

# Chapter 2

## Phonology and Phonetics Transcription

# Phonetic transcription

A phonetician is a person who can describe speech, who understands the mechanisms of speech production and speech perception, and who knows how languages use these mechanisms. Phonetic transcription is no more than a useful tool that phoneticians use in the description of speech.

When phoneticians transcribe an utterance, they usually do so by **noting how the sounds convey differences in meaning**. For the most part, they concern themselves with describing **only the significant articulations rather than the total set of movements of the vocal organs**. For example, when saying the English word "tie," some people pronounce the consonant with the blade of the tongue against the alveolar ridge, others with the tip of the tongue. This kind of difference in articulation does not affect the meaning of the word and is not usually transcribed.

# Phonology

Phonology: From the Arctic Circle to the Cape of Good Hope, people speak to each other. **The totality of the sounds they produce constitutes the universal set of human speech sounds.** The same relatively small set of phonetic properties or features characterizes all these sounds; the same classes of these sounds are utilized in all spoken languages, and the same kinds of regular patterns of speech sounds occur all over the world. **Some of these sounds occur in the languages you speak and some do not.** When you learn a language, you learn which sounds occur in your language and how they pattern. **Phonology is concerned with this kind of linguistic knowledge.**

Phonology is concerned with the ways in which these speech sounds form systems and patterns in human language. Phonology, like grammar, is used in two ways--as the mental representation of linguistic knowledge and the description of this knowledge. Thus, **the word phonology refers either to the representation of the sounds and sound patterns in a speaker's grammar, or to the study of the sound patterns in a language or in human language in general.**

# Phonology and phonetics

Phonological knowledge permits a speaker to produce sounds that form meaningful utterances, to recognize a foreign “accent,” to make up new words, to add the appropriate phonetic segments to form plurals and past tenses, to produce aspirated and unaspirated voiceless stops in the appropriate context, to know what is or is not a sound in one's language, and to know that different phonetic strings may represent the same morpheme.

Phonetics is a part of phonology and provides the means for describing speech sounds. For instance, to provide means to show the physical evidence that “cat” consists of three basic phonemes /k/, /æ/, and /t/. But phonology is responsible for the representation of the meaningful sound pattern of “cat” in English.

# Phonemes

**Phoneme:** One of a set of abstract units that can be used for writing a language down in a systematic and unambiguous way.

When two sounds can be used to differentiate words, they are said to belong to different **phonemes**.

For example: white / right;      cat / bat

**Consider:**

1. Is the /p/ that leads “pop” a different phoneme from the /p/ that ends “pop”?
2. Is the /t/ sound in “city” a different phoneme from the /t/ in “tea”?

These examples show that **a phoneme is not a single sound but a name for a group of sounds**. There is a group of [t] sounds and a group of [l] sounds that occur in English. It is **as if you had in your mind an ideal [t] or [l], and the ones that were actually produced were variations of it, which differed in small ways that did not affect the meaning of English words**.

These groups of sounds—the phonemes—are abstract units that form the basis for writing down a language systematically and unambiguously.

# Transcription of consonants

Consider:

pie

buy;

spy

try

spry

Consider:

cat

Kat

key

cooler

access

assess

shoes

choose

# Symbols for transcribing American English consonants

	↓	↓	↓	
p	pie	pea		lower-case <i>p</i>
t	tie	tea		lower-case <i>t</i>
k	kye	key		lower-case <i>k</i>
b	by	bee		lower-case <i>b</i>
d	dye	D		lower-case <i>d</i>
g	guy			lower-case <i>g</i>
m	my	me	<i>ram</i>	lower-case <i>m</i>
n	nigh	knee	<i>ran</i>	lower-case <i>n</i>
ŋ			<i>rang</i>	eng (or angma)
f	fie	fee		lower-case <i>f</i>
v	vie	V		lower-case <i>v</i>
θ	thigh			theta
ð	thy	thee		eth
s	sigh	sea	listen	lower-case <i>s</i>
z		Z	mizzen	lower-case <i>z</i>
ʃ (š)	shy	she	mission	esh (or long <i>s</i> )
ʒ (ž)			vision	long <i>z</i> (or yogh)
l	lie	lee		lower-case <i>l</i>
w	why	we		lower-case <i>w</i>
r (r)	rye			lower-case <i>r</i>
j (y)		ye		lower-case <i>j</i>
h	high	he		lower-case <i>h</i> v
Note also the following:				
tʃ (tš)	chi(me)	chea(p)		
dʒ (dž)	ji(ve)	G		

# Symbols for transcribing British English consonants

	↓	↓	↓	
p	pie	pea		lower-case <i>p</i>
t	tie	tea		lower-case <i>t</i>
k	kye	key		lower-case <i>k</i>
b	by	bee		lower-case <i>b</i>
d	dye	D		lower-case <i>d</i>
g	guy			lower-case <i>g</i>
m	my	me	<i>ram</i>	lower-case <i>m</i>
n	nigh	knee	<i>ran</i>	lower-case <i>n</i>
ŋ			<i>rang</i>	eng (or angma)
f	fie	fee		lower-case <i>f</i>
v	vie	V		lower-case <i>v</i>
θ	thigh			theta
ð	thy	thee		eth
s	sigh	sea	listen	lower-case <i>s</i>
z		Z	mizzen	lower-case <i>z</i>
ʃ (š)	shy	she	mission	esh (or long <i>s</i> )
ʒ (ž)			vision	long <i>z</i> (or yogh)
l	lie	lee		lower-case <i>l</i>
w	why	we		lower-case <i>w</i>
r (r)	rye			lower-case <i>r</i>
j (y)		ye		lower-case <i>j</i>
h	high	he		lower-case <i>h</i> v
Note also the following:				
tʃ (tš)	chi(me)	chea(p)		
dʒ (dž)	ji(ve)	G		

# Diphthongs in English

**Diphthongs**—movements from one vowel to another within a single syllable.

heart (AmE)

heart (BrE)

farther (AmE)

farther (BrE)

hot

hot

hot

heart (AmE)

Some speakers distinguish the auxiliary “can” from the noun “can,” the latter being more diphthongal.

Consider: Is there any **monophthongs** in the English language?

# Symbols for transcribing vowels of American English

<b>1</b>	↓	↓	↓	↓	↓	
i	heed	he	bead	heat	keyed	lower-case <i>i</i>
ɪ	hid		bid	hit	kid	small capital <i>I</i>
eɪ	hayed	hay	bayed	hate	Cade	lower-case <i>e</i>
ɛ	head		bed			epsilon
æ	had		bad	hat	cad	ash
ɑ	hard		bard	heart	card	script <i>a</i>
ɑ	hod		bod	hot	cod	(2) turned script <i>a</i>
ɔ	hawed	haw	bawd		cawed	open <i>o</i>
ʊ	hood				could	upsilon
oʊ	hoed	hoe	bode		code	lower-case <i>o</i>
u	who 'd	who	booed	hoot	cooed	lower-case <i>u</i>
ʌ	Hudd		bud	hut	cud	turned <i>v</i>
ɜ	herd	her	bird	hurt	curd	reversed epsilon
aɪ	hide	high	bide	height		lower case a (+ ɪ)
aʊ		how	bowed		cowed	(as noted above)
ɔɪ		(a)hoy	Boyd			(as noted above)
ɪ ɪ		here	beard			(as noted above)
ɛɪ		hair	bared		cared	(as noted above)
aɪr	hired	hire				(as noted above)
ju	hued	hue	Bude		cued	(as noted above)

# Symbols for transcribing vowels of British English

2	↓	↓	↓	↓	↓	
i	heed	he	bead	heat	keyed	lower-case <i>i</i>
ɪ	hid		bid	hit	kid	small capital <i>I</i>
eɪ	hayed	hay	bayed	hate	Cade	lower-case <i>e</i>
ɛ	head		bed			epsilon
æ	had		bad	hat	cad	ash
ɑ	hard		bard	heart	card	script <i>a</i>
ɒ	hod		bod	hot	cod	(2) turned script <i>a</i>
ɔ	hawed	haw	bawd		cawed	open <i>o</i>
ʊ	hood				could	upsilon
əʊ	hoed	hoe	bode		code	lower-case <i>o</i>
u	who'd	who	booed	hoot	cooed	lower-case <i>u</i>
ʌ	Hudd		bud	hut	cud	turned <i>v</i>
ɜ	herd	her	bird	hurt	curd	reversed epsilon
aɪ	hide	high	bide	height		lower case <i>a</i> (+ <i>i</i> )
aʊ		how	bowed		cowed	(as noted above)
ɔɪ		(a)hoy	Boyd			(as noted above)
ɪə		here	beard			(as noted above)
ɛə		hair	bared		cared	(as noted above)
aə	hired	hire				(as noted above)
ju	hued	hue	Bude		cued	(as noted above)

# Examples of exercises

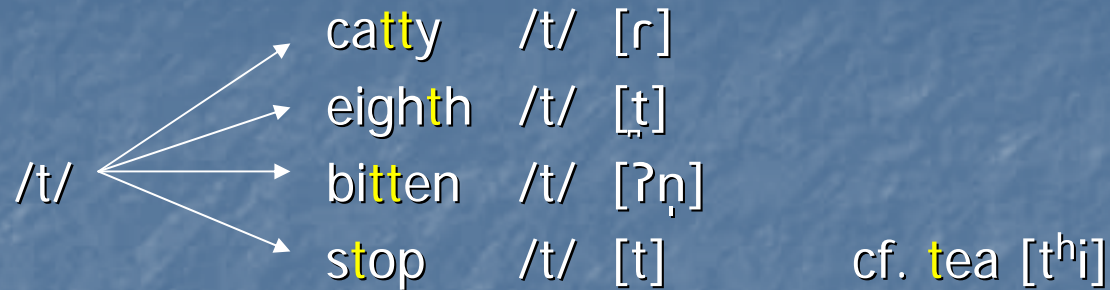
1. “strength”	[ 'streŋθ ]	should be	[            ]
2. “crime”	[ 'kraɪm ]		[            ]
3. “wishing”	[ 'wɪʃɪŋ ]		[            ]
4. “wives”	[ 'waɪvz ]		[            ]
5. “these”	[ 'ði:z ]		[            ]
6. “hijacking”	[ 'haɪjækɪŋ ]		[            ]
7. “chipping”	[ 'tʃɪpɪŋ ]		[            ]
8. “yelling”	[ 'jelɪŋ ]		[            ]
9. “sixteen”	[ 'sɪksti:n ]		[            ]
10. “thesis”	[ 'θɪsɪs ]		[            ]

# The phonetic chart of the English consonants

		Place of articulation						
		bilabial	labio-dental	dental	alveolar	palato-alveolar	palatal	velar
Manner of articulation	nasal (stop)	m			n			ŋ
	stop	p b			t d			k g
	fricative		f v	θ ð	s z	ʃ ʒ		
	(central) approximant	(w)			r		j	w
	lateral (approximant)				l			

Where is /h/? Where are /tʃ/ and /dʒ/? What does this chart mean to you?

# The basic concept of allophones: phonology



The phonology of a language is the set of rules that describe the changes in the underlying sounds, the abstract units called phonemes.

The variants of the phonemes that occur in detailed phonetic transcriptions are known as **allophones**.

# Diacritics

The term **broad transcription** is often used to designate a transcription that uses a simple set of symbols. Conversely, a **narrow transcription** is one that shows more phonetic detail, either just by using more specific symbols or by also representing some allophonic differences. **The use of diacritics, small marks that can be added to a symbol to modify its value, is a means of increasing precision.**

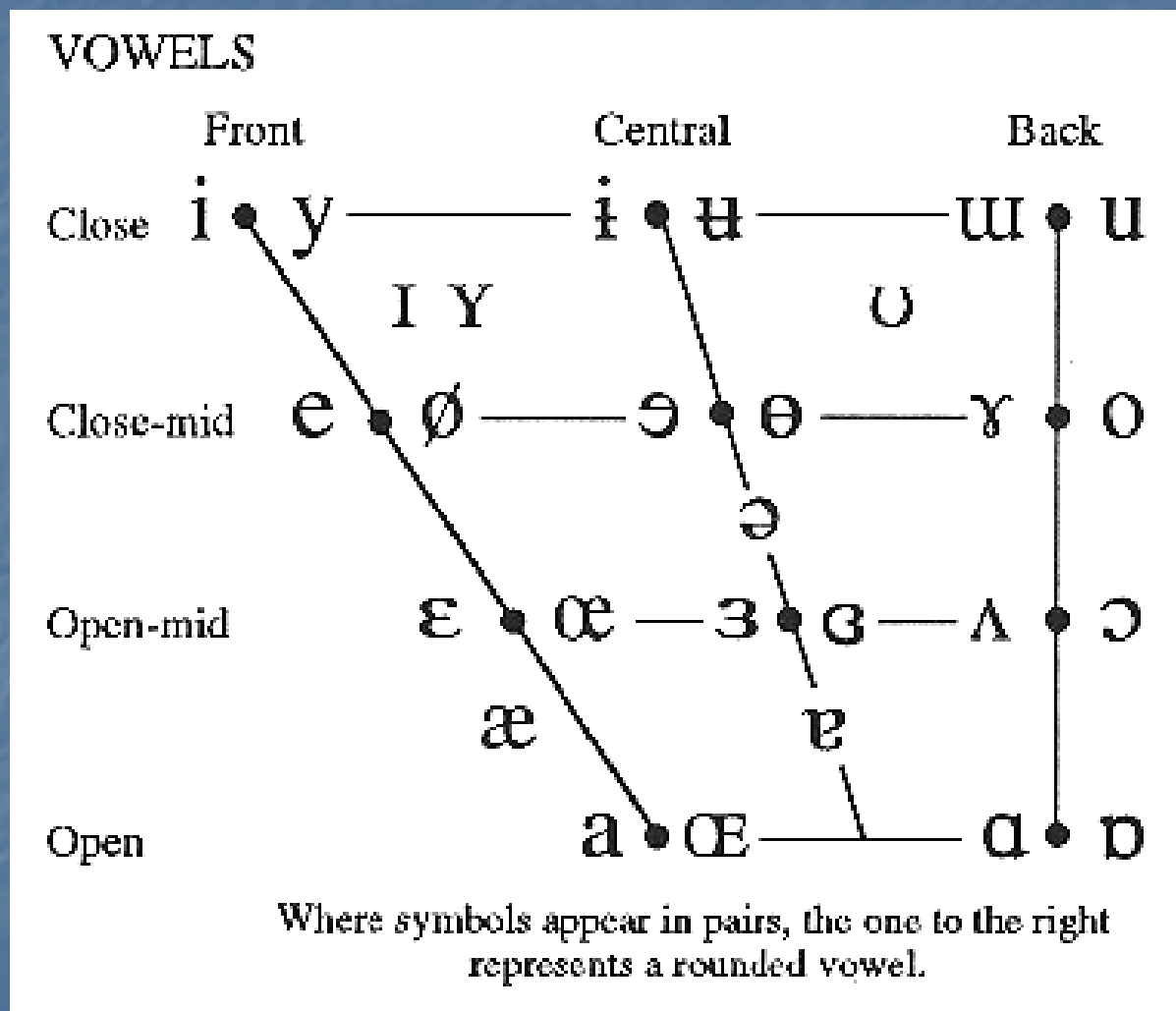
One such diacritic is a small circle, [◌̥], that can be placed under a symbol to make it represent a voiceless sound, so that "ply" and "try," for instance, can be written [p̥laɪ] and [t̥raɪ]. Another useful diacritic is the mark [◌̺] beneath a consonant, which we have been using to indicate that the sound is dental and not alveolar.

Practice using the IPA symbols [downloaded from the website]

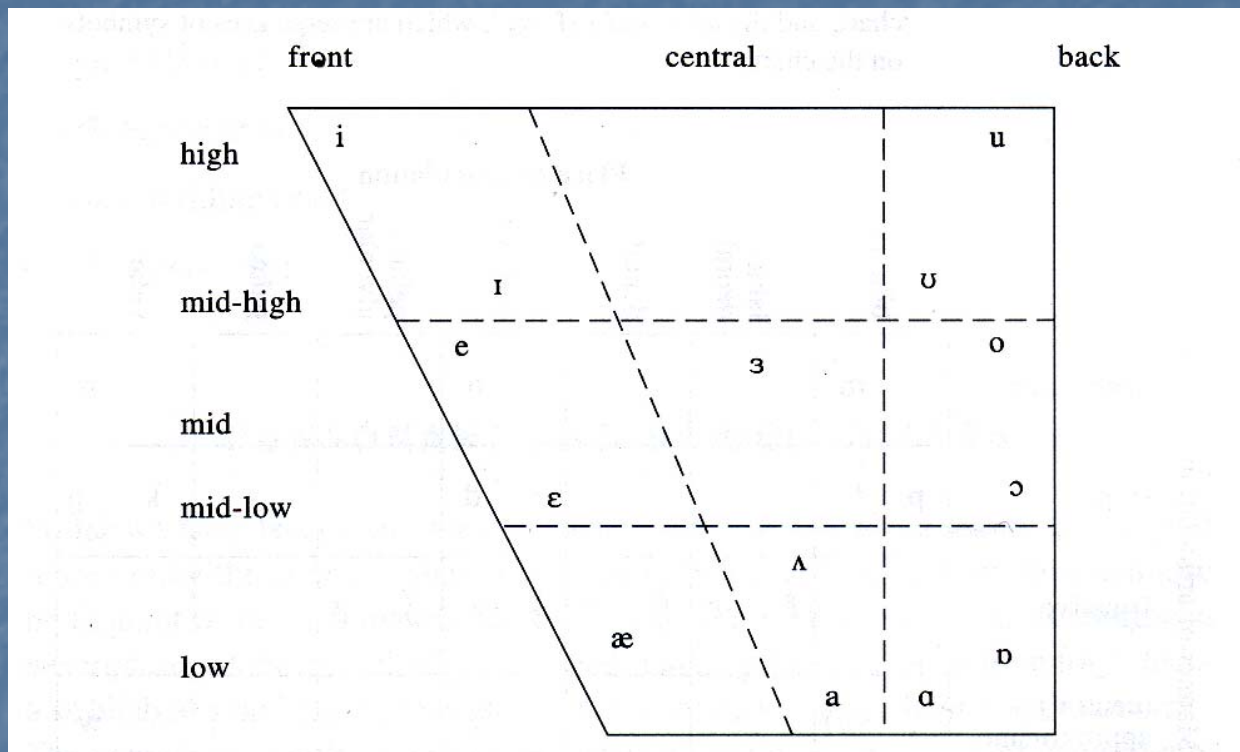
# Symbols of Diacritics

DIACRITICS			Diacritics may be placed above a symbol with a descender, e.g. $\text{ŋ}$					
◌ <sup>◌</sup>	Voiceless	$\text{n}^{\text{◌}}$ $\text{d}^{\text{◌}}$	◌ <sup>◌</sup>	Breathy voiced	$\text{b}^{\text{◌}}$ $\text{a}^{\text{◌}}$	◌ <sup>◌</sup>	Dental	$\text{t}^{\text{◌}}$ $\text{d}^{\text{◌}}$
◌ <sub>◌</sub>	Voiced	$\text{s}^{\text{◌}}$ $\text{t}^{\text{◌}}$	◌ <sub>◌</sub>	Creaky voiced	$\text{b}^{\text{◌}}$ $\text{a}^{\text{◌}}$	◌ <sub>◌</sub>	Apical	$\text{t}^{\text{◌}}$ $\text{d}^{\text{◌}}$
◌ <sup>h</sup>	Aspirated	$\text{t}^{\text{h}}$ $\text{d}^{\text{h}}$	◌ <sub>◌</sub>	Linguolabial	$\text{t}^{\text{◌}}$ $\text{d}^{\text{◌}}$	◌ <sub>◌</sub>	Laminal	$\text{t}^{\text{◌}}$ $\text{d}^{\text{◌}}$
◌ <sub>◌</sub>	More rounded	$\text{ɔ}^{\text{◌}}$	◌ <sup>w</sup>	Labialized	$\text{t}^{\text{w}}$ $\text{d}^{\text{w}}$	◌ <sup>~</sup>	Nasalized	$\text{ẽ}$
◌ <sub>◌</sub>	Less rounded	$\text{ɔ}^{\text{◌}}$	◌ <sup>j</sup>	Palatalized	$\text{t}^{\text{j}}$ $\text{d}^{\text{j}}$	◌ <sup>n</sup>	Nasal release	$\text{d}^{\text{n}}$
◌ <sup>+</sup>	Advanced	$\text{u}^{\text{+}}$	◌ <sup>Y</sup>	Velarized	$\text{t}^{\text{Y}}$ $\text{d}^{\text{Y}}$	◌ <sup>l</sup>	Lateral release	$\text{d}^{\text{l}}$
◌ <sub>◌</sub>	Retracted	$\text{i}^{\text{◌}}$	◌ <sup>ʕ</sup>	Pharyngealized	$\text{t}^{\text{ʕ}}$ $\text{d}^{\text{ʕ}}$	◌ <sup>ˀ</sup>	No audible release	$\text{d}^{\text{ˀ}}$
◌ <sup>ː</sup>	Centralized	$\text{ẽ}$	◌ <sup>~</sup>	Velarized or pharyngealized $\text{ɫ}$				
◌ <sup>x</sup>	Mid-centralized	$\text{ẽ}$	◌ <sup>˥</sup>	Raised	$\text{e}^{\text{˥}}$ ( $\text{ɹ}^{\text{˥}}$ = voiced alveolar fricative)			
◌ <sub>◌</sub>	Syllabic	$\text{ɹ}^{\text{◌}}$	◌ <sup>˥</sup>	Lowered	$\text{e}^{\text{˥}}$ ( $\text{β}^{\text{˥}}$ = voiced bilabial approximant)			
◌ <sup>◌</sup>	Non-syllabic	$\text{e}^{\text{◌}}$	◌ <sup>˥</sup>	Advanced Tongue Root		$\text{e}^{\text{˥}}$		
◌ <sup>˥</sup>	Rhoticity	$\text{ə}^{\text{˥}}$	◌ <sup>˥</sup>	Retracted Tongue Root		$\text{e}^{\text{˥}}$		

# The vowel chart of language in general (See KAYlab)



# The quadrilateral chart of English vowels



What does this chart mean to you?

Compare the following pairs of vowel

sheet

heel

good

took

# Systematic phonetic transcription

When I transcribe the word "peels" as [pilz], I am assuming that the reader knows a number of the rules of English, including those that make /i/ somewhat lower and more central when it occurs before /l/ and a final /z/ voiceless toward the end.


On a few occasions, a transcription cannot be said to imply the existence of rules accounting for allophones. This is at least theoretically possible in the case of a narrow transcription so detailed that it shows all the rule-governed alternations among the sounds. A transcription that shows the allophones in this way is called a completely **systematic phonetic transcription**. In practice, it is difficult to make a transcription so narrow that it shows every detail of the sounds involved. On some occasions, a transcription may not imply the existence of rules accounting for allophones because, in the circumstances when the transcription was made, nothing was known about the rules. When writing down an unknown language or when transcribing a child or a patient not seen previously, one does not know what rules will apply. In these circumstances, the symbols indicate only the phonetic value of the sounds. This kind of transcription is called an **impressionistic transcription**.

# Exercise

## British English

[ It ɪz 'pɒsəbl̩ tə træ'n'skraɪb fə'netɪklɪ 'eni 'ʌtrəns, ɪn 'eni 'læŋgwɪdʒ, ɪn 'sevrəl 'dɪfrənt 'weɪz 'ɔl əv ðəm 'ju:zɪŋ ði 'ælfəbet ənd kən'venʃnz əv ði 'aɪ pi: 'eɪ. ðə 'seɪm 'θɪŋ ɪz 'pɒsəbl̩ wɪð 'məʊst 'ʌðə ɪntə'næʃənl̩ fə'netɪk 'ælfəbetz. ə træ'n'skrɪpʃn wɪtʃ ɪz 'meɪd baɪ 'ju:zɪŋ 'letəz əv ðə 'sɪmpləst 'pɒsəbl̩ 'ʃeɪps, ənd ɪn ðə 'sɪmpləst 'pɒsəbl̩ 'nʌmbə, ɪz 'kɔ:ld ə 'sɪmpl̩ fəʊ'nɪ:mɪk træ'n'skrɪpʃn. ]

English speakers from

Pittsburgh 

Virginia 

South Virginia 

Brooklyn1 

Brooklyn2 

Belfast 

Australia 

Oxfordshire 

[pʰɪs kʰɔl stɛlə ask hɜ tʰu bʰɪŋ ðɪz  
sɪ ŋz wɪθ hɜ fɪʌm ðə stə sɪks  
spʊnz ə fæʃ snəʊ pʰɪz fəv θɪk  
slæbz ə blʊ: tʃɪz æn mɛɪbi ə snæk  
fə hɜ bɪʌðə bɒb wi ɔlsə nɪd ə  
smɒl pʰlæstɪk sneɪk æn ə bɪg tʰɔɪ  
fɒg fə ðə kʰɪdʒ ʃɪ kʰɛn skʊp ðɪz  
sɪŋz ɪntʰʊ θɪ ɛd bæŋgz æn wi wɪl  
gəʊ mɪt hɜ wɛnzdeɪ æt ðə tɪɛm  
stɛʃm]

# Exercises: I on page 50 (American English only).

Name \_\_\_\_\_

## Chapter 2, exercise I

I Transcribe the following phrases as they are pronounced by either the British English or the American English speaker on the CD. Make both (a) a broad transcription, and (b) a narrower transcription.

Say whether the British or American English speaker is being transcribed.



Please come home.

(a)

(b)



He is going by train.

(a)

(b)



The tenth American.

(a)

(b)



His knowledge of the truth.

(a)

(b)



I prefer sugar and cream.

(a)

(b)



Sarah took pity on the young children.

(a)

(b)