

## **NAVLIPi PRIMER**

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## GENERAL NOTES ON NAVLIPI:

- NAVLIPI is an alphabet that conveys *phonemic*, in addition to phonological (phonetic) information. It seeks to address “phonemic idiosyncrasies” of individual languages. But it is also a highly *phonetic* alphabet.
- NAVLIPI uses as basis the *Latin* (also called *Roman*) alphabet, in its more phonetic usage as in the original Latin. The closest modern approximation for this phonetic usage is modern Spanish. On the other hand, as we all know, English is probably the most *un*-phonetic of all modern languages that the Latin alphabet is used for!
- For this and other documents, we will use the term *glyph* to denote a letter (or grapheme) of any alphabet or script.
- We also use the term *non-vowel* to lump all phones (sounds) that are not vowels together, including consonants, approximants, liquids, etc.. This is more in line with ancient Indian grammatical tradition, rather than Western tradition (which is less than 250 years old). In the ancient Indian definition, a *vowel* was any sound *in which the breath is completely unimpeded*. This thus includes the *l-* (लृ) and *r-* (ऋ) vowels, which Western tradition does not recognize as vowels, even though they are found in some European languages (e.g. Serbo-Croat). The IPA (International Phonetic Association) sometimes gives the appellation “rhoticity” to *r*-vowels.
- NAVLIPI has one-to-one correspondence between phones or phonemes and glyphs. In only two cases is this compromised, for reasons of practicality: for the glyphs [n] and [r] (see below).
- “Phonemic idiosyncrasy” is best illustrated by examples:
  - In English, the “unvoiced” **p** sound and the “voiced” **b** sound are clearly different phonemes, witness the words **pet** and **bet**, which clearly have different meanings. However, in the Chinese languages (such as Mandarin, Cantonese, Fujienese and Shanghainese), these two sounds, *p* and *b*, have the same value; i.e. they are part of the same phoneme. Thus, whether one says **pu** or **bu** in Mandarin, it still means “no”; whether one says **Peijing** or **Beijing**, it still signifies the same city; the substitution does not change the meaning of the word.
  - In Hindi, one can pronounce the words **van** (“forest”) and **vikas** (“development”) with an initial **w** sound (a bilabial semivowel or liquid) or **v** sound (a labiodental fricative or “spirant”), and it doesn’t make any difference. Thus, in Hindi, the very different **w** and **v** sounds belong to the same phoneme. However, in English, these sounds quite evidently belong to different phonemes, witness the words **vent** and **went**, which clearly have very different meanings.

## VOWELS:

- **Length** of vowels is indicated by reduplication (repeating the glyph). Thus, e.g. Short *i* (इ), *u* (उ)  
→ Long *ii* (ई), *uu* (ऊ), etc; *aa* (आ) is an exception, see below.
- **Common vowels:**
  - *a* English *but*, Hindi अ.
  - *aa* English *father*, Hindi आ. In the cases where the short and long version of this vowel are phonemically distinguished, e.g. in Tamil, Malayalam and some other Dravidian languages, one uses *aa<sub>o</sub>* for the short vowel and *aa* for the long vowel.
  - *q* English *about*, 2<sup>nd</sup> vowel in Hindi यन्त्र . This is the “schwa”, IPA ə .
  - *Ω* (Greek omega) English *ball*, vowel in Hindi कौन.
  - *ɔ* (inverted-c) English *Jack*, vowel in Hindi मै.
  - *e* (short vowel) English *bet*; *ee* (long vowel) English *fair*, also vowel in Hindi है.
  - *ε* English *gray*, Hindi ए, Spanish *que*.
  - *y* French *tu*, German *über*.
  - *o//* *feuille*.
  - *o/* German *schön*.
- **All other vowels** are phonetically written as in the original Latin alphabet.

## COMMON NON-VOWELS:

- **j** English *yes*, Hindi य
- **ɟ** (inverted-j) English *Jack*, Hindi ज
- **c** Spanish *chica*, Hindi च
- **ɣ** for voiced velar fricative, Hindi/Faarsi ग.म
- **sh<sub>0</sub>** English *shoot*, Hindi शट;
- **zh<sub>0</sub>** English *pleasure*.
- **All other non-vowels** are phonetically written as in the original Latin alphabet.
- **Examples of nasals:**
  - Vowel **aa**, nasal **aa~**. Examples:
    - Thus Portuguese **Saõ Paulo** → **Saa<sub>0</sub>~ Paaulo**
    - Hindi **हा, हॉ** **haa, haa~**

## “POST-OPS”:

- NAVLIPI uses “**post-ops**”, *postpositional operators* which are placed after (post-) the glyph they are modifying or acting on. This greatly simplifies the orthography, drastically reduces the number of glyphs needed and eliminates diacritics. Some examples:
- **h<sub>o</sub>** (the glyph **h** with subscripted circle (o)) to describe **aspiration** (महाप्राण). Thus, e.g. [**p**] (प, unaspirated, अल्पप्राण), vs. [**ph<sub>o</sub>**] (फ, aspirated); [**k**] (क) vs. [**kh<sub>o</sub>**] (ख); etc.
  - **h<sub>o</sub>** (the glyph **h** with subscripted oval or zero (o)) to describe **fricativization**. Thus, e.g., the retroflex sibilant of the Indian alphabets, (ष), is written as **ṣh<sub>o</sub>**, i.e. **ṣ** (ṣ) + **h<sub>o</sub>**.
  - **(o)** (subscripted little circle or “o”): This has two uses:
    - **Phonemically combine aspirated + unaspirated**: E.g. in English (as pronounced by British, Americans, Australians, etc., but *not* by Indians), the **p** is used to represent both the [p] and [ph] sounds, which are not phonemically distinguished. So to represent that, when writing English in NAVLIPI, one writes the **p** as **p<sub>o</sub>**. E.g. the word *put* (NAVLIP **p<sub>o</sub>utt**).
    - **Shortening of the vowel aa** in the rare (mainly Dravidian) languages where the short and long forms of the vowel are phonemically distinguished. Thus **aa<sub>o</sub>** and **aa** are used to represent, respectively, the short and long forms of this vowel.
  - **(∞)** (subscripted infinity sign): This is used to **phonemically combine unvoiced + voiced**:
    - *This is not relevant to Indian or European languages*, but is very relevant to the Chinese languages, where the unvoiced and voiced forms of many sounds have the same phonemic value.
    - So e.g. in Mandarin, one can say *Beijing* or *Peijing*, or **pu** or **bu** (“no/not”) and still not change the meaning of the word.
    - So NAVLIPI will transcribe this sound when writing Mandarin as **b<sub>∞</sub>** (rather than **p<sub>∞</sub>**, because the more common pronunciation is **bu**, not **pu**.)
  - **Post-ops for nasals**: To indicate nasalization, the tilde symbol (~), is placed after the vowel being nasalized.
    - So in NAVLIPI, Hindi हँ will be **haa~**; French *mon* will be **mo~**; Portuguese Saõ (as in Saõ Paulo) will be → **Saa~**.
    - (There are two other post-ops also sometimes used for nasalization in NAVLIPI, but these are very rare, so we won’t discuss them here.)
    - The reader may recognize that this is somewhat similar to the Dewanaagari अनुस्वार (anuswaara).
  - **Post-op for flaps (taps)**: NAVLIPI simply places a dot (full-stop) after the glyph being modified.
    - Thus Hindi retroflex ढ, written in NAVLIPI as (**ḍ**), when it is pronounced as a flap is written as (**ḍ.**). (This actually borrows from the same dot used in Dewanaagari Hindi (ड़).)
    - Also, thus, Thus ट. ण. become **t.** **n.**
  - There are several **other post-ops** which are not relevant for the most widely spoken world languages, so we will leave them out of this Primer for now. E.g. the post-op **z**, to indicate *egressive clicks*, used in South African languages.

## ADAPTATIONS FOR SPECIFIC, IMPORTANT LANGUAGE GROUPS AND FAMILIES:

- **Hindi, other Indian languages**
  - Retroflex (मूर्धन्य) non-vowels (ट ठ ड ढ ण) **ṭ, ṭh, ḍ, ḍh, ṇ**
  - Vowel (vocalic) *r*-sound (ऋ): **ṛ**
  - *Wisarga*: written in NAVLPI as colon (:). This is the glottal stop.
  - *Tamil*: Retroflex *l*-like sound (**zh** in current Latin transcription) as **ḷ**.
- **English, West European, Slavic languages:**
  - Alveolar **t, d** as **ṭ** (or just **tt**), **dt**
  - Unvoiced, voiced dental fricatives: English **thin** → **th<sub>o</sub>in**, **this** → **dh<sub>o</sub>is**. (Again, this refers to American, British, Australian etc. pronunciation, *not* Indian English pronunciation!)
- **All languages: r-sounds:**
  - **r** is used in NAVLPI transcription to represent the *central flap/tap* (as in British or Irish or Indian pronunciation of *character*). For the American pronunciation, where the sound is rendered as a *central semivowel*, NAVLPI uses **ɹ**.
  - For the *r*-sound in Indian languages and also Spanish, usually rendered as slight trill, NAVLPI uses **rr**.
  - When the mild-trill and heavy-trill are distinguished phonemically, as in Spanish (*pero*, “but” vs. *perro*, “dog”) or Malayalam, NAVLPI uses **rr** and **rrr** respectively for these sounds.
- **Arabic:**
  - Unvoiced uvular (“faucal”) *k*-sound, **q** in Latin transcription: **k**. E.g. **Qoraan**, **qaid**, NAVLPI **K.oraan**, **k.eed**.
  - Pharyngealized (faucal) dental **t**-, **d**- as **t..**, **d..**
- **Mandarin:**
  - *4 standard tones*: leftmost 4 keys at bottom of NAVLPI mobile numbers keyboard: **|**, **,**, **∪**, **└**. Placed *after* syllable having tone.
    - **hs**-sound (**x** in Latin transcription, e.g. **Xie Xie**, “thank you”, **Xi Jin Ping**): **ṭh<sub>o</sub>**
- **Select African languages:**
  - “Velarized” bilabials **kp**, **gb**
  - Initial nasals as **n<sub>oo</sub>**, **m<sub>oo</sub>**. E.g. *Ngoma Mbeki* as **N<sub>oo</sub>goma** **M<sub>oo</sub>bEki**

## APPENDIX A: DEWANAAGARI (DEVANAGARI) ALPHABET IN NAVLIPI:

This will those familiar with Dewanaagari to better understand and appreciate NAVLIPI. (The Dewanaagari alphabet is used today for Hindi, Maraathi, Nepaali and Sanskrit).

(Original Dewanaagari letter given in **blue**. NAVLIPI equivalent in **red**. Letters in (italicized) word examples in **green**.)

### VOWELS (स्वर):

#### Fundamental vowels (शुद्ध, मूल स्वर):

अ <b>a</b> अन्डा <i>andaa</i>	आ <b>aa</b> आम <i>aam</i>	इ <b>i</b> इम्ली <i>imlī</i>	ई <b>ii</b> ईख <i>iikh</i>	उ <b>u</b> उतार <i>utaar</i>	ऊ <b>uu</b> ऊपर <i>uupar</i>
ऋ <b>ī</b> ऋषि <i>īthoi</i> , कृपा <i>kīpaa</i>	लृ <b>l</b> लृप <i>lp</i>				

#### Derivative vowels (संयुक्त, व्युत्पन्न स्वर) \*\*::

ए <b>ε</b> एड़ी <i>εḍ.ii</i>	ऐ <b>ee</b> ऐनक <i>eenak</i>	ओ <b>o</b> ओस <i>os</i>	औ <b>Ω</b> और <i>Ωr</i>
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#### Diphthongs\*\* (संयुक्त स्वर)\*\*::

ऐ <b>ee, aae</b> ऐनक <i>eenak</i>	औ <b>Ω, aaυ</b> और <i>Ωr</i>
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(\*\* In the original Sanskrit, the diphthongs among these derivative vowels were most likely articulated as pure derivative vowels, and have degenerated into diphthongs over the millennia, in Sanskrit as well as other Indian languages. NAVLIPI uses them as the originally intended pure vowels.)

**NASALS AND GLOTTALS (अनुस्वार + विसर्ग):**

अं ~	अः :
अंग (अङ्ग) a~g	नमः nama:



NON-VOWELS (व्यञ्जन):

	unaspirated, unvoiced अल्पप्राण, कर्कश	aspirated, unvoiced महाप्राण, कर्कश	unaspirated, voiced अल्पप्राण, मृदु	aspirated, voiced महाप्राण, मृदु	nasal अनुनासिक
velar कंठ्य	<b>क k</b> काम <i>kaam</i>	<b>ख kh<sub>o</sub></b> खोलना <i>kʰolnaa</i> ; <b>ख. X</b> (fricative) ख्वाब <i>xwaab</i>	<b>ग g</b> गाना <i>gaanaa</i>	<b>घ gh<sub>o</sub></b> घना <i>gh<sub>o</sub>anaa</i>	<b>ङ n<sub>o</sub></b> अङ्ग (अंग) <i>an<sub>o</sub>g</i> (a~g)
palatal तालव्य	<b>च c</b> चिडिया <i>ciʱijaa</i>	<b>छ ch<sub>o</sub></b> छत्रि <i>ch<sub>o</sub>atri</i>	<b>ज ɟ</b> जन <i>ɟan</i> <b>ज़ z</b> (fricative) इज़्ज़त <i>izzat</i>	<b>झ ɟh<sub>o</sub></b> झूला <i>ɟh<sub>o</sub>uulaa</i>	<b>ञ ŋ</b> जाञ्च (जांच) <i>ɟaŋc</i> (ɟa~c)
Retro- flex मूर्धन्य	<b>ट ʈ</b> टीका <i>ʈiikaa</i>	<b>ठ ʈh<sub>o</sub></b> ठीक <i>ʈh<sub>o</sub>iik</i>	<b>ड ɖ</b> डन्डा <i>ɖanɖaa</i> ड़ <b>ɖ.</b> (flap) कड़क <i>kaɖ.ak</i>	<b>ढ ɖh<sub>o</sub></b> ढोलक <i>ɖh<sub>o</sub>olak</i> ढ़ <b>ɖh<sub>o</sub>.</b> (flap) बढ़िआ <i>baɖh<sub>o</sub>.ijaa</i>	<b>ण ɳ</b> बाण <i>baaɳ</i>
dental दन्त्य	<b>त t</b> तन <i>tan</i>	<b>थ th<sub>o</sub></b> थकना <i>th<sub>o</sub>aknaa</i>	<b>द d</b> देखो <i>dɛkh<sub>o</sub>o</i>	<b>ध dh<sub>o</sub></b> धनुष <i>dh<sub>o</sub>anuth<sub>o</sub></i>	<b>न n</b> नल <i>nal</i>
bilabial ओष्ठ्य	<b>प p</b> पल <i>pal</i> , प्रेम <i>prɛm</i> , पृष्ठ <i>pɾ̥ʈh<sub>o</sub>ʈh<sub>o</sub>a</i>	<b>फ ph<sub>8</sub></b> फल (फल) <i>ph<sub>8</sub>al</i>	<b>ब b</b> बोल <i>bol</i>	<b>भ bh<sub>o</sub></b> भालू <i>bh<sub>o</sub>aaluu</i>	<b>म m</b> मन <i>man</i> , मैं <i>mee</i>

**SEMI-VOWELS (<< APPROXIMANT, CONTINUANTS >>) AND FRICATIVES (अंतस्थ  
और ऊष्मन)**

palatal तालव्य	retroflex, central मूर्धन्य	dental, lateral दन्त्य	bilabial ओष्ठ्य
य j यन्त्र jantr̥q	र rr राजा rraa aa	ल l ले lɛ	व vw विलम्बित vwilambit
श sh <sub>0</sub> शुभ sh <sub>0</sub> ubh <sub>0</sub> a	ष tsh <sub>0</sub> औषधि au <sup>t</sup> h <sub>0</sub> adhi	स s सुख sukh <sub>0</sub> a	ह h हाथ haath <sub>0</sub>

**DEWANAAGARI LETTERS RELEVANT TO MARAATHI (MARATHI):**

<p>dental vs. retroflex laterals</p> <p>दन्त्य , मूर्धन्य</p>	<p>अनुनासिक (nasals)</p>
<p>ल ।</p> <p>लवकर ।aukar,</p> <p>vs.</p> <p>ळ ।</p> <p>कळल kaḷlq</p> <p>पळाइच paḷaaitsq</p>	<p>म m</p> <p>माणुस</p> <p>maapus, vs.</p> <p>म्ह mh<sub>o</sub></p> <p>म्हण्तो</p> <p>mh<sub>o</sub>apto</p>

## APPENDIX B: CYRILLIC ALPHABET IN NAVLPI:

The Cyrillic alphabet, derived originally from the Greek, is today used for Russian, and in variants, for Ukrainian and Serbian, among other languages.

CYRILLIC letter	Latin equivalent (transcription)	NAVLPI transcription	Word examples Cyrillic (all lower case only; letter highlighted in green)	Word examples NAVLPI (all lower case only; letter highlighted in green)	English meaning of word example
а, А	a, A	aa, AA	áтом	aatom	atom
б, Б	b, B	b, B	ба́тон	baaton	baguette
в, В	v, V	v, V	ва́режки	vaarezh <sub>0</sub> ki	mittens
г, Г	g, G	g, G	гру́ша	grush <sub>0</sub> aa	pear
д, Д	d, D		дом	dtom	house
е, Е	e (ye), E (Ye)	e (je), E (Je)	ежеви́ка	jezh <sub>0</sub> evikaa	blackberry
ё, Ё	No equivalent; closest: yo, Yo	jo, Jo	ёж	josh <sub>0</sub>	hedgehog
ж, Ж	No equivalent; closest: zh	zh <sub>0</sub> , Zh <sub>0</sub>	жу́к	zh <sub>0</sub> uk	bug
з, З	z, Z	z, Z	замо́к	(1) zaamo'k; (2) zaa'mok	(1) lock; (2) castle
и, И	i, I; English ee.	ii, Ii	укра́	iikraa	caviar
й, Й	y, Y; German etc. j, J	j, J	йо́гурт	jogurt	yogurt
к, К	k, K	k, K	клубни́ка	klubnikaa	strawberry
л, Л	l, L	l, L	лимо́н	limon	lemon
м, М	m, M	m, M	мали́на	maalinaa	raspberry
н, Н	n, N	n, N	носки́	noski	socks
о, О	o, O; aw; Aw.	Ω, Ω	облако осень	Ωblaakq Ωsenji	cloud autumn
п, П	p, P	p, P	пе́рец	pjerets	(bell) pepper

<b>CYRILLIC letter</b>	<b>Latin equivalent (transcription)</b>	<b>NAVLIP transcription</b>	<b>Word examples Cyrillic (all lower case only; letter highlighted in green)</b>	<b>Word examples NAVLIP (all lower case only; letter highlighted in green)</b>	<b>English meaning of word example</b>
<b>р, Р</b>	<i>r, R</i> ; but rolled vs. semivowel <i>r</i> not distinguished in Latin transcription.	<i>rr, Rr</i>	<i>р</i> ыба	<i>rr</i> ibaa	Fish
<b>с, С</b>	<i>s, S</i>	<i>s, S</i>	<i>с</i> тул	<i>stuul</i>	chair
<b>т, Т</b>	<i>t, T</i>	<i>tt, Tt</i>	<i>т</i> орт	<i>tt</i> Ortt	cake
<b>у, У</b>	<i>u, U</i> ; English oo.	<i>uu, Uu</i>	<i>у</i> дочка	<i>uudockaa</i>	fishing rod
<b>ф, Ф</b>	<i>f, F</i>	<i>f, F</i>	<i>ф</i> рукты	<i>fruktq</i>	fruit
<b>х, Х</b>	No equivalent but closest is <i>ch, Ch</i>	<i>x, X</i>	<i>х</i> воя	<i>xvojaa</i>	needles
<b>ц, Ц</b>	<i>ts, Ts</i>	<i>ts, Ts</i>	<i>ц</i> ифры	<i>tsifrq</i>	figures, numbers
<b>ч, Ч</b>	<i>ch, Ch</i>	<i>c, C</i>	<i>ч</i> ашка	<i>caash<sub>0</sub>kaa</i>	cup
<b>ш, Ш</b>	<i>sh, Sh</i>	<i>sh<sub>0</sub>, Sh<sub>0</sub></i>	<i>ш</i> апка	<i>sh<sub>0</sub>aapkaa</i>	hat
<b>щ, Щ</b>	<i>shch, Shch</i>	<i>tth<sub>0</sub>, Tth<sub>0</sub></i>	<i>щ</i> ётка	<i>tth<sub>0</sub>Qtkaa</i>	brush
<b>ы, Ы</b>	<i>i, I</i>	<i>y, Y</i>	<i>р</i> ыба	<i>rybaa</i>	fish
<b>э, Э</b>	<i>e, E</i>	<i>e, E</i>	<i>э</i> кран	<i>ekrraan</i>	screen
<b>ю, Ю</b>	<i>yu, Yu</i> ; German, etc., <i>ju, Ju</i> .	<i>ju, Ju</i>	<i>ю</i> бка	<i>jubkaa</i>	skirt
<b>я, Я</b>	<i>ya, Ya</i> ; German, etc., <i>ja, Ja</i> .	<i>jaa, Jaa</i>	<i>я</i> блоко	<i>Jabloka</i>	apple













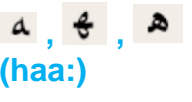


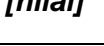


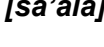




## APPENDIX C: ARABIC ALPHABET IN NAVLIPI:

ARABIC letter (in order: final, medial, initial, isolated. "- - " indicates not used or N/A.)	Latin equivalent (transcription)	NAVLIPI transcription	Arabic word examples. Arabic letter highlighted in green. [Approximate Latin transcription].	NAVLIPI word examples. NAVLIPI letter highlighted in green.	English meaning of word example
ا, --, --, ا (alif)	a, A	aa, AA	أب [aab]	aab	father
ب, ب, ب, ب (baa:)	b, B	b, B	بيت [bait]	baaitt	house
ت, ت, ت, ت (taa:)	t, T; (voiceless alveolar plosive)	tt, Tt;	كتاب [kitab]	kittob	book
ث, ث, ث, ث (thaa:)	None (voiceless interdental fricative)	th <sub>0</sub> , Th <sub>0</sub>	حديث [hadith]	h..editho	talk
ج, ج, ج, ج (jiim)	j, J.	l, l;	جسر [jisr]	ʃisr	bridge
ح, ح, ح, ح (h..a:)	None (voiceless pharyngeal fricative)	h.., H..	بحر [bahr]	baah..r	sea
خ, خ, خ, خ (xaa:)	ch, Ch	x, X	خبز [khobz, khubz]	xobz	bread
ARABIC letter (in order: final, medial, initial, isolated. "- - " indicates not used or N/A.)	Latin equivalent (transcription)	NAVLIPI transcription	Arabic word examples. Arabic letter highlighted in green. [Approximate	NAVLIPI word examples. NAVLIPI	English meaning of word example

<i>indicates not used or N/A.)</i>			Latin transcription].	<i>letter highlighted in green.</i>	
د , --, --, د (daal)	d, D (voiced alveolar plosive)	dt, Dt	جديد [jadid]	jadtidt	new
ذ , --, --, ذ (dhaal)	None. (voiced interdental fricative)	dh <sub>0</sub> , Dh <sub>0</sub>	منذ [mundhu]	mundh <sub>0</sub> u	since
ر , --, --, ر (raa:)	r, R; rr, Rr	r, R; rr, Rr	رأس [ras]	rras	head
ز , --, --, ز (zaai)	z, Z	z, Z	زميل [zamil]	zamil	colleague
س , --, --, س (siin)	s, S	s, S	مجلس [majlis]	majlis	assembly
ش , --, --, ش (shoiin)	sh, Sh	sh <sub>0</sub> , Sh <sub>0</sub>	شمس [shams]	sh <sub>0</sub> ems	sun
ص , --, --, ص (s..aad)	None.	s.., S..	صيف [saif]	s..aaif	summer
ض , --, --, ض (d..aad)	None.	d.., D..	فضل [fadl]	faad..l	favor
ARABIC letter (in order: final, medial, initial, isolated. "--" indicates not used or N/A.)	Latin equivalent (transcription)	NAVLIPI transcription	Arabic word examples. Arabic letter highlighted in green. [Approximate Latin transcription].	NAVLIPI word examples. NAVLIPI letter highlighted in green.	English meaning of word example

ط, ط, ط, ط (t..aa:)	None.	t., T..	طفل [tifl]	t..ifl	child
ظ, ظ, ظ, ظ (z..aa:)	None.	z., Z..	ظرف [zarf]	z..aarif	envelope
ع, ع, ع, ع (:aain)	None. (voiced pharyngeal fricative)	ḥ., Ḥ..	طعام [ta'am]	taaḥ..aam	food
غ, غ, غ, غ (ḡaain, gh..aain)	None. (voiced velar fricative)	ḡ, Ḥ	ببغاء [babaga]	babaḡa	parrot
ف, ف, ف, ف (faa:)	f, F	f, F	فرد [fard]	fard	individual
ق, ق, ق, ق (k..aaf, qaaf)	q, Q (uvular plosive)	k., K..	قلم [qalam]	k..alam	pen
ك, ك, ك, ك (kaaf)	k, K	k, K	كلب [kalb]	kelb	dog
ARABIC letter (in order: final, medial, initial, isolated. "- - " indicates not used or N/A.)	Latin equivalent (transcription)	NAVLIPI transcription	Arabic word examples. Arabic letter highlighted in green. [Approximate Latin transcription].	NAVLIPI word examples. NAVLIPI letter highlighted in green.	English meaning of word example
ل, ل, ل, ل (laam)	l, L	l, L	ليل [layl]	lɛil	night



  (miim)	<i>m, M</i>	<i>m, M</i>	  [karim]	kariim	generous
  (nuun)	<i>n, N</i>	<i>n, N</i>	  [nahr]	naahr	river
  (waaw)	<i>w, W</i>	<i>w, W</i>	  [waraqa]	warak..aa	paper
  (haa:)	<i>h, H</i>	<i>h, H</i>	  [hilal]	hilal	crescent
	' (glottal stop)	:	  [sa'ala]	sa:ala	asked
  (jaa:)	<i>i, I; y, Y</i>	<i>i, I; ii; li; j, J</i>	  [kursi]	kursii	chair

## APPENDIX D: TAMIL ALPHABET IN NAVLIPI:

**NOTE :** Some letters (glyphs), e.g., for the **s**-sound, are from *Grantha* Tamil, which was last officially taught in public schools in Tamil Nadu state in India in the 1960s, and is today unavailable in many modern Tamil keyboards. They are given here for completeness only.

TAMIL letter	Latin equivalent (transcription), where available	Dewa-naagari equivalent (transcription), where available	NAVLIPi transcription	Word examples Tamil (all lower case only; letter highlighted in green)	Word examples NAVLIPi (all lower case only; letter highlighted in green)	English meaning of word example
அ	a	अ	a	அப்பா	appaa	father
ஆ	a	आ	aa	ஆமாம், (colloq. ஆமா)	aamaam (colloquial aamaa)	yes
இ	i	इ	i	இல்லை	illai	no
ஈ	i; (English ee)	ई	ii	ஈ	ii	fly
உ	u	उ	u	உடல்	uḍal	body
ஊ	u; (English oo)	ऊ	uu	ஊமை; ஊர்	uumai; uur	dumb; place, city
எ	e; ye		e; je	எருமை	jerumai	buffalo
ஏ	e; (English ey)	ए	ε, jε	ஏறு	jεrq	climb
ஐ	ai (diphthong)	ऐ	aai; aae	ஐந்து	Aaiṇḍq (colloquial aaiṇḷq, anḷi)	five (number 5)
ஓ	o		o	ஒன்று	Onrru (colloquial onnq)	one (number 1)

TAMIL letter	Latin equivalent (transcription), where available	Dewa-naagari equivalent (transcription), where available	NAVLIPR transcription	Word examples Tamil (all lower case only; letter highlighted in green)	Word examples NAVLIPR (all lower case only; letter highlighted in green)	English meaning of word example
ஓ	o	ओ	oo	ஓநாய்	Oonaai	wolf
ஔ	au (diphthong)	औ	aa	ஔவையார்	Aauwajjaar	respectable woman
க	k	क	k	கல்	kal	stone
க	g	ग	g	பங்கு	pan	part; share
ங	n	ङ	no; ~ (medial only)	அங்கம்	an	element
ச	ch	च	c	சப்பை	cappai	flat (adj.); flatten (verb);
ஜ	j	ज	j	ஜெல்லி கட்டு	jalli kattu	mold; coins.
ஞ	n	ञ	ñ	கலைஞர்	manjal; kalaain	turmeric; artist
ட	none	ट	ṭ	பட்டினம், பட்டு	pattinam ; pattu	city; silk
ட	none	ड	ḍ	டமாரம்	ḍammaaram	deaf;
ண		ण	ṇ	அரண்	aan; iranḍ (colloquial reṇḍ )	man; two
த	t	त	t	தகரம்	tagaram	tin
□		ऋ	ṛ	நடைபயிற்சி	naḍaipaiṛchi	games
ந (initial) ன (medial)	n	न	n	(initial) நன்றி, நண்பன் (medial) அன்பு	nanri; nanban an	thank you; friend love
TAMIL letter	Latin equivalent (transcription),	Dewa-naagari equivalent	NAVLIPR transcription	Word examples Tamil (all lower case only; letter	Word examples NAVLIPR (all lower case only; letter	English meaning of word example

	where available	(transcription), where available		highlighted in green)	highlighted in green)	
ப	<i>p</i>	प	<i>p</i>	பணிவு	<i>paṇivu</i>	humility
ம	<i>m</i>	म	<i>m</i>	மஞ்சள்	<i>maṇḷal</i>	turmeric; yellow
ய	<i>y</i>	य	<i>j</i>	யார்	<i>jaarq</i>	Who
ர	<i>r</i>	र	<i>rr</i>	ஊர்; ராட்டினம்	<i>Uurr; rraatinam</i>	city; ferris wheel
ல	<i>l</i>	ल	<i>l</i>	பால்	<i>paal</i>	milk; also gender
வ	<i>w; v</i>	व	<i>v</i>	விலங்கு	<i>Vilangq</i>	animal
ழ	<i>zh</i>	--	<i>ʃ</i>	புகழ்	<i>pugaʃ</i>	fame
ள	--	ळ	<i>ʃ</i>	அளவு	<i>aḷavu</i>	measure
ற	<i>rr</i>	रर	<i>rrr</i>	இறப்பு	<i>irrrappq</i>	death
ஷ		ष	<i>sho, tho</i>	ஷடங்கம்	<i>ʃhoatangam</i>	rites
ஸ	<i>s</i>	स	<i>s</i>	ஸமயம்	<i>samaaḷam</i>	time; religion.
ஹ	<i>h</i>	ह	<i>h</i>	ஹிமை	<i>himai</i>	mind's eye
சுஷ	<i>ksh</i>	क्ष	<i>ksho</i>	அகூதை	<i>akshoatai</i>	unit