Assimilation to /r/ in English initial consonant clusters

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A response to both Michael Bulley and Keith Davidson

THE RECENT Bulley–Davidson discussion of English initial consonant clusters (*ET*80, *ET*81, *ET*83) brings attention to the need for phonetic rigor and some phonological understanding when describing the sounds and sound patterns of English. Three topics the two writers deal with would benefit from such rigor: /tr/ and /dr/ clusters, the status and function of /j/ in initial clusters before /u/, and the role of syllable structure in the description of consonant clusters.

/tr/ and /dr/ clusters

While both writers seem uncomfortable with their descriptions of initial /tr/ and /dr/ clusters, neither recognizes the central process of these clusters, namely, anticipatory assimilation. In those varieties of RP in which /r/ is realized as the central approximant [ɹ], when articulating [ɹ] the front of the tongue approaches the palato-alveolar region to form the sound. Not surprisingly, an alveolar consonant before [ɹ] anticipates this slightly posterior place of articulation and becomes more palato-alveolar, a sound near to but not identical to the [tʃ] and [dʒ] of *chip* or *jump*. In AmE /r/ is realized almost universally as the retroflexed central approximant [ɻ]. As in RP, an alveolar consonant before [ɻ] anticipates the articulation of the /r/, but in this case the stop becomes retroflexed so that in AmE /tr/ and /dr/ become [ʈɻ] and [ɖɻ]. To the phonetically untrained ear these will sound a little like <ch> in *char* and <j> in *jar*.

Retroflexion, in those varieties of English that have it, causes pervasive if frequently unnoticed assimilation. In the word *hardened*, for example, the three alveolar consonants after /r/ are all retroflexed, ['haɻɖn̪ɖ], but since they are not released orally native speakers tend to ignore their retroflexion. This anticipation of retroflexion also occurs in words like *shrink*, for which Bulley, like most reference works, transcribes [ʃr] for what is phonetically RP [ʃɹ] and AmE [ʂɻ]. The palato-alveolar [ʃ] is the result of the assimilation to the central approximant noted above; the retroflexed [ʂɻ] shows assimilation to the retroflexed /r/.

The difference between [ʃ] and [ʂ] in this initial cluster can be heard clearly if one whispers the words *shank* and *shrank* or simply attends closely to the pitch of the resonance of the initial sibilant. [ʃ], a palato-alveolar, has a very constricted oral cavity and therefore a high-pitched oral resonance, and [ʂ], due to the bending back (retroflexion) of the tongue tip, has a larger oral cavity and a noticeably lower-pitched oral resonance. The two sounds are distinct, and the retroflexed /s/ is simply the form that /s/ takes adjacent to a retroflexed consonant. Understanding this process allows us to eliminate the one exception to the phonotactics of English initial clusters, namely the claim that /s/ occurs in all cases except before /r/, where [ʃ] occurs. This misconception is,

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perhaps, a result of English spelling, which represents the retroflexed /s/ as <sh>.

In retroflexing varieties of English, as suggested above, retroflexion occurs more widely than just in word-initial clusters. As Davidson points out, the phonological domain for initial clusters is the syllable, not the word, and retroflex assimilation reveals clusters that do not occur word-initially but do occur syllable-initially. The most obvious case of this is the /ʒr/ cluster whose existence is questioned by Bulley. /zr/ clusters syllable-initially occur in words like *treasury* vs. *treasure* and *luxury* vs. *luxurious*. In *treasure* and *luxurious* [ʒ] occurs, at least historically, as the palatalized form of /z/ before /ju/; in *treasury* ['tɻɛz̬ɻi] and *luxury* ['lʌgz̬ɻi] the voiced retroflex [z̬] occurs in syllable-initial position by anticipatory assimilation to [ɻ]. Many speakers of retroflexing variants will also have [ʂ] in *grocery* ['gɻoʂɻi] but [s] in *grocer* ['gɻosəˑ].

In these variants of English, retroflexion may also occur across an intervening consonant. For many speakers of standard variants of AmE, the /s/ of initial /spr/, /str/ and /skr/ clusters is retroflexed, as in *sprain* ['ʂpɻeːɪn], *stream* ['ʂtɻiːm], and *scream* ['ʂkɻiːm]. In *stream* it's clear that the anticipatory assimilation includes both /s/ and /t/. However, /p/ and /k/, which do not involve the tongue tip, are transparent to retroflexion. These forms are found in the speakers of educated variants of AmE, exemplified by forms used by former US Secretary of State Colin Powell, a speaker of educated Connecticut AmE, in his televised UN testimony before the beginning of the Iraq war. In nonstandard variants of English, for example in some working class Southern American English, retroflexion is found in initial /s/ + stop clusters without /r/, as in *stop* ['ʂtɑp], and even in words with just initial /s/, as in *so* ['ʂəo] or *say* [ʂeɪ].

The status of /j/

RP and AmE differ in the distribution of /j/ before /u/. In RP /j/ can occur between any syllable-initial consonant and /u/, as in *pure* ['pjuə], *tune* ['tjun], and *cube* ['kjub], although there are Consonant + *u* forms in which no /j/ occurs, like *boot* and *food*. The /j/ may be pronounced, as in the preceding transcriptions and in words like *issue* ['ɪsju], or it may cause palatalization of a preceding alveolar and be absorbed, producing pronunciations like *tune* [tʃun] and *issue* ['ɪʃu]. In nearly all of AmE, /j/ is not found after alveolar consonants /t, d, s, n, l, r/, and so no palatalization of these forms is found either. So AmE will have /'tun/ and /'dun/, with no /j/.

Bulley stresses that in some British speech 'the [t] of *true* and *tune* is [tʃ] (as in chew), and the [d] of *drink* and *duty* is [dʒ] (as in *jaw*)'. Davidson correctly criticizes him for suggesting that the contrast between /tr/ and /tj/ or between /dr/ and /dj/ is neutralized. In fact, it is a secondary articulation of English /r/ that maintains the distinction between the two forms. While Old English had a phonemic distinction between /r/ and /wr/, still preserved in Modern English spelling (*ring* vs. *wring*, OE *hringas* vs. *wringan*), the phonetic distinction has been lost in Modern English, with all instances of /r/ becoming labialized, whether written with a <w> or not. /tru/ and /drɪŋk/ contrast phonetically with /tjun/ and /djutɪ/ in that the former have distinctly more lip rounding than the latter. Spelling them impressionistically as *choon* or *jrink* fails to represent the contrast in labialization.

The role of syllable structure

Davidson correctly points out that the structure of initial clusters must be discussed in terms of syllable structure, a position that has been established in linguistics for about thirty years. It should be understood, though, that phonological syllabification is governed by natural linguistic rules, while orthographic syllabification obeys social conventions that may vary from style sheet to style sheet. Language games like Pig Latin ('backslang' in the UK), Ubbi Dubbi, or Gibberish, as well as similar games in other languages, operate crucially on syllable structure. The /mn/ in *amnesia* can only be syllabified in English as /æm.'ni.ʒa/. /mn/ is not a possible consonant cluster in English and can only occur across a syllable boundary. If one were to digitally remove the initial vowel of *amnesia*, as Bulley suggests, the remainder would not sound like simply two consonants in sequence because the /m/, which is syllable-final, is longer that the /n/, which is syllable initial, following a well-known distritutional rule in English phonology, namely, that sonorants (/m, n, ŋ,l, r/) are longer in final position than in initial position. The consonant sequences that occur across syllable and word boundaries are phonologically not consonant clusters. ■

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