Minimal pairs: minimal importance?

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Minimal pairs spring to many teachers' minds when the topic of pronunciation teaching is raised. They also form the focus of many coursebooks on pronunciation. This article argues that minimal pairs do not merit this attention. There are other aspects of pronunciation which are of greater importance, and there are other ways of teaching vowel and consonant pronunciation.

Introduction

Minimal pairs are pairs of words which differ in the pronunciation of one sound only. An example for English is the pair *ship* and *sheep*, where the distinguishing sounds are /ɪ/ and /iː/. Indeed, this pair has become famous as it is the title of a pronunciation coursebook (Baker 1981) which many ELT schools have in their resources library.

Minimal pairs are often used as a short cut in taxonomic phonemic theory (the analysis of phonology generally used in the 'British school' and associated with names such as Daniel Jones and A. C. Gimson). If you can find a minimal pair for two sounds, then they are distinctive units (phonemes) in the sound system of the language.

After coming to Singapore many years ago, and being given *ship* vs. *sheep* type of drills to perform with students, it occurred to me that this was not a very meaningful exercise. Singapore is one of the busiest ports in the world. However, it is a tiny island (the size of the Isle of Man) with a population of three million. Consequently, land is at a premium, and there are no animal farms. The nearest most Singaporeans come to sheep is mutton curry. In short, if Singaporeans don't pronounce the distinction between *ship* and *sheep* clearly, the chances of misunderstanding are minimal: they are almost certain to mean *ship*.

Contextual and communicative considerations like this therefore limit the value of minimal pair exercises. In this article, I look at various factors which have a bearing on their importance.

Numbers of minimal pairs

Although the existence of just one minimal pair is sufficient for us to conclude that two sounds are different phonemes, we must acknowledge that some pairs of phonemes have very few minimal pairs. For example, the few minimal pairs for /ʃ/ and /ʒ/ *Confucian, confusion; Aleutian, allusion; mesher, measure; Asher, azure; glacier, glazier.* Reading through these, you will appreciate that some of them are rather contrived. *Confucian* is rare outside the Chinese world. One seldom

refs to the *Aleutian Islands*. A *mesher* ('person or thing that meshes') is not to be found in most dictionaries. *Asher* is a proper name. Rare pronunciations of *glacier* (with /ʃ/) and *azure, glazier* (with /ʒ/) are necessary for them to be minimal pairs.

A further limitation with this pair of sounds is that the phoneme /ʒ/ never occurs in word-initial or word-final position in English. The only exceptions to this are French loanwords such as *genre, beige, sabotage*, which in any case are pronounced with /dʒ/ by many speakers. All the above minimal pairs therefore include the sounds in word-medial position. The distinction is also rather unstable, in that there are words for which the pronunciation varies between these sounds, e.g. *Asian*: [eɪʃn] or [eɪʒn].

Similarly, you will find that there are only seven minimal pairs for the distinction /ʊ/ and /u:/, and these are therefore regularly quoted in coursebooks: *pull, pool; full, fool; look, Luke; hood, who'd; would/wood, wooed; could, cooed; should, shoed/shooed*. Again, many sound rare or contrived.

In contrast, numerous pairs can easily be found for other distinctions, e.g. /e/ and /æ/, /p/ and /b/. This factor ought to be reflected in any statement of the importance of phonemic contrasts in English. So ought the fact that, for example, the phoneme /ʊ/ occurs as the stressed vowel in only about forty words in English. I have given an indication of this importance (called 'functional load') of often confused phoneme pairs in English elsewhere (Brown 1991a).

The usefulness of functional load, as opposed to the simpler notion of minimal pairs, is illustrated by the following personal experience (Brown 1988). I once went on a camping trip to Thailand with a group of Singaporeans. During the trip, my companions referred on several occasions to my [pɛʔ], e.g. 'Pass me a [pɛʔ]', 'There's a butterfly on your [pɛʔ]'. I had to keep asking for clarification, as I was never sure whether they were talking about my *bag, back, pack* (meaning 'rucksack') or *peg* (either 'tent-peg' or 'clothes-peg'). The fact that the contrasts /p/ and /b/, /e/ and /æ/, /k/ and /g/ are all important distinctions in the sound system of English, with high functional loads, is shown by the number of confusable words here. Consequently, there is a high risk to intelligibility for speakers such as my Singaporean companions, who do not make these distinctions. The interesting thing to note is that there are only two minimal pairs (*bag, back; back, pack*). The word *peg* does not form a minimal pair with any of the other three. In the circumstances, all four words were plausible, and in different situations the words *beg* and *beck* could be added to the list of alternatives.

Distinctive features An alternative way of analysing (parts of) the sound system of a language is in terms of features which sounds share. For example, the feature [± voice] can be used to embrace voiced ([+ voice]) and voiceless ([− voice]), i.e. whether the vocal cords are vibrating or not. The feature distinguishes several pairs of consonant sounds: /p, b/, /t, d/,

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/k, g/, /tʃ, dʒ/, /f, v/, /θ, ð /, /s, z/ and /ʃ, ʒ/. So, if students do not distinguish /ʃ, ʒ/, they may also have problems with the other pairs, since the distinguishing feature is the same.

The importance of thinking in terms of features rather than individual pairs is shown by the fact that many processes apply to any sound which has the relevant feature, or group of features:

- Any final [− voice] consonant causes the vowel to be shortened, e.g. the vowels in *tripe* and *loose* are shorter than those in *tribe* and *lose*.

- [− voice] fricatives have a louder hissing noise (greater friction) than their counterpart [+ voice] sounds. There is therefore a louder hiss in the /f, θ/ of *fan*, *thank* than for in the /v, ð/ of *van*, *than*.

- Initial [− voice] stops have a burst of [− voice] air (aspiration) on release; [+ voice] stops do not. Compare the /p, t, k/ of *pan*, *ten*, *con* with the /b, d, g/ of *ban*, *den*, *gone*.

It is therefore more efficient to teach the [± voice] distinction which subsumes all these consonants, than the eight separate contrasts (Vaughan-Rees 1986).

Voice quality Voice quality refers to the habitual settings of the vocal apparatus (tongue, lips, larynx, vocal cords, etc.), which give an overall colouring to the voice. They characterize the speaker on an individual, social, geographical, or native language basis. Jenner (1992) describes the typical voice quality of Southern British English speakers:

- Neutral or slightly lowered laryngeal position
- Low laryngeal tension
- Neutral and relaxed supralaryngeal tract
- Active tongue tip
- Lax jaw
- Slight lip rounding and spreading, but without tension

He further claims that assuming the correct typical voice quality for a foreign language ('getting into gear' as Honikman (1964) calls it) helps in the articulation of the individual vowels and consonants of that language. In other words, an inability to distinguish between /t/ and /θ/ may reflect a more deep-seated problem with the overall setting of the tongue. It may therefore also affect other consonant sounds in perhaps less obvious ways. He offers a number of exercises of a Suggestopedia type, aimed at improving voice quality settings for English.

Context As we saw with the *ship* vs. *sheep* distinction in Singapore, context disambiguates in many situations, and a confused pair of sounds may not lead to confusion of understanding. It is worth quoting here the example sentences which Baker (1981:8) gives for this pair:

He wants a ship for his birthday.
He wants a sheep for his birthday.

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I challenge the reader to supply a context in which both these sentences are plausible utterances (a Greek tycoon? an Arab sheikh?).

Suprasegmental features

The term 'suprasegmental' is widely used to refer to stress, rhythm, intonation, and voice quality. I would like to claim, however, that it ought to be extended to cover certain features or processes which are often thought of as segmental phenomena. For example, there is a phonemic contrast in English between /ɜː/ and /ə/. However, /ə/ is an anomalous vowel in English, as it is analysed as occurring only in unstressed syllables. So, any minimal pair (e.g. *foreword, forward*) involves not just a difference between /ɜː/ and /ə/ but also a consequent difference in stress: *forward* has an unstressed second syllable, whereas in *foreword* it carries secondary stress.

Similarly, the difference between so-called strong and weak forms of grammatical words, or the pronunciation of compound nouns, has consequences for stress and rhythm as well as vowel quality. For instance, in the following sentence pairs, the words in the second sentence of each pair not only have strong vowel forms but also attract some degree of stress. They therefore affect the rhythm of the sentence as well as its meaning. In other words, the occurrence of /ə/ is a suprasegmental feature as much as a segmental one.

1   **a.** He has some [səm] good ideas. (a genuine compliment)
    b. He has some [sʌm] good ideas. (. . . but also some ridiculous ones). (a back-handed compliment)

2   **a.** She said that [ðət] coffee had risen in price. (all coffee)
    b. She said that [ðæt] coffee had risen in price. (that particular type of coffee)

3   **a.** He is a gentleman [mən]. (compound noun)
    b. He is a gentle man [mæn]. (adjective + noun)

It is unfortunate that vowel and consonant segments constitute the main focus of pronunciation in the minds of many students and teachers. Writers are nowadays convinced of the importance of suprasegmentals in pronunciation, although the priority given to segmentals in coursebooks may lead readers to overemphasize their importance.

> If the child could paint the picture, [intonation and rhythm] would be the wave on which the other components ride up and down; but the linguist is older and stronger, and has his way—he calls them suprasegmentals, and makes the wave ride on top of the ship.
> (Bolinger 1961, quoted by Gilbert 1984:1–2)

Communicative teaching

Perhaps the greatest criticism against minimal pair drills is that they are not communicative, and therefore lack interest for the student. There is a saying in ELT circles: 'a drill is something used for boring'. Drills of course have their uses, as means of checking whether students are capable of making sound distinctions. However, since they do not involve the students in meaningful exchanges, they can be demotivating.

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Teachers whose pronunciation work consists of little more than drills and quasi-drill passages, are therefore unlikely to foster any pronunciation skills or interest in the language in their students.

Preparing materials   Very little has been written on communicative activities for pronunciation teaching. Celce-Murcia (1987) and Pica (1984) both include a number of techniques for English phonemes. Celce-Murcia (1987:10) outlines the steps in preparing communicative pronunciation materials:

1 Identify your students' problem areas (different groups of students may have different problems)

2 Find lexical/grammatical contexts with many natural occurrences of the problem sound(s).

3 Develop communicative tasks that incorporate the word.

4 Develop at least three or four exercises so that you can recycle the problem and keep practicing the target sound(s) with new contexts.

In other words, the same types of activities used to teach other language areas communicatively can also be used to teach pronunciation.

Sample activities   As an illustration, Celce-Murcia describes the following activities to be introduced at intervals to practise the *th* sounds, /θ, ð/—problems for most learners of English:

1 Doctor examining patient. This involves parts of the body such as *mouth, teeth, throat, thumb,* and *thigh.*

2 Calendar. The *th* sounds also occur in *Thursday, month,* all numbers with the number 3 in them (*third, thirtieth,* etc.), and almost all ordinal numbers (*fourth, twentieth,* etc.).

3 Family members. The three words *father, mother,* and *brother* (and *grandfather, brother-in-law,* etc.) are important here.

4 The Thorpe family. The family has members such as *Arthur, Dorothy,* and *Keith.* (It is also worth pointing out here that the names *Anthony, Thomas,* and *Esther* do not normally have a *th* sound in British English, despite their spelling.)

These activities practise the *th* sounds in addition to points of grammar (e.g. questions), vocabulary building (e.g. other words for relatives) and functional-notional categories (e.g. 'at the doctor's'). You will notice that none of Celce-Murcia's exercises involve minimal pairs as such. This is partly due to the very limited number of pairs involving the *th* sounds.

Rogerson and Gilbert (1990) give exercises which involve minimal pairs, but improve on the traditional practice of requiring students to simply identify which of a pair of sentences is being read out. Instead, students have to respond with an appropriate reply:

Q: Where did you sleep?   **A:** In a hotel.
Q: Where did you slip?   **A:** On the ice.

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Q: When did he leave?	**A:** At 2 o'clock.
Q: When did he live?	**A:** In the 19th century.
Q: Are you ready, team?	**A:** Yes, we're all here.
Q: Are you ready, Tim?	**A:** Yes, I'm coming.

Different students, different problems

As Celce-Murcia notes, different groups of students may have different problems as far as phoneme confusion is concerned. This is one of the major drawbacks of minimal pair drill books published (usually in Britain or the USA) for worldwide distribution. For example, the vowels /æ/ and /ɑ/ are problems for many foreigners, and drill books therefore contain exercises practising the distinction. However, they are not a problem in Singapore. Instead, Singaporeans tend to confuse /æ/ with /e/, and /ɑ:/ with /ʌ/. So, *bad* and *bed* are pronounced the same (both sounding like *bed), and bard* and *bud* are also the same (both sounding like *bud.* Since no Singaporean confuses *bad* and *bard*, exercises drilling this distinction are therefore totally irrelevant in Singapore.

In classes of students of mixed nationalities and L1 backgrounds, such all-purpose drillbooks may be useful. However, classes, especially those in foreign countries, are usually composed of homogeneous students. In such circumstances, tailored pronunciation materials should be used practising only those features which are problems for the specific students. These are often the product of local writers and publishing houses.

Conclusion

Minimal pairs immediately spring to most teachers' (and students') minds when the topic of pronunciation is raised. However, important though they are, they should not be overemphasized at the expense of other aspects of pronunciation, such as stress, rhythm, intonation, and voice quality.

Where pronunciation is concerned, locally-produced materials covering problem areas for specific students are generally more relevant than all-purpose international drill books.

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