

Phonology

LING 201

Spring 2024

Prof. Joseph Pentangelo

Quiz #5

Answer any two questions. Don't answer all three!



You have 15 minutes.

1. What is the relationship between phonemes and allophones? Give one phoneme and one of its allophones.
2. What are phonotactic constraints? Give an example of a phonotactic constraint in English. It can be one from the text or one you know on your own.
3. What is sound substitution, and what does it have to do with borrowing?

Research Volunteers Needed!

The Speech Laboratory at CSI is in need of monolingual native English speakers for a research study

Are you a native English speaker between the ages of 18 and 65? Are you free of any history of speech, language or hearing disorder? If so, you may be eligible to participate in a language research study in the Linguistics Program at the College of Staten Island!

Participation takes place in the Speech Laboratory (Building 2S) and requires approximately 60 to 90 minutes to complete. The study involves listening to recordings of spoken language, as well as completing questionnaires.

Participants who complete the study receive \$40 for their time

If you are interested, please contact Professor Jason Bishop at jason.bishop@csi.cuny.edu to get more information, or to schedule a time to participate



[lɪŋˈɡwɪstɪks]

Linguistics Tutoring

On-campus Tutoring

Monday: 3 PM – 9 PM

Tuesday: 9:30 AM – 12:30 PM

Location: Bldg. 1L (Library), Rm. 117

Online Tutoring

Tuesday: 10 AM – 12 PM

Saturday: 10 AM – 2 PM

To access our tutoring schedule online, please visit
csi.cuny.edu/CASATutoring

Linguistics tutoring offered by the
Office of Academic Support
718.982.4221

Phonotactic Constraints

- Each language has its own phonemic inventory, and its own rules about what sounds can go where, i.e. phonotactics.
- English phonotactics are pretty flexible.

No word-initial [ŋ]

/sɪŋ/ */ŋɪs/

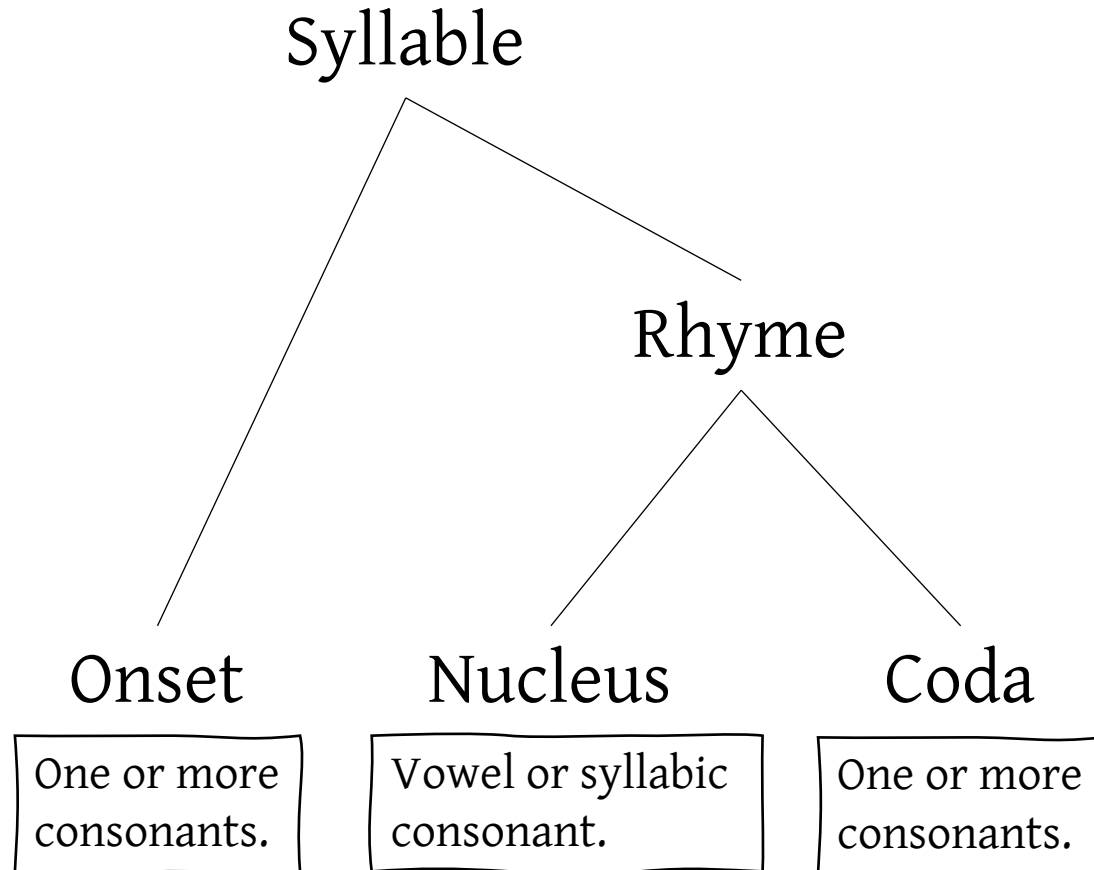
* means “ungrammatical”

No word-initial [ʒ]

/gəʀɑʒ/ */ʒəʀɑg/

Note: /dʒ/ can begin words, e.g. /dʒeɪ/ ‘jay’

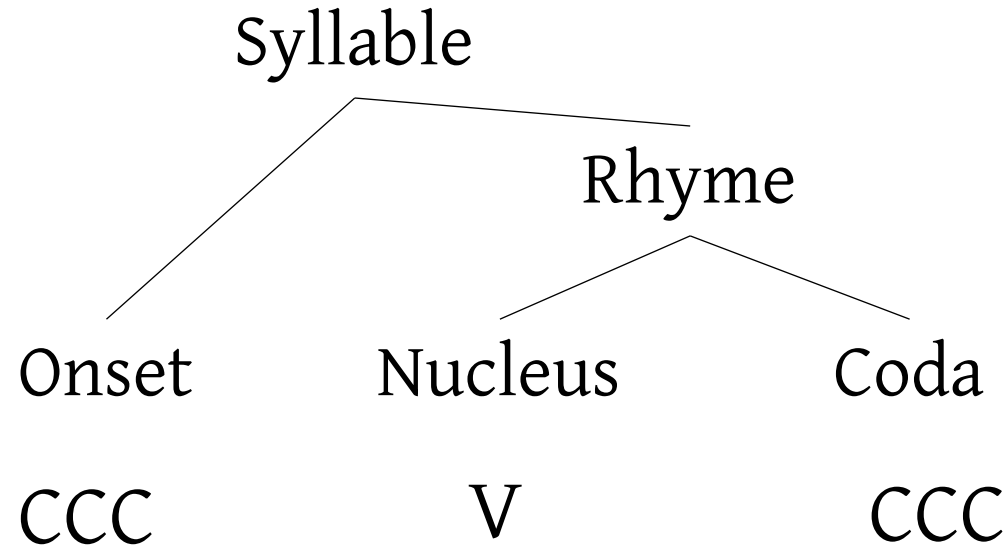
Syllable structure



The nucleus is obligatory. Every syllable must have a nucleus, and the presence of a nucleus entails a syllable. Each vowel (or syllabic consonant) has a syllable of its own.

The basic syllable structure is the same for all languages, but what's permitted or forbidden in the onset and coda differ cross-linguistically (from language to language).

Syllable structure: English



The syllable structure of this word will show up here, including the generic type of sound (C or V) as well as the sound itself.

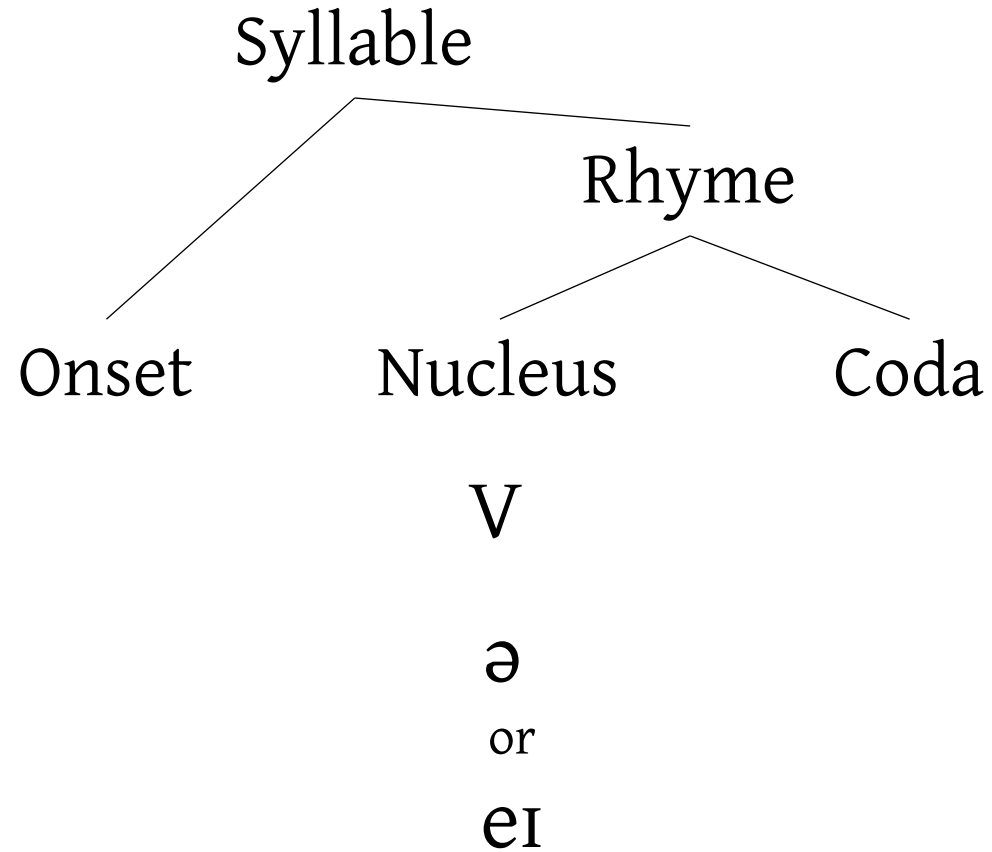
Example word:

The example word is going to show up here. These are from page 110 of your text. IPA transcription by yours truly.

Inventory

A running list of all the attested-to syllable structures will show up here.

Syllable structure: English



Example word:

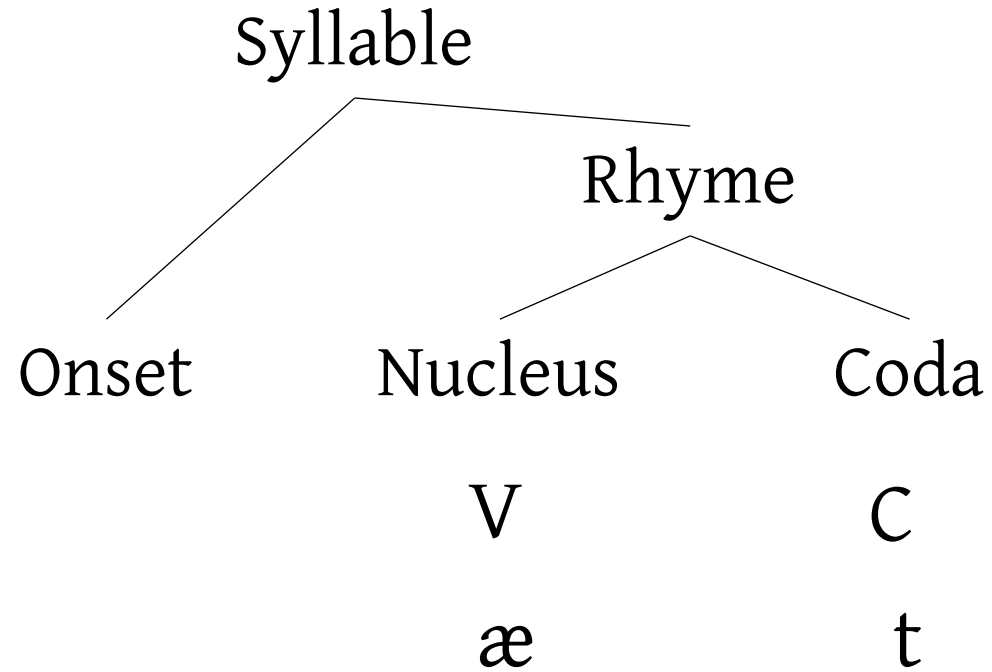
a

[ə] or [eɪ]

Inventory

V

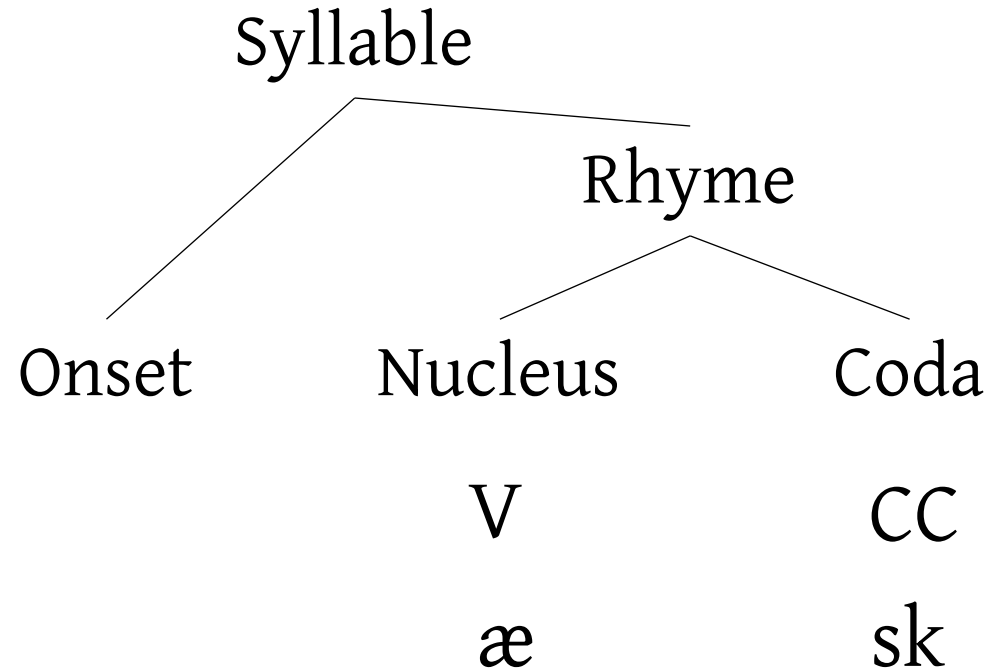
Syllable structure: English



Example word:
at
[æt]

Inventory
V
VC

Syllable structure: English



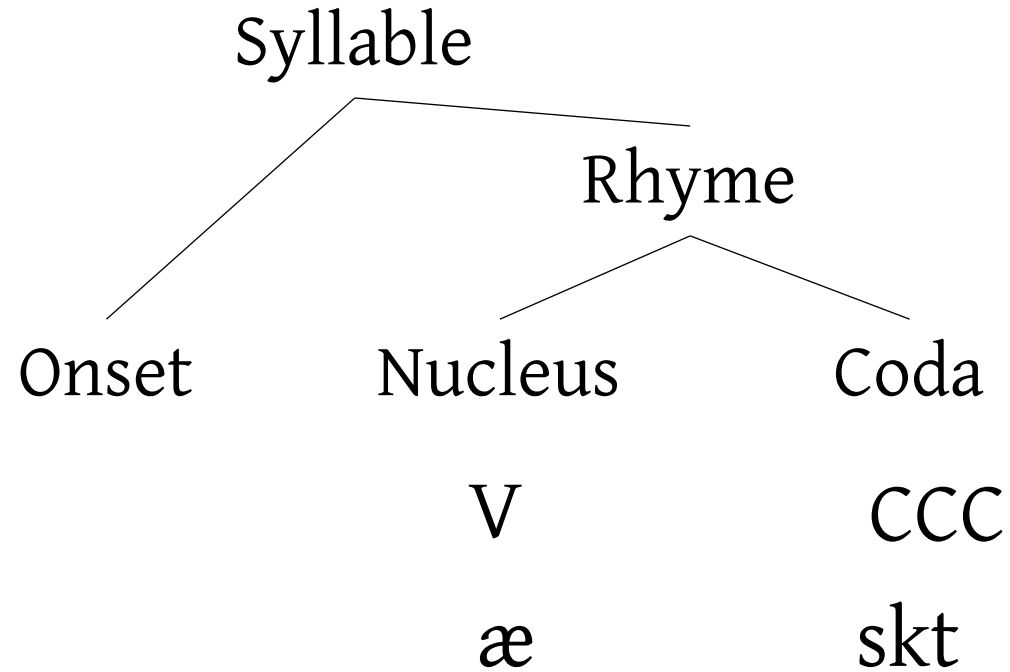
Example word:

ask
[æsk]

Inventory

V
VC
VCC

Syllable structure: English



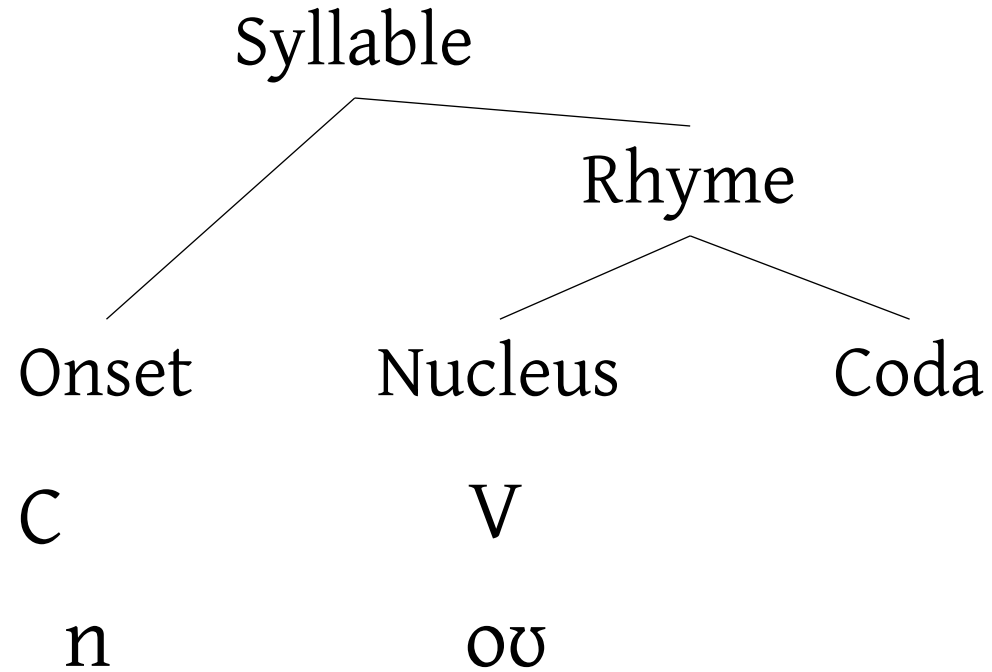
Example word:

asked
[æskt]

Inventory

V
VC
VCC
VCCC

Syllable structure: English



Example word:

no
[noʊ]

Inventory

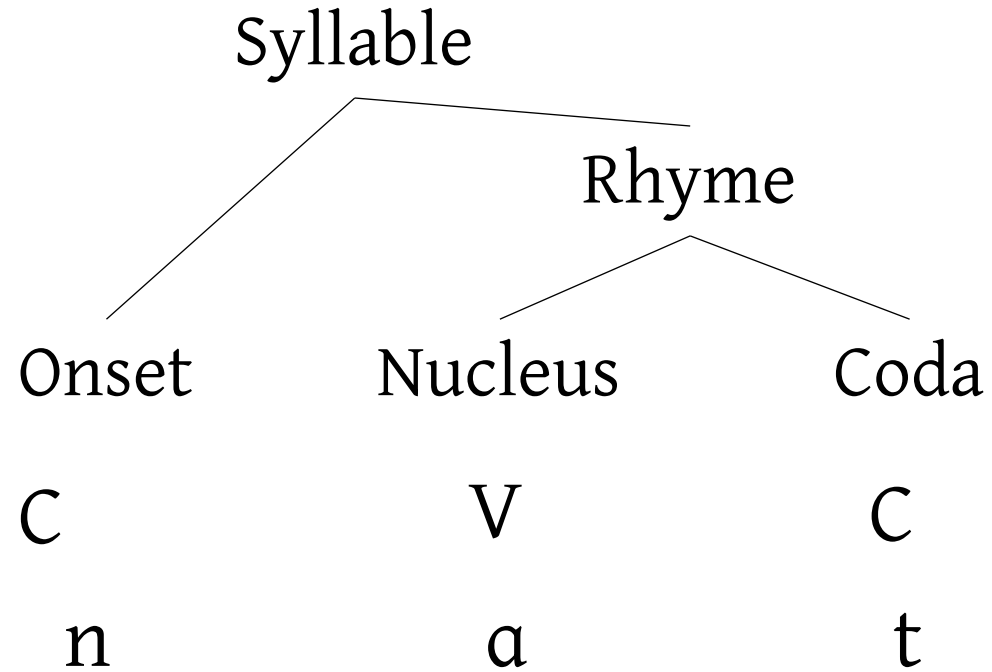
V CV

VC

VCC

VCCC

Syllable structure: English



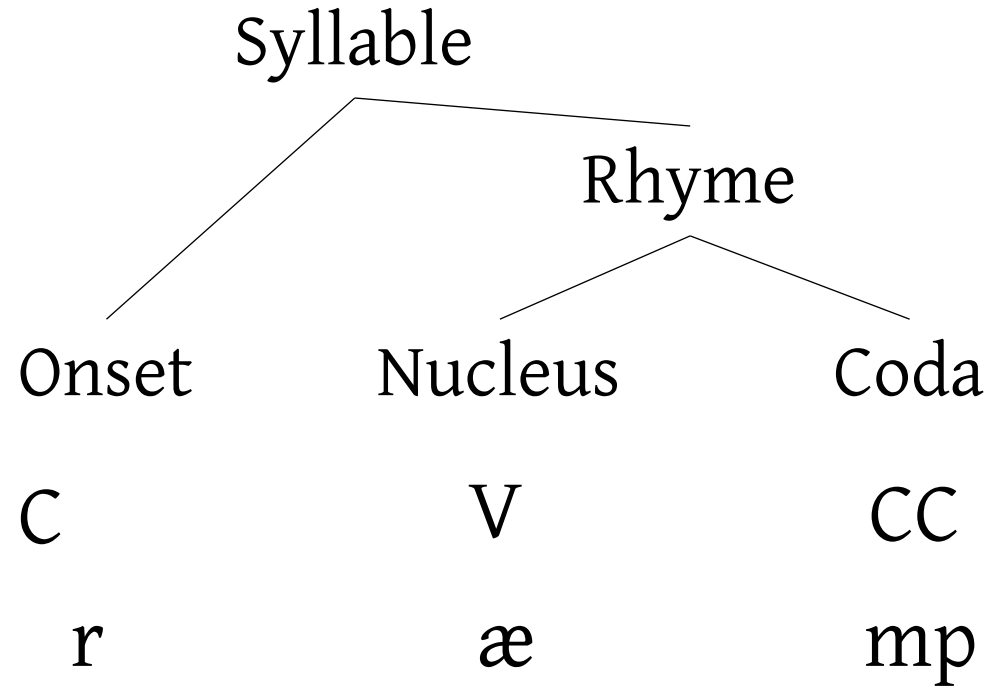
Example word:

not
[nat]

Inventory

V CV
VC CVC
VCC
VCCC

Syllable structure: English



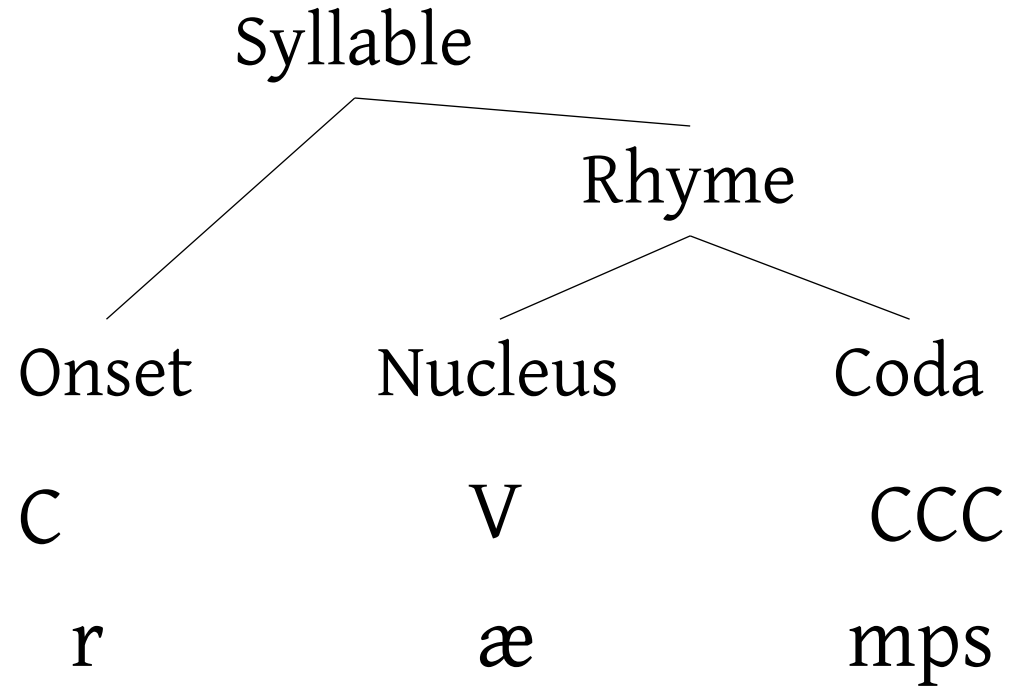
Example word:

ramp
[ræmp]

Inventory

V CV
VC CVC
VCC CVCC
VCCC

Syllable structure: English



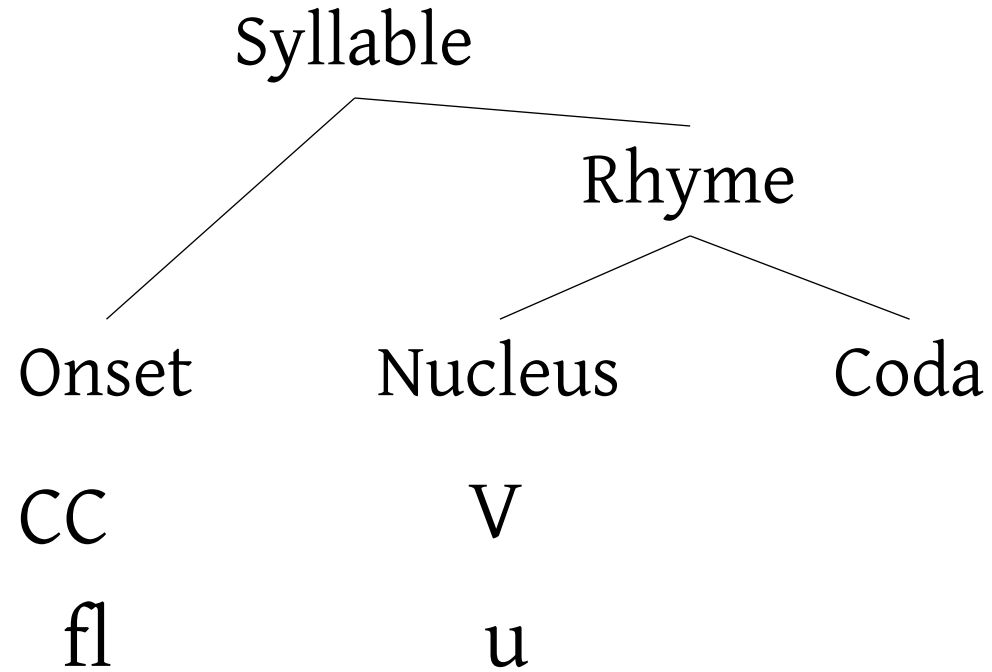
Example word:

ramps
[ræmps]

Inventory

V	CV
VC	CVC
VCC	CVCC
VCCC	CVCCC

Syllable structure: English



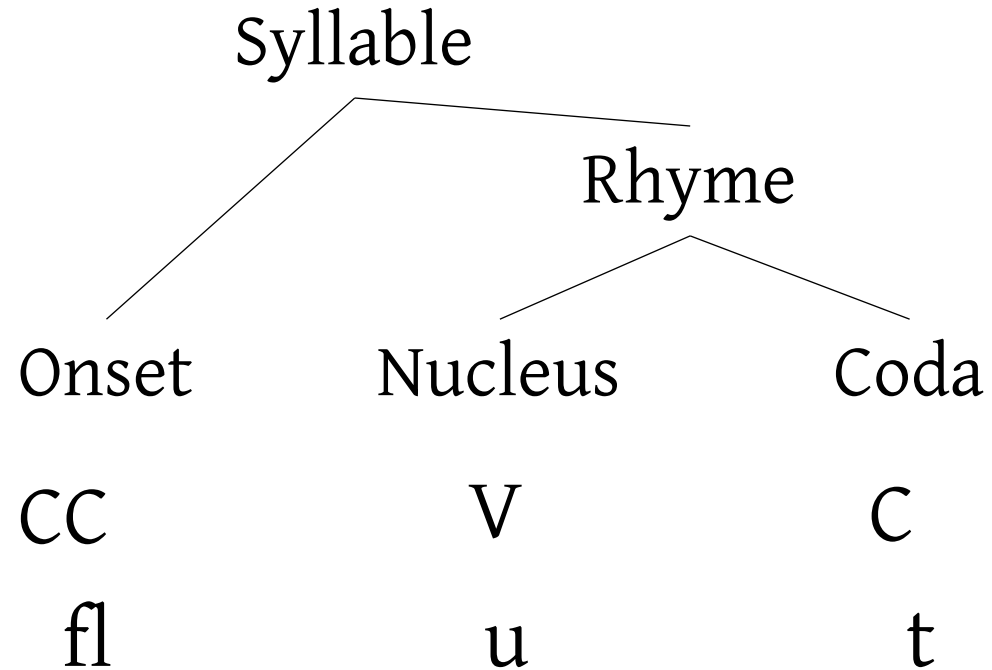
Example word:

flew
[flu]

Inventory

V	CV	CCV
VC	CVC	
VCC	CVCC	
VCCC	CVCCC	

Syllable structure: English



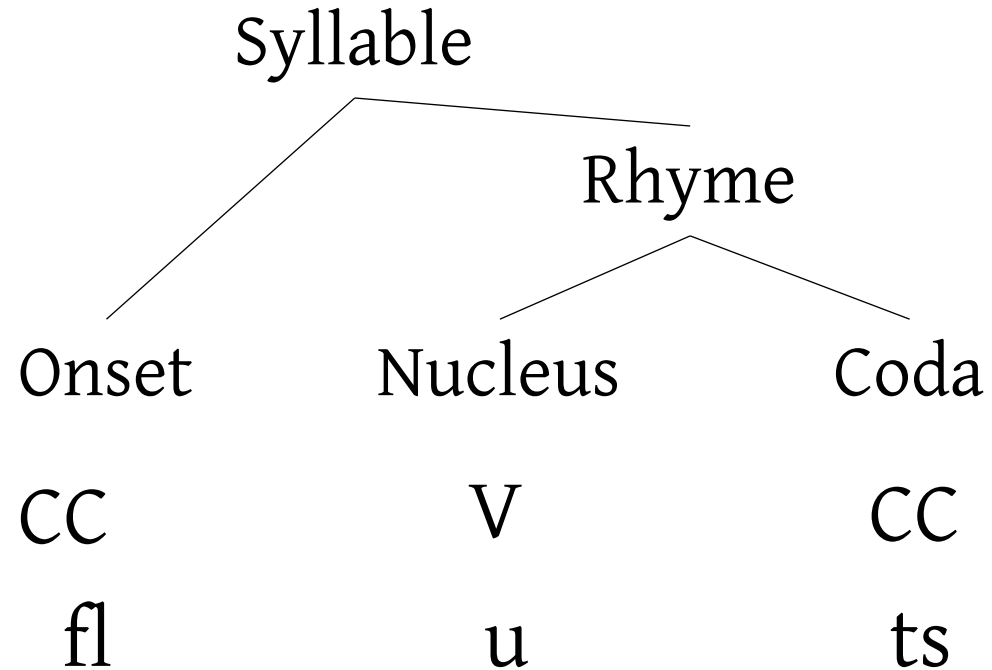
Example word:

flute
[flut]

Inventory

V	CV	CCV
VC	CVC	CCVC
VCC	CVCC	
VCCC	CVCCC	

Syllable structure: English



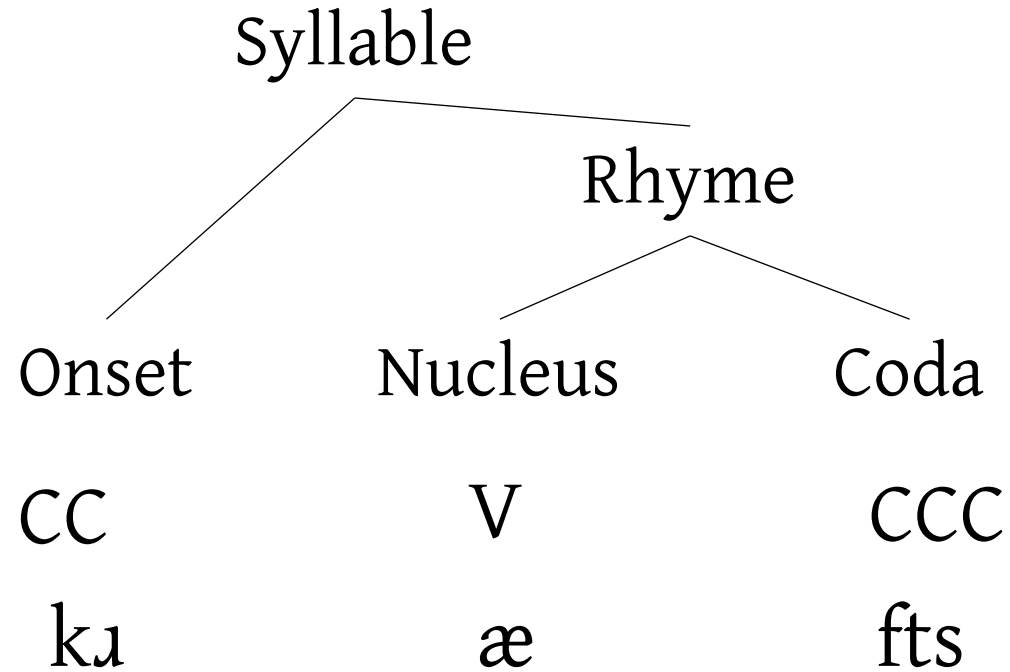
Example word:

flutes
[fluts]

Inventory

V	CV	CCV
VC	CVC	CCVC
VCC	CVCC	CCVCC
VCCC	CVCCC	

Syllable structure: English



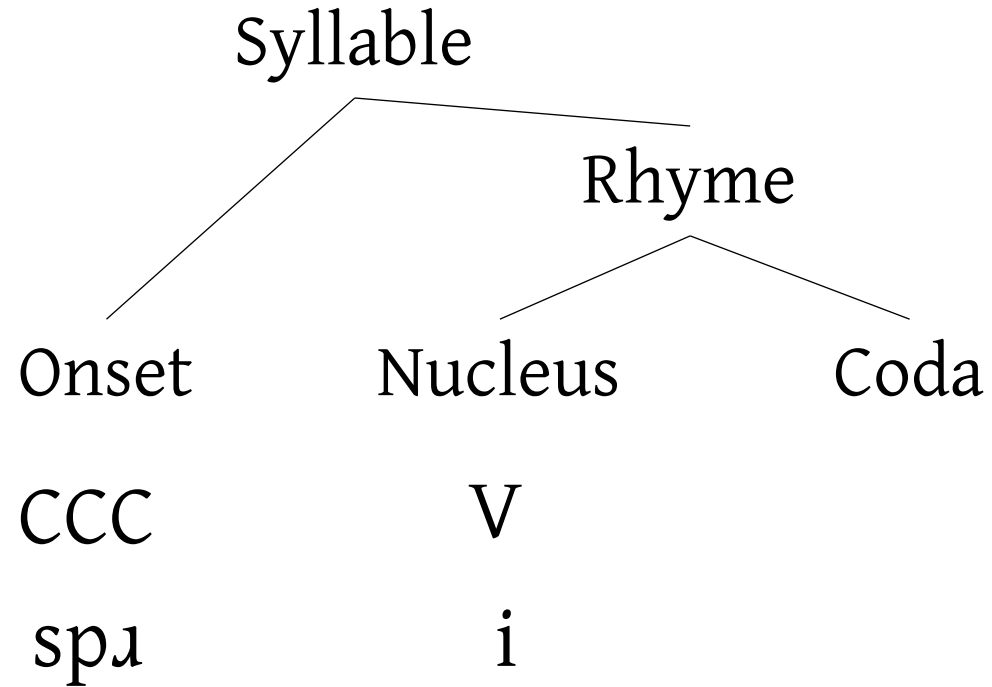
Example word:

crafts
[kɹæfts]

Inventory

V	CV	CCV
VC	CVC	CCVC
VCC	CVCC	CCVCC
VCCC	CVCCC	CCVCCC

Syllable structure: English



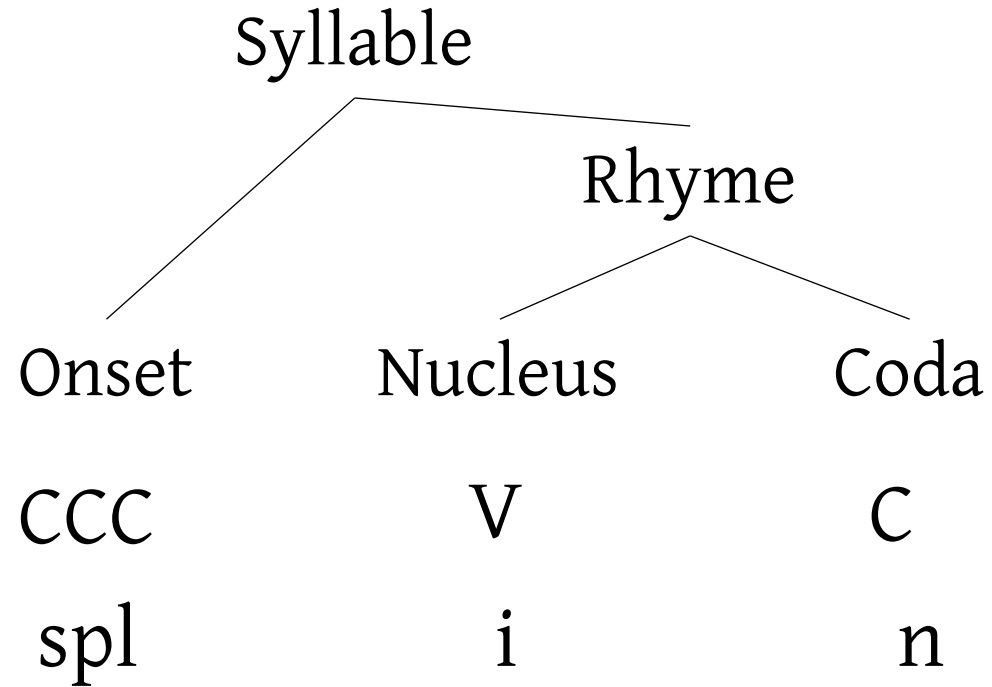
Example word:

spree
[spɹi]

Inventory

V	CV	CCV	CCCV
VC	CVC	CCVC	
VCC	CVCC	CCVCC	
VCCC	CVCCC	CCVCCC	

Syllable structure: English



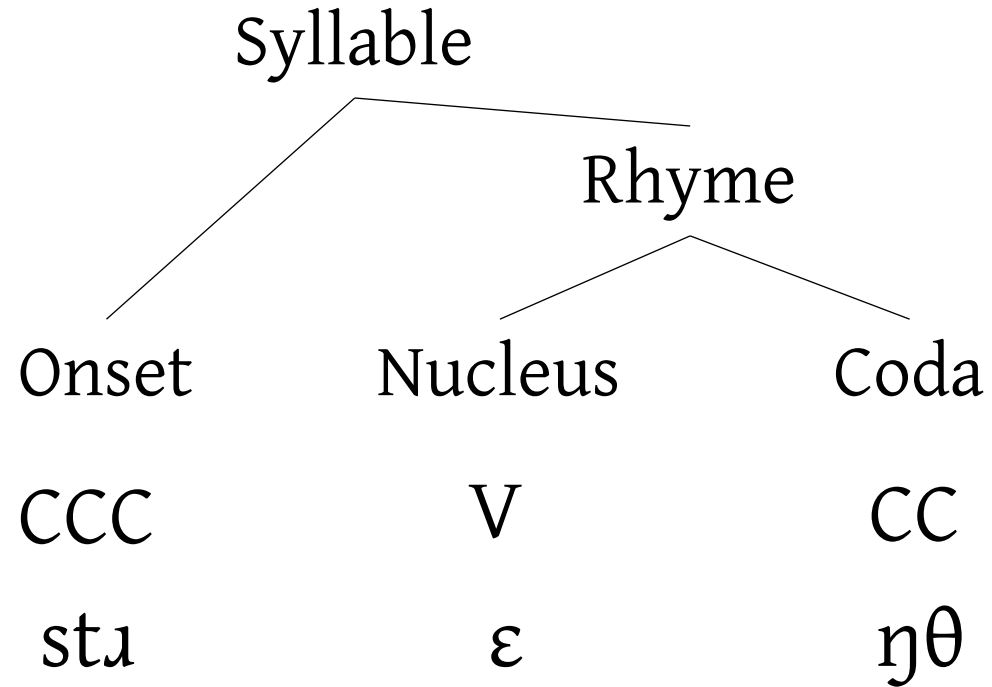
Example word:

spleen
[splin]

Inventory

V	CV	CCV	CCCV
VC	CVC	CCVC	CCCVC
VCC	CVCC	CCVCC	
VCCC	CVCCC	CCVCCC	

Syllable structure: English

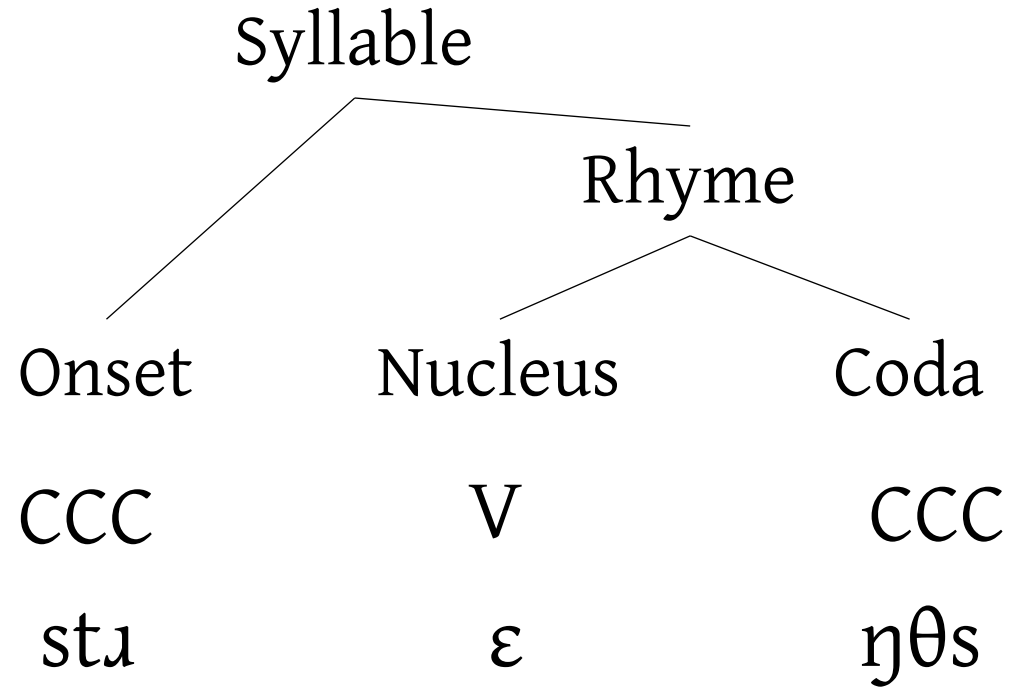


Example word:
strength
[stɹɛŋθ]

Inventory

V	CV	CCV	CCCV
VC	CVC	CCVC	CCVCV
VCC	CVCC	CCVCC	CCCVCC
VCCC	CVCCC	CCVCCC	

Syllable structure: English



Example word:
strengths
[stɹɛŋθs]

Inventory

V	CV	CCV	CCCV
VC	CVC	CCVC	CCVCV
VCC	CVCC	CCVCC	CCCVCC
VCCC	CVCCC	CCVCCC	CCCVCCC

English phonotactics

- English has a huge number of permitted syllable structures.
- But there are still some constraints.
- Stop + stop, stop + nasal, and stop + fricative are forbidden in onsets. We **adapt** words that could have these onsets by deleting the first segment.

Ptolemy → [taləmi]

psychology → [saɪkələdʒi]

gnostic → [nastɪk]

gnome- → [noʊm]

[p] is deleted in these two.

And [g] is deleted in these.

English phonotactics

- In the past, English allowed stop + nasal clusters in onsets.
- Other Germanic languages, like German and Yiddish still do.
- This archaic pronunciation is preserved in English spelling. It's why there's a k- in *knight* and *knot*.
- These words used to contrast with *night* and *not*.
- We deleted the [k] in these words.



Sound substitution

- When a language borrows a word, it is **adapted** to suit the borrowing language's phonotactics.
- We saw this with *psychology*, for example, where an illegal sound cluster is broken up by deleting the first sound.
- Vowels can be inserted as well, and sounds can be substituted.

Thus, we can predict the form of new words in Japanese that have been borrowed from English. For example, when the English word *birth control* was borrowed into Japanese, it became [ba:sɯ kontoro:rɯ]. Note that the nasals [n] and [m] are allowed to occur syllable-finally in Japanese, although no other consonants are.

/bɛɪθ/	→	[ba:sɯ]
/kəntɹɒl/	→	[kontoro:rɯ]

[ɯ] is inserted at the end of [ba:sɯ] and [kontoro:rɯ] to keep the word-final syllables from ending in a consonant. The second [o] in [kontoro:rɯ] is inserted to prevent [t] and [r] from forming a consonant cluster. Notice also that Japanese substitutes other sounds for some of the English sounds, such as [s] for [θ]. This will be discussed in Section 3.1.3.

What is a phoneme?

- Your mental representation of a given sound.
- This is less complicated than it seems. You have an idea of the “t sound,” for example. But in different contexts, it’s pronounced differently.

top

[t^hɑp]

stop

[stɑp]

little

[lɪr̩l̩]

kitten

[k^hɪt̩n̩]

- You think of all these words as containing a “t sound,” even though it’s pronounced differently in them.
- /t/ is a phoneme. (Note the slashes.)

What is an allophone?

- An allophone is the way a phoneme is actually spoken. (Since phonemes are mental representations, they're inaudible.)

- The phoneme /t/ is represented by four different sounds in these four words:

[t^hap] [stap] [lɪrɫ] [k^hɪʔŋ]

- These four sounds, [t^h] [t] [ɾ] and [ʔ], are all allophones of /t/.

- The appearance of a given allophone is predictable. We call this **complementary distribution**, which we'll come back to in more detail.

Phonemes go between slashes, as in /t/.

Allophones go between square brackets, as in [ɾ].

What is an allophone?

- Allophones sound different from one another, but when we know a language, we automatically recognize them as all being part of the same phoneme.
- Each language has its own set of phonemes and allophones.
- In English, [t] and [t^h] are both allophones of /t/. In Hindi, they are allophones of separate phonemes, /t/ and /t^h/.
- In English, [t] and [d] are allophones of separate phonemes, /t/ and /d/. In Kanien'kéha (Mohawk), they are allophones of the same phoneme, /t/.

What is an allophone?

	English	Hindi	Kanien'kéha (Mohawk)
Phonemes:	/t/	/t/	/t/
Allophones:	[t ^h] [t] [ɾ] [ʔ]	[t] [t ^h] [d]	[t] [d]

Identifying phonemes and allophones

- Earlier, I said “in English, [t] and [d] are allophones of separate phonemes, /t/ and /d/.” How do we know that /t/ and /d/ are separate sounds?
- They **contrast**. [bit] and [bid] are two different words.
- **Contrastive distribution**: “Two sounds occur in the same phonetic environment, and using one rather than the other changes the meaning of the word” (*Language Files* p. 118)
- Two words that show this contrast are a **minimal pair**. [bit] and [bid] are a minimal pair, showing /t/ and /d/ are different phonemes.

Identifying phonemes and allophones

- Let's practice finding minimal pairs for other sounds.

1. [dʒ] vs. [p] [dʒeɪ] 'jay' and [peɪ] 'pay'
2. [g] vs. [k] [bæg] 'bag' and [bæk] 'back'
3. [m] vs. [n] [spæm] 'spam' and [spæn] 'span'
4. [s] vs. [z] [su] 'sue' and [zu] 'zoo'
5. [ɹ] vs. [l] [ɹaɪən] 'Ryan' and [laɪən] 'lion'
6. [ʃ] vs. [f] [ʃɔl] 'shawl' and [fɔl] 'fall'
7. [aɪ] vs. [ɔɪ] [baɪ] 'buy' and [bɔɪ] 'boy'

If you can find a minimal pair, you have identified two different phonemes.

Identifying phonemes and allophones

- We've talked about contrastive distribution, which is the case when you have two different phonemes.
- **Complementary distribution** is the second type of distribution.
- Sounds in complementary distribution never occur in the same phonetic environment. They have no minimal pairs, and their appearance is predictable.
- Sounds in complementary distribution are allophones of the same phoneme.
- The allophones of /t/ mentioned earlier – [t^h] [t] [ɾ] [ʔ] – are in complementary distribution.

Quick review

- Every **syllable** has a **nucleus**. Most also have an **onset** and many also have a **coda**. The **rhyme** (or **rime**) is the nucleus + coda.
- Each language has its own rules about what's allowed in the onset and coda. English allows very complex onsets and codas; many languages do not.
- When there's a phonotactic mismatch, like when learning a new language or borrowing a word from it, we adapt phonologically.

Quick review

- A **phoneme** is an abstract mental representation of a sound. A phoneme is written between slashes, like /t/.
- An **allophone** is the physical articulation of a given phoneme. An allophone is written between brackets, like [t] or [t^h].
- Allophones of different phonemes are in **contrastive distribution**. You can show contrastive distribution by finding a minimal pair.
- **Minimal pair**: Two words (with different meanings) whose pronunciations differ by exactly one sound.
- Allophones of the same phoneme are in **complementary distribution**. They have no minimal pairs.

Assignments

- Read pp.122–140 in *Language Files*. There'll be a quiz on this reading at the start of class.
- Submit blog post #2 by the start of next class. Requirements are posted on the class site.
- Take your time with the blog post. There is a rubric on the class site that we will stick to for its grading.
- There is no discussion board post for this week, since there's a blog post to work on instead.