Phonemes and Allophone

- Consider two English words: *sip* and *zip*. The only difference between
- these two words phonetically is in the beginning consonants: [s] is
- voiceless but [z] is voiced. This is called a minimal pair. The
- relationship between [s] and [z] in a minimal pair of words like these
- is called contrast. Specifically, this is called Contrast in Identical
- Environments or CIE.
- When we observe contrast in a minimal pair, we say (conclude) that
- the two segments ([s] and [z]) are distinct phonemes
- in this language.
- Definition: A phoneme is a sound that can consistently be used to
- make a (minimal) distinction between two different words in the same
- language.

- Now let's consider the relationship between another
- pair of similar sounds in two different languages:
- oral [a] vs. nasalized [ã].
- In Shipibo (a language spoken in the Amazon jungle
- of Peru), these two segments also contrast, as in the
- following minimal pair:
- [i'sa] 'bird'
- [i'sã] 'palm oil'

- This is also a case of Contrast in Identical Environment, so we conclude that in this language, /a/
- and /ã/ are two separate phonemes. This is confirmed by the fact that
- this type of contrast can also be found in many other words of the
- language, including in different phonological environments:
- unstressed syllables as well as stressed syllables, and word-initial and
- word-medial syllables as well as word-final position. Furthermore, the
- same type of relationship (contrast) can also be shown to exist for the
- other pairs of oral vs. nasalized vowels as well: /i/ vs. /ĩ/, /o/ vs. /õ/,
- etc. All of these facts are an indication that our analysis is on the right
- track.
- One implication of this conclusion is that in Shipibo, it is probably
- necessary to write these two phonemes (/a/ and /ã/) in different ways
- in the practical orthography.

- In English, the phone (segment) [a] occurs always and only before an
- oral consonant OR word-finally, while nasalized [ã] occurs always
- and only before a nasal consonant. This type of relationship is called
- complementary distribution. It is the opposite of contrast. In English,
- there can never be any minimal pairs contrasting oral [a] vs. nasal [ã]
- in the exact same phonological environment at the same time, as there
- are in Shipibo. In other words, it is not the case that [a] and [ã] are
- separate phonemes in English. Rather, they are _____
- of the same phoneme.
- Definition: Allophones are predictable phonetic variants of the same
- phonemic unit.

- The implication of these facts is that in English, there is no need to
- distinguish oral from nasalized vowels in the practical orthography;
- native speakers will always choose to pronounce the right allophone
- correctly when reading, since this is a subconscious, automatic reflex
- that we do without thinking.
- In Shipibo, however, this is not the case: since two words can be
- minimally distinguished by oral vs. nasal vowels, and since this type
- of situation is very common in this language, they need to write the
- two types of vowels differently, or else the native speakers would get
- confused when they are reading. The way this is done in fact is by
- writing *isa vs. isan. Other possible ways to represent nasalization of*
- vowels in practical orthographies is by:
- underlining: is<u>a</u>
- Or putting a tilde on top of the vowel symbol: isã

- phonemes (Shipibo /a/ vs. /ā/)
- • distinctive
- • contrast in identical environment (CIE)
- • minimal pairs can be found
- • overlapping environments
- • mutually inclusive environments
- • contrastive
- • non-redundant
- • non-automatic
- • conscious
- • abstract
- • phonetically unpredictable

Difference between Phoneme and Allophone

• phonemes (Shipibo /a/ vs. /ā/)	• allophones (English [a] and [ā])
• distinctive	• non-distinctive
• contrast in identical environment (CIE)	• complementary distribution (CD)
• minimal pairs can be found	• no minimal pairs can be found
• overlapping environments	• non-overlapping environments
• mutually inclusive environments	• mutually exclusive environments
• contrastive	• non-contrastive
• non-redundant	• redundant
• non-automatic	• automatic
• conscious	• unconscious
• abstract	• concrete
• phonetically unpredictable	• predictable from the phonetic environment