

# Distinctive Features of Phonemes

- For two **phones**, or sounds, to contrast meaning there must be some difference between them
  - For example, the phonetic feature of voicing distinguishes [s] from [z]
- When a feature distinguishes one phoneme from another, it is a **distinctive feature** or a **phonemic feature**

# Feature Values

- Features have two values: [+ feature] and [- feature] to indicate the presence or absence of that particular feature
  - For example, [b] is [+voiced] and [p] is [-voiced]

- At least one feature difference must distinguish each phoneme of a language

	<b>b</b>	<b>m</b>	<b>d</b>	<b>n</b>	<b>g</b>	<b>ŋ</b>
<b>Stop</b>	+	+	+	+	+	+
<b>Voiced</b>	+	+	+	+	+	+
<b>Labial</b>	+	+	-	-	-	-
<b>Alveolar</b>	-	-	+	+	-	-
<b>Velar</b>	-	-	-	-	+	+
<b>Nasal</b>	-	+	-	+	-	+

# Nondistinctive Features

- When a feature is predictable by a rule for a certain class of sounds, that feature is a **nondistinctive** (or **redundant** or **predictable**) feature for that class
  - For example, nasalization is a redundant feature for English vowels but is distinctive for English consonants
    - But in Akan and French nasalization is a distinctive feature for vowels
  - Also, aspiration is a nondistinctive feature for voiceless stops in English

## Phonemic Patterns May Vary Across Languages

- The same phones may occur in two languages but pattern differently because the phonologies of the languages are different
- While aspiration is not distinctive in English, it is distinctive in Thai:

### **Voiceless Unaspirated**

[paa]     *forest*  
[tam]     *to pound*  
[kat]     *to bite*

### **Voiceless Aspirated**

[p<sup>h</sup>aa]     *to split*  
[t<sup>h</sup>am]     *to do*  
[k<sup>h</sup>at]     *to interrupt*

# Natural Classes of Speech Sounds

- Phonological rules often apply to **natural classes** of sounds
  - A natural class is a group of sounds described by a small number of distinctive features
  - Natural classes can be defined by + and – feature values

Feature Specification of Major Natural Classes of Sounds					
Features	Obstruents	Nasals	Liquids	Glides	Vowels
Consonantal	+	+	+	–	–
Sonorant	–	+	+	+	+
Syllabic	–	+/-	+/-	–	+
Nasal	–	+	–	–	+/-

# Feature Specifications for American English Consonants and Vowels

Features of Some American English Vowels

Features	i	ɪ	e	ɛ	æ	u	ʊ	o	[ɔ]	a	ʌ
High	+	+	-	-	-	+	+	-	-	-	-
Mid	-	-	+	+	-	-	-	+	+	-	+
Low	-	-	-	-	+	-	-	-	-	+	-
Back	-	-	-	-	-	+	+	+	+	+	-
Central	-	-	-	-	-	-	-	-	-	-	+
Round	-	-	-	-	-	+	+	+	+	-	-
Tense	+	-	+	-	-	+	-	+	-	+	-

## Feature Specifications for American English Consonants and Vowels

**TABLE 7.5** Features of Some American English Consonants

Features	p	b	m	t	d	n	k	g	ŋ	f	v	θ	ð	s	z	ʃ	ʒ	tʃ	dʒ	l	r	j	w	h
Consonantal	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-
Sonorant	-	-	+	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+
Syllabic	-	-	-/+	-	-	-/+	-	-	-/+	-	-	-	-	-	-	-	-	-	-	-/+	-/+	-	-	-
Nasal	-	-	+	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Voiced	-	+	+	-	+	+	-	+	+	-	+	-	+	-	+	-	+	-	+	+	+	+	+	-
Continuant	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+
Labial	+	+	+	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	+	-
Alveolar	-	-	-	+	+	+	-	-	-	-	-	-	-	+	+	-	-	-	-	+	+	-	-	-
Palatal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	-	-	+	-	-
Anterior	+	+	+	+	+	+	-	-	-	+	+	+	+	+	+	-	-	-	-	+	+	-	-	-
Velar	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Coronal	-	-	-	+	+	+	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	-	-
Sibilant	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	-	-	-	-	-

Note: The phonemes /r/ and /l/ are distinguished by the feature [lateral], not shown here. /l/ is the only phoneme that would be [+lateral].

# Assimilation Rules

- An **assimilation rule** is a rule that makes neighboring segments more similar by duplicating a phonetic property
  - For example, the English vowel nasalization rule states that *vowels become nasalized before a nasal consonant within the same syllable*

V	→	[+nasal]	/	—	[+nasal]	\$
Vowels	become	nasalized	in the	before	nasal	within a
			environment		segments	syllable

$V \rightarrow [+nasal] / \_ [+nasal] \$$



# Dissimilation Rules

- Languages also have dissimilation rules, in which a segment becomes less like another segment
  - It is sometimes easier to articulate dissimilar sounds
- Latin suffix *-alis* to form adjectives dissimilates to *-aris* when an *l* is in the noun and the dissimilation can be seen in the words borrowed into English

pendic- <i>al</i>	perpendic- <i>ar</i>
annu- <i>al</i>	annul- <i>ar</i>
ment- <i>al</i>	column- <i>ar</i>
pen- <i>al</i>	perpendicul- <i>ar</i>
spiritu- <i>al</i>	simil- <i>ar</i>
ven- <i>al</i>	vel- <i>ar</i>

**QUESTIONS**

1- This is the result of coarticulation and may change sounds phonetic constituents under the articulatory influence of the other sound ?

A. Speech sounds B. Phonemes C. Assimilation D. Similitude

2- What is the distinctive (phonemic) feature ?

A) Refers to sounds that share most phonetic features

B) The phonological representation of words and sentences prior to the application of phonological rules

C) Phonnetic properties of phonemes that account for their ability to contrast meaning of words

3-The same phones may occur in two languages but pattern differently because the phonologies of the languages are different

True or false

4- Find out the rules of assimilation in these sentences

1-he is a very good boy

2- there are ten men in the class.

3-can you see that girl over there

5- Which of the following sounds is included in the consonants of labial voiced and nasal at the same time ?

A-p

B-m

C-b

D-n