

THE GLOTTAL CLOSURE SOUND IN ENGLISH

Leanne Kemp

In the Alberta dialect of English, there are three environments which will affect the pronunciation of the /t/ phoneme. While these pronunciations may be found to be widespread, their employment is optional and may vary on different occasions, even within the same individual and with the same word. These pronunciations are influenced by the surrounding phonological environment. Depending on the environment, the pronunciation of the /t/ may be: (1) voiceless aspirated (2) voiced or (3) changed to a glottal closure sound.

In the first environment, the voiceless aspirated sound [t^h] occurs before a stressed vowel.

Aspiration Rule:

t --> d / __^ːV

IN words like: tent, attention, intend, entail, tan, the /t/ is pronounced as [t^h] due to its position before a stressed vowel. This pronunciation occurs for every speaker of the dialect and is not optional.

The second environment is before an unstressed vowel. There the voiceless /t/ is optionally either a [t^h] or voiced [d] (I use ^ːV to represent an unstressed vowel).

T-voicing Rule:

t --> d / __^ːV

This T-voicing rule is optional. That is, it may or may not be applied by a single individual in his pronunciation of a particular word. Thus in words like: latter, bitter, metal, little, kitty, the voiceless /t/ now becomes voiced due to its position before an unstressed vowel. Now, words like the following will sound the same optionally, in the dialect with the rule:

latter - ladder
metal - medal
bitter - bidder

The third occurrence and the one this paper will focus on, is a bit more difficult to explain. Before and after a nasal alveolar, the /t/ becomes a glottal closure sound. This glottal sound resembles a glottal stop, and therefore I represented it here with the symbol [ʔ]. The sound may be likened to the glottal closure effects achieved by dialects of Cockney English in their pronunciation of butter [bʌʔr] or bottle [bɒʔl]. In our case, it appears that the glottal closure and the alveolar closure for a following nasal take place simultaneously, and the glottal release is prior to the termination of the nasal. But the Cockney glottal stop has both closure and release prior to the onset of articulation for the following segment. Evidence for the existence of this glottal closure sound can be found by comparing the pronunciation of winter and winner. In the version of winter in which the /t/ is no longer pronounced there is still a slight hesitation or glottal closure between the [n] and the [r] which makes the pronunciation of winter and winner somewhat different.

Glottal Closure Rule:

t --> ʔ / __n

In this environment, the glottal closure sound takes over giving the peculiar glottal sound hesitation characteristic of the /t/ when it is replaced. Words frequently following this rule are: button, bitten, fountain, written, mountain, setting, mutton, maintenance, sitting, letting, titan, kitten, quitting, phantom, whiten, latent. The [t] becomes [ʔ] before a nasal alveolar, this being the environment necessary for the occurrence of the glottal closure sound. The sound is something like this: [bʌʔn], [mʌʔn].

In words like: ranting, panting, letting, writing, sitting, quitting, the choice of allomorph for the ending will affect the environment of the /t/. If for instance the allomorph /-ɪŋ/ is present at the end of the gerund, then the /t/ will be pronounced as [tʰ] or [d], depending on whether the optional T-Voicing rule is applied or not. However, if the allomorph /-n/ (a syllabic alveolar nasal) is present at the end of these words, then the glottal closure sound [ʔ] will result, e.g. [ledɪŋ] or [leʔn]. Again it must be stressed that the pronunciation of these words is optional even for a particular speaker of this dialect.

Variations from this glottal closure formation rule can be explained by references to the first two environments -- (1) voiceless aspirated (2) voicing: fountain, mountain, maintenance. All have the environment necessary for the formation of the glottal closure sound: a nasal alveolar before or after the /t/ phoneme. In fountain, mountain, the pronunciation that occurs is the glottal closure sound representing the underlying /t/. However in a word like maintain, while the condition necessary for the application of the glottal closure sound is present, the fact that the /t/ comes before a stressed vowel (environment 1) means that the Aspiration Rule will apply and the /t/ will be pronounced as [tʰ] and the Glottal Closure Rule will not apply. This explanation will clarify similar instances in words such as: titanic, intend, entail, where the /t/ is always pronounced as [tʰ] due to being before a stressed vowel (environment one).

The extent to which the glottal closure sound will occur within a particular person's dialect & the frequency with which it will occur with a certain word, again depends on the environment. The words which seem to have their /t/ most frequently replaced by the glottal closure sound seem to be those words in which the /t/ is followed by a nasal alveolar as in: button, bitten, titan, sitting, kitten. Words like winter and center, seem to undergo the glottal closure replacement much less frequently than do the other words due to the nasal alveolar preceding the /t/. This environment is not as strong as one in which the nasal alveolar follows the /t/.

As yet, not much is known of the glottal closure phenomenon. To form a more precise rule than the above without adequately defining and isolating the sound would be premature. Further studies must be made in order to ascertain precisely what the sound is and how it is formed. However, two conclusions may be reached concerning the environment of the glottal closure sound. Firstly, the environment of this sound can be isolated before and after a nasal alveolar and secondly, the application of these three rules must occur in this respective order: (a) Aspiration Rule (2) T-Voicing Rule (3) Glottal Closure Rule.