

The phonology of contact

E-Ching Ng · 18 April 2011 · Dissertation prospectus

Advisors · Stephen R. Anderson, Claire Bower

Abstract	2
1. Introduction	3
2. Overview	3
3. Framework	6
3.1. L1 transmission	7
3.2. Creolization and languages of mixed origin	9
3.3. Other types of language contact	11
3.3.1. Second language acquisition	12
3.3.2. Loanwords	13
4. Schedule	13
Chapter outline	
1. Introduction	14
2. Literature review	14
3. Case study A. Unrounding: Creolization vs. other contact	14
4. Case study B. Harmony: Creolization vs. L1 transmission	15
5. Case study C. Paragoge: Contact vs. non-contact	16
6. Conclusion	17
References	18

I would like to thank Claire Bower, Steve Anderson, Darya Kavitskaya, Erich Round, John Singler, Leandro Bolaños, Emily Gasser and Jason Zentz for their help with this project. Of course I am to blame for any errors, not they.

Phonological theory aims to capture accurately all the sound patterns which can occur among the world's languages, and no more. Paradoxically, Optimality Theory (OT) both satisfies and fails this typological desideratum: factorial typologies make clear predictions about possible grammars, but also predict a number of unattested systems (Lombardi 1995/2001; Blumenfeld 2006). One promising approach to the too-many-solutions problem has linked the missing grammars to diachronic biases in speech perception and production (Myers 2002; Gordon 2007; Xhansson.2008.diachronic). Based on this proposal, I predict that in circumstances characterised by different phonetic effects, different typological gaps should emerge. This dissertation presents evidence supporting this prediction: three typological asymmetries in the diachronic processes observed with L1 transmission, creolization and other types of language contact.

Case study A. Front rounded vowels are invariably lost via unrounding in creoles (e.g. $y \rightarrow i, *u$), but in other contact situations both unrounding and backing are observed (e.g. $y \rightarrow i, u$). I draw on SLA findings that unfamiliar categories are acquired early but reduced (e.g. Flege et al. 2003). This predicts phonologically accurate acquisition of front rounded vowels as long as good access to native speakers was possible during the *habitation* stage of creolization, but increasing reduction of lip rounding during the successive adult SLA of the *plantation* stage (e.g. Chaudenson 2001).

Case study B. Weak-to-strong harmony, or feature spread from unstressed to stressed vowels, is rare in creoles, but common in non-creoles. It is an articulatorily unnatural development, because unstressed vowels are weak phonetic triggers of vowel-to-vowel coarticulation (Magen 1997). Since L1 perception is known to compensate differently for strong and weak triggers of coarticulation (Ohala 1994), I propose that L1 listeners may undercompensate for weak triggers, while L2 listeners tend to undercompensate across the board.

Case study C. Paragoge, or word-final vowel epenthesis, is common in contact situations, but relatively rare in historical change and virtually absent in child language (and French creoles). I examine several possibilities. (1) Release bursts can be perceived as full vowels (Boersma & Silke 2009); English and French creolization would differ in whether native speakers perceived learners' strong releases as paragoge, to be imitated in foreigner-directed talk. (2) Adults have a more effective post-grammatical self-monitor than children (Jaeger 2005: 82), which may militate against deletion. (3) Children may favour deletion over paragoge due to greater articulatory difficulty producing onsets than codas (McAllister 2009).

Implications. By demonstrating that circumstances associated with different phonetic effects result in typological asymmetries, these case studies support the proposal that attested systems are merely a subset of all cognitively possible grammars, limited by diachronic biases in speech perception and production. This also indicates creole exceptionalism in diachronic phonology, contrary to recent claims that creoles cluster in the typological 'middle', at least with respect to synchronic inventories (Uffman 2009; Klein 2011). In fact the evidence points to a unique phonology of contact which may assist historical linguists in diagnosing cases of language shift.

1. Introduction

One of the main aims of phonological theory is to capture the range of sound patterns observed among the world's languages; hence it is desirable that a theory should neither undergenerate nor overgenerate possible grammars. Paradoxically, Optimality Theory (OT) both satisfies and fails this typological desideratum: by stipulating that all phonological systems can be captured by freely rankable universal constraints, OT makes the clear prediction that possible rankings should correspond to possible grammars, but these factorial typologies also clearly predict a number of unattested systems (Lombardi 1995/2001; Blumenfeld 2006). The too-many-solutions problem, as it has been dubbed, is too extensive to be merely a series of accidental gaps; a more promising approach has linked the missing grammars to diachronic biases in speech perception and production (Myers 2002; Gordon 2007; Xhansson.2008.diachronic). Based on this proposal that attested systems are merely a subset of all cognitively possible grammars, limited by diachronic paths grounded in phonetics, I predict that in circumstances characterised by different phonetic effects, different typological gaps should emerge. This dissertation presents evidence supporting this prediction: three typological asymmetries distinguishing L1 transmission, creolization, and other types of language contact.

This prospectus is organised as follows. Section 2 very briefly contextualises my work in current language contact research before introducing my hypothesis, aims, assumptions and case studies. Section 3 describes my framework, defining L1 transmission, creolization, second language acquisition, loanwords and related terms as relevant for this dissertation. Each subsection includes a brief discussion of characteristic mechanisms of transmission, precautions taken in classifying and interpreting data, and a review of previous phonological findings. Section 4 gives a schedule of work completed and remaining. The last section is a chapter outline (pp. 14ff) with more details of the case studies; here the heading numbering restarts to match the chapters of the dissertation proper.

2. Overview

Language contact. OT has made important contributions to the study of language contact in accounting for the remarkable similarity between the phonology of creoles, L2 varieties (SLA), loanwords and L1 grammars (e.g. Eckman 2004; Plag 2009). Currently there is little interest in *differences* between transmission types except for the controversial hypothesis that creoles are typologically simpler than

non-creoles (McWhorter 2001). The creole simplicity hypothesis appears to be invalid, at least in the domain of phonology, in that creoles are rather ‘average’ languages in terms of inventory size and syllable templates (e.g. Uffman 2009; Klein 2011). This is not an entirely satisfactory result, because if L1 transmission and the various types of language contact are indeed linguistically distinct phenomena, they should exhibit differences as well as similarities. But synchronic complexity is not the only relevant measure of linguistic similarity. In fact, it may not even be the most relevant dimension, given that creoles are defined by their histories.

Proposal. This dissertation presents evidence that different types of transmission are associated with different typologies of *diachronic* phenomena. I describe three phonological changes which are missing in either L1 transmission or creolization as opposed to other forms of language contact. These case studies were chosen because they represent categorical and unexplained asymmetries involving language contact; all are well documented enough that published sources provide sufficient data. In discussing them I make the following assumptions about phonological change:

- Transmission is indirect and imperfect.
- Categorical change emerges from gradient effects.
- Phonetic effects originate in universals.

My aim is to provide an account that is compatible with:

- Existing findings from SLA and creole studies, independently supported by experimental and historical evidence;
- Relevant findings from phonetics and psycholinguistics;
- Relevant data from other types of language contact, especially instructed adult SLA, loanwords, nativised varieties (e.g. World Englishes) and non-native perception.

By combining these findings with a wide pool of relevant data, all three typological gaps can be accounted for. No new mechanisms are required; the effect of transmission type on phonological change is an emergent property. A brief summary of each case study follows below.

A. *Front rounded vowels* are invariably lost via unrounding in creoles (e.g. $y \rightarrow i, *u$), but in all other contact situations both unrounding and backing are observed (e.g. $y \rightarrow i, u$). I draw on historical evidence for two distinct stages of creolization (e.g. Chaudenson 2001) as well as SLA findings that unfamiliar L2 categories are acquired early but reduced (e.g. Flege et al. 2003). Put together, these findings predict phonologically accurate acquisition of front rounded vowels as long as good access to native speakers was possible during the *habitation* stage of

creolization, but successive reduction of lip rounding during the *plantation* stage when learners were predominantly adult males targeting the non-native speech of earlier arrivals. This prediction matches the descriptions of persistent but reduced front rounded vowels in the most conservative creoles, rural St. Lucian and Louisiana creole (Carrington 1984: 18; Klingler 2003: 143). I presented this analysis at SPCL this January, based on an earlier term paper but incorporating more data.

B. Weak-to-strong harmony, or feature spread from unstressed to stressed vowels, is common in non-creoles, but rare in creoles. Here I use the term loosely to refer to short-distance synchronic alternations (Germanic umlaut; Romance metaphony), as well as common sporadic sound changes which differentiate creole lexical items from their sources. Weak-to-strong harmony is articulatorily unnatural in that unstressed vowels are weak triggers of vowel-to-vowel coarticulation (e.g. Magen 1997). Since L1 perception is known to compensate differently for strong and weak triggers of coarticulation (e.g. Ohala 1994), I propose that L1 listeners may undercompensate for unstressed triggers, whereas L2 listeners tend to undercompensate across the board. This would result in strong-to-weak vowel harmony, which is indeed a common development in creoles. The L1 part of this analysis is currently a term paper; the L2 part will be presented at the Society for Pidgin and Creole Linguistics (SPCL) this summer.

C. Paragoge, or word-final vowel epenthesis, is common in contact situations (except French creoles), but relatively rare in historical change and virtually absent in child language. I will consider several possible explanations. (1) L1 phonotactic constraints may favour perception of release bursts as full vowels (Boersma & Silke 2009); English and French creolization might differ in whether native speakers perceived L2 learners' strong releases as paragoge, to be imitated in foreigner-directed talk. (2) Adults have a more effective post-grammatical self-monitor than children (Jaeger 2005: 82), which may militate against deletion. (3) Children may favour deletion over paragoge due to greater articulatory difficulty with onsets than with codas (McAllister 2009). This case study is currently in the form of a detailed prospectus.

Scope. Despite its relative neglect in SLA and creole studies, phonology is a natural starting point for this research programme because sound change is better understood than other aspects of diachronic linguistics. All three case studies deal with vowels because consonant changes often require nothing more than an inventory-based analysis, whereas vowel mappings are rarely one-to-one and illustrate more clearly why a transmission-based account is necessary. For the same reason, I focus on the formation of plantation creoles versus L1 transmission, contrasting a complex and unique type of transmission with the default.

3. Framework

In pioneering work which established a framework for the study of language contact, Thomason and Kaufman (1988: 35ff) proposed that L1 influence on L2 (borrowing) and L2 influence on L1 (shift) are essentially opposites in terms of linguistic consequences. Specifically, they showed that while language contact affects multiple (potentially all) domains of grammar, L2-to-L1 change is most likely to take the form of lexical borrowing and least likely to affect L1 phonology, whereas L1-to-L2 change is highly likely to affect L2 phonology and least likely to affect closed systems such as inflectional morphology. This proposal is summarised in Table 1 below.

Table 1: Thomason & Kaufman (1988: 35ff)

Type of contact	Borrowing (maintenance)	Substratum change (shift)
Recipient language	Into L1	Into L2
Transfer of	Lexical items first	Phonology first

Van Coetsem (1995) updates the above proposal by making reference to language dominance and the stability of different domains of grammar. This provides a more principled account of extensive L2-to-L1 transfer in immigrant phonology, but otherwise makes similar predictions in the overwhelming majority of cases, including those relevant to this dissertation. The parallels between the two proposals can be observed by comparing Table 1 above with Table 2 below.

Table 2: Van Coetsem 1995

Type of contact	Borrowing	Imposition
Recipient language	Into dominant language	Into non-dominant language
Transfer of	Less stable elements first	More stable elements first

This dissertation extends these proposals: I show that even within a single domain of grammar, the type of language contact can have linguistic consequences.

Terminology. In the following discussion, *transfer* and *interference* refer to permanent and non-permanent influence on the grammar of another language respectively. The terms *lexifier* and *superstrate* are used interchangeably for the language that provided the bulk of the lexical material for a creole. My umbrella term for pidgins, creoles and mixed languages is *languages of mixed origin*.

3.1. L1 transmission

My data for L1 transmission come from synchronic grammars of natural non-mixed languages, historical reconstructions and child acquisition. A crucial methodological issue is whether these are really categorically distinct from cases of language contact. Monolingual acquisition is commonly considered the default case, but it is by no means universal, and often difficult to verify historically. Below I describe the precautions I have taken in order to contrast these data usefully with documented cases of language contact.

The primary mechanism of L1 transmission is, by definition, child acquisition. But since input is provided not only by parents, but also by peers and other members of the community, features from different varieties may be acquired by children as part of their native variety (e.g. Labov 2010: ch.16; Labov 1966). Even adults may pick up such features, intentionally or unintentionally (e.g. Siegel 2010). Features of L2 speech can also spread to L1 speech in this way if the L2 learners are numerous enough (Thomason & Kaufman 1988: 68). Alternatively, monolingual children may grow up to be multilingual adults whose later languages can audibly influence their L1 pronunciation, though usually not to the extent of merging or splitting phonological categories (e.g. Sancier & Fowler 1997). In all these cases, however, most contact is not with other languages, but with other dialects (related mutually intelligible varieties) whose differences often originate similarly in L1 acquisition. Furthermore, contact has a relatively small effect on L1 phonology compared to other domains of grammar (Thomason & Kaufman 1988: 35ff; Van Coetsem 1995). It is not crucial, even if it were possible, to limit the data set to historically verifiable cases of monodialectal transmission, if the aim is to contrast the two very different cases of L1 transmission and creolization. Apparent exceptions may occur, but if these previous findings are sound they should be rare in comparison with true counter-examples.

Another precaution against incorrect generalizations about different types of transmission lies in the nature of the comparisons I will make. Each case study selects a phenomenon that is not merely more or less common in different transmission types, but appears to be categorically absent in one while being common in another. This still leaves us vulnerable to the problem of misclassified language varieties: it would still be dangerous to claim, for instance, that phenomenon X was absent in all types of language contact, since data classified as L1 transmission could include undocumented contact.¹ But this problem does not apply to

¹ I wish to thank Andrew Garrett for bringing this issue to my attention, and to Claire Bowerman for helping me to think through the ramifications.

the opposite type of claim, for instance that parago is absent in L1 transmission (case study C). Since cases of monolingual transmission are unlikely to be misclassified in SLA, loanword and creole data, counter-evidence where L1 parago does occur will not be hidden. However, depending on how much contact is necessary for parago to emerge, we may see some cases of contact parago misclassified as L1 transmission; these need not falsify the generalization if independent evidence for contact exists (cf. Thomason & Kaufman 1988: 60ff). The other two case studies avoid the misclassification problem by focusing on the absence of a phenomenon in plantation creoles specifically: these can be identified from relatively recent historical records and are not likely to be misclassified as non-creoles. I wish to stress that this approach does not eliminate the misclassification problem; it merely guarantees that all three typological asymmetries under discussion are falsifiable.

Phonology. I discuss sound change within Ohala's (2004) listener-based model where change originates in misperception, either under- or over-compensation due to coarticulation and other phonetic effects in production. Hale (2007: 116ff) has stressed that phonological reanalysis can precede changes in phonetic form; this point is especially relevant in language contact situations where speakers and listeners may have different grammars. My aim in each case study is therefore to identify the range of phonetic effects that can be phonologically reanalysed, accounting for missing sound changes by demonstrating that no phonetic effects could have allowed the necessary misanalysis. As for what triggers such changes in perception, production or phonological analysis, a number of extralinguistic factors have been proposed, including social identity, frequency effects and successive norming to child-directed speech (e.g. Labov 2001; Bybee 2007; Jacewicz et al. in revision). For my case studies, the most relevant catalyst of change is language contact itself; a detailed analysis of other potential triggers appears less relevant, because my focus is on the range of possible changes rather than the likelihood that some change can occur.

- Xblevins.2004 Note that because meaningful input to acquisition is provided by adults or older children, mature articulatory constraints are highly relevant in constraining the phonetic effects which can be phonologised. However, child acquisition is the key mechanism of L1 transmission, and young children have unique perception and production, e.g. different articulatory constraints (McAllister 2009) and less efficient self-monitoring (Jaeger 2005: 82). Hence both child and adult phonetics will be considered as potentially constraining the typology of L1 transmission.

3.2. Creolization and languages of mixed origin

There is widespread agreement on the identity of the most canonical creoles, e.g. Saramaccan (English-based) and Haitian (French-based), but there is overlap in the sets of languages designated by the terms *creole*, *mixed language* and *pidgin*. Conventionally, natural languages of mixed origin are considered pidgins if they lack native speakers (Muysken & Smith 1994), and mixed languages are said to differ from creoles in that their grammars are predominantly drawn from a single language instead of many (Matras & Bakker 2003). I will focus on plantation creoles, which are defined by a complex and unique transmission history and are better historically documented than many other types of contact-induced change.

The creolization process which produced the Caribbean and Indian Ocean plantation creoles is now widely accepted to have occurred in two quite dissimilar stages (Chaudenson 2001; Singler 2008: 336). In the *société d'habitation* (homestead society) of initial colonisation, enslaved Africans were outnumbered by Europeans, and households tended to be small, with close contact between slaves, indentured whites, and possibly other members of the owner's family. This first stage of creolization was therefore characterised by relatively good exposure to native-speaker input, which declined dramatically when colonies switched to growing sugar, a crop requiring large economies of scale (Singler 1993; Higman 2000). The resulting *société de plantation* saw a steep rise in the ratio of Africans to Europeans and far greater social separation, as well as low fertility and high mortality for slaves, predominantly adult males. During this second stage of creolization, learners had little access to native speakers and must have targeted the non-native speech of earlier arrivals instead (target shift); constant immigration would also have contributed to the importance of L1 influence. This two-stage model is sometimes called the continuity hypothesis, in opposition to the conventional view of creolization as disrupted transmission (Singler 2008: 339), but since conditions for SLA deteriorated so sharply in the second stage, I see the plantation creole model as incorporating both disruption and continuity.

I follow common practice in including maroon creoles under the umbrella of plantation creoles, because maroons were communities of escaped slaves who had important ties to plantation populations and often did not diverge linguistically from them (Kouwenberg & Singler 2008: 11). However, I exclude other languages often discussed in the creole literature whose transmission histories are significantly different from the plantation creole model. These fall into three main classes. (1) Other creoles resulting from the mixing of multiple speech communities are excluded if their development diverged significantly from the plantation creole model, such as Pacific creoles emerging from urbanisation, e.g. Solomon Islands

Pijin (Jourdan & Keesing 1997), and mission creoles, e.g. Roper River (Ngukurr) Kriol (Harris 1993). (2) Creoles originating in mixed marriages, e.g. Baba Malay and the fort creoles which developed near European forts in Africa, are often structurally similar to plantation creoles. However, their transmission history overlaps with mixed languages, which arise in communities of hybrid ethnic identity or resistance to assimilation, e.g. Michif or varieties of Romani. (3) Pidgins are omitted because they arise in diverse contact situations (Bakker 2008). Please note that I have highlighted the differences between plantation creoles and these types of pidgins and creoles because it may be necessary to make different predictions based on their different transmission histories; however, they too are valid sources of data on documented language contact and will be discussed where relevant.

Data selection. Creole data presents two main difficulties for a typologist. Firstly, modern creoles generally display considerable variation: this is often called the creole continuum, comprising the acrolect, mesolect and basilect (e.g. DeCamp 1971; Rickford 1987), though it has also been analysed as diglossia comprising only two varieties, High and Low (e.g. Ferguson 1959). It is possible that each variety, including the mesolect, has its own history (e.g. McWhorter 2005: 232), perhaps even dating from the homestead stage of creolization, but since acrolect speakers are also the ones most exposed to postcolonial varieties of the lexifier, I will treat the basilectal varieties as the most reliable data for creole genesis.

The second data issue is that creole superstrates and substrates are typologically limited, overrepresenting stress and tone languages respectively, as well as complex and simple syllable structures respectively. This skew does not necessarily invalidate all discussion of creole typology, but it does advise caution. For this reason I seek out matched comparisons with other contact situations involving similar languages, for instance African nativised varieties of French when examining front rounded vowels in French creoles. I also consider that in such a limited sample every data point is precious, so despite focusing on plantation creoles as narrowly defined above, I make every effort to account for non-canonical cases which display unexpected patterns, such as the survival of French front rounded vowels in the unusually isolated conditions of rural St. Lucian creole (Carrington 1984: 18).

Phonology. Phonology has had a special, albeit overlooked status in the universalist-substratist controversy which has long dominated creole studies. While Bickerton's (1981) bioprogram hypothesis claimed that creole syntax was determined solely by Universal Grammar, substrate influence on creole phonology went virtually unquestioned (Singh & Muysken 1995). The bioprogram was repeatedly buffeted by linguistic evidence that marked features were transferred from the

substrate (e.g. Singler 1988) and was definitively laid to rest when it was shown that Bickerton's key example, Hawai'i Creole English, emerged at a time when substrate languages were still being spoken (Roberts 2005). Currently the role of L1 transfer is a major theme of creole research in all domains of grammar (e.g. Michaelis 2008).

- Xsingler.1993Xholloway.1990The debate sparked by McWhorter's (e.g. 2001) creole simplicity hypothesis approaches similar issues from a different perspective. McWhorter opposes the conventional view that the only defining property of creoles is their sociohistory; he argues instead that creole synchronic grammars are also simpler, in fact non-overlapping with non-creole typology. His illustration of this point using the radical creole Saramaccan defines phonological simplicity in terms of inventory markedness and/or size (McWhorter 2001: 135–6). The creole simplicity hypothesis was not confirmed by Klein's (e.g. 2011) extensive surveys of inventory size and syllable templates for geographically diverse creoles, which found no evidence that creoles exhibit exceptional simplicity, and in fact argued that they cluster in the typological middle. However, these surveys do not eliminate a weaker form of the creole simplicity hypothesis because as aforementioned, these types of marked phonology are overrepresented among superstrates, such that typologically 'average' creoles could still result from reduction in markedness.

Uffman (2009) addresses this possibility in a restricted but detailed survey of Caribbean creole consonant inventories alongside both superstrates and substrates, with two striking results. Firstly, some highly marked substrate and superstrate consonants can survive, while others are lost: Uffman argues that this depends on which ones could be mapped to lexifier phonetic input by L1-influenced perception. Secondly, just as more superstrate exposure facilitates better acquisition of marked superstrate consonants, Uffman argues that radical creoles (those with less access to the superstrate, e.g. Saramaccan) also preserve more substrate vocabulary, acting as a vehicle for marked substrate contrasts. Thus, contrary to McWhorter's prediction that radical creoles should be the least marked, Uffman startlingly predicts a U-shaped curve, where markedness is increased by unusually strong influence from either superstrate or substrate; this agrees with other researchers' findings that pidgins may be more marked than creoles (Bakker 2008, 2009). Another creolist who emphasises the role of L1-influenced perception in creolization is Russell Webb (e.g. 2010). My dissertation extends this line of investigation to other areas where contact-linked phonetic effects can have unexpected consequences.

3.3. Other types of language contact

The discussion below contrasts other types of language contact with creolization and L1 transmission, the key transmission types for my case studies.

3.3.1. *Second language acquisition*

The SLA field may initially appear irrelevant to the language learning process involved in creolization due to its focus on the foreign language classroom. The input to acquisition is of course very different: college classes provide regular access to (near) native speakers of the standard modern variety as well as orthographic representations, all of which are lacking in at least some types/stages of creolization. But the focus on college-age students is not as irrelevant as it may appear, given the important role of adult SLA in the plantation creole model, and the fact that experienced slaves were usually appointed to teach newcomers the language (Chaudenson 2001: 91). Because SLA researchers can control for the languages involved, they have been able to identify constraints on L1 transfer (e.g. Andersen 1983) which also appear to obtain in creolization (Siegel 2008b: 155ff). Another advantage of SLA data is that it incorporates time depth, since creolization seems to preserve features of both the early and late stages of SLA ().

Phonology. One drawback is that SLA is highly individual and unstable, with far less of the group norming which occurs in both creolization and L1 transmission. Phonetic studies provide one means of understanding these gradient phenomena accurately. There is also a growing literature on *non-native perception*, that is first encounters with L2 speech sounds as opposed to later L2 learning (e.g. Best & Tyler 2007); the controlled experimental conditions of these studies provide a useful check on proposals in other fields of language contact. Another approach is to consider data from countries such as Singapore and Togo, where the institutional importance of L2 English and French respectively has led to internal norms and varying degrees of nativization which make these nativised varieties far more comparable to creoles (Mufwene 2008: 149).

As in creolization, L2 phonetics and phonology are relatively understudied, and the role of L1 influence in these domains is widely accepted even by those who deny it in syntax (Eckman 2004). The emergence of the unmarked has also been an important theme for decades (e.g. Johansson 1973). For instance, coda mispronunciations are common only among learners whose L1s have more coda restrictions than the L2, demonstrating L1 transfer, but the emergence of the unmarked is also visible in error frequencies, which match universal hierarchies of markedness; interestingly, learners may still make mistakes on codas permitted in their L1 (e.g. Wang 1995: 74). Currently a major focus of research is the plasticity of the adult language faculty. Adults appear to be capable of acquiring L2 contrasts (e.g. vowel length) after just one year of immersion, but even after a decade of immersion their phonetic realization of L2 categories is still intermediate between the most similar L1 category and the native-speaker pronunciation of the L2 category

(e.g. Flege et al. 2003). This rapid but reduced acquisition is relevant not only to creolization, but also to our understanding of loanword data.

3.3.2. *Loanwords*

Loanwords represent diverse transmission histories, e.g. L1-to-L2, L2-to-L1, or even L2-to-L2, and the type of input is often uncertain. Different degrees of nativization also constitute a challenge in working with loanword data. However, their relative stability compared with SLA has facilitated a wealth of recent phonological research which is relevant for this dissertation (e.g. Peperkamp & Dupoux 2002; Boersma & Silke 2009). Recent creole studies have drawn on these perception-based approaches to loanword phonology (e.g. Russell Webb 2008; Uffman 2009). An important controversy in this area is whether phonological adaptation is limited to phonetic input, or can also access underlying forms (LaCharité & Paradis 2005); this is an interesting question to consider with respect to creolization, where orthographic input was absent for all practical purposes.

4. Schedule

	Date	Task
<i>Completed</i>	Spring 2010	Unrounding (case study) term paper
	Fall 2010	Harmony (case study) term paper
	Spring 2011	Unrounding presentation at SPCL (Pittsburgh, 8 Jan) Epenthesis (case study) detailed prospectus (27 Feb) Prospectus (25 April)
<i>To do</i>	Summer 2011	Unrounding chapter Harmony presentation at SPCL (Accra, 2 Aug)
	Fall 2011	Harmony chapter Literature review detailed outline Confirm external readers
	Spring 2012	Epenthesis chapter draft Literature review draft
	Fall 2012	Finalise epenthesis chapter Finalise literature review
	Spring 2013	Revise dissertation Job hunt

Chapter outline

1. Introduction

Expansion of §1–2 of prospectus (except phonology subsections: see ch. 2).

- **OVERVIEW** — Brief context, hypothesis, aims, assumptions and case studies.
- **FRAMEWORK** — My understanding of L1 transmission, creolization, SLA, loanwords and related terms. Characteristic mechanisms of transmission, precautions taken in classifying and interpreting data.

2. Literature review

- **LITERATURE REVIEW** — Previous proposals linking transmission type to linguistic outcomes, especially phonetic or phonological. How my proposal builds on them. Organised by transmission type.

3. Case study A. Unrounding: Creolization vs. other contact

- **PHENOMENON** — Creoles always lose front rounded vowels (FRVs) via unrounding, never backing (e.g. $y \rightarrow i$, * u). Both processes occur in other contact situations (e.g. $y \rightarrow i$, u). FRVs survive in conservative creoles with reduced rounding.
- **PREVIOUS ACCOUNTS** — (1) Creolization differs from other contact situations in terms of input, e.g. foreigner talk, 17th century French dialects, orthography (e.g. Russell Webb & Anderson 2010). (2) L1 affects whether FRVs are perceived as front unrounded (e.g. $y \rightarrow i$) or back rounded (e.g. $y \rightarrow u$) (Rochet 1995).
 - **PROBLEMS** — (1) Historical and experimental evidence discredits input-based proposals (Ng 2011). (2) L1s similar to creole substrates in francophone Africa do not produce the creole-like typological gap (e.g. Lafage 1985: 165).
- **PROPOSAL** — Adult SLA interacts with the plantation creole model.
 - The first phase of creolization (*société d'habitation*) is characterised by good exposure to native speakers (Chaudenson 2001), hence SLA findings are relevant: unfamiliar categories are acquired early but reduced (e.g. Flege et al. 2003). This predicts phonologically accurate acquisition of FRVs alongside

phonetic attraction to the most similar L1 categories, which would be front unrounded vowels because: (1) FRVs are categorically attracted to L1 back vowels only when atypically centralised or less rounded, e.g. French [y] → Japanese [ɯ], American English [ɪ]. (2) Attraction to front unrounded vowels (i.e. front with reduced rounding) results in featurally accurate realizations, unlike attraction to back vowels (i.e. centralised).

- In the second phase of creolization (*société de plantation*), characterised by rapid immigration of adult males with short life expectancy, lip rounding would be further reduced by successive waves of adult L2 learners relying on non-native input.
- ADVANTAGES — More data from multiple domains can be accounted by applying independently necessary proposals; no new mechanisms are needed.
- DISCUSSION — (1) Backing (e.g. y → u) during creolization might be possible with substrates like American English or Japanese, if combined with sufficiently poor native-speaker exposure and short generations during successive adult SLA. (2) Variation or categorical backing might result under different conditions of creolization, e.g. urbanisation (Jourdan & Keesing 1997). The crucial ingredients would be atypical L1 back vowels (e.g. Japanese [ɯ], American English [ɪ]) and poor exposure to input.
- CONCLUSION — The asymmetry stems from perception and production effects associated with the unique group SLA which occurred during creolization.
- FURTHER DATA/ANALYSIS REQUIRED — Incorporate data on FRVs other than [y]. Check FRV development in Dutch creoles. Account for both unrounding and backing in L1 transmission (e.g. y → i, u).

4. Case study B. Harmony: Creolization vs. L1 transmission

- PHENOMENON — Weak-to-strong harmony (feature spread from unstressed to stressed vowels) is rare in creoles but common in non-creoles.
- PREVIOUS ACCOUNTS — Feature spread from unstressed to stressed vowels is articulatorily unnatural and has therefore been explained in terms of perceptual enhancement: unstressed vowels are associated with reduced acoustic cues, so their features are better perceived when spread to stressed vowels (Kaun 1995; Walker 2005).
 - PROBLEMS — (1) Since cue enhancement is a zero-sum game, it is not clear why trigger cues are enhanced at the cost of target cues, especially when morphological distinctiveness is not maximised. (2) Unlike other listener-

oriented effects (e.g. Yao 2010), this type of cue enhancement is unattested in production studies, so its availability for phonologisation must be questioned.

- **PROPOSAL** — Differential compensation for coarticulation is characteristic of L1 listeners, not L2 listeners. ; L2 listeners are more likely to undercompensate across the board.
 - **ADVANTAGES** — No new mechanisms are needed, only independently demonstrated effects attested in both acoustic and articulatory phonetics.
 - **DISCUSSION** — Data for French creole k-palatalization point to differential compensation during creolization. This does not conflict with my proposal for weak-to-strong harmony because all L1s require compensation for CV-coarticulation, whereas the tonal substrate languages would require less compensation for stress effects.
- **CONCLUSION** — The asymmetry stems from imitation of perceived input, i.e. different transmission failures. This is L1 influence, but by an indirect route.
- **FURTHER DATA/ANALYSIS REQUIRED** — French creole k-palatalization. Other types of language contact.

5. Case study C. Paragoge: Contact vs. non-contact

- **PHENOMENON** — Paragoge (final vowel epenthesis) is common in contact situations (except French creoles), but virtually absent from child language and historical change.
- **PREVIOUS ACCOUNTS** — (1) The p-map proposal argues that repairs are unattested if they cannot result from misperception (Steriade 2001). (2) SLA schwa-epenthesis results from overlap of articulatory gestures, at least word-medially (Davidson 2006). (3) L2 learners must cope with conflicting surface constraints and underlying representations (Eckman 2004).
 - **PROBLEMS** — (1) The p-map actually predicts that paragoge should be a possible development in languages permitting strong release of codas.
 - (2) Gestural overlap cannot account for paragoge in isolated forms.
 - (3) L1 acquisition also has to cope with conflicting surface constraints and underlying representations.
- **PROPOSAL** — Several possibilities will be considered. (1) Release bursts can be perceived as full vowels (Boersma & Silke 2009). English and French creolization would differ in whether native speakers perceived learners' strong releases as paragoge, to be imitated in foreigner-directed talk. (2) Post-grammatical monitoring may be more effective in adult SLA than in child acquisition (Jaeger

2005: 82). (3) Children may favour deletion over paragoge, due to greater articulatory difficulty with onsets than with codas (McAllister 2009).

- **ADVANTAGES** — (1) Accounts for a much wider range of data than previously possible. (2) All mechanisms proposed above have been independently proven, so this is an economical account even if none of the mechanisms can be ruled out completely.
- **DISCUSSION** — Apparent counter-examples cluster in the Romance and Austronesian language families (e.g. Old Spanish: Honsa 1962; Proto-Romance: Lüdtke 1988: 344–5; Sulawesi: Sneddon 1993; Himmelmann 1997; Luangic-Kisaric: Blevins & Garrett 1998: 542ff). But contact appears important in their development (e.g. Romance: Green 1993) so they are not canonical examples of L1 transmission.
- **CONCLUSION** — This asymmetry stems from imitation of perceived input or the special nature of child production. These are transmission failures linked to learner type, many of which cannot be simply characterised in terms of constraints on SLA.
- **FURTHER DATA/ANALYSIS REQUIRED** — Narrowing down possible mechanisms. Possible role of contact in cases of L1 paragoge. Relationship with initial/medial epenthesis, deletion and consonant clusters.

6. Conclusion

- **SUMMARY** — Show how case studies work together to support my hypothesis.
- **IMPLICATIONS** — Implications for related fields: language contact, phonology, historical linguistics, e.g. diagnostic for whether contact was involved in historical change.

References

- Andersen, Roger W. (1983). The transfer to somewhere principle. In *Language Transfer in Language Learning*, Susan Gass & Larry Selinker, eds., Rowley, MA: Newbury House, 177–201.
- Bakker, Peter (2008). Pidgins versus creoles and pidgincreoles. In *The Handbook of Pidgin and Creole Studies*, Silvia Kouwenberg & John Victor Singler, eds., Chichester; Malden, MA: Blackwell, 130–157.
- Bakker, Peter (2009). Phonological complexity in pidgins. In *Simplicity and Complexity in Creoles and Pidgins*, Nicholas Faraclas & Thomas B. Klein, eds., London: Battlebridge, 7–27.
- Best, Catherine T. & Michael D. Tyler (2007). Nonnative and second-language speech perception: Commonalities and complementarities. In *Language experience in second language speech learning: In honor of James Emil Flege*, Ocke-Schwen Bohn & Murray J. Munro, eds., Philadelphia: John Benjamins, 13–34.
- Bickerton, Derek (1981). *Roots of language*. Ann Arbor, MI: Karoma.
- Blevins, Juliette & Andrew Garrett (1998). The origins of consonant-vowel metathesis. *Language* 74(3): 508–556.
- Blumenfeld, Lev A. (2006). *Constraints on phonological interactions*. Ph.D. dissertation, Stanford.
- Boersma, Paul (2009). Cue constraints and their interactions in phonological perception and production. In *Phonology in Perception*, Paul Boersma & Silke Hamann, eds., Berlin: Mouton de Gruyter, 55–109.
- Bybee, Joan (2007). *Frequency of use and the organization of language*. Oxford; New York: Oxford University Press.
- Carrington, Lawrence D. (1984). *St. Lucian Creole: A descriptive analysis of its phonology and morpho-syntax*. Kreolische Bibliotek 6, Hamburg: Helmut Buske Verlag.
- Chaudenson, Robert (2001). *Creolization of language and culture*. London; New York: Routledge.
- Coetsem, Frans van (1995). Outlining a model of the transmission phenomenon in language contact. *Leuvense Bijdragen* 84: 63–85.
- Davidson, Lisa (2006). Phonotactics and articulatory coordination interact in phonology: Evidence from nonnative production. *Cognitive Science* 30: 837–862.
- DeCamp, David (1971). Towards a generative analysis of a post-creole speech continuum. In *Pidginization and creolization of languages*, Hymes, ed., Cambridge: Cambridge University Press, 349–370.
- Eckman, Fred R. (2004). From phonemic differences to constraint rankings: Research on second language phonology. *Studies in Second Language Acquisition* 26(4): 513–549.
- Ferguson, Charles (1959). Diglossia. *Word* 15: 325–340.
- Flege, James Emil (2003). Interaction between the native and second language phonetic subsystems. *Speech Communication* 40(4): 467–491.

- Gordon, Matthew (2007). Typology in Optimality Theory. *Language and Linguistics Compass* 1: 750–769.
- Green, John N. (1993). Representations of Romance: Contact, bilingualism and diglossia. In *Trends in Romance linguistics and philology, Volume 5: Bilingualism and linguistic conflict in Romance*, Rebecca Posner & John N. Green, eds., The Hague; New York: Mouton, 3–40.
- Hale, Mark (2007). *Historical linguistics: Theory and method*. Malden, MA; Oxford: Blackwell.
- Harris, John (1993). Losing and gaining a language: The story of Kriol in the Northern Territory. In *Language and culture in Aboriginal Australia*, M. Walsh & C. Yallop, eds., Canberra: Aboriginal Studies Press.
- Higman, B.W. (2000). The sugar revolution. *The Economic History Review* 53: 213–36.
- Himmelman, Nikolaus P. (1997). The paragogic vowel in Lauje (Tomini-Tolitoli): Phonology or morphosyntax? In *Austronesian linguistics*, Cecilia Odé, ed., Leiden University, 81.
- Honsa, Vladimír (1962). Old Spanish paragogic -e. *Hispania* 45(2): 242–246.
- Jacewicz, Ewa, Robert A. Fox, & Joseph Salmons (in revision). Cross-generational vowel change in American English .
- Jaeger, Jeri J. (2005). *Kids' slips: what young children's slips of the tongue reveal about language development*. Mahwah, NJ: Lawrence Erlbaum.
- Johansson, Faith-Ann (1973). *Immigrant Swedish phonology: A study in multiple contact analysis*. Lund: Gleerup.
- Jourdan, Christine & Roger Keesing (1997). From Fisin to Pijin: Creolization in process in the Solomon Islands. *Language in Society* 26: 401–420.
- Kaun, Abigail (1995). *The typology of rounding harmony: An optimality theoretic approach*. Ph.D. dissertation, UCLA.
- Klein, Thomas B. (2011). Typology of creole phonology: Phoneme inventories and syllable templates. *Journal of Pidgin and Creole Languages* 26(1): 155–193, special issue: Creoles and typology.
- Klingler, Thomas A. (2003). *If I could turn my tongue like that: The creole language of Pointe Coupee Parish, Louisiana*. Baton Rouge: Louisiana State University Press.
- Kouwenberg, Silvia & John Victor Singler (2008). Introduction. In *The Handbook of Pidgin and Creole Studies*, Silvia Kouwenberg & John Victor Singler, eds., chap. 1, Malden, MA; Oxford: Wiley-Blackwell, 1–16.
- Labov, William (2001). *Principles of linguistic change, Volume 2: Social factors*. Malden, MA: Wiley-Blackwell.
- Labov, William (2010). *Principles of linguistic change, Volume 3: Cognitive and cultural factors*. Malden, MA: Wiley-Blackwell.
- LaCharité, Darlene & Carole Paradis (2005). Category preservation and proximity versus phonetic approximation in loanword adaptation. *Linguistic Inquiry* 36(2): 223–258.
- Lafage, Suzanne (1985). *Français écrit et parlé en pays éwé (Sud-Togo)*. Paris: Société d'études linguistiques et anthropologiques de France.
- Lombardi, Linda (2001). Why Place and Voice are different: Constraint-specific alternations in Optimality Theory. In *Segmental phonology in Optimality Theory: Constraints and*

- representations*, Linda Lombardi, ed., Cambridge: Cambridge University Press, 13–45, first circulated 1995. ROA 105.
- Lüdtke, Helmut (1988). The importance of dialectology for a new look at Romance linguistic history. In *Historical dialectology: Regional and social*, Jacek Fisiak, ed., Berlin; New York: Mouton de Gruyter, 337.
- Magen, Harriet S. (1997). The extent of vowel-to-vowel coarticulation in English. *Journal of Phonetics* 25: 187–206.
- Matras, Yaron & Peter Bakker (2003). The study of mixed languages. In *The mixed language debate: Theoretical and empirical advances*, Yaron Matras & Peter Bakker, eds., Berlin: Mouton de Gruyter, 1–20.
- McAllister, Tara (2009). *The articulatory basis of positional asymmetries in phonological acquisition*. Ph.D. dissertation, MIT.
- McWhorter, John H. (2001). The world's simplest grammars are creole grammars. *Linguistic Typology* 5(2-3): 125–166, in *Contact Languages anthology*, vol. V.
- McWhorter, John H. (2005). *Defining Creole*. Oxford; New York: Oxford University Press.
- Michaelis, Susanne, ed. (2008). *Roots of Creole Structures: Weighing the contribution of substrates and superstrates*. Amsterdam; Philadelphia: John Benjamins.
- Mufwene, Salikoko S. (2008). *Transfer and the substrate hypothesis in creolistics*, chap. 8. London; New York: Continuum, 133–159.
- Muysken, Pieter & Norval Smith (1994). The study of pidgin and creole languages. In *Pidgins and creoles: An introduction*, Jacques Arends, Pieter Muysken, & Norval Smith, eds., Amsterdam; Philadelphia: John Benjamins, 3–14.
- Myers, Scott (2002). Gaps in factorial typology: The case of voicing in consonant clusters.
- Ng, E-Ching (2011). Vowel unrounding in French creoles. Paper presented at SPCL, Pittsburgh, 7–8 Jan.
- Ohala, John J. (1994). Hierarchies of environments for sound variation; plus implications for 'neutral' vowels in vowel harmony. *Acta Linguistica Hafniensia* 27(2): 371–382.
- Ohala, John J. (2004). Phonetics and historical phonology. In *The Handbook of Historical Linguistics*, Brian D. Joseph & Richard D. Janda, eds., Malden, MA; Oxford: Blackwell, 669–686.
- Peperkamp, Sharon & Emmanuel Dupoux (2002). A typological study of stress 'deafness'. In *Laboratory Phonology 7*, Carlos Gussenhoven & Natasha Warner, eds., Berlin: Mouton de Gruyter, 203–240.
- Plag, Ingo (2009). Creoles as interlanguages: Phonology. *Journal of Pidgin and Creole Languages* 24(1): 119–138.
- Roberts, Sarah J. (2005). *The emergence of Hawai'i Creole English in the early 20th century: The sociohistorical context of creole genesis*. Ph.D. dissertation, Stanford.
- Rochet, Bernard L. (1995). Perception and production of second-language speech sounds by adults. In *Speech perception and linguistic experience: Issues in cross-language research*, Winifred Strange, ed., chap. 13, Baltimore: York Press, 379–410.

- Russell Webb, Eric (2008). Formalizing creole sound change: An Optimality Theoretic account. *Journal of Pidgin and Creole Languages* 23(2): 227–263.
- Russell Webb, Eric (2010). Creole phonological restructuring: The role of perception in contact-induced change. *Journal of Pidgin and Creole Languages* 25(2): 263–288.
- Russell Webb, Eric & Bruce Anderson (2010). Examining the role of perception in contact induced change: What can laboratory studies reveal? In *SPCL Winter*, Baltimore, 8–9 Jan.
- Sancier, Michele L. & Carol A. Fowler (1997). Gestural drift in a bilingual speaker of Brazilian Portuguese and English. *Journal of Phonetics* 25: 421–436.
- Siegel, Jeff (2008a). Pidgins/creoles and second language acquisition. In *The Handbook of Pidgin and Creole Studies*, Silvia Kouwenberg & John Victor Singler, eds., Chichester; Malden, MA: Blackwell, 189–218.
- Siegel, Jeff (2008b). *The emergence of pidgin and creole languages*. New York: Oxford University Press.
- Siegel, Jeff (2010). *Second dialect acquisition*. Cambridge; New York: Cambridge University Press.
- Singh, Rajendra & Pieter Muysken (1995). Wanted: A debate in pidgin/creole phonology. *Journal of Pidgin and Creole Languages* 10(1): 157–169.
- Singler, John V[ictor] (1988). The homogeneity of the substrate as a factor in pidgin/creole genesis. *Language* 64(1): 27–51.
- Singler, John V[ictor] (1993). African influence upon Afro-American language varieties: A consideration of sociolinguistic factors. In *Africanisms in Afro-American Language Varieties*, Salikoko S. Mufwene, ed., Athens, GA: University of Georgia Press, 235–253.
- Singler, John Victor (2008). The sociohistorical context of creole genesis. In *The Handbook of Pidgin and Creole Studies*, Silvia Kouwenberg & John Victor Singler, eds., Chichester; Malden, MA: Blackwell, 332–358.
- Sneddon, James Neil (1993). The drift towards final open open syllables in Sulawesi languages. *Oceanic Linguistics* 32(1): 1–44.
- Steriade, Donca (2001). The phonology of perceptibility effects: The p-map and its consequences for constraint organization.
- Thomason, Sarah Grey & Terrence Kaufman (1988). *Language contact, creolization, and genetic linguistics*. Berkeley; Los Angeles; Oxford: University of California Press.
- Uffman, Christian (2009). Creole consonant inventories: How simple? In *Simplicity and Complexity in Creoles and Pidgins*, Nicholas Faraclas & Thomas B. Klein, eds., London: Battlebridge, 81–106.
- Walker, Rachel (2005). Weak triggers in vowel harmony. *Natural Language & Linguistic Theory* 23(4): 917–989.
- Wang, Chilin (1995). *The acquisition of English word-final obstruents by Chinese speakers*. Doctoral dissertation, State University of New York at Stony Brook.
- Yao, Yao (2010). Separating talker- and listener-oriented forces in speech using phonological neighborhood density. Paper presented at *LSA 2010*, Baltimore, 7–10 Jan.