

## Tamil Coronals

	Dental or alveolar		Retroflex	
Plosive	<b>pattu</b>	<i>ten</i>	<b>paTTu</b>	<i>silk</i>
	<b>taataa</b>	<i>grandfather</i>	<b>paTi</b>	<i>step</i>
	<b>tappu</b>	<i>mistake</i>	<b>oTTo</b>	<i>stick</i>
Nasal	<b>aanaal</b>	<i>but</i>	<b>maNi</b>	<i>hour</i>
	<b>kannam</b>	<i>cheek</i>	<b>aNNan</b>	<i>elder brother</i>
	<b>nalla</b>	<i>good</i>		
Rhotic (tap or approximant)	<b>kari</b>	<i>charcoal</i>	<b>vaRi</b>	<i>way</i>
Lateral approximant	<b>puli</b>	<i>tiger</i>	<b>puLi</b>	<i>tamarind</i>
	<b>nalla</b>	<i>good</i>	<b>puLLi</b>	<i>dot</i>
	<b>kaal</b>	<i>leg</i>	<b>makkaL</b>	<i>people</i>

Material from Keane, E. (2004), "Illustrations of the IPA: Tamil", JIPA 34(1), 111-116.

The following pages show midsagittal MRI views, palatograms and 3D tongue reconstructions (from MRI) for the Tamil laterals and rhotics.

Source:

Narayanan, S., Byrd, D., Kaun, A. (1999), "Geometry, kinematics, and acoustics of Tamil liquid consonants", JASA 106(4), 1993-2007.

Links are also provided to MRI movies produced by the same authors:

Narayanan, Nayak, Lee, Sethy, Byrd (2004), "An approach to real-time magnetic resonance imaging for speech production". JASA 115(4), 1771-1776"

# Alveolar and retroflex lateral

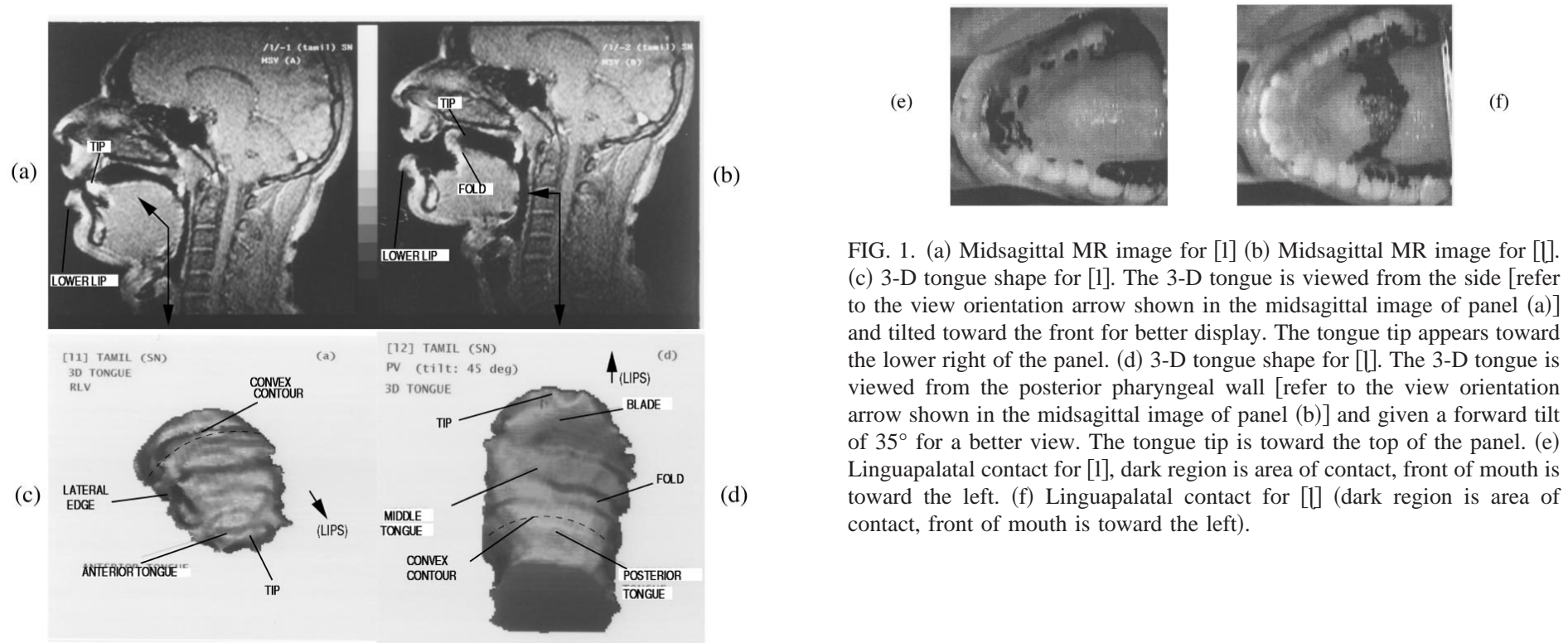


FIG. 1. (a) Midsagittal MR image for [l] (b) Midsagittal MR image for [ɭ]. (c) 3-D tongue shape for [l]. The 3-D tongue is viewed from the side [refer to the view orientation arrow shown in the midsagittal image of panel (a)] and tilted toward the front for better display. The tongue tip appears toward the lower right of the panel. (d) 3-D tongue shape for [ɭ]. The 3-D tongue is viewed from the posterior pharyngeal wall [refer to the view orientation arrow shown in the midsagittal image of panel (b)] and given a forward tilt of 35° for a better view. The tongue tip is toward the top of the panel. (e) Linguopalatal contact for [l], dark region is area of contact, front of mouth is toward the left. (f) Linguopalatal contact for [ɭ] (dark region is area of contact, front of mouth is toward the left).

Movie alveolar

“andha vakyam **palam** perusu”

Movie retroflex

“andha vakyam **paLam** perusu”

Note movement for retroflex before previous bilabial closure is complete

## Two alveolar rhotics

The difference between these sounds is very small (slightly advanced vs. slightly retracted alveolar). Narayanan et al. acknowledge that the distinction may be disappearing; it is not given in the IPA illustrations.

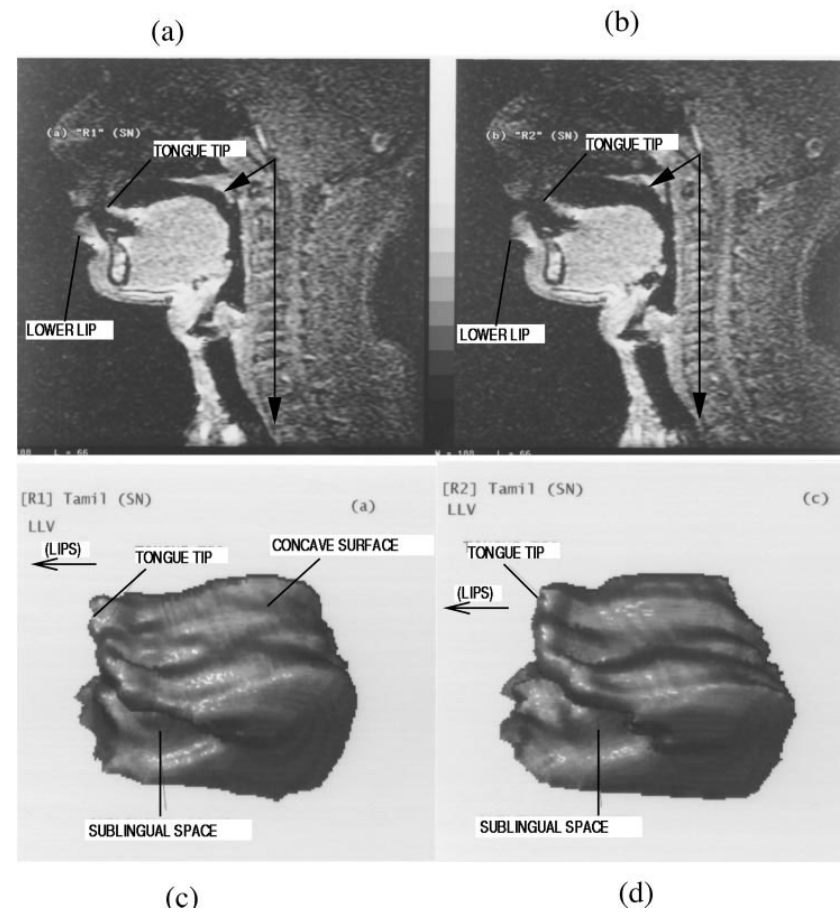


FIG. 2. (a) Midsagittal MR image for [r]. (b) Midsagittal MR image for [r̥]. (c) 3-D tongue shape for [r] (tongue tip toward the left of panel). (d) 3-D tongue shape for [r̥] (tongue tip toward the left of panel).

# Retroflex rhotic

In the sagittal view (and in the movie) it is very difficult to see any difference between this sound and the retroflex lateral. However, the 3D tongue reconstruction shows the complex “dipped” shape in the centre of the tongue for the rhotic.

Both Keane and Narayanan et al. point out that for many speakers this sound has merged with the retroflex lateral.

**Movie** “andha vakyam paRam perusu”

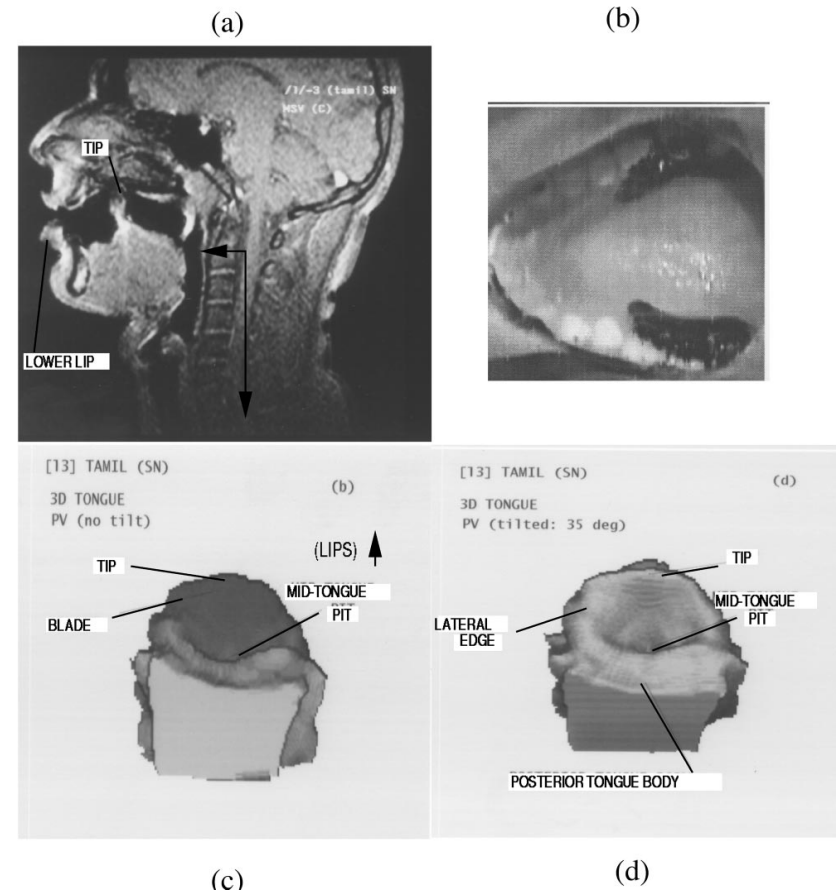


FIG. 3. (a) Midsagittal MR image for [ɻ]. (b) Linguopalatal contact for [ɻ] (dark region is area of contact along the sides of the middle tongue, front of mouth is toward the left). (c) 3-D tongue shape for [ɻ]. The 3-D tongue is viewed from behind, looking in from the posterior pharyngeal wall toward the direction of the lips [refer to the view orientation arrow shown in panel (a)]. The tongue tip is toward the upper middle of panel. (d) Same as in (c), but with a 45° front-to-back tilt of the tongue body to enable a better view of the mid-tongue pit.