

Phonology

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LCD 102: Analyzing Language

PHONOLOGY

Phonology

- We are moving away from Phonetics and into Phonology
- What is Phonology?
- How is it different than Phonetics?
- What are the goals and aims of Phonology?

Phonology

- What are the goals and aims of Phonology?
 - An attempt to understand and model knowledge of sounds in the mind
 - Propose a working model that had predictive power
 - This model must be learnable
- What does Phonology look at?
 - The sounds of a language
 - Rules for combining sounds
 - Variations in pronunciation

Phonology

- The sounds of a language
 - Give a description of the sounds of a language
 - What sounds are possible
 - Not a trivial question
 - Informs/interacts with writing systems
 - Phonemic Inventory
- Rules for combining sounds
 - Certain sounds can go with one another, and other can't
 - Phonotactics
- Variations in pronunciation
 - Some sounds change depending on their location
 - Allophonic variation

PHONEMES

Phonemes

- The phonemes can be empirically verify in English using:
 - Minimal pairs
 - Commutation tests
- To say that something is a phoneme were are saying that:
 - It is meaningfully contrastive with another sound
 - A sound can contrast with one one other sound, or all the other sounds

Phonemes

- Looking at the distribution of sounds in words in a language's lexicon
 - *Minimal pairs*
 - *Near minimal pairs*
- We can determine the minimal contrastive units of sound in a language
 - *Phonemes*
 - *Marginal phonemes*

Phonology

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 - **Phonemic Inventory**
- *Rules for combining sounds*
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 - *Phonotactics*
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PHONOTACTICS

Phonotactics

- Certain sounds can combine with each other
 - [kl]
- Certain sounds can't combine with each other
 - *[tl]

Phonotactics

- Are the following licit (allowable) in American English:
 - As word-initial consonants
 1. [gb]
 2. [ʃn]
 3. [sf]
 4. [bɹ]
 5. [kt]

Phonotactics

- Are the following licit (allowable) in American English:
 - Middle of a word, no vowels
 1. [t]
 2. [l]
 3. [f]
 4. [ə]
 5. [m]

Phonotactics

- Are the following licit (allowable) in American English:
 - End of a word
 1. [tk]
 2. [tf]
 3. [ŋz]
 4. [kw]
 5. [pj]

Phonotactics

- Can the following be a word in English. Why or why not?
 1. [tɪp]
 2. [gɪ]
 3. [mæfk]
 4. [stɹɛdk]
 5. [pwuf]

SYLLABLES

Phonotactics

- It is not as simple as looking at the linear order of the segments
 - Not about what goes next to what
- There is a deeper structure than just a word
 - More levels each with their own requirements

Phonotactics

- Phonotactics is really about the syllables of a language
- The permissible syllable structure of a language
 - Languages differ by their phonotactics

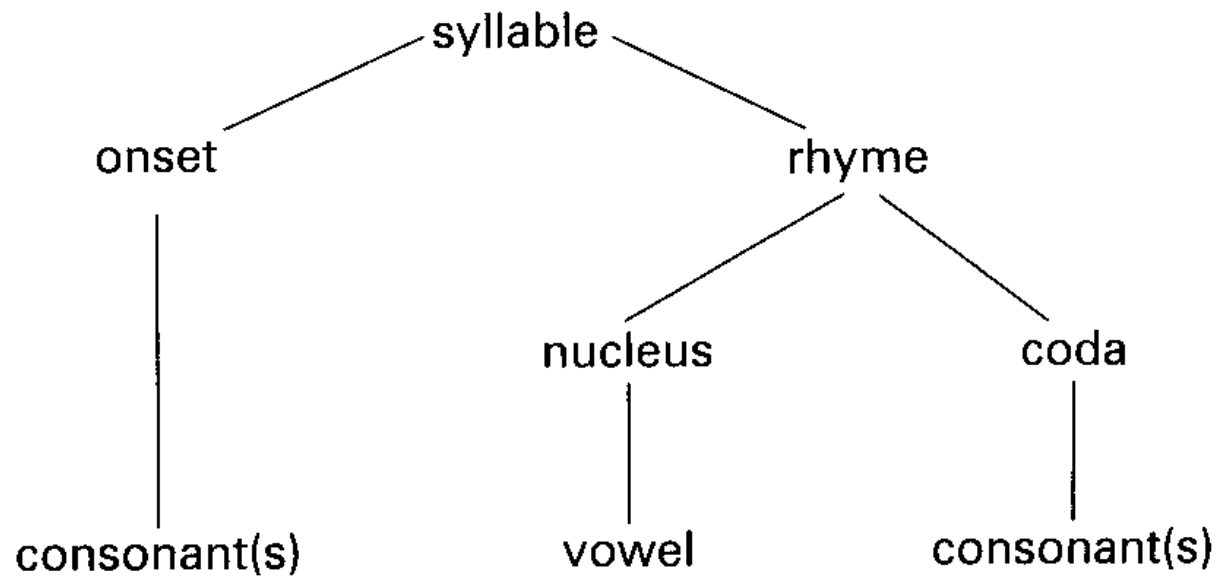
Syllable

- Psychologically real
- Hard to find physical evidence for the syllable
 - Nothing in the speech stream that will tell us...
 - What constitutes a syllable
 - Where the boundaries are
 - What is included in the syllable
 - What is allowed and what belongs where

Syllable

- Evidence comes from
 - Music
 - Poetry
 - Native-speaker intuition
 - Metalinguistic awareness
 - Language games
 - Phonotactic restrictions
 - What two sounds can occur with one another and where
 - Writing systems
 - Morpho-phonological processes

Syllable Structure



Branching

- Branching represents that the items function as one unit
 - Evidence from language games, etc
 - Branching onset = complex onset
 - Branching nucleus = diphthong
 - Branching coda = complex coda

Allowable Onset

- What is allowed in an onset in language specific
 - Some languages don't allow branching onsets
 - English allows branching onsets
 - Some sequences are not allowed in an onset
 - To test if a sequence is an allowable onset, see if you can start a word in the target language with that sequence

Phonotactics

- The permissible syllable structure of a language
 - Languages differ by their phonotactics
 - Restrictive
 - Only allow simple syllable types
 - Singleton onsets/codas
 - CVC
 - Permissive/Liberal
 - Allow complex syllable types
 - Complex consonant clusters
 - CCCVCCC

Syllable Types

- Open Syllables – syllables without a coda
 - CV
 - CCV
 - V
 - CCCV
 - etc
- Closed Syllables – syllables with a coda
 - CVC
 - VC
 - CVCC
 - etc

LOANWORDS

Loanword Adaptation

- Making a loanword of another language compatible with the phonology of the borrowing language
- Nativization
 - Making a word sound more native
 - Often the case but not always
- Foreignization
 - Keeping a word as foreign to highlight its differentness
 - Changing a word to make more foreign sounding

Loanword Adaptation

- Segmental adaptation
 - Languages differ by their segmental inventory
 - Languages often don't have identical consonants and vowels
 - The non-native segment is mapped to a native category
 - The mapping is done based off of perceptual similarity
 - Perceptual warping
 - » Can't hear the difference
 - » Overlapping categories
 - Closest fit to category
 - » Can hear the difference, but pick best category

Loanword Adaptation

- Segmental Adaptation – sounds from one language are mapped onto the closest category. This can vary by the donor language
- French → Korean
 - Paris [p* a.ri]
 - Toulouse [t* ul.lu.ci]
 - Cannes [k* a.nɨ]
- English → Korean
 - [p^hoʊkəɹ] [p^ho: .k^ha]
 - [t^haɪɡɪt] [t^ha: .get]
 - [k^hoʊlə] [k^hol.la]
 - [kjuː] [k^hju.ə]
 - [kɹaʊn] [k^hi.ra.un]
 - [p^həb] [p^hə.bi]

Loanword Adaptation

- Segmental Adaptation – sometimes a segment can be adapted as more than one thing.
- French → Fula
 - Lacks a [v] so borrowed French words as [w b f]
 - [v] → [w]
 - [avɔka] [awɔka] *lawyer*
 - [sivil] [siwil] *civil*
 - [vɛr] [wɛ:r] *glass*
 - [v] → [b]
 - [avjɔ̃] [abijɔ̃] *aeroplane*
 - [livr] [li:ba:r] *book*
 - [vinegr] [binɛ:gara] *vinegar*
 - [v] → [f]
 - [elev] [ɛlɛf] *student*
 - [muvmä] [mufmaŋ] *movement*
 - [televizjɔ̃] [tɛlɛfisjɔ̃] *television*

Loanword Adaptation

- Segmental Adaptation
- PRACTICE – Identify which English phonemes are adapted into Cairene Arabic
- [???] → [???]
 - printer biristul
 - Crimplene kirimilin
 - speech ʔisbi:tʃ
 - spray ʔisbire:h
 - postman bustiman

Loanword Adaptation

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Loanword Adaptation

- Adaptation strategies
 - Segmental change
 - Deletion
 - Insertion
 - Metathesis
 - Typologically rarer

Loanword Adaptation

- Segmental Change
 - When a language borrows a word that violates its phonotactics:
 - Two sounds can be merged
 - One of the sounds can be modified
- Sanskrit → Nepali
 - C-[wa] → C-[o]
 - swarga sorga *heaven*
 - swabhāva sobhāu *nature*
 - C-[ya] → C-[e]
 - vyathā bethā *disease*
 - vyāpāra bepār *trade*

Loanword Adaptation

- Deletion
 - One of the segments which violates the phonotactics of the borrowing language is deleted
- English → Rotuman
 - Sometimes the first consonant is deleted in an illicit consonant cluster
 - *draft* rafa
 - *glass* lasa
 - *screw* kurū
 - *spoon* punu
 - Sometimes the second consonant is deleted in an illicit consonant cluster
 - *Christmas* kesmaʃi

Loanword Adaptation

- Vowel Insertion

- Russian → Kirgiz

- [stʃot] [ʍs.tʃot] *bill*
- [ʃtap] [ʍʃ.tap] *headquarters*
- [zveno] [uz.vana] *chain link*
- [mnemonicheski] [ymnemonicheski] *mnemonic*
- [rtutʲ] [ur.tut] *mercury*
- [ʃtraf] [ʍʃ.tarap] *penalty*

Loanword Adaptation

- Vowel Insertion
- English → Cairene Arabic
 - *projector* [burudziktur]
 - *florescent* [fulurusint]
 - *fruit* [furu:t]
 - *group* [guru:b]
 - *clutch* [kalatʃ]
 - *flash* [filæʃ]
 - *clash* [kilæʃ]

Loanword Adaptation

- Metathesis
 - Two segments switch linear order to fit the phonotactics of the borrowing language
 - ...XY... → ...YX...
- Latin → Basque
 - *crucem* gurtze *cross*
 - *tercu* treku *stubborn*
 - *cruel* kurel *cruel*
 - *strātam* estarta *road*

Loanword Adaptation

- PRACTICE – Name the process that is below, the type of change.

1. English → Arabic

staff [ʔistaf]

stock [ʔistuk]

stop [ʔistub]

1. Russian → Kirgiz

plita pilita *stovetop*

knifka kinefke *book*

front pwront *front*

Loanword Adaptation

- PRACTICE – Name the process that is below

1. French → Moroccan Arabic

[bãd] banda *strip*

[betõ] [biton] *concrete*

[bõb] bumba *bomb*

1. English → Hawaiian

change `ukeni

boot puki

soap kopa

Loanword Adaptation

- PRACTICE – Name the process that is below

1. English → Mbili

foolish fruʃɪ

school sikru

kerosine krefɪŋ

1. Spanish → Quechua

ventana bentana *window*

invitar imbitay *to invite*

salvar salbay *to save*