Pronunciation research by written questionnaire

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ABSTRACT

This paper discusses pronunciation research using a written questionnaire to ask people overt questions about their pronunciation. Several investigations that have used this approach are discussed. The technique is particularly useful for large-scale surveys of variability in lexical incidence or in the phonological system. It is unsuitable for surveying variability in phonetic realization.

1. INTRODUCTION

Dialectologists have always been ready to ask language consultants (informants) questions about lexical matters ('What is your word for this?'). Syntacticians readily seek out the opinion of speakers on whether some proposed string of words is acceptable (well-formed) or not ('Can you say *two furnitures*?'). Such questions can be asked either orally or in writing. In this session I want to argue that some aspects of pronunciation, too, can be usefully investigated by the administration of a written questionnaire.

Ever since Chomsky redefined the goals of linguistics, linguists have been attempting to model the knowledge of language that the native speaker carries in the mind. If we can speak a language, one of the things we know is how to pronounce it. The task of the phonetician, it may be argued — or at least **one** task — is to model that knowledge. Some (but by no means all) of this knowledge is available to introspection, and therefore for investigation by written questionnaire.

This is not a new idea. In 1945 Martinet [1] published a justly famous survey of the phonology of spoken French using as his respondents French officers in a prisoner-of-war camp. Most of his questions concerned the identity or non-identity of minimal pairs:

> Prononcez-vous de façon identique: *a) jeune* et *jeûne* ? … *b) veule* et *veulent* ? … *c) filleul* et *filleule* ? …

(i.e. in this case exploring the putative opposition /œ - ø/). Other questions concerned the presence of absence of the so-called *e muet*, the French schwa that comes and goes:

> Quelle prononciation vous paraît la plus naturelle … de *j'me dis, je m'dis, je me dis* ?

Others again concerned such matters as liaison consonants, the number of syllables in a word, or obstruent voicing assimilation:

> Avez-vous l'impression de prononcer: *a)* le *d* de *médecin* comme un *d* ou comme un *t* ? … *b)* le *b* d'*absent* comme un *b* ou comme un *p* ?…

What all these questions have in common is that they do not address matters of phonetic detail, but only matters of phonology.

> "If this had been a phonetic survey aiming to determine the exact nature of this or that articulation by a given subject, the oral method would have been the only advisable one, indeed the only possible one. But since it was a phonological survey … the presence of an expert observer was much less indispensable." [My translation. – JCW]

Thirty years later, still dealing with French, Walter's survey [2] was equally phonological, but returned to 'the oral method', perhaps since audio recording techniques had now become readily available. Her sample size was a mere seventeen people. This survey is particularly noteworthy, however, in that it appears to be the first to have been carried out explicitly as part of the research for a pronunciation dictionary [3]. This dictionary, claiming in its title to be concerned with French pronunciation 'as it really is', reports for some thousands of words which of the informants (identified as *a* to *y*) pronounced what.

> **JEÛNE** *nm*
> ʒøn (*abcdgjlprtvwx*)
> ʒœn (*dmny*)
> ʒœːn (*k*)

2. THE LPD SURVEYS

In preparing a new pronunciation dictionary of English, the *Longman Pronunciation Dictionary*, I felt the need to supplement my own intuitions — both as a native speaker of RP-style English and as a long-time observer of the speech of those around me — with some kind of objective data regarding the relative prevalence of the competing pronunciations of various words that I knew to be subject to fluctuating or contentious pronunciation. An example would be *zebra*, pronounced by some as /ˈziːbrə/ but by others as /ˈzebrə/. Rather than attempt to explore data from a spoken corpus (something impossible then, and far from

easy today), I carried out an opinion poll of speakers' preferences in such words. I used a written questionnaire to ask a sample of speakers of British English a battery of some ninety such questions [4]. The findings of this survey were duly published in the first edition of the dictionary [5].

This sort of question is readily understood by everyone, non-phoneticians and phoneticians alike. Indeed, many laymen have strong views about such matters. The survey was based on a postal questionnaire submitted to a panel of 275 native speakers of British English. Many were professionally concerned with speech in some way (e.g. as academic phoneticians or radio announcers), but more than a quarter of them were volunteers recruited from among the general public. The survey revealed that for *zebra* 83% preferred /e/ and only 17% /i:/. This finding was reported in the dictionary, along with the findings for the other ninety words investigated.

Whereas Walter used too few informants to enable any statistical inferences to be made about possible associations between phonological and social variables, the larger sample size of this first LPD survey was sufficient to permit several such inferences. In particular, an association between pronunciation preference and respondent's age group became evident in several of the words investigated.
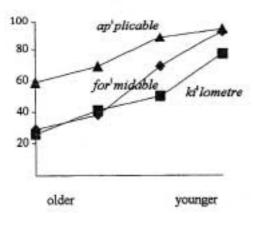

Fig. 1. BrE stress preferences, by age ([4])

Fig.1 demonstrates the change in stress pattern preferences in the words *applicable, formidable, and kilometre*: younger respondents were more likely than older respondents to vote for antepenultimate stress (as opposed to initial stress).

Following up the first LPD survey, Shitara [6] carried out a similar survey of American English pronunciation preferences. She questioned a sample of 395 native speakers, most of them academics in phonetics/linguistics, language teachers or students, following the same procedure. Again, given this larger sample size, it was possible to demonstrate differences in pronunciation preferences between different age groups and also certain correlations with region, sex, ethnicity, and occupation.

For example, Shitara found that the percentage preferring /-bju-/ rather than /-bru-/ in *February* was 78% among those with only a high school diploma, 69% among those with an associate's degree from a community college, 62% among those with a bachelor's degree, and only 55% among those with a postgraduate degree. Another interesting finding, shown in fig. 2, was that younger people are significantly more likely than older people to prefer /ɔ/ (as against /ɑ/) in *orange* and *tomorrow*.
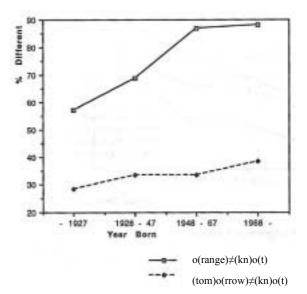

Fig. 2. AmE vowel preferences, by age ([6])

In 1998, in preparation for a revised edition of LPD, I conducted a further similar survey of British pronunciation preferences, using the largest sample yet — 1932 respondents from all parts of Britain [7, 8], who gave their views on a further hundred items. The sample size made possible some statistically very robust conclusions about associations between pronunciation preferences and respondents' age.
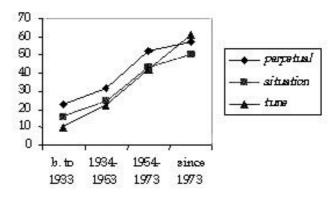

Fig. 3. BrE preferences for [tʃ] over [tj], by age [8]

Rather than answering in handwriting on a paper form, respondents were also offered the option of answering by e-mail or on the web.

3. THE QUESTIONNAIRE

Sociolinguists are well aware that informants are not able to give an accurate account of their own pronunciation. Labov

pointed out [9] that "in the conscious report of their own usage … New York respondents are very inaccurate", generally over-reporting, i.e. claiming to use more prestigious variants than they really did. Trudgill [10], however, found that in Norwich there was a sex difference, with women indeed tending to over-report, but men on the contrary tending to under-report.

The LPD surveys, accordingly, did not ask respondents to report their actual usage. Rather, respondents were asked which they **preferred** of a number of variant pronunciations of each questionnaire item. Furthermore, these variants were such as to be available to the conscious awareness of the respondents, and such that their identification did not require any specialized phonetic knowledge.

In each survey the questionnaire consisted of about a hundred multiple-choice questions. The instructions given to respondents typically asked them to "indicate the pronunciation you prefer. Usually this will also be your own pronunciation". A typical question took the following form:

Asia (name of continent) Focus on the –*s*-
a. /ˈeɪʃə/ the consonant sound is as in *pressure* AYSH-uh
b. /ˈeɪʒə/ the consonant sound is as in *measure* AYZH-uh

Notice here that the target is first presented in ordinary spelling. To ensure that the respondent has identified the right lexical item, it is then glossed. The respondent's attention is then drawn to the part of the word on which to focus, and the two (or more) options are presented: in IPA, by comparison with other words, and in respelling.

4. RHYMING AND RESPELLING

When the language under investigation is English, the notorious inadequacy of English spelling makes it appropriate, as in the example given, to identify these options in more than one way. The IPA transcription targets the phonetician and the knowledgeable layman; then follows an explanation in terms of similar-sounding words, and finally the respelling, which is intended to be self-explanatory to anyone accustomed to the spelling conventions of English.

In other languages, where the relationship between orthography and pronunciation is more direct, this degree of repetition may not be necessary.

Particular care must be taken in cases where ordinary spelling conventions are ambiguous. In the identification of consonants, this applies to pairs such as /θ-ð, s-z, ʃ-ʒ/. Sometimes possible rhymes can be exploited in the questionnaire; sometimes other devices may be needed.

booth (stall, telephone box)   Focus on the -*th*
a. /buːθ/ the word rhymes exactly with *truth*
b. /buːð/ the word rhymes exactly with *smooth*

Two words rhyme, in the English-language understanding of this term, if and only if they are pronounced identically in respect of the primary-stressed vowel and whatever follows that vowel. We can therefore often use rhyming and non-rhyming to identify post-stress consonants (notably final consonants) and of course vowels.

one (count: one, two, three) Focus on the vowel sound
a. /wɒn/ the word rhymes with *John, on*
b. /wʌn/ the word rhymes with *gun, son*

Where identification by rhyming is not feasible, we must do our best to identify sounds in other ways. Given the popular association of the terms "vowel" and "consonant" with letters rather than with sounds, it is important to be explicit that we are concerned with sounds.

to **associate** (to combine, connect) Focus on the -*oci*-
a. /-s-/ the consonant sound is as in *(neur)osis, gross*
b. /-ʃ-/ the consonant sound is as in *ocean, motion*

Respelling, likewise, may be straightforward in some cases but fraught with difficulty in others.

chrysanthemum (a flower)   Focus on the -*san*-.
a. /-s-/ the middle bit is like *san*   kri-SAN-themum
b. /-z-/ the middle bit is like *zan*   kri-ZAN-themum

direction (the way someone is facing or moving)
                                          Focus on the first syllable
a. /daɪ-/ the vowel sound is as in *die*   DIE-rection
b. /daɪə-/ the vowel sound is as in *dire*   DIRE-rection
c. /dɪ-/ the vowel sound is as in *dig*   DIH-rection
d. /də-/ the vowel sound is as in the last part of *ladder*
                                          DUH-rection

English spelling conventions offer no way of unambiguously indicating short vowels in non-final open syllables. Nor is there a satisfactory respelling for /aʊ/ to distinguish it from /əʊ/, since its two usual spellings are both ambiguous, as seen in *now* and *snow, foul* and *soul*.

5. PHONOLOGY VERSUS PHONETICS

Martinet, the pioneer of written questionaires in pronunciation research, famously was also the first to define phonology as **functional phonetics** [11]. It was with this in mind that he characterized his own study [1] as dealing with phonology rather than with phonetics. In Trubetzkoyan terms [12, 13], he was concerned with questions of the **system** (the number and identity of the items in the phonemic inventory) and with questions of lexical **incidence** (how phonemes are distributed in particular lexical items, given the phonemic system). He also dealt with matters of **phonotactics** (what sequences of phonemes are permitted in particular positions), something that rather falls outside Trubetzkoy's scope. He firmly eschews questions of phonetic **realization**.

Perhaps the easiest matter to investigate is lexical incidence, including stress placement. Respondents appear to have a

good feel for it, and can usually answer confidently.

The location of a word's primary stress is something on which respondents often hold strong views — not only in notorious cases such as *controversy*, but also in less fraught cases such as *applicable, kilometre, Caribbean*.

Equally, we can readily ask about /ʃ/ vs/ ʒ/ in *Asia*, /θ/ vs/ ð/ in *booth*, and /ʌ/ vs. /ɒ/ in *one*, as exemplified above: all are matters of lexical incidence.

This does not apply where the phonemic system is uncertain or variable at the relevant point. We can ask the English whether they prefer *room* with /uː/ or /ʊ/, but it is pointless to ask the Scots, who have no such opposition in their system. Again, in English English /ʊə/ is in the course of disappearing from the phonemic inventory. Faced with a question such as whether *sure* (traditionally /ʃʊə/) is or is not a homophone of *shore* /ʃɔː/, the honest answer for some speakers is sometimes yes, sometimes no. Their usage is inconsistent, their mental lexicon contains both possibilities, and their preference is undecided. This was allowed for in the 1998 LPD survey:

shore (edge of the sea) and **sure** (certain)
a. these two words sound exactly the same
b. these words sound different from one another
c. sometimes the same, sometimes different

In other cases it may be better to present respondents with a forced choice, which is simpler for statistical processing.

Weak vowels present a particular problem. As any teacher of English phonetics knows, beginners tend to deny the existence of vowel weakening (reduction). The spelling reinforces their view. To elicit data about preferences in the suffix *-less* the LPD 1998 survey wording was as follows:

careless (inattentive, unthinking)   Focus on *-less*
a. the vowel sound is as in the second syllable
               of *callous* (harsh)
b. the vowel sound is as in the second syllable of *Alice*
c. *callous* and *Alice* rhyme anyhow,
               so can't decide between a and b
d. the vowel sound is as in the word *less*

Presumably answer d. is simply wrong as far as the actual performance of native speakers of British or American English is concerned. Yet 38% of respondents voted for it. Their expressed preference coincides with no one's usage in the real world. Perhaps a more realistic response would have been obtained if the respondents had had to listen to the different options, rather than read about them. Would they still have voted for the option that suggests only African English or foreigner-talk?

What we cannot ask for is information about phonetic realization. Details relating to positional allophones of vowels, velarization of consonants, kinds of r-sound — interesting as they may be in the description of English phonetics — are normally just not available to the introspection of non-phoneticians. People are generally aware only of the default realization of a phoneme. They cannot tell you whether they prefer (or use) clear /l/ or dark /l/ in *vitally*. They do not know how much labialization they use for initial /r/.

Nor are stated allophonic preferences of much value. Speech-conscious people such as volunteer to answer written questionnaires generally claim to **prefer** [t] over [ʔ] under all circumstances. Perhaps if we were to present them with audio clips of, say, *atmosphere* as [ˈætⁿməs-], [ˈætʔməs-], [ˈæʔməs-], pronounced by a phonetician able to keep everything else constant, we would get a more realistic answer. Meanwhile, we certainly cannot use a purely written questionnaire for research into phonetic detail.

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