

How Many Consonant Sounds Are There in English?

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Most analyses agree that there are 24 consonant sounds in English. However, it is valuable to consider in some detail a few issues that affect the status of these consonants. First, we can think about why the affricates /tʃ/ and /dʒ/ are treated as single consonants rather than sequences of two consonants. Second, one might discuss why it is that /w/ and /j/ are classified as consonants rather than vowels. Third, there is the possibility of a voiceless counterpart of /w/ that, for some speakers, differentiates *which* from *witch*. And finally, there is the question of whether the velar nasal /ŋ/ is actually an allophone of /n/. After considering these issues, most people will still conclude that there are 24 consonants in English. However, the discussion can help us gain a deeper understanding of English phonology.

■ Introduction

How many consonant sounds do you think there are in English? Of course, most of us know that there are 20 consonant letters in our alphabet (or 21 if you include 'y'), but here we are talking about sounds, not letters. And there is a mismatch between sounds and letters: sometimes two letters combine to represent one sound, so that 's' + 'h' combine to represent the sound /ʃ/ and 't' + 'h' combine for /θ/, and sometimes one letter is pronounced as a sequence of two sounds, as 'x' is usually /ks/. So the number of consonant letters in our alphabet is irrelevant when considering the number of consonant sounds (phonemes) in English.

The basic answer to the original question is that there are 24 consonant sounds in English:

- 6 plosives : /p b t d k g/
- 9 fricatives : /f v θ ð s z ʃ ʒ h/
- 2 affricates : /tʃ dʒ/
- 3 nasals : /m n ŋ/
- 1 lateral-approximant : /l/
- 3 approximants : /w j r/

However, things are never quite as simple as that in the study of languages, and there are a number of issues that we might consider in more depth:

- Why are /tʃ/ and /dʒ/ regarded as single phonemes and not as sequences of two phonemes?
- Why are /w/ and /j/ regarded as consonants and not vowels?
- Do those people who distinguish *which* from *witch* have one extra phoneme, /ʍ/, a voiceless equivalent of /w/?
- Should /ŋ/ really be regarded as a separate phoneme? Or can it be analysed as an allophone of /n/?

■ The status of /tʃ/ and /dʒ/

The two affricates are each written as a sequence of two symbols, so why do we regard them as single consonants? Why do we not, for example, analyse *cheese* /tʃi:z/ as having two consonants at the start, /t/ followed by /ʃ/?

The answer is that /tʃ/ behaves phonologically as a single sound, even if phonetically it is rather similar to a plosive followed by a fricative. In analysing its behaviour, we need to think about the patterns of distribution of /t/ and /ʃ/ (Laver, 1994:365), so we should consider what sequences of sounds can occur together, particularly at the start of a syllable.

English allows quite complex syllable onsets, such as /str/ in *string* and /spl/ in *splash*, but it does not generally permit a plosive followed by a fricative, so */pfæk/, */tsɒg/ and */kʃɪp/ are not possible words of English. (In the few cases where the spelling does suggest a plosive followed by a fricative at the start of the word, such as *psychology*, the plosive is actually silent.) But note that *chip* /tʃɪp/ and *check* /tʃek/ are perfectly good words of English. So if we treated /tʃ/ as a sequence of two phonemes, we would have to make a special exception to the rule that an English word cannot begin with a plosive followed by a fricative.

Note that /tʃ/ can also occur at the end of a word, as with *catch* /kætʃ/ and *rich* /rɪtʃ/, and there are no other instances where /ʃ/ can occur after a plosive at the end of a word, as */kækʃ/ and */rɪpʃ/ are not possible words in English.

The situation with /dʒ/ provides even stronger evidence. The consonant /ʒ/ is rather rare in English, and apart from in some recent loan words such as *genre* /ʒɒnrə/, *beige* /beɪʒ/, and *rouge* /ru:ʒ/ (all of which still sound rather foreign), /ʒ/ can only occur in the middle of a word, mostly between two vowels, as in *pleasure*

/pleɪzə/ and *measure* /meɪzə/. But notice that *jet* /dʒet/ and *barge* /bɑːdʒ/ are perfectly good words in English. So if we were to regard /dʒ/ as a sequence of two separate sounds, we would have to say that /ʒ/ can only occur near the start or at the end of a word if it is preceded by /d/, which would be rather strange.

So the claim that /tʃ/ and /dʒ/ are single sounds in English is well-founded, because they behave phonologically like single sounds in the structure of English words. However, one might note that Ladefoged (2001:27) does treat both these English affricates as sequences of two sounds, partly because his emphasis is rather more on phonetics than on the phonological structure of English.

■ The status of /w/ and /j/

If you say /w/ and drag it out, it sounds rather like /uː/, and similarly /j/ sounds rather like /iː/ (Roach, 2000:64). If they sound like vowels, why do we classify /w/ and /j/ as consonants?

Sometimes it is valuable to make a distinction between a *contoid* and a *consonant*: contoids are articulated with an obstruction in the vocal tract, but consonants are sounds which can occur at the edge of a syllable (Laver, 1994:147-8). In other words, *contoid* is a phonetic term which describes the articulation of a sound, while *consonant* is a phonological term which describes its behaviour within a syllable.

From the phonetic perspective of articulation, we find that plosives, fricatives, nasals, and the lateral approximant /l/ are all contoids, because they all involve a constriction in the vocal tract, but /j/ and /w/ (and maybe /r/ as well) are not contoids.

But now we should consider phonological behaviour and thereby determine which sounds should be classified as consonants. Let us think about what can occur before /et/ to create a monosyllabic English word. We have words such as *bet* /bet/, *pet* /pet/, *set* /set/, *net* /net/, and *debt* /det/, but not */bet/ or */set/, so we regard /b p s n d/ as consonants because they occur at the edge of a syllable, but /ɒ ʌ/ are vowels. However, note that we can also have *wet* /wet/ and *yet* /jet/. This confirms that /w/ and /j/ are consonants.

In one other aspect of behaviour, we can consider the distribution of the indefinite articles *a* and *an*: *a* occurs before consonants, while *an* occurs before vowels, and this depends on the pronunciation and not the spelling, so it is *an hour* not **a hour* because /aʊə/ begins with a vowel (the 'h' is silent). But note that we have *a waste* and *a year*, not **an waste* and **an year*, and notice that once more this is based on pronunciation and not on spelling, as it is *a university* (which begins with /j/) and not **an university*. So again we see that /w/ and /j/ behave as consonants, not as vowels (Roach, 2000:64).

■ The possibility of /ɹ/

Do you make a distinction between *which* and *witch*? For most speakers, these two words are homophones as they are both pronounced as /wɪtʃ/, though many Americans do make a distinction (Wells, 1982:126), and most

Scottish speakers also do (Wells, 1982:408). Indeed, it was once normal for all speakers of English to make this distinction, but by the end of the eighteenth century even educated southern speakers no longer maintained it (Mugglestone, 2003:132).

For speakers who retain this distinction, it might be necessary to include an extra phoneme, with /ɹ/ representing the voiceless counterpart of /w/, so that *which* is /wɪtʃ/ while *witch* is /wɪtʃɹ/.

However, even here the analysis is not so simple. Historically, this sound was a consonant cluster /hw/, parallel to other clusters beginning with /h/, such as /hr/, /hn/ and /hl/ (Cruttenden, 2001:215). These others have now disappeared, so apart from the possibility of /hw/, the only remaining consonant cluster involving /h/ is /hj/ in words such as *huge* /hjuːdʒ/ and *human* /hjuːmən/. And even the status of this is doubtful, as one might alternatively regard /juː/ as a diphthong (Deterding, 2004).

So, from a historical perspective, /ɹ/ might be treated as /hw/. But from a synchronic perspective, we should note that the contrast between /ɹ/ and /w/ is parallel to the contrast between many pairs of consonants in English, such as /t/ and /d/, /s/ and /ʃ/, and /f/ and /v/. The fact that the voiceless/voiced contrast is well-established in English lends support to the treatment of /ɹ/ as a phoneme in its own right. We might therefore conclude that some speakers do have this extra phoneme.

■ The status of /ɹ/

In standard phonemic analysis, we assume that if the occurrence of a sound can be predicted from the surrounding sounds, it is regarded as an allophone and not as a phoneme. So, for example, we treat [ɫ], the dark /l/ sound that occurs at the end of a word such as *fill*, as an allophone of /l/ because we can specify that it only occurs in the coda of a syllable (or as a syllabic consonant in words such as *bottle*), unlike its clear counterpart which occurs before a vowel.

So what about /ɹ/? Note that /ɹ/ can also only appear in the coda of a syllable, and furthermore we can predict that /ɹ/ rather than /n/ will always occur before another velar sound, such as in *bank* /bæŋk/ and *anger* /æŋɡə/. So should /ɹ/ be regarded as an allophone of /n/ (and then be written as [ɹ]) rather than /ɹ/?

The crucial test for a phoneme is the existence of a minimal pair: if there are two words which only differ with respect to one sound distinction, then we know that we have two separate phonemes. For example, we know that /f/ and /v/ are different phonemes of English because of the existence of the minimal pair *fan* /fæn/ and *van* /væn/ where the only difference is in the initial consonant, and similarly the difference in the final sound of *back* /bæk/ and *bag* /bæg/ establishes /k/ and /g/ as separate phonemes of English. On this basis, we can be confident that /n/ and /ɹ/ are different phonemes, because we have many minimal pairs such as *sin* /sɪn/ and *sing* /sɪŋ/, and also *ran* /ræn/ and *rang* /ræŋ/. This would seem to be the end of the story, but of course it is not.

An alternative possibility is to say that words like *sing* have a silent /g/ at the end, and this silent /g/ gets deleted when it occurs at the end of a word (Roach, 2000:68). In fact, for some speakers of English, this deletion rule does not apply and *sing* is pronounced as [sɪŋg] (Roach, 2000:67), so clearly for speakers such as this, we should analyse [ŋ] as an allophone of /n/. Furthermore, in careful pronunciation, some speakers insert a velar plosive at the end of words such as *being*, and this can occur in Singapore English (Setter & Deterding, 2003) as is evident from the following utterance from the NIECSSE corpus (Deterding & Low, 2001):

so it's fun being with them [F9-f:40]

In fact, extra velar plosives also occasionally get inserted at the end of words such as *selling*, *studying* and *young* in relatively informal Singapore data (Lim & Deterding, 2005), as shown in the following examples also from the NIECSSE corpus:

selling um decorative stuff [iF9-c:83]
 that I was studying ... this [iF9-c:238]
 when we were young ... we used to erm
 [iF10-e:180]

If a velar plosive gets inserted occasionally after /ŋ/, maybe we should analyse it as present in the underlying representation of the word, and then instead of saying that it sometimes gets inserted, we should state that it sometimes fails to get deleted. And if this is the case,

then the distribution of [ŋ] is entirely predictable, so it is an allophone and not a phoneme.

Finally we might note that words such as *long* /lɒŋ/, *strong* /strɒŋ/ and *young* /jʌŋ/ have no final /g/, but there is a /g/ when a comparative suffix is added: *longer* /lɒŋɡə/, *stronger* /strɒŋɡə/, *younger* /jʌŋɡə/. So this seems to lend further support to the possible existence in the base form of these words of a final /g/ which gets deleted in some circumstances. (But note that there is no /g/ with the *-ing* suffix or the agentive *-er* suffix: *singing* /sɪŋɪŋ/ and *singer* /sɪŋə/; not * /sɪŋɪŋɡ/ and * /sɪŋɡə/.)

In conclusion, we can say that, on the basis of minimal pairs, /ŋ/ is generally regarded as a phoneme of English, but that there are some counter-arguments which raise a few questions about its status.

■ Conclusion

It is still basically true that there are 24 consonants in English, though it may under some circumstances be possible to regard /tʃ/ and /dʒ/ as sequences of two sounds, some speakers may have an extra phoneme /ɱ/, and the status of /ŋ/ is questionable.

Even though we can conclude that there are 24 consonants in English, consideration of some of the issues regarding the phonological analysis of English can give us a deeper understanding of the structure of the sound system of the language.

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