MFA Alignment Report

By: Akshay Pratap Singh **Date:** 7/11/2025 **Files:** `f2bjrlp` audio dataset
Github link - https://github.com/axshay007/IIITH_asignment

1. Model and Dictionary Used

- **Acoustic Model:** `english_us_arpa` (Downloaded via MFA)
- **Pronunciation Dictionary:** `english_us_arpa` (Downloaded via MFA)

2. Alignment Process

The alignment was run using the Montreal Forced Aligner (MFA) inside a Google Colab notebook. This was done because of system constraints that prevented using Anaconda locally. The script automatically prepared the audio and text files and ran the alignment.

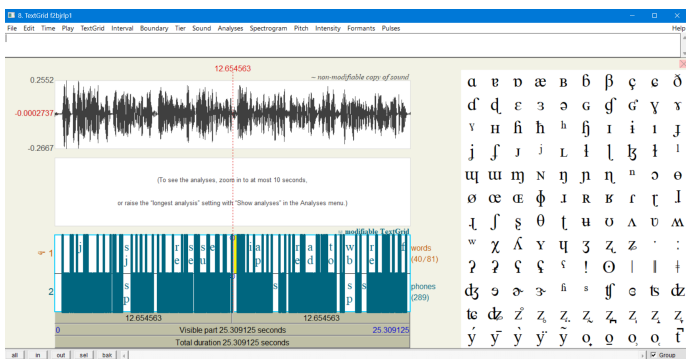
3. Key Observations

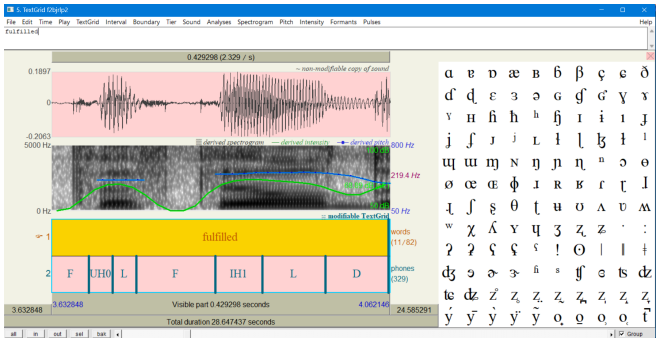
After checking the alignment in Praat (using my 9 sample screenshots), I found a few key patterns:

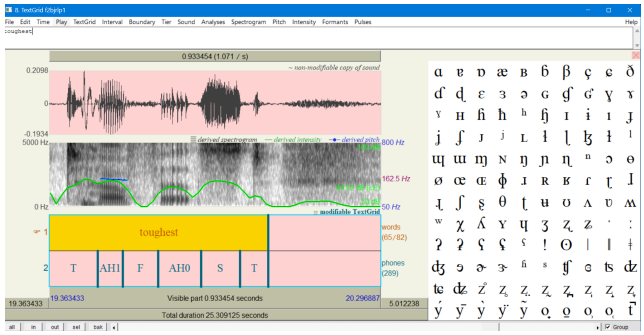
- **Good Alignments:** When the speaker was clear, the alignment was very accurate. The boundaries for words like "appointment" (`Boundary alignment.jpg`) and "fulfilled" (`Boundaries alignment2.jpg`) matched the sound wave well.
- **Handling Fast Speech:** The aligner was pretty smart. In `Fast speech analysis (skipping some syllable).jpg` , it correctly skipped a syllable in "administrative" to match the speaker's fast "ad-m'nistrative" pronunciation.
- **Minor Errors:** The errors were small and understandable.
  - **Timing:** For "toughest" (`Timing offset1.jpg`), the aligner started the "T" sound a little late, missing the silent part just before the puff of air.
  - **Dictionary vs. Speaker:** For "seventy" (`Fast speech analysis (different sounding).jpg`), the aligner put in a "T" sound because the dictionary said so, even though the speaker seems to have skipped it and said "sevedy."
- **Handling Noise:** The aligner was good at telling words from non-words. It correctly put a blank space for a pause (`Silence analysis.jpg`) and used an `<unk>` (unknown) tag for a random noise instead of trying to make it a word (`Silence analysis2.jpg`).

4. Sample Alignment Visualization

Here is a sample visualization from Praat, showing the two-tier system (words on top, phones on bottom).







5. All Visualizations

All 9 Praat sample alignment visualization screenshots are available at the link below:

[MFA Sample Alignment Visualization]