Introduction

Description

- In Savo and Pohjois-Pohjanmaa (PP) dialects, words with shape CVCVC are produced as CVCVCV
  - v in Savo dialects often said to have a quality between those of the surrounding vowels (1a)
  - v in PP dialects has a quality that is identical to the preceding V (1b)
  - Insertion is also triggered when C₃ is a geminated consonant (1c)

(1) a. silmä > silenä ‘eye’
   b. silmä > silinä ‘eye’
   c. helppo > helenpö ‘easy’

- Insertion is not triggered by all CC environments. All exceptions fall under one of the following:
  - Later CC contexts (2a)
  - Homorganic C₂C₃ contexts (2b), (2c)
  - Voiceless C₂C₃ contexts (2d)
  - C₂C₃ contexts where /r/ is C₂ (2e), though there is disagreement (Suomi 1990, 2000; Harrikari 1999)

(2) a. kuvitelma > *kuvitelvma ‘fantasy’
   b. linna > *linvna ‘castle’
   c. ilta > *lantva ‘evening’
   d. ahkera > *ahkera ‘hard-working’
   e. sormi > *sormi ‘finger’

Proposal: Finnish dialectical vowel insertion is the mixed result of phonetic excrescence and the phonologization of inserted vowels

- Dialectical insertion is related to Second-Mora Lengthening, another dialectical phenomenon
- Different dialect groups display differing degrees of phonologization

Roadmap

1. Background
2. Second-Mora Lengthening (SML)
3. Acoustic Study
4. Discussion and Conclusions

1 Background

- Two major questions:
  1. Which dialects exhibit C₂C₃ vowel insertion?
  2. Which CC sequences trigger vowel insertion?

1.1 Early descriptions and dialectology

- Kettunen (1940)differentiates between three types of vowel insertion
  - ‘jalaka, kylämä, silemä,’ similar to (1a)
  - ‘jalaka, kylvämä, silimä,’ similar to (1b)
  - ‘jil[ma],’ or a schwa-like insertion
- Vowel insertion spans roughly what is contained in Savo and PP regions now
- (1a)-like pronunciations limited to southern Savo regions; (1b)-like pronunciations elsewhere
- Dialect atlas was purely descriptive, with no account for which dialects or in which environments

1.2 Generative approaches

- Later work collapses Savo (1a) and PP (1b) insertions as the same phenomenon
- Suomi (1990) proposed that the C₂C₃ environments that trigger epenthesis are those that are not allowed in C₁VVCC₃V words
  - This largely accounts for the distribution of environments, described in (2)
  - Does not account for the failure of later CC environments to trigger vowel insertion
- Harrikari (1999) proposed an OT account that invoked OCP (ClusterIntegrity), *CODA, DEP-IO, and footing constraints
  - Codas are illegal, except when the CC sequence formed is homorganic
  - Insertion in voiceless CC sequences violates DEP(f), where features (voicing on the vowel) cannot be added
  - Called on footing constraints to account for the failure of later CC environments to trigger vowel insertion
  - However, accounts for restrictions on words like hedelmä “fruit”—not for words like kuvitelma “fantasy” (2a), which would be footed (‘ku.vi)(te.le)ma

![Figure 1: The OT tableau proposed by Harrikari (1999)](image)

- Neither Suomi (1990) nor Harrikari (1999) attempt to account for which dialects have vowel insertion
- I argue that a connection with Second-Mora Lengthening accounts for both major questions

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2 Second-Mora Lengthening

2.1 General description
- Described most recently by Suomi and Ylitalo (2004) and Spahr (2012)
- Second-Mora Lengthening (SML) is when the second mora of a word is lengthened to (on average) 1.5 x the length of a comparable segment—the so-called “half-long” vowel
- Applies to both vowels and consonants
- Especially notable—Finnish contrasts quantity in both consonants and vowels

2.2 Connection to vowel insertion
- Strong correlation between dialects with SML and dialects with inserted vowels (Fig. 2)
- Relevant case: when consonants are the second mora, i.e., C1VC2C3V words
  - Consonants in second-mora position lengthen as well
  - However, consonants cannot be sustained in the same way that vowels can
  - Result: short, variable gap where with no consonantal closure (Fig. 3, left)
  - Later: phonologization of the gap into a “full-fledged” vowel (Fig. 3, right)

Excrencent vowel: /kolome/ > [kolame]

Phonologized vowel: /kolome/ > [kolome]

Figure 3: Schemata of excrescent vowel insertion and phonological epenthesis

- If SML is the root cause of vowel insertion, it neatly addresses the major questions:
  1. Which dialects exhibit vowel insertion?
     - Savo and PP dialects: They are both dialects with SML
  2. Which CC sequences trigger vowel insertion?
     - Restriction on later CC sequences: Only environments that are affected by SML
     - Restriction on homorganic sequences: In a homorganic C2C3C sequence, the closure of C2 is not sufficiently decreased before the closure of C3 is re-selected
     - Restriction on voiceless sequences: The gap is voiceless; therefore, it is not interpreted as a vowel
     - Debate on rC sequences: Trills can be sustained, but changes in airflow can alter the duration of the trill, which could result in the occasional excrescent vowel
- A connection to SML further allows for the variable realization of the inserted vowel
  - Variable vowel quality: An excrescent vowel would account for the “intermediate” vowel quality of the inserted vowel—as it is excrescent, it is not specified, merely realized in the transition between two vowels
  - Full-fledged, canonical vowels: Another process would have to come into play, specifically the phonologization of the inserted vowel. Is there evidence for such a process?
    - If the inserted vowel is excrescent, the duration should be relatively short—v not affected by SML
    - If the inserted vowel is a phonological epenthesis, SML will re-apply and treat v as the new second mora
3 Acoustic study

3.1 Methods

- Data is mainly from *Kotimaisten kielen keskus* (Lyytikäinen et al. 2013), plus one pre-obtained recording from Oulu
  - Digital spoken corpus of approximately 500 recordings of speakers from various areas in Finland, from 1959 onwards
  - Labeled with dialect area
  - Recordings are generally 2-5 minutes, telling some kind of story (e.g., how life is different now from when the speaker was a child, a story about a bear hunter)
  - Casual and dialectical speech

- Collected data from seven cities in each region
  - Savo: Heinävesi, Hyrynsalmi, Kajaani, Kuusamo, Maaninka, Rama, Varpaisjärvi
  - PP: Himanka, Kannus, Kempele, Kuivaniemi, Lestijärvi, Rantsila, Sievi

- Transcription by native speakers to find \( C_1VC_2C_3V \) words
  - Segmentation in Praat
  - Divided into “blocking” words and “triggering” words, based on previously described restrictions
  - 169 total \( C_1VC_2C_3V \) tokens
    - 59 “blocking” environments
    - 57 triggering words for Savo dialects
    - 53 triggering words for PP dialects

- Data processed with Matlab
  1. Vowel quality analysis
  2. Frequency and duration of vowel insertion

3.2 Results

3.2.1 Quality of inserted vowels

- Inserted vowels of Savo dialects reported to have an intermediate quality
- In this data, this does not seem to be the case—in both Savo and PP dialects, the inserted vowels are very similar in quality to the canonical vowels (Fig. 4, 5)
- Some anomalies with inserted vowels moving into the /i/ space—most likely vowels inserted before /j/ (e.g., nel(i)jä “four,” pal(i)jon “a lot”)

3.2.2 Frequency and duration of \( v \) in triggering environments

- Savo dialects (77.19%) exhibit the inserted vowel less frequently than PP dialects (98.11%) (Fig. 6)
- For both dialects, mean \( v/V_1 \) duration ratio is close to 1.5—indicates phonological status of inserted vowel in both dialects

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![Figure 5: Vowel charts of canonical vowels (left) and inserted vowels (right) in PP dialect](image)

![Figure 6: Normalized frequencies of vowel insertion in each dialect group and mean \( v/V_1 \) ratio](image)

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- \( C_2C_3 \) sequences that are inconsistent in Savo dialect are /hl/\, /hm/\, /hj/\, /hv/\, /hn/\, /nh/\, and /lk/\.
- The only \( C_2C_3 \) sequence that does not trigger insertion in PP dialects is /nh/\, which Kettunen (1940) actually separates from the other vowel insertions
- The most variable \( C_2C_3 \) combinations are those that involve /h/ in \( C_2 \) position (\( hC \)), where /h/ is voiced to [\( H \)]
  - It is not the case that \( hC \) combinations never trigger insertion in Savo dialects
  - One word can be realized in multiple ways by the same speaker in the same recording (Fig. 7)
4 Discussion and conclusions

4.1 Variable insertion indicates non-phonological cause

- Goes against accounts by both Suomi (1990) and Harrikari (1999)
- Two dimensions of variability
  - Overall frequency of vowel insertion is different between dialect groups
  - Within Savo dialects, not all inserted vowels are phonetic or phonological
  - That one word can have different realizations (in Savo dialects) in the same discourse indicates a phonetic cause

4.2 Further evidence for excrescent origins: blocking environments

- Some “blocking” environments tokens provide further support for an excrescent origin

**Restriction 1**: voiceless environments

- Words where C₂ is phonetically voiceless (e.g., pitkä “long”) do not trigger vowel insertion
- Harrikari (1999) attributed this to Dep(r), where the feature [+voice] cannot be added
- Excrescent origin has a similar approach—there is no voicing gesture on C₂, thus the gap is not voiced either
- However, you do see very clear releases of C₂ (Fig. 9)

**Restriction 2**: rC environments

- Previous debate on if rC environments trigger vowel insertion
- Suomi (1990, 2000) argue that rC does not trigger insertion—crucial for his C₁VVCC₂V analysis
- Harrikari (1999) argues that rC does trigger insertion—crucial to OCP-based analysis
- **Current approach**: If the trill is not maintained, the result is an excrescent vowel
- There are some tokens with an apparent excrescent vowel in rC contexts (Fig. 10)
4.3 Remaining questions and future directions

1. What exactly is SML, and why does it occur?
   - Greater distinction between CV.CV, CVC.CV, and CV.CVV words
   - Accentual intonation contour

2. What controls the process of phonologization?
   - Phonetics—possible to have hC sequences where h is phonetically voiced OR unvoiced
   - Lexical frequency?
   - C2C3 sequence frequency?

References


