Phonology-Part II: Complementary Distribution & Allophonic rules

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Practice: Syllabification

(1) Is the following word possible in English? If so, syllabify it. If not, explain.

a. [ptsatsa] b. [fɹabʤəs] c. [wɪflɪŋ]

Phonemes and Allophones, Part II

- **Complementary Distribution** := A relation between two allophones of the same phoneme.
  - Intuitively, if [X] and [Y] are **never** in the same *environment(s)* (≈ the immediate surrounding phones), they **might** be different manifestations of the same 'sound' (phoneme) in the language.
  - Why only '**might**'? Well, they can also just be unrelated allophones of different phonemes ([tʰ] and [ŋ]).
- The different distributions of allophones [X] and [Y] will allow us to deduce:
  (i) What the underlying phoneme is.
  (ii) **The rule** that determines whether that phoneme is pronounced as [X] or [Y].

The Procedure for Discovering Allophones of the Same Phoneme

1st step: Determine if there are minimal pairs for the two phones [X] and [Y] that you're examining.

a. Did you find such a pair? The procedure stops.
[X] and [Y] are allophones of *different* phonemes.

b. You didn't find? The procedure continues.

2nd step: Determine if there is a rule deriving [X] and [Y] from the same phoneme.

i. Determine the environments of [X] and [Y]. (You should have 4 lists: phones preceding/following [X] and same for [Y].)

ii. For each environment, look for similarities. (These should be as specific as possible.)

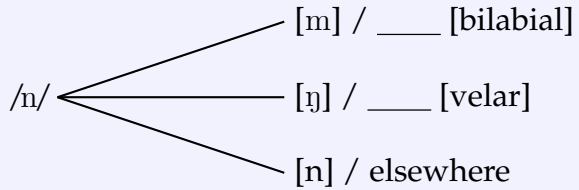
iii. See if any of the environments are unique to a particular allophone. ("Oh! I found a shared feature for all the sounds that precede [X]. Do any of the sounds preceding [Y] have it?")

iv. If there's an environment unique to one allophone, write the rule deriving that allophone in that environment.

Notation for Phonological Rules:

/**X**/ → [**Y**] / ____**E**(nvironement)
"/X/ is pronounced as [Y] when preceding E."

Remember the fork?



/**X**/ → [**Y**] / **E**____
"/X/ is pronounced as [Y] when following E."

/**X**/ → [**Y**] / $\mathbf{E}_1$____$\mathbf{E}_2$
"/X/ is pronounced as [Y] when following E_1 and preceding E_2."

Let's apply the procedure:

(2) The following are words from Éwé, a language spoken in Ghana.[1]

[1] I sincerely thank Prof. Kyle Johnson for sharing these materials with me

[zɹɔ̃]	‘to be smooth’	[lɔ̃]	‘to love’
[mlagoː]	‘thick’	[lolo]	‘to be large’
[wlu]	‘to dig’	[adoglo]	‘lizard’
[sɹɔ̃]	‘wife’	[vlɔ]	‘to go far away’
[dɹu]	‘to be bent’	[tsɹo]	‘tree bark’
[dzɹe]	‘to quarrel’	[blema]	‘formerly’
[atɹa]	‘mangrove’	[hle]	‘spread out’
[fle]	‘to pluck’	[ŋlɔ]	‘to write’
[litsa]	‘chameleon’	[glamaː]	‘uneven’

Are [ɹ] and [l] different phonemes, or is one an allophone of the other?

1st step: There is no minimal pair, so the procedure continues.

2nd step: Going after a rule that will describe the complementary distribution of [ɹ] and [l]

i. **Keeping track of the environments**
- Sounds that can follow [l]: [a, i, u, e, ɔ, o]
- Sounds that can follow [ɹ]: [ɔ, u, e, a, o]
  - △ *There is an overlap ⇒ this is not the environment determining the distribution of these two phones.*
- Sounds that can precede [l]: [m, w, f, o, g, v, b, h, ŋ] and silence (# = beginning of word)
- Sounds that can precede [ɹ]: [z, s, d, t]
  - △ *There is no overlap ⇒ the two phones have a complementary distribution that's conditioned by what precedes them!*

ii. **Looking for Commonalities**
- For [l]: [m, w, f, o, g, v, b, h, ŋ] and silence
  Hint: if the environment contains the syllable boundary, this is probably the elsewhere case, i.e., the phoneme.
- For [ɹ]: [z, s, d, t]
  These are all alveolar phones!

iii. The only-after-alveolar-phones environment is **unique** for ɹ? Yes.

iv. **The rule**

(i) In prose form: /l/ changes to [ɹ] when preceded by an alveolar phone

(ii) Formal form: /l/ → [ɹ] / [alveolar] ____

Practice: Phonemes and Allophones

(3) The following examples are from Modern Hebrew, a language spoken in Israel.

[banaj]	‘builder (m.)’	[tivni]	‘you (f.) will build’
[eʁev]	‘evening’	[aʁbajim]	‘twilight’
[ʃavura]	‘broken (f.)’	[liʃbor]	‘to break’
[maχov]	‘pain/grief’	[kavod]	‘respect/honor’
[mugbal]	‘limited (m.)’	[muvχan]	‘distinct’
[baχana]	‘she examined’	[ambivalenti]	‘ambivalent’

a. According to this data, are [b] and [v] different phonemes, or is one an allophone of the other?

Now consider the following set of data:

[zaxuʁ]	‘remembered’	[jizkoʁ]	‘he will remember’
[katav]	‘he wrote’	[tiχtov]	‘she will write’
[meleχ]	‘king’	[malka]	‘queen’
[pnija]	‘turn/application’	[tafnit]	‘turning point’
[ʃafatet]	‘you (f.) judged’	[miʃpat]	‘trial/sentec’
[elef]	‘thousand’	[alpit]	‘a thousandth’

b. In light of this data set, can you change your rule from [a]?

c. What does the following tell you about the phonemes in Hebrew?

[kol]	‘all’	[χol]	‘sand’
[hitχabeʁ]	‘he connected’	[hitχaveʁ]	‘made friends’
[ipʁa]	‘applied make up’	[ifʁa]	‘tipped ash’