Variation in glottalisation of (t) in Ipswich

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Descriptive aims:

• Examine a range of glottal variation with (t)
  – for the Anglo population of Ipswich, as baseline
  – for study of Barbadian immigrants to Ipswich.
  – [Bajan is distinctive in Caribbean for glottal (t) forms]

• Explore diffusion of glottals within British Isles
  – Does Diffusion Pattern of following environment hold?
    • Following Consonant > Pause > Vowel
  – Are classic variants [ʔ], [tʔ], [ʔt] sufficient? or...
  – do acoustic methods require reconfiguring variants?
Understanding Processes

• Understand long-term accommodation, dialect acquisition and phonological change
  – due to contact between Caribbean migrants (and descendants) with local Anglo speakers of Br Eng.

• Advance creolist research into adaptations of Creole phonology transplanted to the metropole.
  – Intermediate linguistic proximity of Caribbean Creoles to British dialects of English (their 17th C lexifier).
  – E. Anglia & London as possible sources of Bajan features (glottal forms, PRICE/CHOICE overlap)?
Hypothesis

• Distinctive ethnic dialects of British English are in process of emergence for Afro-Caribbeans.
  – Barbadians as a social group are
    • distinctive & prestigious among other West Indians
    • present in Ipswich in significant numbers.
• Local and salient phonological features, which are not heavily stigmatised, play a key role.
  – Glottal variation by Barbadians is a good candidate:
    • Glottal variation in British English is vernacular, widespread, acceptable in many environments, and said to be diffusing.
Findings for (t) variable in British English

- Glottal variants becoming most frequent realisation of (t)
  - London as source of diffusion (also Scotland? Norfolk?)
- Usually look at word-final (WF) and/or word-medial (WM)
  - We’ll briefly consider both today
- Some studies focus on GS, others combine (GS + GZT)
- Syllable position and prominence constrain WM variation
- Influence of following segment considered crucial to WF
- Diffusion Pattern: environments for (t)-glottalling ordered
  “Early”: Foll C > P, V  “Late”: Foll C, P > V
- Regular age & style effects, localised sex & class ones
Terminology and Variants

• Established distinction between “T-Glottalling”:
  – total replacement of [t] by a glottal stop
and “T-glottalisation”:
  – preglottalisation or simultaneous oral & glottal closure

• Prejudging variants reduces/distorts linguistic variation and social patterning – cf. Newcastle:
  – “the articulatory basis of glottal variants diverges from the received wisdom... acoustic parameters subtle enough to prevent robust auditory discrimination enter into [complex] sociolinguistic patterns” (Docherty & Foulkes 1999:61)

• Need to expand envelope of variation for (t)
1. We identified 5 phonetic components:
   - presence or absence of glottal occlusion
   - duration of any gap
   - presence or absence of laryngealisation
   - location of laryngealisation relative to gap
   - presence or absence of voicing irregularity

2. Located up to 15 event types in our data:
   - e.g. glottal stops with creak, aperiodic noise with [t], creaky voice w/o a stop, fricated [tˢ] w/ or w/o glottalisation

3. Recomposed & summarised as 5 variants:
   - ‘classic’ glottal stops (GS), all types of glottally-reinforced [t] (GZT), all other types of glottalisation (GZ), non-reinforced [t] (NGT), and deletions (no stops or glottalisation)

   **NB:** For WF data we didn’t consider T-variants (GZT, NGT)
   - We use “glottal variation” as cover term for GS, GZ, GZT
Frequency of variants (WM)

- ‘Classic’ glottal stops (GS) are infrequent
  - only 10% of Ipswich data (18% of all glottal variants)
  - Rarely-reported glottalisation (GZ) = twice as frequent
- Glottally-reinforced oral stops are very common
  - 28% of all Ipswich data (48% of all glottal variants)
- ...but ‘classic’ pre-glottal cases [ʔt] are very rare
  - Ex. from ‘Betty’, older Anglo woman “factory” [ʔt]
  - Contrast ex. by ‘Gary’, older Bajan male “directors” [ʔ]
- Auditory methods may overestimate classic variants.
(Old Anglo) Betty: “in a factory”
(Old Bajan) Gary: “directors box”
## Ipswich speaker characteristics

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Sex</th>
<th>Pseudonym</th>
<th>Age</th>
<th>Arrived Ips.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anglo</td>
<td>f</td>
<td>Betty</td>
<td>Ret.</td>
<td>born there</td>
</tr>
<tr>
<td>Anglo</td>
<td>f</td>
<td>Mary</td>
<td>Mid</td>
<td>born there</td>
</tr>
<tr>
<td>Anglo</td>
<td>m</td>
<td>Keith</td>
<td>Ret.</td>
<td>born there</td>
</tr>
<tr>
<td>Anglo</td>
<td>m</td>
<td>Patrick</td>
<td>Mid</td>
<td>born there</td>
</tr>
<tr>
<td>Bajan</td>
<td>f</td>
<td>Margaret</td>
<td>Ret.</td>
<td>adult</td>
</tr>
<tr>
<td>Bajan</td>
<td>f</td>
<td>Michelle</td>
<td>Mid</td>
<td>14</td>
</tr>
<tr>
<td>Bajan</td>
<td>m</td>
<td>Gary</td>
<td>Ret.</td>
<td>adult</td>
</tr>
<tr>
<td>Bajan</td>
<td>m</td>
<td>Edward</td>
<td>Mid</td>
<td>9</td>
</tr>
</tbody>
</table>
Both groups: WF glottals, all types

Barbadians
Anglos

% GS + GZ

PreC  PreP  PreV
Anglos: WF glottals, all types

% GS + GZ

Keith  Patrick  Betty  Mary

PreC  PreP  PreV
Ipswich Anglo Word-final data

• Definitely not showing a Diffusion Pattern
  – I.e., not Foll. C > P > V (with WM even lower)
• Rather an Ipswich Pattern: high-frequency of glottal variants before following Vowels
  – This has not been reported before

What are Barbadians doing in WF?
Here we separate GS from GZ tokens, because unlike the Anglos, the Bajans show very distinct patterns...
Predicted Diffusion Pattern for (t)-glottalling

Environments

Percentages

- #_C
- #_P
- #_V
- WM ex
- V_V
Bajans, WF Glottal Stops only

![Bar graph showing % Glottal stops (GS) for Gary, Edward, Margaret, and Michelle with categories PreC, PreP, and PreV. The graph highlights a "diffusion pattern".](image-url)
Bajans, WF Other Glottalisation

The graph illustrates the percentage of glottalisation (GZ) for individuals Gary, Edward, Margaret, and Michelle. The graph shows the percentage of glottalisation for different categories: PreC, PreP, and PreV. The x-axis represents the names of the individuals, and the y-axis represents the percentage of glottalisation (GZ). The black bars indicate PreV, the gray bars indicate PreP, and the white bars indicate PreC.
Ipswich Bajan Word-final data

• Shows no Diffusion Pattern either
• Glottal stops concentrated in Pre-pausal
  – in contrast to Anglo speakers
• Other glottal variants prominent pre-Vowel
  – which resembles the Anglo local pattern,
  – even down to fact that women appear less distinctively local, closer to expected pattern
Constraints on WM glottals

• Lit.: glottals only allowed syllable-final (Wells), or blocked in foot-initial onset position (Tollfree), ie, between a less- and a more-stressed syllable.
  – attend, particular

• True in Ipswich but only GS is blocked:
  – all speakers but one (Gary) have (T)GZ in this env’t.
  – Ex. from Edward, midage Bajan male, in “estate” =GZ
  – Compare Patrick, midage Anglo male in “estate” =TGZ

• Prominence constraint trumps segmental ones.
(Young Bajan) Edward: “housing estate on their”
(Young Anglo) *Patrick*: “Chantry estate”
More constraints on WM

• Wells: classic glottals licensed to occur word-medially only after vowels, liquids and nasals.
  – Tollfree (London): blocked after non-resonant coda-position consonant (e.g. sister, chapter).

• Doesn’t apply to Ipswich data since variable has been expanded (due to rarity of classic cases).
  – Thus we have new TGZ environments, including Foot-initial, Preceding Fricative, Prec. other Non-sonorant.
  – Exs. sevenʔeen; sisters, after; factory, direʔor with even a few GS variants appearing.
Anglos, WM glottal replacement

% GS + % GZ

![Bar chart showing % GS and % GZ for different categories (WM exc V_V and V_V).](chart.png)
Bajans, WM glottal replacement

% GS + % GZ
Patterns of WM glottal variants

• Glottal WM variants are more frequent for Anglos in intervocalic (V_V) position
  – they should be least frequent here
• But glottal stops are still not very common
  – no more than 20% of all tokens
• For Bajans, they are vanishingly rare in WM
  – Even other glottalised tokens are rare in V_V, because non-reinforced (t) variants are the norm
  – In this respect, Bajans better match the literature on British English dialects than Ipswich Anglos do.
Summary of results: Anglos

- Ipswich Anglos are surprisingly distinct in their patterning of glottal variants from other communities in SE England
- Diffusion Pattern does not appear to apply to Ipswich
- Frequencies of key variants are lower in absolute terms; proportions by phonological environment are unexpected
- Expanded envelope of variation violates old constraints
- This may be explained several ways:
  - Ipswich retains earlier distinct pattern despite London & Norwich
  - Reconfiguring of variants and use of acoustic methods leads to a more precise/complex picture than previous work has produced
Summary of results: Bajans

- Ipswich Barbadians don’t have Diffusion Pattern
  - but do have the Ipswich Pattern (high pre-V in WF),
  - and appear to show similar sex effects.
- Yet in both WF and WM positions some patterns clearly differentiate them from local Anglos.
  - they prefer non-reinforced [t] to glottals in V_V, and
  - concentrate WF glottal stops before following pause.
- It seems they may be able to integrate closely with the variable phonology of local English, yet support maintenance of separate identities.
- We plan to study their vowel systems next year.