

**Indic extensions**  
**Accent marks and**  
**Concrete text**

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**Requirements for**  
**extensions to**  
**SSML**  
**to improve the synthesis**  
**of languages**  
**Indic**

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# Indian languages: written and spoken

Although most Indian languages are spoken as they are written, there are few exceptions

- In contemporary Tamil, the glyph (graphical representation) for consonant Ka ( க ) represents Ka and the consonant Kha. There is no separate glyph for the consonant Kha ( க் ).
- Traditional Hindi (Devanagari script) has no provision for ‘short e’ ( ए ) and ‘short o’ ( ओ ) which exists in Kannada.
- Bengali ‘A’ is written as ‘A’ ( অ ) but pronounced as similar to ‘Awe’.

# Single word with different pronunciations in different Indian languages

Marathi

रघुनाथ्

Oriya

रघुनाथ

Kannada

रघुनाथा

Sanskrit

वाळकेश्वर

Oriya

बाळुकेसर

Bengali

बालाँकेशशोर

# Proper name: written and spoken

ईश्वर चंद्र विद्यासागर *written*

ঐশ্বর চন্দ্র বিদ্যাসাগর *written*

ईश-शोर चोन्द्र विद्दाशागोर *spoken*

ঐশ্শোর চোন্দ্র বিদ্দাসাগোর *spoken*

इ + श् + श् + ओ + र् + अ + च् + ओ + न् + द् + र् + अ

ব্ + হ + দ্ + দ্ + আ + শ্ + শ্ + আ + গ্ + ও + র্ + অ

१ हिन्दी	सूर्यनमस्कार सर्वश्रेष्ठ व्यायाम है । [ सूर्यनमस्कार सर्वश्रेष्ठ व्यायाम है ]
२ English	Surya Namaskara is the best exercise.
३ पंजाबी	ਸੂਰਜ ਨਮਸਕਾਰ ਸਭ ਤੋਂ ਅਚਛਾ ਵਯਾਯਾਮ ਹੈ । [ ਸੂਰਜ ਨਮਸਕਾਰ ਸਭ ਤੋਂ ਅਚਛਾ ਵਯਾਯਾਮ ਈ ]
४ उर्दू	सूरज नमस्कार यह बेहतरीन वर्जिश है । [ सूरज नमस्कार ये बेहत्तीन् वर्जिश् है ]
५ कश्मीरी	सूर्यु नमस्कार छे सारि बुय् खोतुं जान् वर्जिश् ।
६ सिंधी	سُورجُ نَمسڪار سبھ ڀڻا سُوڙي ڪسرت آھي. [ سُورجُ نَمسڪار سبھ ڀڻا سُوڙي ڪسرت آھي ]
७ मराठी	सूर्यनमस्कार हा सर्वश्रेष्ठ व्यायाम आहे. [ सूर्यनमस्कार हा सर्वश्रेष्ठ व्यायाम आहे ]
८ गुजराती	सूर्य नमस्कार ए सौथी सरस कसरत छे. [ सूर्य नमस्कार ए सौथी सरस् कसत् छे ]
९ बाङ्गला	सूर्यनमस्कार सर्वश्रेष्ठ व्यायाम आहे । [ शुज्जानॉमॉस्कार शॉब्बॉश्रेस्टॉ ब्यायाम् आहे ]
१० असमीया	सूर्यनमस्कार सर्वश्रेष्ठ व्यायाम आहे । [ सूरज्जॉनॉमॉस्कार हॉर्बॉश्रेस्टॉ ब्यायाम् आसे ]
११ ओड़िया	सूर्यनमस्कार सर्वश्रेष्ठ व्यायाम अटे । [ सूरज्जॉ नॉमॉस्कार सॉर्बॉश्रेस्टॉ ब्यायाम् ऑटे ]
१२ तेलुगु	सूर्यनमस्कारालु चाला मंचिदि.
१३ तमिळ	सूर्यनमस्कारम् मिहच्चिरन्द देघप्पयिर्चि.
१४ मलयाळम्	सूर्यनमस्कारम् नल्ल व्यायामम् आकुन्नु. [ सूर्यनमस्कारम् नल्ल व्यायामम् आगुन्नु ]
१५ कन्नड	सूर्यनमस्कार बहु ओळ्ळ्येय व्यायाम.
१६ संस्कृत	सूर्यनमस्कारास्तु सर्वोत्तमो व्यायामः ।

# Sentences: written and spoken

**The following 4 extensions  
are being proposed:**

**1.<say-as-if>**

**2.<say-to-self>**

**3.<say-bil>**

**4.<pnps>**

# 1. </say-as-if>

This extension will help to establish co-relationship in written and spoken words.

## **Marathi**

हिंसक - हिंसक  
संयम - संयम  
कन्या - कन्या  
मृत्यु - मृत्यु

## **Vedic Sanskrit**

चित्र - सामगान / चायित्र  
अग्नि / अग्ने - ओग्नाइ / आग्नाइ  
वीतये - वोइयोया ऽ २ इ  
गृणानो हव्यदातये - गृणानोह व्यतातोया ऽ २ इ  
सरस्वती - सरस्वती

## 2. </say-to-self>

This is an extension for “thinking aloud” type of speech in which non linguistic sounds can be represented.

ओह्

*Sad*

अँऽह

*Negation*

हुऽऽम्

*Sigh*

आऽहाऽऽ

*Positive*



### 3. </say-bil>

This extension will help when the speaker changes his language suddenly and frequently. This bi-lingual speech characteristic is often witnessed in the present audio visual media in India. If language changes from Lan1 to Lan2, some of the speech characteristic of Lan1 is carried to Lan2.

Marathi – Hindi – Marathi  
Tamil – English – Tamil

## EXAMPLE FOR USE OF <say-bil>

```
<?xml version = "1.0"?>
```

```
<speak version = "1.0" xmlns="http://www.w3.org/2001/10/synthesis"  
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
      xsi : schemaLocation="http://www.w3.org/2001/1-/synthesis  
      http://www.w3.org/TR/speech-synthesis/synthesis.xsd"  
      xml : lang="mr">
```

```
<p> त्याला मी सांगितलं </p>
```

```
<p>
```

```
<say-bil>
```

```
< xml: lang2 = "hn"> महल में रहना मेरे नसीब में कहाँ?
```

```
</say-bil>
```

```
</p>
```

```
<p>त्यावर तो हसला </p>
```

```
</speak>
```

## 4. `</pnps>`

This extension is for proper nouns. Even if a proper noun is traditionally written in two parts, this extension will pronounce it as one whole.

RuDra Dharmaa - spoken as Rudradharma  
Kamal Kishor - spoken as Kamalkishor  
with their respective phoneme strings.

## EXAMPLE FOR USE OF <pnps>

```
<?xml version = "1.0"?>
```

```
<speak version = "1.0" xmlns="http://www.w3.org/2001/10/synthesis"  
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
      xsi : schemaLocation="http://www.w3.org/2001/1-/synthesis  
      http://www.w3.org/TR/speech-synthesis/synthesis.xsd"  
      xml : lang="hn">
```

```
<p>
```

```
<pnps> कमल किशोर</pnps>
```

```
</p>
```

```
</speak>
```



# Position Statement

The identification of phonemic strings and the process of addition of phonemes\* to form syllables and words must be the basis for written text as well as spoken text in Indian languages.

The conversion of phonemic strings into written text or spoken text (speech) needs to be done through digital technology.

*\* A single indivisible sound unit.*

*Theoretical representation of a sound. It is a sound of a language as represented (or imagined) without reference to its position in a word or phrase.*

*A phoneme is the smallest contrastive unit in the sound system of a language.*

*Source: wikipedia.org*

*The smallest identifiable unit found in a stream of speech.*

*Source: www.sil.org*

# Thank you

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