Duration of Epenthetic [t] in Polysyllabic American English Words
(adapted from Yoo, I. W., & Blankenship, B., 2003, in *Journal of the IPA, 33/2*)

On a warm, sunny day in May, a dime and a nickel were walking along on a bridge over the Charles. When they got to the middle of the bridge, they decided to stop and enjoy the sun for a while. After about ten minutes, the nickel suddenly jumped off the bridge and killed himself. The dime watched him drown and walked on home.

Q: Why did only the nickel jump off the bridge and kill himself?
A: Because the dime has more [sEnts].

The examples below illustrate how epenthesis neutralizes the phonemic distinction between word pairs:

(a) [prInts] prince / prints
(b) [dEnts] dense / dents
(c) [tEnts] tense / tents
(d) [sEnts] sense / cents

The Stop Epenthesis Rule
Dinnsen (1980) formulated a basic rule to account for not only the epenthetic [t] but also other epenthetic stops in any nasal-fricative cluster environment, as in [lENkT] length, [mÃntT] month, and [lImpf] lymph. Fourakis and Port (1986) modified the rule by adding a syllable boundary:

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+ con − son $ 1 1 2 3
+ nas + cont − nas
α voi → α voi
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In the Fourakis and Port account, syllable boundaries play an important role in determining whether an epenthetic stop occurs in surface forms; that is, epenthesis applies only when the nasal and the fricative are in the same syllable.
Table 1. Experimental Words

<table>
<thead>
<tr>
<th></th>
<th>Word-Medial</th>
<th>Word-Final</th>
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</thead>
<tbody>
<tr>
<td>After a Stressed Vowel</td>
<td>'cen.sus / 'sen.si.ble</td>
<td>in.'tense / in.'cense</td>
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<tr>
<td></td>
<td>'sen.so.ry / 'den.si.ty</td>
<td>de.'fense / of.'fense</td>
</tr>
<tr>
<td>After a Stressless Vowel</td>
<td>con.'sent / con.'ceal</td>
<td>'sci.ence / 'pres.ence</td>
</tr>
<tr>
<td></td>
<td>con.'sole / con.'sist</td>
<td>in.'sur.ance / 'pre.science</td>
</tr>
</tbody>
</table>

Figure 2. Stop Closure Durations - Experimental vs. Control Words

Analysis of stop closure durations in experimental sentences read by seven American English speakers reveal that position, not stress, is the most important factor in [t] epenthesis: final position (e.g., science and intense) favors epenthesis. Stress is found to have an effect on stop closure durations in the way it interacted with word-position—i.e., for the final /ns/ cluster, stress immediately before it disfavors epenthesis (e.g., intense). Furthermore, the underlying /t/ is shown to be not significantly longer than the epenthetic [t].