

BROAD TRANSCRIPTION IN PHONETIC TRAINING

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1. Introduction

For many years, a prominent part of a training in phonetics has been the making of what are generally termed 'phonemic' or 'broad' transcriptions of running speech, based on written or spoken or dictated texts. Although this type of transcription is inspired by a phonemic approach to phonology, the actual practice of phoneticians has gradually evolved so that the transcription system taught to students of English phonetics, for example, is no longer a strictly phonemic one. The transcription systems made popular in Britain particularly by Jones and by Gimson were never strictly phonemic and the most recent development of the *de facto* standard (Wells 1990) would be better described as polysystemic. In this paper, we advocate a more explicit recognition of this development and indeed favour further relaxation of the requirement to be 'phonemic' in transcription. Drawing on experience in teaching and assessing courses in the phonetics of English we explore the difficulties faced by learners in relating theory to practice and propose an approach to transcription more in line with the real needs of our students.

2. What is broad transcription?

The sort of transcription which has been traditionally required of our students can best be illustrated by a short sample:

/ðeə wəz 'wʌns ə jʌŋ 'ræt kɔ:ld 'ɑ:θə | hʊ wʊd 'nevə teɪk ðə
'trʌbl tə 'meɪk ʌp ɪz 'maɪnd | wen'evər ɪz 'frenz 'ɑ:st ɪm ɪf ɪ
wʊd 'laɪk tə ɡəʊ 'aʊp wɪð ðəm | hɪ wʊd 'əʊnli 'ɑ:nsə | aɪ
'dəʊnt 'nəʊ | hɪ 'wʊdnt seɪ 'jes | ən ɪ 'wʊdnt seɪ 'nəʊ | 'aɪðə |
hɪ kəd 'nevə 'lɜ:n tə 'meɪk ə 'tʃɔ:ɪs /

The symbols used here are those of *The English Pronouncing Dictionary* (Ramsaran, 1988; henceforward *EPD14*) which redundantly marks both the quality and quantity difference in the case of vowel contrasts such as /i:/ vs /ɪ/. The representation of prosodic information is restricted to the use of a simple stress mark (stressed vs unstressed) and word group boundary symbol.

Like many other British phoneticians, we are in the habit of calling this type of transcription 'phonemic' or 'broad', though in terms of Abercrombie's analysis (1964:13-39) it probably qualifies as neither:

A transcription which is made by using letters of the *simplest possible shapes*, and in the *smallest possible number*, is called a SIMPLE PHONEMIC transcription. It is called 'simple' because of the first characteristic, and 'phonemic' because of the second.

(Abercrombie, 1964:17)

The *EPD14* transcription fails to be 'simple' or 'phonemic' by these criteria. Representations such as /aɪ/, /æ/, /ɔɪ/ are not notationally the simplest; the number of different letter shapes could be pared down considerably. Some of the symbol combinations employed, such as /eɪ/ and /əʊ/, are not even perfectly explicit as far as parsing into segments is concerned. Nevertheless, the intention is to represent units arrived at by classical procedures such as commutation and substitution and to provide symbols for all and only those sounds which potentially distinguish words -- the phonemes.

'Broad' is a term which has acquired a range of meanings (Abercrombie, 1964:35). We may reasonably describe the *EPD14* transcription as 'broad' insofar as relatively little phonetic detail is shown. For example, conditioned variation in the laterals in *like*, *called*, *only* and *trouble* is not explicitly represented in the sample above.

(On types of transcription see now also Laver, 1994: chapter 18).

3. Why do we teach broad transcription?

Producing a plausible broad transcription requires both phonological thinking and a range of auditory skills:

- segmentation of the speech signal into a sequence of 'discrete' sounds;
- identification of and discrimination between sounds;
- the ability to represent them with a language-specific, finite set of symbols;
- independence from orthographic prejudice;
- objectivity about accent and style variation;
- awareness of the difference between citation forms and connected speech;

- production of a faithful record of a particular rendering of the passage in question, neither clarifying nor adding to any ambiguities present in the original;
- the ability to disregard insignificant phonetic differences, and to group sounds together into functionally equivalent classes.

Auditory skills are required either directly in the case of a dictated passage, or indirectly (hearing 'in our heads', or perhaps trying out possibilities for ourselves) when transcribing a text. A fundamental aim of the transcription exercise is auditory training (Jones 1948).

Analytic skills are involved in tapping one's intuitions about the phonological system and in rescrutinizing the judgments of sameness or difference which underlie the analysis.

4. Who learns broad transcription?

The considerations identified in 2 above represent sophisticated and distinct theoretical and practical skills. The weight attached to each of these should be influenced by the purpose for which the student is learning phonetics. Typically, such students will include specialists in:

- linguistics
- speech science
- speech pathology
- English language
- EFL
- modern languages
- performing arts (singing, acting, etc.).

Any of the above groups may include both native and non-native speakers of English and even among the native speakers there may be a wide variety of accents.

For some of these groups the theoretical aspects will outweigh the practical ones, but for other groups the situation will be reversed. For example, students of English as a foreign language can afford to be less concerned by phonological theory and to concentrate on using transcription as a tool to improve their own pronunciation. Linguistics students, on the other hand, need to develop their ability to analyse at an abstract level. Speech and language therapists need to be

proficient in both aspects if they are to diagnose phonetic and phonological immaturities and disorders.

Solutions to problems encountered will vary depending on which group a student belongs to.

5. Learners' difficulties

Students new to phonetics differ widely in their natural ability to master transcription skills. Basic auditory discrimination skills vary amongst individuals. Some may find difficulty in relating the transcription conventions to their own accent if it diverges significantly from that used for exemplification purposes. Others take longer to adjust to the requirements of the conventions, either because they find them difficult to grasp theoretically, or because of some seemingly arbitrary property of those conventions (see next section).

In demonstration conditions, using isolate words in their citation form, most learners find a basic discrimination between linguistically contrastive sounds in their own language or variety relatively straightforward. Understanding the need to move away from orthography is rarely a problem, although successfully eliminating spelling-related errors typically takes longer. Identifying and symbolising the sounds in a connected speech context takes practice, since knowledge of citation forms constantly interferes with the direct translation between sound and symbol.

When transcribing from text, we encourage our students to transcribe their own (native) variety of English, which means that for many, transcription from text is not and should not be the same as transcription from dictation by, say, an RP-speaking lecturer. This may make life more difficult for the student initially, but pays off eventually by reinforcing their observations and understanding of the differences between accents. Our students represent a variety of native accents, though there is a preponderance of speakers of the near-RP of SE England -- embracing so-called 'Estuary English' -- and regular exposure to this variety during their stay in London has its influence on accents from further afield too.

The ability to ignore irrelevant phonetic detail, paradoxically, is achieved fairly painlessly by most, suggesting that they can use their intuitions to tap into and exploit phonological knowledge which they already have. However, there is a tension between finding a symbolically accurate representation of a sound and confining oneself to the contrastive system in certain cases: notably where allophones in complementary distribution have a difference in realisation which is very salient.

Although our major concern in this paper is with problems encountered by students in the context of practical work in phonetics, parallel difficulties have modified the practice of speech scientists working in automatic speech recognition and synthesis by rule. Symbolic levels described as 'phonotypical' and 'broad phonetic' are discussed in reports on the SAM project and by Autesserre, Pérennou and Rossi (1989).

6. The arbitrary nature of broad transcription conventions

In recent years, we have observed, amongst others, four areas in which students regularly have difficulties in reconciling current transcription conventions (established largely for RP) with their own perceptions:

- (i) selecting a symbol to represent the weak vowel in words like *happy* or *mediate*;
- (ii) using a /t/ when what they clearly hear is a glottal stop [ʔ], e.g. *what*;
- (iii) using /l/ when there is clearly no lateral consonant present, e.g. *milk*; they would prefer to use a close back vowel symbol, or /w/, instead;
- (iv) selecting a symbol for the vowel in words like *old*: they often intuitively attribute the diphthong [ɔʊ] to the phoneme /ɒ/ rather than /əʊ/.
- (v) using the diphthong /eə/ for the sound they produce and perceive as a long monophthong [ɛ:] in words such as *bare* and *bared*.

A new set of conventions has recently become established for dealing with (i), the use of /i/ rather than /i:/ or /ɪ/ (assuming that length marks are being used in the basic list of symbols). This was originated by Gordon Walsh in the *Longman Dictionary of Contemporary English* (1978) and has been extended to cover the use of /u/ rather than /u:/ and /ʊ/ by Roach (1983/1991), Wells (1990) and Ashby (1994). In encouraging this practice, we are accepting the use of a symbol which is not on the usual phoneme list, but which represents a realisation which could be an allophone of either /i:/ or /ɪ/ -- a neutralisation between the two. This clearly violates strict phonemic criteria. Some phoneticians may still disapprove strongly, preferring to retain (in RP at least) /ɪ/ in a broad transcription. To use a symbol which is not considered to stand for a separate phoneme represents a major departure from tradition.

Deviation from traditional practice in respect of (ii) - (iv) has not yet received widespread acceptance. The conventional argument in favour of traditional

practice would be that we are dealing with allophones in complementary distribution, and that it is therefore appropriate to symbolise both in the same way, regardless of the phonetic difference. To do otherwise would clearly violate phonemic criteria. Unlike the situation in (i), the relationship between phoneme and allophone (once explained) is usually clear, which means that there is always a possible phonemic solution in transcription. If our first priority is to produce what is as far as possible a phonemic transcription, then the argument stops here. However, difficulties will still arise: for some, [ʔ] may at times be a neutralisation between /p/, /t/, /k/; for others, words like *doll* and *dole* are genuine homophones, making it intuitively unsatisfying to symbolise the vowel differently, even where a difference remains for other forms, such as *dolling* and *doling*.

We have to ask ourselves whether we are doing our students a service by insisting on the pure phonemic approach, turning the transcription task into a theoretical exercise, or whether we should applaud their ability to identify and symbolise more precisely the phonetic qualities they are hearing.

What justification might we find for relaxing the traditional constraints, based on a strict requirement to distinguish between the phonemic and allophonic levels? What would we gain and what would we lose? As a first step, it may be worth looking at the conventions which have long been accepted for other problem areas in broad transcription, and examining the criteria which have been used in the past to get round them.

We must accept that strict phonemic theory cannot deal with all the phonetic phenomena in a language. The theoretical purity of the phonemic transcription is a myth. There are always cases where contrast, distribution and native speaker intuitions do not lead to a unique solution. Since these problems have never been solved theoretically, but simply abandoned, the conventions which have been established for dealing with them have to be treated as arbitrary. Students are therefore learning to fall in with conventions for which the theoretical justification may often appear dubious.

It may be interesting to look more closely at a couple of these arbitrary 'solutions' to areas of conflict, and see which criteria have triumphed in establishing the conventions.

(1) status of schwa (in RP):

it can be argued that the weak vowel schwa in RP should be analysed as a non-contrastive variant of some other vowel in an unstressed context. At a lexical level, in a polysyllabic word, where standard pronunciation always involves a schwa, the allophonic status of the vowel may be less transparent, unless

alternating forms, or alternative pronunciations, suggest that the strong form of the vowel would be different under stress. Compare *photograph* /'fəʊtəgrɑ:f/ and *photography* /fə'tɒgrəfi/. The situation with weak forms is somewhat clearer: schwa can be regarded as an allophone of /ɒ/ in *from*, of /æ/ in *have*, of /ʌ/ in *but*, and so forth. Transcribing such forms with a schwa thus involves including explicit allophonic variation in a broad transcription. This is a simplification of the situation for schwa, which can of course be contrastive within the weak vowel system itself, but the fact remains that the use of schwa in RP and many accents is context-dependent and therefore suspect in a phonemic transcription. On the other hand, to deny its use in transcription would fundamentally alter the status of the broad transcription in English, since the use of schwa is not predictable in all unstressed contexts, and the source pronunciation would cease to be reliably recoverable.

(2) assimilations:

where an assimilation 'crosses a phoneme boundary', we conventionally encourage students to show this in transcription: thus *ten men* is represented /tem men/ etc. This works well provided the output segment corresponds more or less to a realisation consistent with a different phoneme. But it means that we must ignore, in broad transcription, other assimilatory processes where the output, though phonetically distinct, does not cross a phoneme boundary-- an arbitrary distinction which obscures the theoretical generalisations relevant to assimilation. Should we view the sound in question as a contextually determined (in some cases optional) allophone of the underlying phoneme? Disallowing assimilations in transcription would arguably be more consistent with phoneme theory, but would greatly impoverish the transcription's explicitness.

Furthermore, what are we saying by allowing an assimilation like *ho/p/ potato* in a broad transcription, but disallowing *ho[?] potato* (insisting on /t/)? In the latter case, students are being asked to disregard the evidence of their ears and a probably newly discovered ability to discriminate successfully between different articulations in favour of a theoretical point. The theoretical point still has its place, but by clinging to it we lose explicit recoverability.

There are many other examples where traditional practice may be questioned in terms of phonemic theory: liaison and elision; neutralisations between phonemes to an intermediate quality (e.g. labiodental stops in English); affricates; diphthongs; velar nasal, etc.

6. Conclusions

The relaxation of the requirement of strict adherence to phonemic theory in transcriptions undertaken for the purposes of phonetic training should be guided by two principles which we may call **phonetic salience** and **recoverability**.

Phonetic salience refers to situations where the sound quality heard by or the articulation used by the learner is markedly different from that normally represented by a symbol chosen from the range available for use in a strict phonemic transcription. Two notable examples of such salient differences are [ʔ] for phonemically sanctioned /t/ and a vocalic segment of the [o] variety where phonemic theory would demand /l/.

Recoverability can best be explained by reference to the ideas put forward by Abercrombie (1964:22ff) regarding the interaction between the text of a transcription and the conventions necessary for its interpretation. Abercrombie points out that "any departure from a simple phonemic transcription has the effect of transferring information to the text from the conventions" (1964:23). Abercrombie recognises at least two different sorts of convention. One sort, which need not concern us long here, has to do with the assignment of phonetic definitions to symbols. The other sort of convention, which is much more important for our purposes, is what we would probably now call an allophonic rule. This sort of convention specifies the contextually determined interpretation of a phonemic symbol.

What Abercrombie does not propose is that this second sort of convention should be further subdivided into those which are exceptionless and those which are variable. For example, while it is the case for many accents of English that /l/ should be interpreted as [l] before vowels or [j] and as [ɫ] elsewhere (this is Abercrombie's example of this sort of convention) and that this variation is entirely predictable, the use of [ʔ] vs [t] is much less certain for many speakers. On a given occasion it may be impossible to recover which variant was used without including the information in the text of the transcription.

Our proposal then, for south-eastern English and near-RP, is that the usual set of symbols employed for a broad transcription should be augmented to allow for the explicit symbolisation of phonetically salient variants which are not recoverable by general, exception-free rules. Exactly how great the increase in the number of symbols should be will depend on experience, the purposes for which transcription is being taught and the type of student learning to transcribe. Inclusion of [ʔ], [o] and [ɒʊ] in the set of available symbols appears to us an indispensable minimum

for most groups of students. Other modifications which may be worthy of consideration include: (a) a way of distinguishing audible and inaudible release of plosives in preconsonantal or utterance-final position (b) ejectives (c) monophthongal realisation of /eə/ and perhaps /ɪə/ (d) variation in the realisation of /ə/ (e) variation in the usual target realisation of /r/ (f) differentiation of starting qualities of diphthongs such as /aɪ/ and /aʊ/.

The following incorporates some of the innovations discussed above.

/ðe: wəz 'wʌns ə jʌŋ 'ræ? kɔ:ɔd 'ɑ:θə | hu wʊd 'nevə teɪk ðə
 'trʌbɔ tə 'meɪk ʌp ɪz 'maɪnd | wen'evər ɪz 'frenz 'ɑ:st ɪm ɪf
 i wʊd 'laɪk tə ɡəʊ 'aʊ? wɪð ðəm | i wʊd 'əʊnli 'ɑ:nsə | aɪ
 'dəʊn? 'nəʊ | hi 'wʊdn? seɪ 'jes | ən i 'wʊdn? seɪ 'nəʊ | 'aɪðə |
 hɪ kəd 'nevə 'lɜ:n tə 'meɪk ə 'tʃɔɪs /

The extent to which students might be encouraged to speculate about the relation between this extended set of symbols and a minimal phonemic set will depend on the relative balance of theoretical and practical concerns in the course they are following.

These same principles of phonetic salience and recoverability should be recognised in the transcription of other varieties of English and in other languages. If we cease to pay lip-service to the idea of a phonemic analysis as the basis for our transcription, the decisions about what to include do not in fact become entirely arbitrary. A broad, but principled transcription can be guided by the criteria outlined above.

7. References

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