Consider the allophones [ɔ] [ɑ] and [αː] in the following Karuk data. Are they allophones of the same or different phonemes? Consider stress in your determination.

1. 'ɑtraːx  arm  6. ʔɔľ'na:t  rat
2. 'tətəf  mama  7. ʔaxək  two
3. 'sərə  bread  8. ʔasər  wet
4. ʔʃə'na:k  mosquito  9. ʔɔnuk'jà:nər  shovel
5. 'nə:pif  beetle  10. ʔəsə  blanket

Where does the primary stress fall on these words?

absolute  kaleidoscope  advocate (verb)
intercept (verb)  interlock  mentality
gestation  relaxation  deportation
instrumentality  complementarity  documentation
equality  antagonize  indemnify
What is the complementary distribution of [ɾ] and [t] in American English?

/ɾ/ = [ɾ]  /t/ = [t]

skittish  attack
petty  atone
ditto  retain
attic  motel
fetus  detach
water  motif
total  return
So far we've looked at primary stress. Some syllables seem to have secondary stress as well. What syllables have secondary stress in these words? Secondary stress is indicated with a grave rather than an acute accent mark.

<table>
<thead>
<tr>
<th>absolúte</th>
<th>kaléidoscope</th>
<th>ádvocate (verb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>intercépt (verb)</td>
<td>interlóck</td>
<td>mentálity</td>
</tr>
<tr>
<td>gestátion</td>
<td>relaxátion</td>
<td>deportátion</td>
</tr>
<tr>
<td>instrumentálity</td>
<td>complementárit</td>
<td>documentación</td>
</tr>
<tr>
<td>equálity</td>
<td>antágonize</td>
<td>indémnify</td>
</tr>
</tbody>
</table>
Here are the words with secondary stress included.

àbsolúte  kaléidoscòpe  ádvocàte (verb)
ìntercépt (verb)  ìnterlóck  mentálitì
gèstátion  rèlaxátion  dèportátion
ìnstrumentálitì  còmplementáritì  dòcumentátion
equálitì  antágonìze  indémnifi

What is the complementary distribution of [r] and [t] in American English?

/t/ = [r]  /t/ = [t]  /t/ = [t]
skittish  attack  photon
petty  atone  pretext
ditto  retain  protein
attic  motel  crouton
fetus  detach  retail
water  motif  latex
total  return  rotate
Problems with generative analyses

1- They assume people abstract away from actual pronunciation in comprehension then apply rules to get the abstract form back to an actual pronunciation.

For example:

People hear *city* as [sɪɾi].
Since they “know” the rule for flapping, they store *city* in a phonemic form /sɪɾi/.
When they pronounce *city* they apply the rule to get [sɪɾi].

Why not store the word in it's phonetic form?

Because phonemic forms economize storage space.

But, there is no evidence people have limited brain storage.

There is evidence that people use phonemic type units (e.g. Sapir).

But that doesn't mean they store things in that form.

2- Children learn phonological rules “subconsciously” yet it takes adult phonology students a lot of time and effort to understand the rules.

If secondary stress accounts for flapping, why don't people agree on with linguists (or with each other) about which syllable is has secondary stress?
3-They can't handle variation in pronunciation.

Data from a dictionary of English:

<table>
<thead>
<tr>
<th>Stress Before /t/</th>
<th>Stress After /t/</th>
<th>Example</th>
<th>[tʰ]</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>none</td>
<td>28</td>
<td>Samáritan</td>
<td>766</td>
</tr>
<tr>
<td>primary</td>
<td>none</td>
<td>6</td>
<td>córtex</td>
<td>1067</td>
</tr>
<tr>
<td>secondary</td>
<td>none</td>
<td>2</td>
<td>àttaché</td>
<td>644</td>
</tr>
<tr>
<td>none</td>
<td>primary</td>
<td>321</td>
<td>cartóon</td>
<td>0</td>
</tr>
<tr>
<td>none</td>
<td>secondary</td>
<td>219</td>
<td>lúnatic</td>
<td>6</td>
</tr>
<tr>
<td>primary</td>
<td>secondary</td>
<td>20</td>
<td>sátire</td>
<td>19</td>
</tr>
<tr>
<td>secondary</td>
<td>primary</td>
<td>14</td>
<td>ètérmal</td>
<td>1</td>
</tr>
<tr>
<td>primary</td>
<td>primary</td>
<td>1</td>
<td>prétáx</td>
<td>0</td>
</tr>
</tbody>
</table>

Exceptional items can be marked (e.g. flapping doesn't apply to Samaritan)

Sometimes a person will say [sIrɪ] and other times [sIti] so rule application is variable. (This begs the question: what does the variation depend on?)
Maybe flapping has more to it than stress. Some linguists say it depends on syllable boundaries as well. *Satire* and *city* have the same stress pattern but differ in flapping, so:

\[
\begin{array}{c}
\text{Syllable} \\
/ / \\
/ / \\
/ / \text{Rime} \\
/ / \\
/ / \\
\text{Onset} \hspace{1cm} \text{Nucleus} \hspace{1cm} \text{Coda}
\end{array}
\quad
\begin{array}{c}
\text{Syllable} \\
/ / \\
/ / \\
/ / \text{Rime} \\
/ / \\
/ / \\
\text{Onset} \hspace{1cm} \text{Nucleus} \hspace{1cm} \text{Coda}
\end{array}
\]

\[
\begin{array}{c}
\text{Syllable} \\
/ / \\
/ / \\
/ / \text{Rime} \\
/ / \\
/ / \\
\text{Onset} \hspace{1cm} \text{Nucleus} \hspace{1cm} \text{Coda}
\end{array}
\quad
\begin{array}{c}
\text{Syllable} \\
/ / \\
/ / \\
/ / \text{Rime} \\
/ / \\
/ / \\
\text{Onset} \hspace{1cm} \text{Nucleus} \hspace{1cm} \text{Coda}
\end{array}
\]

/t/ is [ɾ] in the coda (with proper stress), but [t] in the onset.

Problem: Some rules say [ɾ] appear in onset, other rules say it appear in coda, and others that it appears in both at the same time.

In experiment, people didn't agree on where flap appears in syllable.
4-You can do anything you want in a rule to get it to work. (Reality is not a factor.)

Example:

After /l/ sometimes /t/ flaps and others it doesn't as in *faculty*.

One rule stated that (along with stress) the preceding phone must be [+consonantal] for /t/ to be flapped.

So, what is /l/? [+consonontal] or [-consonantal]?

In *[f æ k ə l f i]* /l/ is [+consonantal]

In *[f æ k ə l t i]* /l/ is [-consonantal]