An Acoustic Analysis of Ronald Reagan's Vowel Sounds Throughout his Career

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1. Introduction

<u>Research Question:</u> Did Ronald Reagan's pronunciation of the **LOT/THOUGHT** distinction and the **FACE** vowel change from a regional **Illinois** accent to a **General American** accent between his **entertainment career** and his **presidency**?

Reagan grew up in Illinois and worked as a radio announcer, moving to Hollywood to begin his entertainment career. During his time there, he gained political interest, and became Governor of California from 1967-1975. He was elected president in 1981, and was in office until 1989.
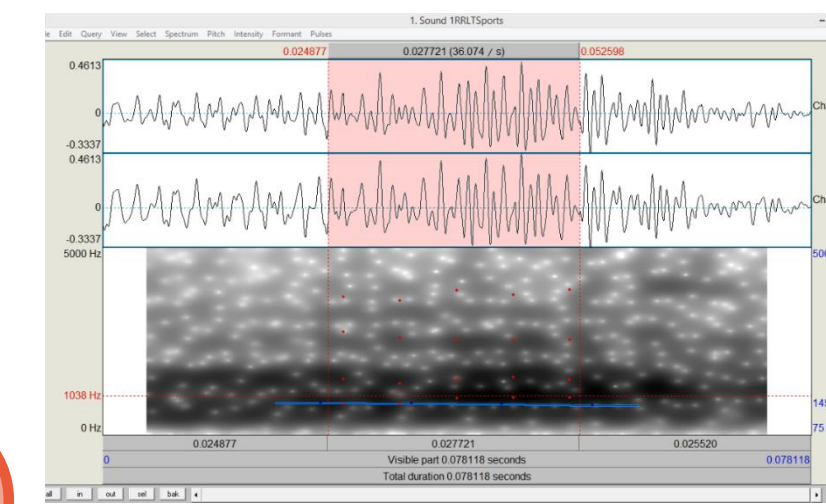
Time Periods:
- Early Entertainment Career (1930s)
- Early Political Career (1960s)
- Early Presidency (early 1980s)
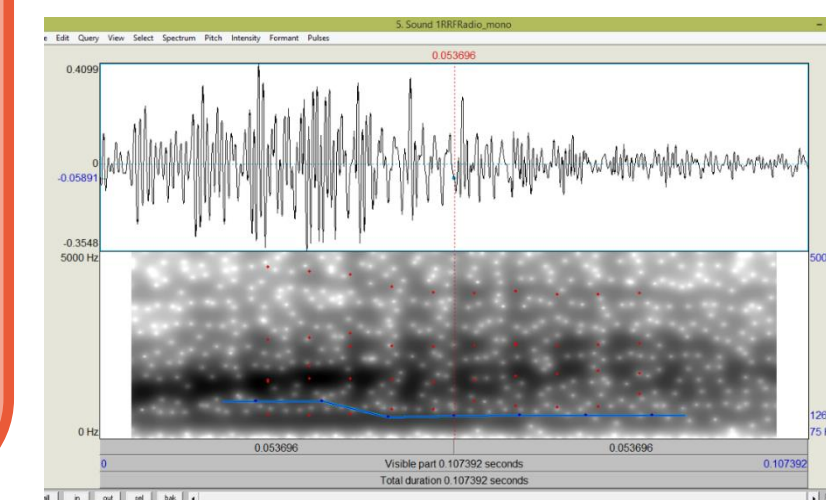- Late Presidency (late 1980s)

2. Hypothesis

1. Reagan's distinction between LOT and THOUGHT would have decreased as he became Governor of California and entered his presidency.
2. The FACE diphthong would have become less narrow as Reagan became Governor of California and entered his presidency, with the distance (Hz) between [e] and [ɪ] becoming wider.

3. Methodology

- **Two YouTube videos** used for each of **four time periods**
- **Speeches** and/or **narration**
- The FACE and LOT/THOUGHT variables chosen based on Wells' (1982) *Accent of English: Beyond the British Isles*
- 20-30tokens were transcribed for each variable in each period.
- **Audacity** used to isolate the vowels.
- **Praat** used to accurately collect both F1 and F2 readings for each vowel.
- **Euclidean Distance** calculations to show the distance between the nucleus and off-glide in the FACE vowel, and between LOT and THOUGHT.
- Based on **Harrington** (2006) and **Prince** (1988).

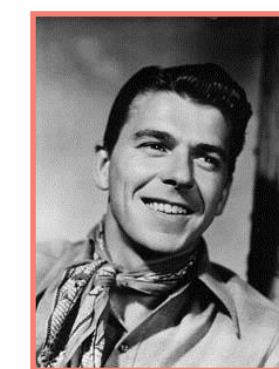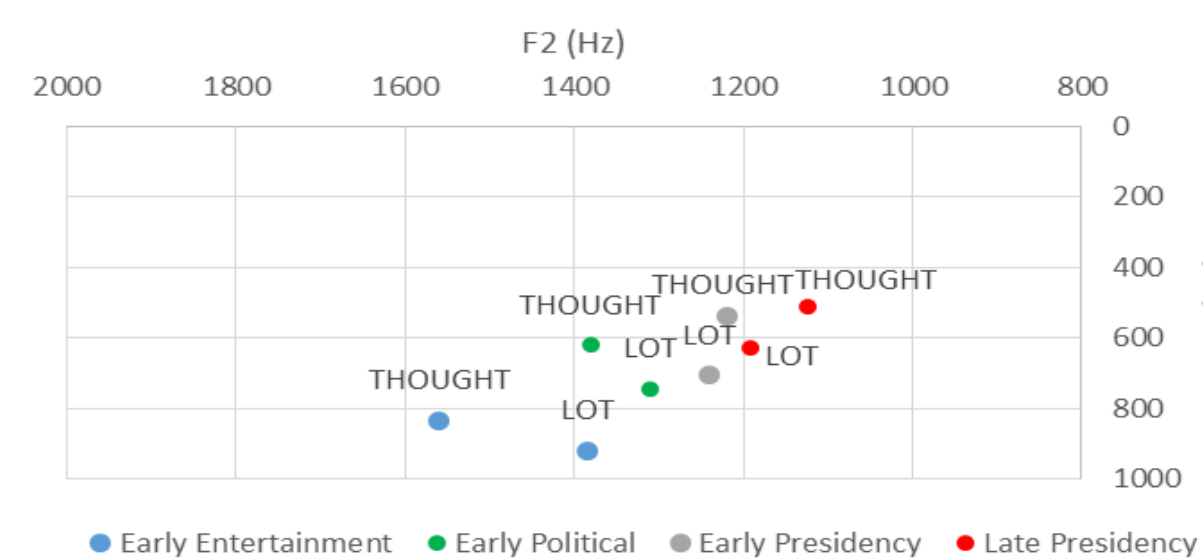Screen-shots from Praat, showing a LOT token (above), and a FACE diphthong token (below).

4. Literature Review

- The accents of North America have been well documented in **Accents of English: Beyond the British Isles** (Wells, 1982).
- Wells states that the LOT/THOUGHT distinction is maintained in Illinois, merged in California, and often kept merged in varieties of General American.
- The FACE vowel is realised as a narrow diphthong or monophthong in Illinois, and a full diphthong in General American.
- Sociolinguistic theory which provide explanations for the changes observed are Giles' (1973) **Accommodation Theory**, Bell's (1984) concept of **Audience Design**, and Labov's studies in **Martha's Vineyard** (1972) and **New York City** (2006).

5. Euclidean Distance Calculations

The formula is $\sqrt{((x1-x2)^2+(y1-y2)^2)}$, where x1 and x2 are the F1 of the nucleus and off-glide, respectively, and y1 and y2 are the F2 of the nucleus and off-glide, respectively (Milnar, 2015).

Graph to show the changing formant values of Reagan's LOT/THOUGHT distinction between his Early Entertainment Career and his Late Presidency.
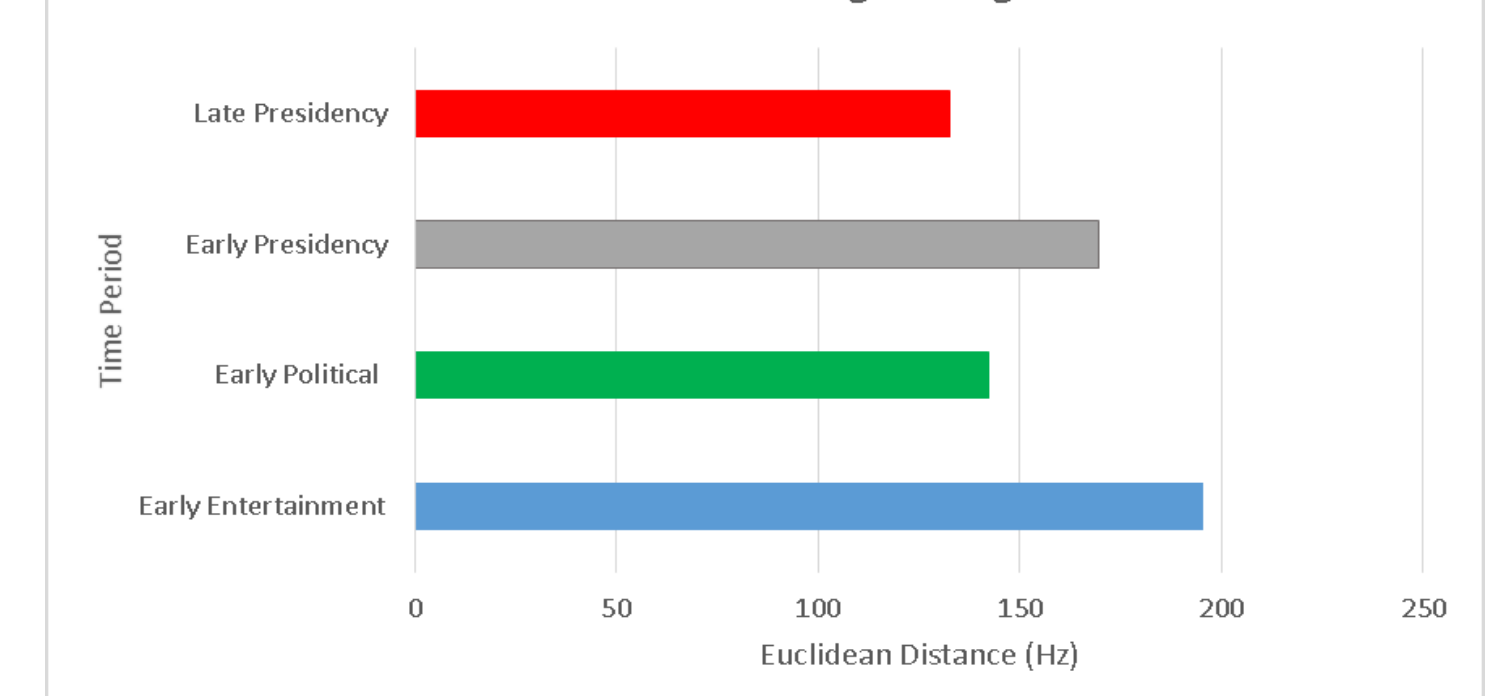
Comparisons of the Movement between e and ɪ in the FACE Diphthong Between Reagan's Early Entertainment Career and his Late Presidency.
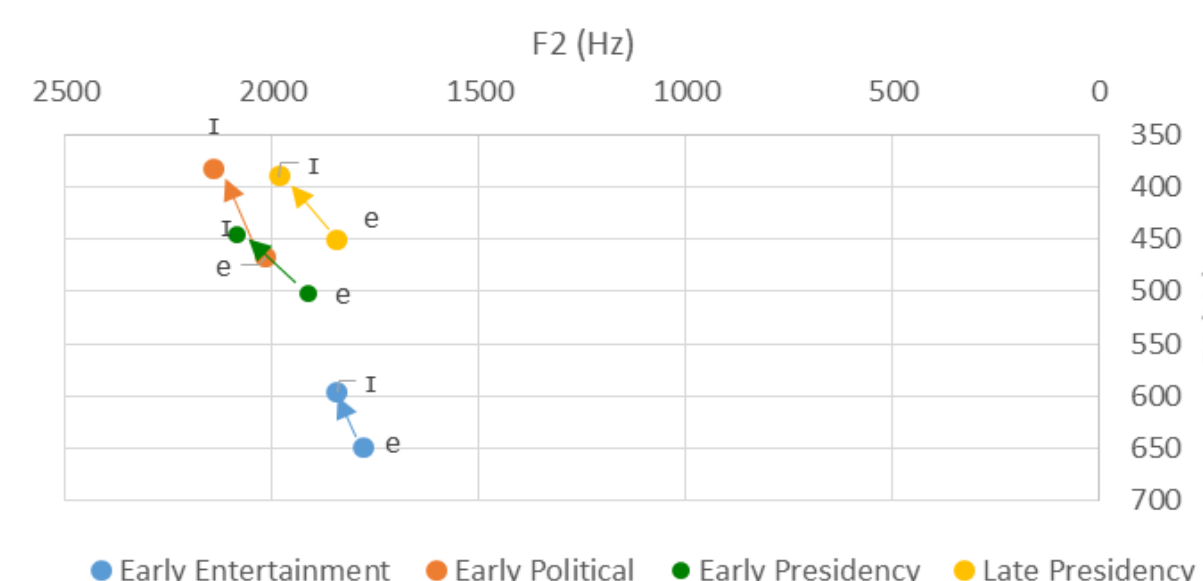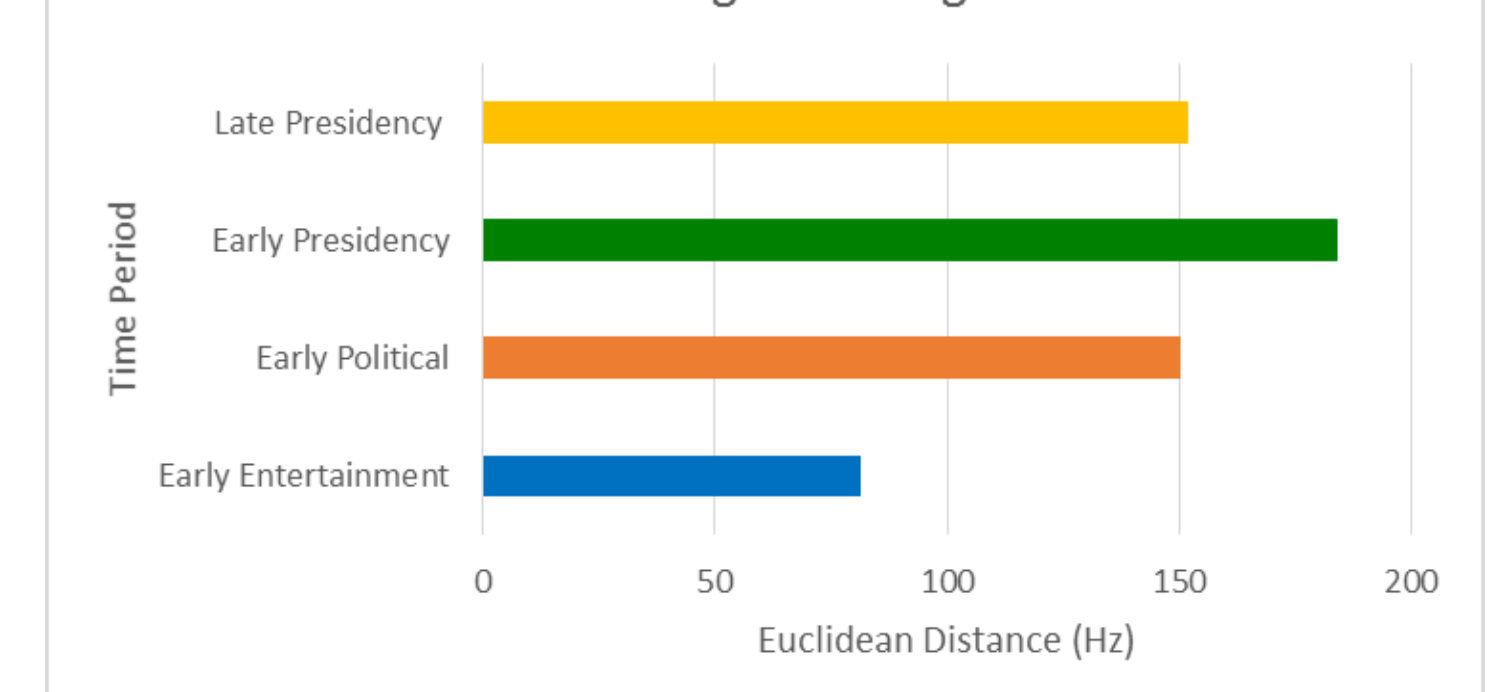
6. Analysis

LOT/THOUGHT
- The LOT and THOUGHT vowels both become higher and more back over time.
- These vowels become increasingly more merged, with the exception of early presidency.
- THOUGHT is pronounced further forward than LOT until Reagan reaches his presidency.
- The Euclidean distance decreases with time, with the exception of early presidency, showing that the distance between Reagan's pronunciation of the two vowels decreases, thus becoming more merged.

FACE
- In general, the height of both the [e] and [ɪ] increases with time.
- Both sounds in the diphthong become less back with time.
- The Euclidean distance increases with time, with the exception of late presidency, showing that the diphthong becomes less narrow.

Graph Showing the Euclidean Distances between the LOT and THOUGHT Vowels Throught Reagan's Career.

Graph showing the Euclidean Distances for the FACE Vowel Throughout Reagan's Career.

7. Conclusions so far

- Both vowels show a movement away from an Illinois realisation towards a more General American realisation.
- Reagan may be accommodating to a new regional accent (Giles, 1973).
- It may also be 'audience design'- shifting his pronunciation to match that of his likely audience, which changed significantly throughout his career (Bell, 1984).
- It may also indicate identification with a different regional variety or social prestige (Labov, 2006).

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References

Bell, A., 1984. Language Style as Audience Design. *Language in Society,* 13(2), pp. 145-204.
Giles, H., 1973. Accent Mobility: A Model and Some Data. *Antropological Linguistics,* 15(2), pp. 87-105.
Harrington, J., 2006. An Acoustic Analysis of 'happy-tensing' in the Queen's Christmas Broadcasts. *Journal of Phonetics,* Volume 34, pp. 439-457.
Labov, W., 1972. The Social Motivation of a Sound Change. In: *Sociolinguistic Patterns.* Pennsylvania: University of Pennsylvania Press, pp. 1-42.
Labov, W., 2006. *The Social Stratification of English in New York City.* 2nd ed. Cambridge: Cambridge University Press.
Milnar, R., 2015. *The Euclidean Distance in Diphthongs- R Graph and Code.* [Online] Available at: http://www.languagebits.com/phonetics-english/euclidean-distance-in-diphthongs-r-graph-and-code/ [Accessed 21 March 2016].
Prince, E. F., 1988. Accommodation Theory and Dialect Shift: A Case Study From Yiddish. *Language & Communication,* 8(3/4), pp. 307-320.
Wells, J. C., 1982. *Accents of English: Beyond the British Isles.* Online ed. Cambridge: Cambridge University Press.