

Linguistics 288b

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Phonology 2

### The syllable

- monosyllabic words: [sɪj], [sɪt], [sɛt]
- disyllabic words: [mɪ.ʃən], [mæ.r.dʒɪn], [ɛk.strə]
- trisyllabic words: [mæ.r.dʒɪ.nəl], [ɛ.lɪ.fənt], [kæ.nə.də]

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### The syllable

```

    graph TD
      sigma[σ] --- p[p]
      sigma --- a[a]
  
```

σ syllable level

p a segment level

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### The syllable

- **a syllable** : consists of a prominent or sonorous peak (usually a vowel), *sometimes* surrounded by consonants that decrease in sonority towards the edges

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### The syllable

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### Sonority scale

nucleus — [ vowels, glides, liquids, nasals ]

fricatives, affricates, stops

more sonorous ↑

↓ less sonorous

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## The syllable

- an example of the role of syllable in the description of phonological patterns:
- Where does the allophone [p<sup>h</sup>] of the phoneme /p/ occur in English?
  - word-initially
  - word-medially
  - not finally

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- **Answer:** [p<sup>h</sup>] occurs in syllable-initial position (of a stressed syllable)

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## The internal structure of the syllable

- constituents:
  - **nucleus**
  - **onset**
  - **coda**
  - **rhyme**

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## Algorithm for building syllables

1. Group each vowel into a **nucleus** and assign each nucleus to a **rhyme**.
2. Organize the consonants to the left of a vowel as an **onset** (subject to language-specific restrictions).
3. Consonants that may not be syllabified as onsets are syllabified as **codas**

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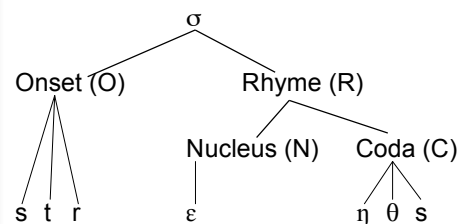
## Building syllables

- Note: Preference is given to syllabifying consonants as **onsets** rather than **codas**
- **The Onset Maximization Principle**

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## The structure of the syllable



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### Using the algorithm for building syllables

- 'algebra'
- Step 1: Vowels → Nucleus → Rhyme

æ l dʒ ə b r ə

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### Building syllables

- Step 2: consonants left of nucleus → Onset (subject to certain restrictions)

æ l dʒ ə b r ə

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### Building syllable

- Why /b/ → Onset?

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### Building syllables

- What about /l/? Why not /ldʒ/ in the onset?

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### Building syllables

- Step 3: consonants right of nucleus → Coda

æ l dʒ ə b r ə

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### Some notes on syllabification

- Some universals:
  - all languages allow vowels in the nucleus position.
  - all languages allow at least one consonant in the onset

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## Notes on syllabification

- **Some near universals:**
  - [p] and [rp] sequences are rarely found in onset position. These sounds are usually split between syllables (e.g. [l] → coda of previous syllable; [p] → onset of following syllable).
  - [p], [pr], [b], [br] sequences are usually syllabified in onset position.
  - Most languages do not allow [tʃ] and [dʒ] in the onset.

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## Notes on syllabification

- **Tendency:**
  - Many languages impose restrictions on the coda position: some languages prohibit coda consonants while others restrict the type of consonant that can appear in the coda position.

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## The syllable

- **Syllable-sensitive processes**
  - 1.a. /s/-aspiration in Cuban Spanish (i.e. /s/ → [h]):
- |               |                 |              |
|---------------|-----------------|--------------|
| /eso/         | → [eso]         | 'that'       |
| /asistentes/  | → [asihtenteh]  | 'assistants' |
| /esta/        | → [ehta]        | 'this'       |
| /dos latinos/ | → [doh latinoh] | 'two...'     |

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## Syllable-sensitive processes

- the change is conditioned by the coda position:

e s o                    e h t a

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## Syllable-sensitive processes

- 1.b. Vowel laxing in Quebec French (e.g. /i/ → [ɪ]):

lax vowel /ɪ/
[vɪl] 'city'
[mɪn] 'mine'

tense vowel [i]
[vilɑʒ] 'village'
[mineral] 'mineral'

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## Syllable-sensitive processes

- the process is conditioned by the coda position

v ɪ l                    v i l a ʒ

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## Syllable-sensitive processes

1.c. Voiceless stop aspiration in English (e.g. [p<sup>h</sup>æt], \*[sp<sup>h</sup>ɪt], \*[tɪp<sup>h</sup>]):

English voiceless stops are aspirated syllable-initially (i.e. in onset position)

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## Syllable-sensitive processes

1.d. Stress in English nouns:

English nouns are stressed on the penultimate syllable when the rhyme of this syllable contains a long vowel or 2 segments.

[a. 'dʒɛn. də] [ə. 'rɔw. mə]

Otherwise, they are stressed on the antepenultimate syllable. ['kæ. bə. nət]

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## Quick homework

(1) Draw the syllable structure for the following English words:

- phonetics
- convert (N)
- silk
- sickle (assume syllabic /l/)

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## Features

■ the major segment classes:

- obstruents:** the group of consonants that comprises oral stops, affricates and fricatives
- nasals:** the group of consonants produced with oral obstruction but nasal release of airflow
- liquids:** the family of /-like and /-like consonants

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## Features

d. **glides or semi-vowels:** segments produced with a vowel-like articulation, but which may appear in an onset or coda

e. **vowels:** segments produced with relatively uninterrupted airflow, and which may appear in the nucleus of syllables

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## The features of the major classes

	obstruents	nasals	liquids	glides	vowels
consonantal	+	+	+	-	-
sonorant	-	+	+	+	+
syllabic	-	+/-	+/-	-	+
nasal	-	+	-	-	-

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## Features and the concept of contrast

We know: two segments **contrast** if they may appear in the same context (i.e. minimal pairs) and differ by the specification of at least one feature  
e.g. /t/ and /d/ are contrastive in English:  
[sæt] ≠ [sæd], 'sat' and 'sad' are different words

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## Contrast

- contrastive sounds must differ in the specification for at least one feature
- a feature that describes a contrast is considered to be **phonologically distinctive** in the language

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## Some distinctive sounds in English

- voice: [p] ≠ [b]; [f] ≠ [v]; [s] ≠ [z]; etc.
- continuant: [s] ≠ [t]; [f] ≠ [p]; etc.
- nasal: [m] ≠ [b]; [n] ≠ [d]; [ŋ] ≠ [g]; etc.
- tense: [i] ≠ [ɪ]; [e] ≠ [ɛ]; [u] ≠ [ʊ]; etc.

Note: [nasal] is only contrastive within the class of consonants. Why not within the class of vowels?  
[bæ̃n] and [bæn] cannot be different words of English.

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## Some non-distinctive features in English

- [aspiration]: [p] = [p<sup>h</sup>]; [k] = [k<sup>h</sup>]; etc.
- [nasal] for vowels: [æ̃] = [æ̃]; [ɔ̃] = [ɔ̃]; etc.

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## Some distinctive features in other languages

- [nasal] for vowels in French:
  - [ga] 'guy' ≠ [gã] 'glove'
  - [bo] 'handsome' ≠ [bõ] 'good'
- [aspiration] in Hindi:
  - [pa] 'take care of' ≠ [p<sup>h</sup>a] 'edge of knife'

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## Quick homework

- State the feature that distinguishes each of the following pairs of sounds. (There may be more than one correct answer.) The first is done for you.
  - [θ]/[ð] → [+/- voice]
  - [p]/[f] →
  - [s]/[θ] →
  - [b]/[m] →
  - [t]/[ʃ] →

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