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PHONEMES AND FEATURES*

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I. Introduction

In a general introduction to linguistics certain topics are both indispensable and pedagogically difficult. I believe that the concepts of the PHONEME and the FEATURE are indispensable to the phonology section of such a course: the two constructs can be argued to be PSYCHOLOGICALLY REAL, indeed, to be fundamental units in the mental organization of phonological abilities; both constructs are ABSTRACT, not simply or directly identifiable with actual physical events; these constructs figure prominently in the statement of the REGULARITIES governing the phonological side of any particular language; moreover, these regularities are LANGUAGE-SPECIFIC; but they are phonetically NATURAL, explicable to a large extent in terms of the conflicting needs of clarity and ease. The topics of psychological reality, abstractness, regularity, language differences, and naturalness are all important ones in an introductory linguistics course, and all can be explored in a short treatment of phonemes and features.

Despite their centrality, the phoneme and feature concepts are notoriously difficult for students to grasp. Undoubtedly their abstract character has a lot to do with their difficulty; students in search of a usable and memorizable explanation will not derive any practical benefit from such definitions as the following, careful though they are:

> A phoneme is a sound of a given language that native speakers agree is just one segment, and which enables them to recognize differences of meaning between words.
>
> (Suzette Haden Elgin, *What Is Linguistics?* 2nd ed. (Prentice-Hall, 1979), p. 85)

> DISTINCTIVE FEATURES. A set of universal, putatively innate, phonetic and phonological properties by reference to which the speech sounds of the world's languages are described ...
>
> (Neil Smith and Deirdre Wilson, *Modern Linguistics* (Indiana Univ. Press, 1979), p. 275)

Instead, the student must be led to an appreciation of the concepts through a series of examples. My own strategy is to lean very heavily on material illustrating the psychological reality of phonemes and features, so as to work against the students' tendency to see these constructs as

something invented by linguists for their own arcane purposes, rather than something relevant to ordinary human beings. In the two sections that follow, I discuss briefly some pedagogical problems specific to phonemes/features and then provide, for each, several exercises designed to illustrate psychological reality; sample answers to the exercises appear in an appendix. This material was developed for a class of beginning graduate students and advanced undergraduates, although some of it could be adapted to classroom use in a lower-division 'introduction to language' course rather than an upper-division 'introduction to linguistics'.

II. Phonemes

My focus here is on the classical phoneme and the principles governing the distribution of allophones.

A special problem in introducing the phoneme concept has to do with the sequencing of phonetics and phonology in an introductory course. If phonetics leads, the student must first learn to attend to aspects of sound that are normally outside of conscious reflection and then to disregard these aspects in phonemic transcription. As a result, phonemics might seem unreal. If the student first learns phonemic transcription for English, then goes on to learn phonetic transcription and terminology, the student may be encouraged to persist in English-based beliefs as to which sounds are alike and different. I have found neither sequence entirely satisfactory; the exercises below have been used with both orders of presentation.

Before these exercises are given out, the class has had a presentation of contrast/complementary distribution/free variation in which the following allophonic principles of American English (among others) were mentioned:

aspiration of voiceless stops at the beginning of a word or a stressed syllable;

devoicing of liquids after voiceless stops;

affrication and retroflexion of t d before r;

h realized as ç before y;

labialization of consonants before rounded vowels;

develarization of ɬ before front vowels;

nasalization of vowel nuclei before nasals;

variation between plain and glottalized voiceless stops syllable-finally, with ʔ as a variant of t' in this position;

variation between əR and R when unstressed, for the resonants r l n m;

i e u o as unstressed (free) variants of i^y e^y u^w o^w, with ɪ as a (free) variant of i word-finally.

With this background, it is possible to have the class analyze cases of (a) phonemic hearing of other languages; (b) phonemic hearing of dialects with different systems; (c) 'foreign accents' in reproducing phrases in languages other than English; and (d) 'phonemic memory', manifested as a faulty memory for actual pronunciations. All of these point to the psychological reality of the phoneme, as do the following: (e) the phenomenon of categorial perception (which can be discussed in a later section of the course on psycholinguistics); (f) the phonemic rather than phonetic nature of alphabetic writing systems (which can be discussed in a later section on writing systems); (g) slips of the tongue; (h) pig latins; and (i) rhyming schemes. It is these last three cases I will illustrate here. The exercises can of course be adapted if a different set of allophonic processes has been introduced.

Exercise for (g).

According to the *American Heritage Dictionary* (1976 college edition), a SPOONERISM is 'an unintentional transposition of sounds in spoken language, as *Let me sew you to your sheet* for *Let me show you to your seat.* [After William A. Spooner (1844-1930), English clergyman, noted for such slips.]'. Consider the following spoonerism:

	INTENDED TARGET	ACTUAL UTTERANCE
A	pink stems	tink spems

And an example of a related type of speech error, involving misplacement:

B	find wit	fide wint

Suppose that the phonetic transcriptions for the intended targets are as follows:

A [p^hĩŋk stɛ̃mz]

B [fãỹnd wɪt]

Now answer the following three questions:

1. If it is SOUNDS that are transposed or misplaced, what would be the phonetic transcriptions for the errors *tink spems* and *fide wint*? (Remember that each symbol in a phonetic transcription represents a single sound.)

2. What are the correct phonetic transcriptions for *tink spems* and *fide wint*?

3. Given your answers in 1 and 2, how would you revise the American Heritage Dictionary definition of SPOONERISM? Why?

Exercise for (h).

According to Robbins Burling (*Man's Many Voices*, Holt, Rinehart and Winston, 1970, p. 135),

> At some time during childhood, most American children learn to use "pig latin". Instead of *he will give it to me*, a child will learn to say *iyhey ilway ivgay itey uwtey iymay*. This distorted form, of course, is accomplished by a simple phonological transformation. Children teach the pattern to one another by some such instruction as this: "take the first sound of each word and put it on the end and then add *a*." This rule is reasonably accurate though a linguist might want to refine it ...

Many people have learned a form of pig latin in which not only the first consonant of a word, but a whole word-initial consonant cluster, is moved to the end of the word, so that *stop* is transformed to *opstay*; however, we are going to consider a form of pig latin that follows exactly the rule Burling cities, so that *stop* is transformed to *topsay*. Examine the three following phrases with respect to this pig latin:

(A) stop play [stap $p^h\underset{\circ}{l}e^y$]

(B) try Hugh [$t\overset{s}{\underset{\circ}{\cdot}}$ray ɕɥu^w]

(C) low cool [ɬo^w k$^w{}^h$u^{w}ɬ]

and answer the following questions:

1. If it is a consonant SOUND that moves to the end of the word and has [e^y] attached to it, what would be the phonetic transcriptions of the transformed versions of (A)-(C) in this pig latin?

2. What are the correct phonetic transcriptions for the transformed versions of (A)-(C) in this pig latin?

3. In light of your answers to 1 and 2, how would you revise Burling's rough rule for this pig latin? Why?

Exercise for (i).

Consider ordinary RHYME in English. According to Karl Beckson and Arthur Ganz, *Literary Terms: A Dictionary* (Farrar, Straus and Giroux, 1975), p. 210:

> The most usual English rhyme is variously called "true", "full", "perfect", "complete", or RIME SUFFISANTE. In it, the final accented vowels of the rhyming words and all succeeding sounds are identical, while preceding sounds are different, as in *bake-rake, heaven-seven.*

The following rendition of the beginning of a familiar nursery rhyme counts as full rhyme:

(A) ǰǽk' sprǽt'

k^{h}ʊ́d í^{y}t nó^{w} fǽ?

So does the following rendition of the beginning of a poem/song from Edith Sitwell's *Facade*:

(B) dé^{y}zi æn lí́li

lé^{y}zi æn sílɪ

And so does the following rendition of the beginning of another *Facade* piece:

(C) kráyd ðə né^{y}vi bɫú^{w} gó^{w}st

əv mí́str bəlé^{y}kər

ði əlégro nígro k^{h}á́k'^{h}èl šékr

However, if (A) ended in [fǽk'] it would not count as a full rhyme; nor would (B) if it ended in [síli]; nor would (C) if it ended in [šékl].

1. Why are (A)-(C) acceptable rhymes in English, and these not?

2. How would you revise Beckson and Ganz's definition of full rhyme? Why?

Some remarks on the exercises. A substantial number of students will give answers like the following to the final question in the exercises: respectively, 'an unintentional transposition of sounds in spoken language, with these sounds changed to fit their new places'; 'take the first sound of each word and put it on the end and add *a* and then apply the allophonic rules of English'; 'the final accented vowel of the rhyming words and all succeeding sounds are identical, except for phonetic features due to surrounding sounds'. A reference to the 'allophonic rules' of English is precise but not always correct, due to the directionality of these processes (e.g., there is a process devoicing l after p, but none voicing l

word-initially, but the latter process is what would be required for example (A) in the pig latin exercise). A reference to contextually determined changes in sounds is a great deal vaguer and fails to mention the language- and dialect-particular character of these changes. All three answers treat the contextual determination as fortuitously connected to the phenomena at hand, indeed as an effect that wouldn't have to happen at all. Referring to phonemes gives a BETTER answer in each case. (This is one place to introduce the lesson that some answers may be better than others, even if they're all factually adequate, a lesson that some students--who object to the importation of 'aesthetic' criteria into a 'scientific' enterprise--resist with passion.)

Titling the first of these exercises 'Sounds and Phonemes', or anything with the word PHONEME in it, increases the percentage of 'right' answers, but perhaps for the wrong reason.

Such exercises can be distributed over class discussions, homework, and examinations. I usually save one for a review homework assignment or an examination, where it can recall the student's mind to a type of reasoning previously used without asking for a mechanical replay of an earlier answer.

Finally, I stress the importance of the 'why' in the final questions of these exercises, if necessary assigning an actual point value to a brief defense of the answer given. (This is one place to introduce the lesson that a presentation of the evidence for some answer is usually more important than the answer itself, again a lesson that some students--who object that a linguistics course is not a course in thinking or writing--view with distaste.)

III. Features

Here the stickiest point is the connection between the descriptors of phonetics and the features of phonology. Most linguistics textbooks develop separate vocabularies of descriptors and features, despite the evident overlap between the two; some typographical distinction (initial capitalization, italics, small caps) then has to bear the burden of distinguishing, say, the feature 'Nasal' from the descriptor 'nasal'. One text--*Linguistics: An Introduction to Language and Communication*, by Adrian Akmajian, Richard A. Demers, and Robert M. Harnish (MIT Press, 1979)--a text with several admirable chapters, moves from phonetic descriptors to phonological features within the space of a few pages in a single chapter, thereby confusing all but the brightest students and alienating all but the most passive.

One motivation for this double vocabulary is probably that descriptors are believed to be phonetic, anatomic, physiological (or perhaps acoustic), while features are believed to be phonological, mental, abstract. I see

no reason to characterize the distinction in these terms. Surely the descriptors are abstract also: there is nothing anatomically in common to the many physical gestures that result in stop consonants; the tongue-root advancement associated with phonetically 'wide' or 'tense' vowels results in some raising and fronting of the tongue body, but phonetically wide vowels are not thereby classified also as high and front; the acoustic activity during a voiceless stop consonant is indistinguishable from an equally long pause; all the suprasegmental descriptors are inherently relative; 'there is no agreed physical measurement corresponding to syllabicity. But there is no doubt that segments can be described phonetically as being syllabic (100 percent) or nonsyllabic (0 percent)', according to Peter Ladefoged's *Course in Phonetics* (Harcourt Brace Jovanovich, 1975), p. 267; and so on.

The question is then whether there should be two abstract categorizations or only one. As a PEDAGOGICAL question, the answer ought to be that we would accept more than one abstract categorization only for the strongest of (pedagogical) reasons. This is just the sort of situation in which introductory texts do well to oversimplify; there are things it is better to conceal for a while, lest the students sink into a quicksand of conceptual and terminological refinements. Even as a THEORETICAL question, it seems to me, the answer ought to be that we would accept more than one abstract categorization only for the strongest of (theoretical) reasons. For theoretical purposes, we need a vocabulary (applicable to all languages) for naming natural classes of segments and natural relationships among segments and for describing the phonetic distinctions between phonemes; descriptors that serve none of these functions have no place in linguistic phonetics, and if we are fortunate a single set of descriptors will suffice for all of these functions.

My approach to descriptors and features in an introductory class is therefore unified, with a single vocabulary for 'phonetic properties'. Two types of exercises help the students gain some facility with this vocabulary. The first type focusses on phonetic properties and NATURAL CLASSES/RELATIONSHIPS, the second on phonetic properties and PHONEMIC DISTINCTIONS.

In exercises of the first type, the student is provided with positive instances of some phenomenon (and usually with negative instances as well) and is asked to supply the appropriate generalization. The form of such exercises is introduced in my initial discussion of phonetic properties, as in the text below.

Consider the statement in (1) below. How can we replace the second part of the statement (the part after the dots) so as to make it GENERAL, not merely a list of words that do one thing as opposed to a list of words that do something else?

(1) The English indefinite article is ən rather than ə...

before the words *ermine*, *easy*, *old*, *Australian*, *honor*, *enormous*, *ivy*, *ounce*, *added*, *awesome*, *herb*, *approximate*, and *early* (but is ə before *useful*, *history*, *radio*, *performer*, *European*, *dish*, *washer*, *fertile*, and *night*).

The generalization has to do with the type of sound that begins the word following the indefinite article: the first list consists entirely of words beginning with 'vowel' sounds, the second consists entirely of words beginning with 'consonant' sounds. (You should be able to give a convincing argument from these examples that it is SOUNDS and not LETTERS that are relevant.)

A slight complication is introduced here by the fact that *ermine*, *herb*, and *early* are in the ən list, while *radio* is in the ə list. For most American English speakers, the sound at the beginning of *ermine* is articulated just like the sound at the beginning of *radio*; for these speakers, *ermine* does not PHYSICALLY begin with a vowel followed by r. Yet the r at the beginning of *ermine*, like the r in the middle of *bird* and the r at the end of *butter*, counts as making a syllable, while the r at the beginning of *radio* does not. *Stirring* has an *ermine*-type r, and two syllables, while *string* has a *radio*-type r, and only one syllable. Now normally it is the function of VOWELS to make syllables, so that *ermine*, *stirring*, *butter*, and *bird* all have the consonant r 'acting like' a vowel; many English speakers also have an l acting like a vowel in *kettle*, an n acting like a vowel in *kitten*, and an m acting like a vowel in *bottom*. What all this adds up to is that the phonetic classification VOWEL/CONSONANT is not quite what we want in describing what's going on in (1). Instead, we want a distinction between sounds that make syllables and those that do not--between SYLLABICS and NONSYLLABICS. The generalization that completes the first part of (1) correctly is

(1') ... before syllabics.

Further complete-the-generalization problems introduce such properties as LABIAL, CORONAL, and SIBILANT, while the STOP/CONTINUANT and OBSTRUENT/SONORANT distinctions are described and briefly justified without exemplification in a problem. (Properties like ALVEOLAR, LIQUID, FRICATIVE, APPROXIMANT, VOICELESS/VOICED, and NASAL, which distinguish English phonemes, have already been introduced.) At this point the students are given a series of exercises of the complete-the-generalization form, arranged roughly in order of complexity. Some examples follow.

(8) At the beginning of a word before l or r, the only fricatives permissible in English are ...

the ones in *shred*, *slop*, *flicker*, *frazzled*, *slide*, *frog*, *thread* (so that **zlop*, **vlicker*, and **vrog* are not possible words, nor is *thread* if pronounced with the initial consonant of *this* rather than the initial consonant of *think*).

(11) Some American English speakers have ɛ^{ə} rather than æ ...

in *rash*, *has*, *gather*, *bath*, *raft*, *gas*, *castle*, *jazz* (but have æ in *fat*, *gap*, *stack*, *batch*).

(13) Some American English speakers (largely in the Midwest and South) pronounce ɛ as ɪ ...

in *then*, *Kenney*, *pen*, *Bengals*, *gem*, *Mencken*, *Remington*, and *temperature* (while maintaining ɛ in *met*, *wedding*, *beggar*, *best*, *gel*, *merry*, *kept*, and *mesh*).

(18) English speakers have slightly labialized variants of word-initial consonants ...

in *toot*, *pooch*, *boat*, *known*, *cook*, *good*, *so*, *tall*, *fought*, *Shawn*, *pull* (but not in *team*, *pet*, *bait*, *name*, *father*, *give*, *say*, *Cal*, *fat*, *sham*, *pill*, *cut*, *birth*).

(24) Especially before words beginning with consonants, many Americans sometimes do not pronounce word-final ...

consonants in *six*, *leads*, *past*, *gift*, *act*, *meant*, *mend*, *hold* (though they do pronounce the word-final consonants in *branch*, *Welsh*, *mask*, *filth*, and *lisp*).

(31) Most speakers of English do not pronounce ...

a word-final b in *limb* and *thumb* or a word-final g in *wing* and *rung* (though they do pronounce the word-final consonants in *limp*, *thump*, *wink*, *drunk*, *lend*, *bond*, *rant*, *branch*, *lab*, and *rag*).

(32) Some Southern Ohio and Indiana speakers replace ...

the vowel of *met* by the vowel of *mate* in *special*, *measure*, *pleasure*, *mesh*, *precious* (but not in *mess*, *fettle*, *retch*, *methyl*, *pestle*, *wed*) and the vowel of *mitt* by the vowel of *meet* in *commission*, *fish*, *partition*, *elision*, *derision* (but not in *miss*, *fiddle*, *midge*, *nifty*, *whistle*, *sit*).

A few comments on this sort of exercise. The phenomena illustrated include dialect variants (some of which can be referred to again in a later discussion of historical change), casual speech variants (some of which can be used in sociolinguistics and/or in historical change), ordinary allophonic variants, phonologically conditioned morphophonemic variants, and constraints on phoneme combinations. Consequently, no framing brackets of any sort appear in the exercises.

The material to be replaced has forms cited in ordinary English spelling. This is deliberate. These exercises give students additional practice in phonemic transcription, at which they are probably shaky.

It may be necessary to give some explicit advice about solving specially designed problems like these: (a) these problems are so designed that there IS a general solution (a right answer covers all the cases, and there are no 'exceptions'); (b) all the information needed to get a solution is available in the problem statement (so that if there is no way to tell what pitch level particular words are spoken on, say, then this factor cannot be relevant to the answer); (c) such problems are ordinarily designed to have strikingly simple answers (so that if your proposed answer has several clauses in it, or rivals the problem statement itself in length, there is probably a better answer); (d) if there is negative evidence given, it is important (the devisers of such problems don't throw in whole categories of facts just for fun); (e) if your current hypothesis begins to look unpromising, try another, remembering that sometimes you might want to go back to an earlier idea.

After students have had a reasonable amount of experience with exercises like those above, it is possible to expand the range of exercises to include types that must be presented in transcription: data in languages other than English (indeed, standard phonemics problems can usually be recast in the format of (1) above), data from the acquisition of English by young children, and data from historical change.

I turn now to exercises focussed on phonetic properties as phoneme discriminators. First, a paragraph of introductory text.

The properties that define natural classes--for instance, voicing, nasality, continuancy, and point of articulation for consonants and height, frontness, and rounding for vowels--often act as independent elements of linguistic structure, so that individual sounds or phonemes must be viewed as 'broken down' into an assemblage of these properties. The English phoneme /p/ would then be seen as an assemblage of the properties VOICELESS, LABIAL, and STOP, therefore as distinguished from /b/ and /m/ as being voiceless rather than voiced, from /t/ and /k/ by being labial rather than alveolar or velar, from /f/ by being a stop rather than a continuant, and from other English phonemes by differences in two or more of these properties.

Exercise A.

Below is a list of slips of the tongue (from the collection in Victoria Fromkin's *Speech Errors as Linguistic Evidence* (Mouton, 1973)). Using appropriate phonetic terminology, describe what has happened in each of these errors. Do not merely say, "The speaker said m instead of b and said d instead of n," and the like, but look for some REASON why these particular errors should have been made. Hint: there is a sense in which all these errors are of the same type. Further hint: these errors are similar, in a way, to the common type of error known as the SPOONERISM (*my queer dean* FOR *my dear queen*; *you have hissed my mystery lectures* FOR *you have missed my history lectures*; *stretch and piss* FOR *stress and pitch*).

	INTENDED TARGET	ACTUAL UTTERANCE
a.	Cedars of Lebanon	Cedars of Lemadon
b.	Terry and Julia	Derry and Chulia /čulyə/
c.	big and fat	pig and vat
d.	clear blue sky	glear plue sky
e.	pedestrian	tebestrian
f.	scatterbrain	spattergrain

Exercise B.

According to Thrall, Hibbard, and Holman, *A Handbook to Literature* (Odyssey Press, revised ed., 1970), a *pun* is

> A play on words based on the similarity of sound between two words with different meanings. An example is Thomas Hood's: "They went and told the sexton and the sexton tolled the bell."

Their example is an instance of what I will call a PERFECT PUN, a play on words based on the phonological identity (or HOMOPHONY) of two words with different meanings. Below are some examples of perfect puns from John S. Crosbie's *Dictionary of Puns* (Harmony Books, 1977):

(1) bound

> The zoo's kangaroo lacks zip: He is frequently discovered out of bounds.

(2) clap

> VD is nothing to clap about.

(3) prone

We are all prone to die.

(4) worn

"Is anything worn under your kilt?"

"No, it's all in working order."

Very often, however, puns are less than perfect. Sometimes the difference between a syllabic and a nonsyllabic consonant is disregarded, as in these examples from Crosbie:

(5) mower

If you can't afford a power lawnmower, then mower power to you.

(6) wire

As the tightrope walker asked himself, "Wire we here?"

And sometimes the difference has to do with where words are divided:

(7) stripper

He was afraid to go out with the burlesque queen because he didn't know how to stripper.

(8) tall

It is better to have loved a short girl than never to have loved a tall.

And sometimes the difference has to do with whether there is a consonant or nothing at all.

(9) cling

Wrestling is the sport of clings.

(10) sequel

A wolf is a man who treats all women as sequels.

And sometimes--especially when the original expression is a well-known expression--the difference is very great:

(11) bovine

There once was a tolerant cow who stood for absolutely anything her favorite bull tried to get away with. She mooed, "Too err is human, to forgive, bovine."

(12) Persian

One man's Mede is another man's Persian.

Usually, however, in imperfect puns the difference is quite small, as in:

(13) clothe

Sign by gate to nudist colony: "Come in. We Are Never Clothed."

Consider the examples below (also from Crosbie): for each, identify the punning word in the example (*clothed* in (13)) and the word it puns on (*closed* in (13)); then identify the distinct phonemes that are matched in the pun (here, ð and z), and say what phonetic properties distinguish these phonemes (here, a difference in point of articulation, interdental versus alveolar).

(14) crab

Once there was a girl
Who kept fishing for a pearl,
But her chances were drab for it--
Until she made a crab for it.

(15) fever

Oliver Wendell Holmes, Sr., was a physician as well as an author and lecturer. He is said to have remarked of his medical career that he was grateful for small fevers.

(16) money

Sign outside an amusement park: "Children under 14 must be accompanied by money and daddy."

(17) radish

Health food can give you a radish complexion.

(18) choker

Mrs. reported to Mr.: "It says here that a man on the next block throttled his mother-in-law yesterday." "Hmmm," mused Mr., "sounds to me like he was a practical choker."

(19) bleach

When the blonde he married faded into brunette, he sued for bleach of promise.

(20) curl

Labia majora: the curly gates.

(21) sicken

"Aha!" cried Sherlock Holmes, "the plot sickens!"

(22) bottle

When it came to drinking, comedian W. C. Fields was a veteran who suffered from bottle fatigue.

(23) sylph

Why is it that many a woman with a sylphlike figure insists on keeping it to her sylph?

(24) clash

The late poet J. Ogden Nash
Always made of his English a hash.
When asked where it led
He flippantly said,
"It gives it a great touch of clash."

(25) sty

For many a farmer the price of pork has created a gold mine in the sty.

Sometimes imperfect puns involve differences in two or even three places, as in the following examples. Analyze these as you did (14)-(25), treating each corresponding pair of distinct phonemes separately.

(26) rabbit

Fast, speedy (as in Rabbit Transit).

(27) crass

... It is a platitude
That only a halter
Can alter
The middlecrass assitude.

(28) breeze

In Chicago, every prospect breezes.

(29) morsel

What foods these morsels be!

(30) mutton

Lamb stew is much ado about mutton.

Exercise C.

Most familiar verse in English uses FULL RHYME: the peak of the last accented syllable of a line, plus everything that follows that peak, is identical to the peak of the last accented syllable of a matching line, plus everything that follows it--

(1) Lizzie Borden took an axe
And gave her mother forty whacks.
(American verse of unknown authorship)

(2) I'm just a poor wayfaring stranger,
A-trav'ling through this world of woe;
But there's no sickness, toil nor danger
In that bright world to which I go.
('Wayfaring Stranger', #97 in Alan Lomax, *Folk Song U.S.A.*, New American Library, 1975)

But some verse--especially traditional English ballads, nursery rhymes, blues lyrics, and the lyrics of rock music--frequently uses HALF RHYME, in which the matched parts are not entirely identical. In many such cases, a consonant counts as rhyming with a cluster including that consonant--

(3) [n-nd]

Well lookin' for a woman
an' a well oh man
is just lookin' for a needle
that is lost in the sand
(Dylan, 'Just Allow Me One More Chance')

(4) [d-nd]

She left one too many a boy behind
He committed suicide
(Dylan, 'Gypsy Lou')

or a word ending in a vowel counts as rhyming with one ending in that vowel plus some consonant--

(5) [o-od]

I stood a wondering which way to go,
I lit a cigarette on a parking meter
And walked on down the road.
(Dylan, 'Talkin' World War III Blues')

In other cases, distinct consonants count as rhyming, or distinct vowels count as rhyming. In each of the examples below you are to pick out the distinct phonemes that are counted as rhyming in the italicized word (remember that material BEFORE the peak of the last accented syllable will of course be different, as in the full rhymes *axe-whacks* and *stranger-danger* and the half rhymes *man-sand*, *behind-suicide*, and *go-road*), and you are to say what phonetic properties distinguish those matched but different phonemes.

(6) The things that sit and wait for you
To stumble in the dark
Will take the cobwebs from your eyes
And plant them in your heart.
(Byrd, 'The Elephant at the Door')

(7) Going where the orange sun has never died,
And your swirling, marble eyes shine laughing,
Burning blue the light.
(Lamm, 'Fancy Colours')

(8) Farewell to Greer County where blizzards arise,
Where the sun never sinks and the flea never dies,
And the wind never ceases but always remains
Till it starves us all out on our government claims.
('Starving to Death on a Government Claim',
#70 in Lomax)

(9) [This is a full rhyme in some dialects.]

Some of us were willing, while others they were not.
For to work on jams on Sunday they did not think they'd ought.
('The Jam on Gerry's Rocks', #50 in Lomax)

(10) Tying faith between our teeth
Sleeping in that old abandoned beach house
Getting wasted in the heat
(Springsteen, 'Backstreets')

(11) Well the technical manual's busy
She's not going to fix it up too easy.
(Mitchell, 'Electricity')

(12) Old Reilly stole a stallion
But they caught him and brought him back
And they laid him down on the jail house ground
With an iron chain around his neck.
(Dylan, 'Seven Curses')

(13) Git out the way, ol' Dan Tucker,
You too late to git yo' supper.
('Old Dan Tucker', #27 in Lomax)

(14) Oh, yes, I am wise
but it's wisdom born of pain,
Yes, I paid the price
but look how much I gained.
(Reddy, 'I am Woman')

(15) I'll remember Frank Lloyd Wright.
All of the nights we'd harmonize till dawn.
I never laughed so long.
(Simon, 'So Long, Frank Lloyd Wright')

(16) My experience was limited and underfed,
You were talking while I hid
To the one who was the father of your kid.
(Dylan, 'Love is Just a Four Letter Word')

(17) Like dust in the wind you're gone forever
You're wind-blown leaves you're a change in the weather
(Taylor, 'Something's Wrong')

(18) Love my wife, love my baby,
Love my biscuits sopped in gravy
('Blackeyed Susie', #29 in Lomax)

All the types of exercises I have illustrated are consistent with a number of different ways of treating phonemes and features. They are neutral with respect to the question of whether 'phonemic representation' is to be treated as essentially identical to 'morphophonemic underlying form' in an introductory linguistics course (not my ordinary practice) and with respect to the question of whether distinctive features are binary or not (the system being developed in the material above LOOKS nonbinary but can be fashioned into a binary system with little trouble). They can be used with various formalisms, or in a setting where students are instructed to give answers in ordinary but precise English, using the technical terms of linguistics where appropriate (my own preference, especially since this approach allows me to finesse the issues of redundant and unspecified features, two technical matters that generate a surprising amount of anxiety in students who want to get everything right). On the minus side, they present special difficulties to the non-native speaker of English, and must be revised depending upon the dialect make-up of the class. But then it is hard to think of a way of introducing phonology that is free of both of these drawbacks.

Appendix: Sample Answers

II. Phonemes

Exercise for (g):

1. [tĩŋk sp^{h}ɛ̃mz]
   [fãỹd wɪnt]

2. [t^{h}ĩŋk spɛ̃mz]
   [fayd wĩnt]

3. An unintentional transposition of phonemes in spoken language. If we say that it is SOUNDS that are transposed, then we predict incorrect sequences of sounds in actual pronunciations; but if we say that it is PHONEMES that are transposed, then the correct allophones of these phonemes are automatically predicted.

Exercise for (h):

1. [tapse^{y} le^{y}p^{h}e^{y}]
   [ɾ̥ayt^{s}̥e^{y} qu^{w}ɕe^{y}]
   [o^{w}ɪ̥e^{y} u^{w}ɪ̥k^{w}^{h}e^{y}]

2. [t^hapse^y le^{y}pe^y]

   [rayte^y yu^{w}he^y]

   [o^{w}le^y u^{w}ɬke^y]

3. Take the first phoneme of each word and put it on the end and then add /e/. If we say that the SOUNDS are involved, then we predict incorrect sounds both at the beginnings of the pig latin words and before their final [e^y]; but if we say that PHONEMES are involved, then the correct allophones are automatically predicted in both places.

Exercise for (i):

1. In (A)-(C) the matched sounds are allophones of the same phoneme or phoneme combination: /t/, /i/, and /ər/, respectively. But [k'] and [t'] are allophones of different phonemes, /k/ and /t/; and stressed [ɪ́] and [í] are allophones of different phonemes, /ɪ/ and /i/; and [r̩] and [l̩] are allophones of different phonemes, /r/ and /l/.

2. All succeeding phonemes are identical. If we required that succeeding SOUNDS be identical, then different sounds in free variation with one another wouldn't count as rhyming, any more than different sounds that are allophones of different phonemes do; they are all different sounds. But this is incorrect. If we require that succeeding PHONEMES be identical, then we predict (correctly) that different sounds in free variation count as the 'same sound' for the purposes of rhyme.

III. Features

(8) ... voiceless.

(11) ... before fricatives.

(13) ... before nasal consonants.

(18) ... before rounded vowels.

(24) ... alveolar consonants.

(31) ... a word-final peripheral [or noncoronal] voiced stop after a nasal.

(32) ... nonlow front lax vowels by their tense counterparts before posterior [or nonanterior, or more specifically, alveopalatal] fricatives.

Exercise A: In each case a single phonetic property has been transposed between one phoneme and another: in example a, nasality appears with the earlier bilabial consonant in *Lebanon* instead of the later alveolar one; in examples b and d, voicing appears with a word-initial consonant in an earlier word instead of a later one, and in example c, with a word-initial consonant on a later word instead of an earlier one; and in examples e and f, the points of articulation for two consonants in a word have been exchanged. In every case all other phonetic properties of the consonants affected remain unchanged.

Exercise B:

(14) *crab* punning on *grab*; k and g; voicing (voiceless versus voiced).

(15) *fevers* punning on *favors*; i and e; height (high versus mid).

(16) *money* punning on *mummy*; n and m; point of articulation (bilabial versus alveolar).

(17) *radish* punning on *reddish*; æ and ɛ; height (low versus mid).

(18) *choker* punning on *joker*; č and ǰ; voicing (voiceless versus voiced).

(19) *bleach* punning on *breach*; l and r; point of articulation (alveolar versus postalveolar), tongue configuration (lateral versus retroflex).

(20) *curly* punning on *pearly*; k and p; point of articulation (velar versus bilabial).

(21) *sickens* punning on *thickens*; s and θ; point of articulation (alveolar versus (inter)dental).

(22) *bottle* punning on *battle*; a and æ; frontness (back versus front).

(23) *sylph* punning on *self*; ɪ and ɛ; height (high versus mid).

(24) *clash* punning on *class*; š and s; point of articulation ((alveo) palatal versus alveolar).

(25) *sty* punning on *sky*; t and k; point of articulation (alveolar versus velar).

(26) *rabbit* punning on *rapid*; b and p, t and d; voicing (voiced versus voiceless), voicing (voiceless versus voiced)--cf. Exercise A.

(27) *middlecrass assitude* punning on *middleclass attitude*; r and l, s and t; point of articulation (but see (19) above), manner of articulation (fricative versus stop).

(28) *breezes* punning on *pleases*; b and p, r and l; voicing (voiced versus voiceless), point of articulation (but see (19) above).

(29) *foods ... morsels* punning on *fools ... mortals*; d and l, s and t; manner of articulation (stop versus liquid), manner of articulation (fricative versus stop).

(30) *mutton* punning on *nothing*; m and n, t and θ, n and ŋ; point of articulation (bilabial versus alveolar), point and manner of articulation (alveolar stop versus (inter)dental fricative), point of articulation (alveolar versus velar).

Exercise C:

(6) k and t, velar versus alveolar.

(7) d and t, voiced versus voiceless.

(8) n and m, alveolar versus bilabial.

(9) a and ɔ, unrounded versus rounded.

(10) θ and t, (inter)dental fricative versus alveolar stop.

(11) ɪ and i, lax versus tense.

(12) æ and ɛ, low versus mid.

(13) k and p, velar versus bilabial.

(14) z and s, voiced versus voiceless.

(15) n and ŋ, alveolar versus velar.

(16) ɛ and ɪ, mid versus high.

(17) v and ð, labiodental versus (inter)dental.

(18) b and v, bilabial stop versus labiodental fricative.

FOOTNOTE

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