide	0.063	pout	0.044
gauge	0.052	hose	0.038	hike	0.053	shout	0.097
hate	0.051	poach	0.060	kite	0.035		
haze	0.042	poke	0.056	sight	0.046	choice	0.243
pace	0.041	soak	0.053	site	0.045	poise	0.092
pave	0.052	soap	0.069	tide	0.058	voice	0.221
shade	0.057	toad	0.057	tight	0.044	void	0.130

Front Vowels							
[i]		[ɪ]		[ɛ]		[æ]	
<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>
beef	0.060	bid	0.049	bed	0.061	bad	0.051
cheat	0.046	bit	0.050	bet	0.038	batch	0.045
deed	0.051	dip	0.057	dead	0.069	cat	0.043
heap	0.042	fit	0.045	deaf	0.072	chat	0.055
heat	0.045	hip	0.043	deck	0.053	fad	0.052
peak	0.042	hit	0.039	head	0.068	gash	0.043
piece	0.076	kick	0.052	jet	0.057	hat	0.045
seize	0.046	pick	0.056	pet	0.038	hatch	0.057
sheep	0.048	pitch	0.048	set	0.051	pack	0.047
sheet	0.042	sip	0.044	shed	0.055	pad	0.051
tease	0.050	sit	0.047	tech	0.047	patch	0.055
teeth	0.054	zip	0.058	vet	0.045	vat	0.052

Non-Front Vowels							
[u]		[ʊ]		[ʌ]		[a]	
<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>	<i>Stimulus</i>	<i>EC</i>
boot	0.051	book	0.091	budge	0.056	botch	0.044
chute	0.042	cook	0.092	bug	0.042	cod	0.039
coop	0.032	hood	0.066	cub	0.049	cop	0.039
goof	0.065	hook	0.090	cuff	0.056	dock	0.056
goose	0.086	soot	0.051	cut	0.062	dot	0.039
hoop	0.040			duck	0.046	hawk	0.048
hoot	0.028			fuss	0.060	hop	0.055
pooch	0.018			huff	0.036	hot	0.060
poof	0.063			hut	0.051	jog	0.062
shoot	0.084			tub	0.063	pop	0.052
soup	0.070			tuck	0.052	shot	0.057
suit	0.061			tug	0.064	sock	0.056

7.3 Instructions for Experiments 2 – 4

7.3.1 Instructions for Experiments 2 and 4

Welcome Screen

Welcome!

During this experiment, you will listen to pairs of words. For each pair, you will indicate whether you heard the same word repeated twice, or two different words.

The words you will hear are not words from any particular language. Each word has the form “aCa”, where “C” is some consonant. So the vowels in each word are the same, but the consonant in the middle will change.

This experiment has five parts: a practice session, one long block, and three

short blocks. You will have the option to take a break before each block.

Press the red button to begin the practice session.

Practice Instructions

During this session, you will practice responding to the types of words you will hear during the experiment.

After each pair of words, press the red button if you believe you heard two different words. Press the blue button if you believe you heard two repetitions of the same word. The experimental software will record your responses and let you know whether your answer was correct.

Please try to respond promptly to each pair. Although you should try your best, you're not expected to respond correctly to every pair of words, either in the practice session or during the experiment. If you find yourself frequently pausing while you try to decide on your answer, you're thinking too much!

The practice session will end once you have responded correctly to a certain number of pairs, or after five minutes, whichever comes first.

Press the red button to begin.

7.3.2 Instructions for Experiment 3

Welcome Screen

¡Bienvenido!

En este experimento, usted escuchará varios pares de palabras. Después de cada par, deberá señalar si ha escuchado la misma palabra repetida dos veces, o dos palabras distintas.

Las palabras que oirá no son palabras de ningún idioma en particular. Cada palabra tiene la forma “aCa”, siendo “C” una consonante. Es decir, las vocales de cada palabra son siempre las mismas, pero la consonante del centro cambia.

El experimento consta de cinco partes: una sesión de práctica, una parte larga, y tres partes breves. Antes de cada parte, tendrá la oportunidad de tomar un descanso.

Para empezar con la primera parte (la sesión de práctica), por favor, pulse la tecla roja.

Practice Instructions

En esta sesión, usted practicará cómo responder a los pares de palabras que escuchará en el experimento.

Después de cada par de palabras, pulse la tecla roja si cree que escuchó dos

palabras distintas. Pulse la tecla azul si cree que escuchó la misma palabra dos veces. El experimento registrará su respuesta y le informará de si era la correcta.

Por favor, intente responder con rapidez. Aunque debe concentrarse lo mejor que pueda, no se espera que dé la respuesta correcta para cada par (ni en la sesión de práctica ni en el experimento). Si se da cuenta de que se toma demasiado tiempo para decidir qué tecla pulsar, ¡se lo está usted pensando demasiado!

La sesión terminará bien después de que haya respondido correctamente a un número suficiente de pares, bien tras cinco minutos, lo que suceda antes.

Pulse la tecla roja para empezar.

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