English Spelling and Phonemic Representation

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There are at least three different ways that spelling can affect phonemic representation: (1) spelling pronunciation; (2) resolving the ambiguities due to phonemic overlap; and (3) influencing speakers' interpretations of general phonetic sequences. The first of these is well known and is only discussed briefly in this paper. The other two ways are more subtle in their effect since they can change speakers' phonemic representations without causing significant changes in pronunciation.

In this paper I will discuss the effects of spelling on English phonology. Within recent years, orthographic evidence, especially the naive spellings of young children, has been used to support certain phonemic representations (e.g., Read, 1971, 1975; and Stampe, 1979). This evidence clearly shows that children's phonemic perceptions are frequently different from those of adults — even when there is no difference in pronunciation. In this paper I will argue that the orthography is responsible for many of these differences – that is, as speakers learn to read, their phonemic representations are frequently altered to agree with orthographic representation. These orthographic effects have important consequences for phonological theory, since linguistic arguments are usually based on adult perceptions of phonemic representation – perceptions that have been influenced by the orthography.

1. The best-known effect that spelling can have on phonemic representation is SPELLING PRONUNCIATION.[1] Spelling pronunciations have their origin in spelling exceptions. A spelling exception can be eliminated in two different ways: either the spelling can be changed so that it agrees with the pronunciation; or, vice versa, the pronunciation can be changed so that it agrees with the spelling. This second case results in a spelling pronunciation. Consider, for instance, the word *often*. For most speakers of English, the *t* in this word is silent and has been for the last couple centuries. In Middle English the *t* was pronounced, but due to a regular sound change the *t* was lost, so that by

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the eighteenth century, *often* was consistently pronounced as [ȯfən][2] (Jespersen, 1970:225). This spelling exception could be removed by changing the spelling to OFEN – or the spelling could remain constant and the pronunciation change, thus producing the spelling pronunciation [ȯften].

Two important properties of spelling pronunciation should be recognized. The first is that spelling pronunciations tend to revive pronunciations which existed earlier in the language. This tendency is due to the conservative nature of English spelling. English spelling is, of course, based on earlier pronunciation. Historical change introduces irregularities in the sound-letter correspondences, and spelling pronunciation frequently acts to reverse historical change and re-create historical pronunciations. Thus the spelling pronunciation of *often* as [ȯftən] reflects an earlier pronunciation of this word.[3]

Nonetheless, spelling pronunciations do not always reflect earlier pronunciation in the language. For instance, there are numerous words in English that have been borrowed from French but whose spelling was later changed to reflect the original Latin form. The word *perfect* was originally borrowed into Middle English from French as *parfit*, but in the seventeenth century this word was frequently spelled *perfect* on the basis of the original Latin form *perfectus*. This etymological spelling ultimately resulted in the spelling pronunciation [pərfikt] (Jespersen, 1970:394; OED 2130). Occasionally, the etymological source for the spelling may be incorrect, as in the example *hermit*. The original Greek *erēmítēs* began with a vowel, but the word was mistakingly interpreted by medieval Latinists as having an initial *h*. Thus Latin *eremita* was replaced by *heremita* (OED 1295).

The second property of spelling pronunciations is that they are idiosyncratic – that is, spelling pronunciation does not necessarily affect all the examples having the same spelling irregularity. Thus the pronunciation of the *t* in *often* has been re-introduced by spelling pronunciation, but in the word *soften* the spelling pronunciation [sȯftən] has not occurred to any appreciable extent. This example also seems to discount the possible effect of morphological relatedness in explaining which words are affected by spelling pronunciation. The morphological evidence for the *t* in *soften* is strong because of the highly frequent word *soft*, whereas the *t* in *often* is only weakly supported by the morphologically related word *oft*, which is quite infrequent in modern English.[4]

What then causes adult speakers to think that [ṽC] should be interpreted as /VNC/ ? There is little morphological evidence – perhaps *can/can't* is the only significant example. Moreover, there is no careful pronunciation which denasalizes the vowel. I would therefore suggest that it is the standard spelling which causes speakers to change their initial interpretation of the nasal vowel. This change is so pervasive that linguists automatically assume that [ṽC] is /VNC/. As a result, the child's spelling of *can't* as CAT is so surprising and, it would seem, unmotivated.

A second example of the influence of spelling on general phonemic perception deals with the syllable-initial consonant clusters *tr* and *dr*. Read found (1975:98) that a sizeable minority of children (about 30%) interpret these consonant clusters as /chr/ and /jr/ rather than /tr/ and /dr/, with the result that they spell *tr* as CHR and *dr* as JR: ASCHRAY *ashtray*, CHRIBLS *troubles*, CHRIE *try*, CWNCHRE *country*, CHRAC *truck*, and JRAGIN *dragon*. I have even observed in my beginning linguistics courses that there is an occasional student (though not ever as many as 30% of the class) who will transcribe syllable-initial *tr* and *dr* clusters as [chr] and [jr]. Again, we may ask what causes most mature speakers to think these consonant clusters begin with alveolar stops rather than palatal affricates. I know of no morphological evidence at all that would cause such a re-interpretation. A slight phonetic difference between /tr/ and /chr/ (or between /dr/ and /jr/) can be produced, but there is no need to distinguish between these two pronunciations since there are no /tr/-/chr/ (or /dr/-/jr/) contrasts in English. Once more, I would suggest that orthography is the source of the nearly unanimous adult interpretation of these consonant clusters as /tr/ and /dr/.

My final example deals with what we as adults perceive as possible initial consonant clusters in English. Chomsky, for instance, has frequently claimed that there are no initial consonant clusters like /ft/ and /bn/ in English (e.g., 1964:30-31), and that in a descriptively adequate grammar of English there should be general restrictions against such clusters. This is undoubtedly true for adult speakers of English whose interpretation of phonetic sequences has been influenced by the orthography. But in the naive spellings of children we find many examples of misspellings that would suggest that children often perceive initial consonant clusters differently than adults. In the standard orthography, certain clusters (such as /tm/ and /bn/) are always interpreted with an intervening schwa vowel, yet sometimes children apparently interpret these sequences as bona fide consonant clusters. Read (1975:61) provides an example of the /tm/cluster: TMORO *tomorrow;* and Gates (1937) records TMATO for *tomato*. I have observed a *bn* cluster: BNANA *banana*.

Other consonant clusters, such as /bl/, /gr/, and /pr/, can be spelled (depending on the word) with either a consonant cluster or with an intervening schwa (cf. *please* versus *police*), yet children frequently mix these up. Gates (1937) records these common misspellings: BLOON *balloon*, BLONG *belong*, BLOW *below*, GRAGE *garage*, PRADE *parade*. And Read (1975:69) provides an example of where the schwa has been incorrectly inserted: POLES *please*. Sometimes a vowel symbol may be inserted in a consonant cluster (such as /sw/) which is almost always spelled as a consonant cluster in the standard orthography: SOWEMEG *swimming* (Read 1975:36). It is the orthography then that almost always determines which word begins with a consonant cluster or a sequence of two consonants separated by a schwa, so that ultimately spelling affects our perception of the possible consonant clusters of English.

In conclusion, we see that English spelling has a significant effect on phonemic perception. In certain cases spelling helps to clear up the ambiguities of phonemic overlap and in other cases it affects the interpretation of general phonetic sequences. Spelling also serves as an important stabilizing factor in the language, since it influences careful pronunciation and helps the speaker to preserve certain sound distinctions psychologically. These effects also have important consequences for phonological theory, since many linguistic arguments are based on adult perceptions of phonemic representation. Spelling plays such an important role in restructuring the phonemic representations of speakers that any discussion of the acquisition of phonology should take into account the effects of spelling.[6]

1. For an excellent survey of spelling pronunciation, cf. Levitt 1978.
2. The pronunciation symbols used in this paper are based on those in *Webster's Third International Dictionary* (Merriam-Webster, Springfield, Massachusetts, 1963).
3. For a more extensive discussion of this effect of spelling pronunciation, cf. Kerek 1976.
4. Cf. the number of occurrences per million words of text for these words (Kučera and Francis 1967); *often* 367, *oft* 2, *soften* 20, *soft* 113.
5. Ehri and Wilce (1980) have recently provided some interesting experimental evidence that children's spellings of words like *interesting, general, family,* and *different* are dependent upon children's spelling knowledge: "Children were more apt to include extra syllables in their segmentations if they were familiar with the spellings of the words. If they did not know the spellings, then they were not likely to regard the syllables as present in the spoken forms" (p. 8).
6. This paper was first presented at Brigham Young University in June 1978. A shorter version was also read at the December 1979 meeting of the Linguistic Society of America in Los Angeles.

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