1. Introduction

(1) Creole exceptionalism?
   a. “The world’s simplest grammars are creole grammars” (McWhorter 1998, 2001)

(2) A diachronic approach
   a. Creoles are defined by their history, not by current grammars (Muysken & Smith 1994)
   b. Should we expect creole exceptionalism to be diachronic rather than synchronic?
      • Creole inventories — Synchronically: Average size compared to non-creoles.
         Diachronically: Larger if strongly influenced by lexifier or substrate (Uffman 2009)
      • Front rounded vowels — Synchronically: Absent or non-contrastive in all contact.
         Diachronically: /y-i/ merger dominant in all creoles vs. /y-u/ in some contact (Ng 2011)

2. Stress-driven harmony

(3) a. Creole harmony is sporadic but widespread (Holm 1988: 125; Green 1988: 436)
   i. Saramaccan /œ/ vs. /æ/  • [kömpə] ‘friend’  • [k̜ánde] ‘village, country’ (Smith 1975)
   ii. Haitian u ‘you, your’  • [m̜a̜ʒe-ə] ‘your food’  • [f̜re-ə] ‘your brother’
   iii. French ve'nir ‘to come’ > [vini] in Haitian and other French creoles
   iv. English po'tato > [p̜t̜e-t̜e] ‘sweet potato’ in Krio
   v. English Smith > [s̜imt] in Jamaican
   vi. Portuguese mel ‘honey’ > [m̜el̜e] in São Tome
   ⇒ Strong-to-weak — Strong triggers, weak targets (unstressed, clitic, schwa, epenthetic)

   b. Substrate harmony is often /iəu/ vs. /iɛu/ (Clements & Rialland 2008)
      Akan (Dolphyne 1988: 18, 21)
      i. /iəu(æ)/  • [efie] ‘home’  • [owuo] ‘death’  • [obetwi] ‘he’ll push it’
      ii. /iɛu(a)/  • [efie] ‘vomit’  • [swoɔ] ‘honey’  • [ɔbetwĩ] ‘he’ll pull it’

   c. Also possible with Chinese substrate languages
      • Malay [k̜olo-san] ‘brooch’ > [k̜olo-san] in Baba Malay

(4) a. Non-creoles: Strong-to-weak harmony — Strong triggers, weak targets
   Finnish front harmony (Ohala 1994)

   b. Non-creoles: Weak-to-strong harmony — Unstressed triggers, stressed targets
   Grado Italian height harmony (Walker 2005) — also termed umlaut or metaphony
   i. Non-high  • [prefənn-a] ‘profound (f. sg.)’  ii. High  • [prefənn-u] ‘profound (m. sg.)’
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<td>✓</td>
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<td>b. Weak-to-strong</td>
<td>ˈboki &gt; ˈbiki</td>
<td>✓</td>
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3. **Previous proposals for stress-driven harmony**

(6) **Phonetic basis of phonologization**
- *Synchronically:* Universal constraints should be grounded in phonetics (Hayes 1999)
- *Diachronically:* Categorical phonology arises out of phonetic variation (e.g. Blevins 2004)
  ⇒ Harmony arises from vowel-to-vowel coarticulation (Ohala 1994; Majors 1998; Walker 2005)

(7) **Previous proposal for strong-to-weak harmony (ˈboki > ˈboko)**
- Stressed vowels are louder, longer, more peripheral (e.g. Fry 1955; Sluijter & van Heuven 1996) with stronger neural activation (Tilsen 2010)
- Hence speakers introduce strong-to-weak distortions for ease of articulation (e.g. Majors 1998)

(8) a. **Previous proposal for weak-to-strong harmony (ˈboki > ˈbiki)**
- Unstressed vowels have less volume, are shorter, more reduced (e.g. Lindblom 1963)
- Hence speakers introduce weak-to-strong distortions to overcompensate for listeners’ poor perception of weak vowels (Walker 2005)

b. **But phonetic studies of actual speech consistently find greater strong-to-weak distortion!**
- English (Magen 1984, 1997; Majors 1998; Cho 2004)
- French (Nguyen & Fagyal 2008)

4. **My proposal for the weak-to-strong harmony (gap)**

(9) **Perceptual basis of sound change** (e.g. Ohala 1986)
- Sound change requires listener misperception as well as speaker coarticulation
- Normally, listeners compensate for expected coarticulation (e.g. Mitterer 2006)

(10) **Also articulatorily unnatural: Neutral vowels in Finnish front harmony** (Ohala 1994)
  i. *Back* /a o u/ → [ˈpouda] ‘fine weather’
  ii. *Front* /æ ø y/ → [ˈpøydæ] ‘the table’
  iii. *Neutral* /i e/ → [ˈmel̩] ‘oar, paddle’
- The most ‘perceptually front’ vowels /i e/ are the ones that *don’t* trigger front harmony!
- **Differential compensation:** Listeners compensate more for more expected effects
  > Listeners expect frontness effects near /i e/, hence they compensate more → No change.
  > Less expected near /æ ø y/; hence undercompensation for coarticulation → Misperception.
  ⇒ Misperception near some vowels, not others = Harmony with neutral vowels.

(11) a. **How can weak-to-strong harmony ever occur in non-creoles?**
- Listeners undercompensate for less expected articulatory effects
  > More distortion expected near stressed vowels, hence compensation → No change.
  > Less distortion expected near unstressed vowels, hence undercompensation → Misperception.
  ⇒ Misperception near unstressed vowels, not stressed vowels = Weak-to-strong harmony.
b. Why is weak-to-strong harmony absent in creoles?
   • Early creolizers were inexperienced with stress-driven coarticulation (cf. Zhang & Francis 2010)
     ➤ Stress is not salient in many of the substrates (Gut et al. 2002; Clements & Rialland 2008)
   • Hence undercompensation across the board
     ➤ Stressed vowels inherently cause more distortion to neighbours → More misperception.
     ➤ Unstressed vowels inherently cause less distortion to neighbours → Less misperception.
     ⇒ Misperception near stressed vowels, not unstressed vowels = Strong-to-weak harmony.

5. Refining the proposal

(12) Is this an accidental gap? Two possibilities:
   a. No — L2 learners will always undercompensate across the board.
   b. Yes — L2 learners are capable of differential compensation given relevant L1 experience. ✓

(13) a. Palatalization of /k ɡ/ > [tʃ ʣ] in French creoles (Smith 2008: 122)
   ➤ Before /e ɛ y œ/, e.g. French quinze ‘fifteen’ > [tʃɛz] in Trinidad, Dominica
   ➤ Not before /i/, e.g. French quitter ‘to leave’ > [kite] in Trinidad, Dominica

b. Substrate palatalization
   ➤ Proto-Gbe */k ɡ/ > [tʃ ʣ] before /i ɪ y/ in most modern Gbe dialects (Capo 1991: 135)
   ➤ Fante /t d/ → [ts dz] before front vowels (Dolphyne 1988: 144); cf. Gbe (Capo 1991: 135)
   ⇒ Early creolizers had experience of CV coarticulation effects such as French [ki].

(14) Refined proposal
   • L2 learners are capable of differential compensation given relevant L1 experience
     ➤ Inexperienced with stress → Undercompensation across the board → Strong-to-weak harmony only.
     ➤ Experienced with CV coarticulation → Differential compensation → Palatalization except before /i/.
   • Seeking: Phonetic studies of substrates, etymological databases of creoles
   • Prediction: In imitation experiments, naïve speakers will perform more differential compensation for features which are allophonically conditioning in their L1.

(15) Conclusions
   • Weak-to-strong harmony gap due to traces of contact (L1 phonology influencing L2 perception)
   • A case of accidental creole exceptionalism
     ➤ Syllable-timed substrate → Strong-to-weak harmony.
     ➤ Stress-timed substrate → Weak-to-strong harmony?

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