Against a Split Phonology of Michif

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1 Introduction

Michif is one of the world's few "mixed languages"; that is, a language resulting from contact between multiple varieties, which differs from the more usual pidgins and creoles in that it lacks the superstrate / substrate structure which is typically used to define contact languages (Bakker 2003). It is spoken in Western Canada, North Dakota, and Montana, by the descendants of French fur traders and indigenous Cree speakers. While it is widely presumed that Michif developed among bilingual speakers of Cree and French, present-day speakers of Michif tend to be bilingual in English, but not speak any French or Cree at all. There are currently fewer than 1,000 speakers of Michif; as a language it is on the decline, as communities are increasingly shifting to English (Bakker 1997).

Typologically, this mixed type of contact language is exceedingly rare; Media Lengua and Angloromani are the primary examples, and Michif differs even from those. The usual situation, if it can be called that in such a small sample of languages, is for the lexicon to be taken from one source language, and the grammar from the other. For example, Angloromani is said to have Romani lexicon, but English syntax, while Media Lengua has Spanish vocabulary and Quechua grammar (Bakker and Muysken 1995). Michif shows a different mixture entirely, as it is comprised of French nouns and Cree verbs. Thus, the lexicon itself is split; the syntax seems to be more or less Cree, but with French noun phrases following French syntax (Bakker 1997).

Given this split lexicon, there is a debate in the literature concerning whether Michif phonology is similarly split along the lines of its two etymological components, or whether there is one unified system. For instance, Bakker (1997:7) claims that, "Michif has two phonological systems, one for the Cree part and one for the French part, each with its own rules" . The specific claim (espoused by e.g., Evans 1982; Rhodes 1977; Bakker 1994, 1997; Papen 1987, 2003, 2005) is that there are two separate systems of phonemes and two separate sets of phonological rules, one for each etymological part. By contrast, Evans (1982:159) notes that, "two separate coexistent phonological systems" in one language is "rather unique among languages". Similarly, Rosen (2007) treats the facts of the split system as historical accident; inventory differences are the result of historical developments but do not imply a split system, and many phonological processes have become phonemicized in the synchronic language.

This paper investigates the claim that Michif has a split phonology with two case studies, one which examines a phonological process and one which concerns the vowel inventory. The former case examines whether a French phonological rule, liaison, is truly restricted to the French portion of Michif, or whether it can apply across etymological classes. The latter case tests whether the Michif vowel inventory can reliably be divided into French and Cree categories on the basis of phonetic contrasts. Data was taken from a Michif language-learning CD (Bakker and Fleury 2004).

2 Liaison

Most varieties of French have a liaison rule, which governs the phenomenon in which underlying but ordinarily silent word-final consonants are pronounced when followed by a vowel-initial word; for example, *petit copain* [pə.ti.ko.pã] vs. *petit ami* [pə.ti.t͡a.mi].

With regards to the status of liaison in Michif, there are really two questions at issue—is the French liaison rule productive in Michif? and if so, is it restricted to only the etymologically French portion of the language? There are currently two views of Michif liaison in the literature: the predominant view is that liaison is not a productive process, and what appear to be liaison consonants

*We owe a big thanks to Peter Bakker for supplying us with the "Learn Michif" CD, from which our data is taken. Thanks also to Robert Papen for pointing us to useful resources and to Gillian Sankoff for helpful comments on this work.

are actually "fossilized" or lexicalized onto the noun. This is the view held by Bakker (1997) and Rosen (2007), amongst others. Papen (2011) takes the opposing view, that liaison is in fact still productive in Michif. Papen's argument is perhaps more compelling, as it is supported by the most comprehensive quantitative analysis of dictionary data and interview transcripts currently found in the literature.

What both views have in common is the belief that liaison, active or no, is restricted to the etymologically French portion of Michif, and that this is evidence for a split phonology. Papen, for instance, says, "La liaison ainsi que l'élision sont des règles phonologiques qui ne s'appliquent qu'à la composante française du mitchif. [...] Ces règles sont donc d'excellents indices que la phonologie du mitchif doit nécessairement être stratifiée."[1] However, while Papen's study is more comprehensive than previous work, dictionary data by nature does not afford many environments in which liaison *could* be found to occur outside of French.

In order to test whether liaison is a productive rule outside of the French portion of Michif, we conducted an analysis of the two narrative passages which are included on Bakker and Fleury's Michif language learning CD. The two passages together comprise about seven minutes of fluent speech, in which we searched for environments where liaison could potentially occur between French and non-French words. This environment is necessarily infrequent; since Cree and English lack the underlying, silent, final consonants upon which the liaison rule operates, the only environment in which we may find evidence for liaison occurring across etymological classes is that of a French word with a final liaison consonant, followed by an English or Cree vowel-initial word. In the entire seven minutes of speech, two examples of this environment were found:

(1) Examples of French consonant-final words followed by non-French vowel-initial words.
   a. *tout ashtaw*, 'all placed' (Cree)
   b. *en pchit walk*, 'a little walk' (English)

The first example is a case of a French word followed by Cree, while the second is French followed by English. In both cases, a split phonology analysis would not predict that liaison [t] should surface between a French and non-French word. The [t] is nonetheless present, as can be seen in the spectrograms given in Figure 1:

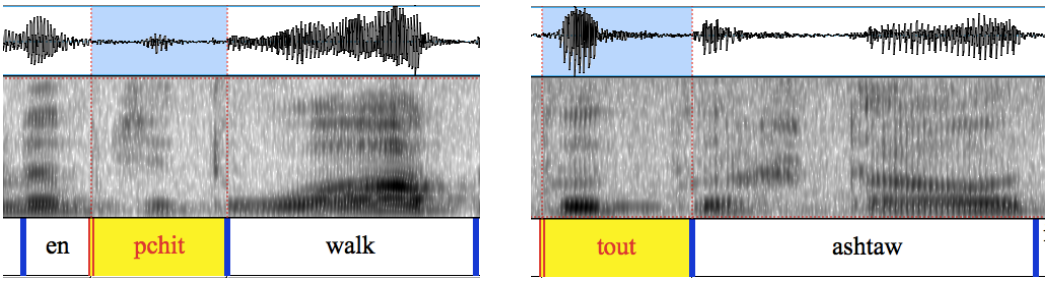


Figure 1: Spectrograms showing [t] in liaison contexts of non-French words.

These examples furthermore cast doubt upon Bakker's hypothesis that liaison consonants have been "fossilized" onto vowel-initial nouns (presumably a reanalysis due to the high frequency with which they co-occur with a determiner, although Bakker does not spell this out), since there is no reason to assume that *ashtaw* and *walk* co-occur with these French words frequently enough to have been reanalyzed as consonant-initial. On the contrary, these two examples provide evidence that liaison is in fact still active in Michif. Liaison is frequent, if not obligatory, in these contexts in standard French (Walker 2001). Further examination of the data yields several tokens which show that it is the case that the [t] following *petit* and *tout* in these examples is underlying, and does not surface in non-liaison contexts, for example, *aen ptsi lee*, *tou(t) keekitaw*. Neither is it the case that the Cree word *ashtaw* is ordinarily [t]-initial in Michif, as we find elsewhere *kee-ashtaw*.

[1] "Liaison as well as elision are phonological rules which apply only to the French component of Michif. These rules are therefore excellent clues that Michif phonology must by necessity be stratified."

2.1 Liaison Conclusions

Due to the unique nature of Michif, there is precious little precedent in the literature to establish whether or not we should expect liaison to be able to apply across etymological class boundaries. The nearest parallel available may be that of Louisiana French, in which contact between French and English has led to a unique bilingual integration of the two languages. Brown (2003:15) conducted a study of Louisiana French in which she found that liaison did not occur between French words and English borrowings which were not phonologically integrated into French; for example, *un oven* gives [œ̃.ʌv.n̩], not *[œ̃.n̲ʌv.n̩]. If we take Brown's findings to be a representative case, then we should not expect to find liaison occurring between French words and unintegrated non-French words. The fact that liaison *does* occur in the examples given in (1) indicates either that these words have in fact been integrated into French phonology, thus weakening the lexical stratification claim, or that rules pertaining to French words are applying equally to unintegrated Cree words, which also seems to be contrary to the lexical stratification claim.

While these are still only two examples, they are two examples which should not exist, according to previous arguments. Thus there is good reason to believe that these consonants are indicative of an active liaison process at work in Michif. At the very least, they indicate the level of complexity surrounding Michif liaison, and reinforce the value of acoustic data for investigating phenomena which are not reliably represented in the orthography—neither of these tokens would have been identified as cases of liaison based on the transcription alone, since the resyllabification of the liaison consonant was not represented orthographically.

3 Vowel Inventory

Another claim made about Michif phonology is that vowel length is distinctive in the Cree part but not in the French part. Specifically, the phonetic range of the phonemes is claimed to differ between the two etymological parts with the French part showing a quality distinction, for example [i] vs. [ɪ], while the Cree part shows a quantity distinction, as in [iː] vs. [i] (Bakker 1997).

While there are some vowels in Michif that are only of French origin, four sets of vowels correspond between the French and Cree inventories. The proposed phonetic values of these corresponding vowels are shown in Table 1. For each set, the longer or tenser phoneme is labeled as double, e.g., ⟨ii⟩, while the shorter or laxer is labeled as single, e.g., ⟨i⟩. In this section, we provide descriptive statistics and a statistical model to investigate the claim that these phonemes have different phonetic outputs in the different etymological parts of Michif.

	⟨i⟩	⟨ii⟩	⟨e⟩	⟨ee⟩	⟨a⟩	⟨aa⟩	⟨u⟩	⟨uu⟩
Cree	[i]	[iː]	[e]	[eː]	[a]	[aː] or [ɑː]	[u]	[uː]
French	[ɪ]	[i]	[ɛ]	[e]	[a]	[ɑ]	[ʊ]	[u]

Table 1: Corresponding Vowels and Proposed Phonetic Values in the French and Cree Inventories.

3.1 Data and Methods

The data from this section is taken from the recordings of Michif-English word lists on the "Learn Michif" CD (Bakker and Fleury 2004). A total of 1314 vowels tokens were measured; the breakdown by type is given in Table 2. The vowels were not normalized because these recordings were made by a single speaker, Norman Fleury (b. 1949).

	⟨i⟩	⟨ii⟩	*n*	⟨e⟩	⟨ee⟩	*n*	⟨a⟩	⟨aa⟩	*n*	⟨u⟩	⟨uu⟩	*n*	Total
Cree	138	80	218	37	134	171	272	137	409	62	36	98	896
French	79	102	181	53	16	69	115	21	136	25	7	32	418
Total	217	182	399	90	150	240	387	158	545	87	43	130	1314

Table 2: Count of vowel tokens by type.

A spelling-to-phoneme dictionary was created by hand based primarily on the spelling system with some correction for morpheme consistency. Phonemic transcriptions of the audio files were automatically generated from that dictionary. The audio files were roughly aligned by hand using the transcripts provided in the CD documentation. These roughly-aligned phonemic transcriptions and the audio files were then passed through the FAVE-align and FAVE-extract software suites (Rosenfelder et al. 2011) to align the transcriptions to the audio track at the phone level and automatically extract the formants and duration of each vowel. Etymological origin of each word was coded.

3.2 Descriptive Statistics

For each of the phoneme groups below, the phonetic factors F1, F2, and duration (along with F3 for ⟨a⟩/⟨aa⟩) were compared using pairwise Wilcoxon rank sum tests to determine whether these factors were significantly different between the phonemic and etymological classes. Support for a phonology split along the etymological lines proposed should result in quality factors (F1, F2, or F3) being significant between French phonemes and quantity factors (duration) being significant between Cree phonemes.

For the F1/F2 graphs, colored triangles represent group means and ellipses are 75% confidence ellipses for those means. For duration and F3 plots, box plots are given to show means and quartiles and violin plots are overlaid to give an estimate of the density distribution of the tokens.

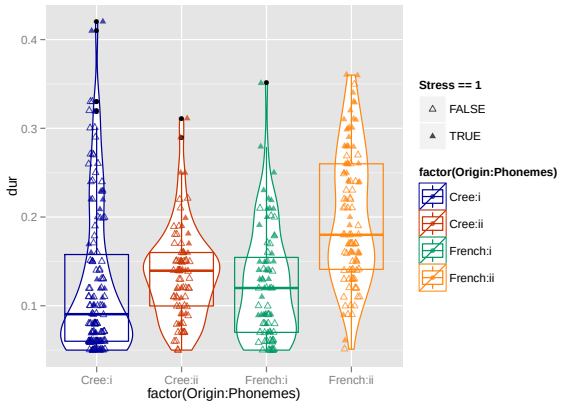
Pairwise Wilcoxon rank sum test p-values for F1

	Cree:i	Cree:ii	French:i
Cree:ii	3.7e-07***	—	—
French:i	0.00419**	0.00389**	—
French:ii	<2e-16***	0.00048***	4.8e-12***

Pairwise Wilcoxon rank sum test p-values for F2

	Cree:i	Cree:ii	French:i
Cree:ii	<2e-16***	—	—
French:i	1.2e-06***	<2e-16***	—
French:ii	<2e-16***	0.26	<2e-16***

Figure 2: F1 and F2 plot and Wilcoxon Test p-values for ⟨i⟩ and ⟨ii⟩.



Pairwise Wilcoxon rank sum test p-values for dur

	Cree:i	Cree:ii	French:i
Cree:ii	0.0031**	—	—
French:i	0.2536	0.1100	—
French:ii	1.8e-13***	7.0e-09***	4.5e-11***

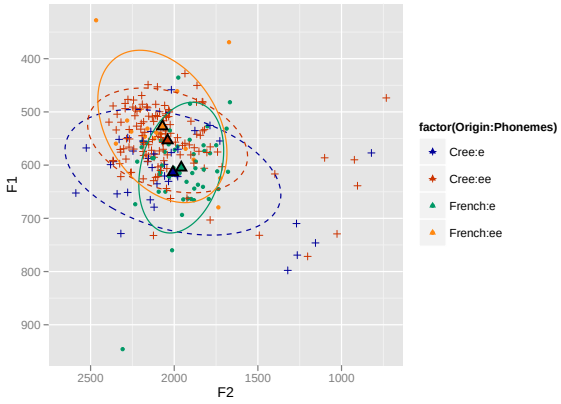
Figure 3: Duration box and violin plot and Wilcoxon Test p-values for ⟨i⟩ and ⟨ii⟩.

3.2.1 High Front Vowels ⟨i⟩/⟨ii⟩

Figure 2 shows that all four of the etymological-phonemic vowels of this set are distinguishable by quality. The Cree ⟨i⟩ and ⟨ii⟩ vowels appear to be slightly lower and fronter than the French vowels. Figure 3 shows that both the French and Cree phonemes are distinguishable by duration. While this set perhaps gives evidence that the vowels can be distinguished by etymological origin, it does not break down along the predicted phonetic lines.

3.2.2 Mid Front Vowels ⟨e⟩/⟨ee⟩

The long and short mid front vowels ⟨e⟩ and ⟨ee⟩ are distinguishable by F1, as shown in Figure 4, although there is no difference between the French and Cree vowels of the same class. There is an F2 difference between the long French ⟨ee⟩ and the short Cree ⟨e⟩, but this may be a relic of the small number of French ⟨ee⟩ tokens (16). This exceptional French ⟨ee⟩ is also the only phoneme to have a difference in duration, see Figure 5. This phoneme set provides no evidence for a etymological split in Michif.



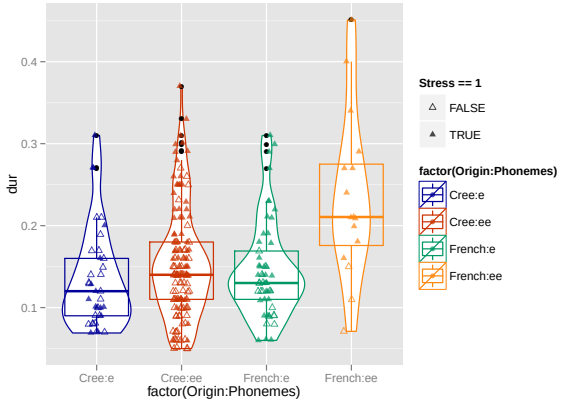
Pairwise Wilcoxon rank sum test p-values for F1

	Cree:e	Cree:ee	French:e
Cree:ee	6.4e-06***	—	—
French:e	0.7449	1.9e-06***	—
French:ee	0.0019**	0.7449	0.0019**

Pairwise Wilcoxon rank sum test p-values for F2

	Cree:e	Cree:ee	French:e
Cree:ee	1.000	—	—
French:e	0.04139*	0.00013***	—
French:ee	1.000	1.000	0.17102

Figure 4: F1 and F2 plot and Wilcoxon Test p-values for ⟨e⟩ and ⟨ee⟩.



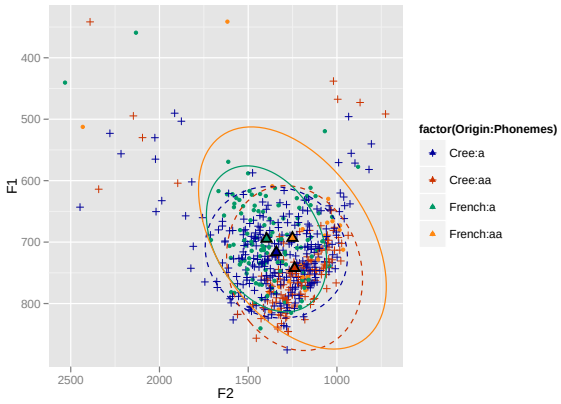
Pairwise Wilcoxon rank sum test p-values for dur

	Cree:e	Cree:ee	French:e
Cree:ee	0.2368	—	—
French:e	0.4032	0.4613	—
French:ee	0.0017**	0.0027**	0.0027**

Figure 5: Duration box and violin plot and Wilcoxon Test p-values for ⟨e⟩ and ⟨ee⟩.

3.2.3 Low Vowels ⟨a⟩/⟨aa⟩

Figure 6 shows that both French and Cree show a difference in F1 and F2 for the low back vowels ⟨a⟩ and ⟨aa⟩, although neither class shows a difference in F3, as shown in Figure 7. Both classes also show a difference in duration, as seen in Figure 8. This set of phonemes gives no evidence for an etymological split in Michif.



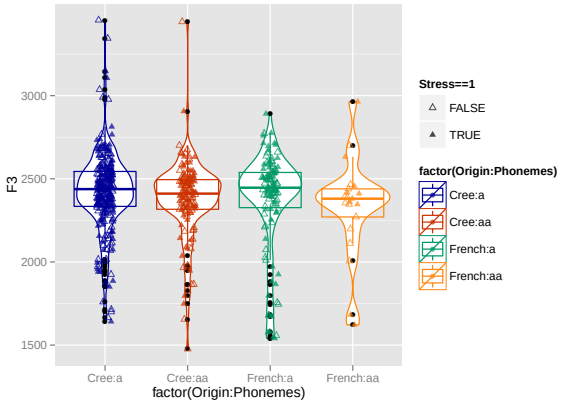
Pairwise Wilcoxon rank sum test p-values for F1

	Cree:a	Cree:aa	French:a
Cree:aa	5.5e-07***	—	—
French:a	0.012*	3.1e-10***	—
French:aa	1.000	0.035*	1.000

Pairwise Wilcoxon rank sum test p-values for F2

	Cree:a	Cree:aa	French:a
Cree:aa	9.1e-07***	—	—
French:a	0.01074*	2.4e-13***	—
French:aa	0.02342*	0.63384	0.00043***

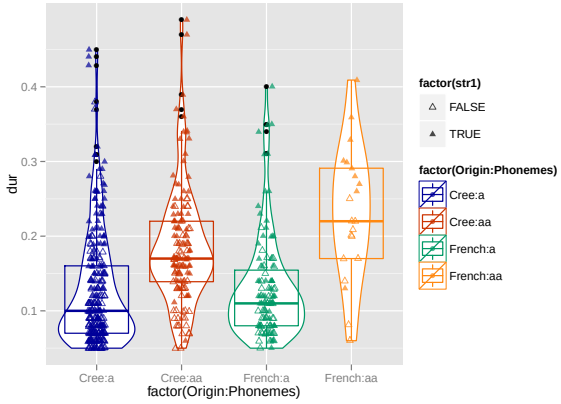
Figure 6: F1 and F2 plot and Wilcoxon Test p-values for ⟨a⟩ and ⟨aa⟩.



Pairwise Wilcoxon rank sum test p-values for F3

	Cree:a	Cree:aa	French:a
Cree:aa	0.46	—	—
French:a	0.87	0.46	—
French:aa	0.46	0.59	0.46

Figure 7: F3 box and violin plot and Wilcoxon Test p-values for ⟨a⟩ and ⟨aa⟩.



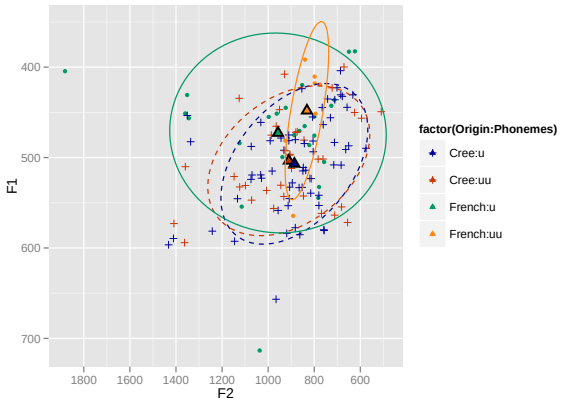
Pairwise Wilcoxon rank sum test p-values for dur

	Cree:a	Cree:aa	French:a
Cree:aa	2.6e-14***	—	—
French:a	0.237	1.0e-10***	—
French:aa	3.6e-06***	0.019*	6.6e-06***

Figure 8: Duration box and violin plot and Wilcoxon Test p-values for ⟨a⟩ and ⟨aa⟩.

3.2.4 Back Vowels ⟨u⟩/⟨uu⟩

There are too few tokens of ⟨u⟩ and ⟨uu⟩ to show any significant differences between the classes. Figure 9 shows the F1/F2 data and Figure 10 shows the duration data. When not divided etymologically, the difference in duration between ⟨u⟩ and ⟨uu⟩ is significant ($p = 0.0042$**).



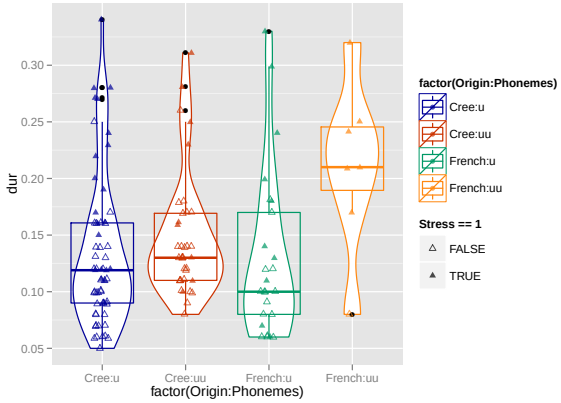
Pairwise Wilcoxon rank sum test p-values for F1

	Cree:u	Cree:uu	French:u
Cree:uu	0.944	—	—
French:u	0.019*	0.041*	—
French:uu	0.041*	0.079	0.522

Pairwise Wilcoxon rank sum test p-values for F2

	Cree:u	Cree:uu	French:u
Cree:uu	1	—	—
French:u	1	1	—
French:uu	1	1	1

Figure 9: F1 and F2 plot and Wilcoxon Test p-values for ⟨u⟩ and ⟨uu⟩.



Pairwise Wilcoxon rank sum test p-values for dur

	Cree:u	Cree:uu	French:u
Cree:uu	0.140	—	—
French:u	0.606	0.140	—
French:uu	0.084	0.134	0.093

Figure 10: Duration box and violin plot and Wilcoxon Test p-values for ⟨u⟩ and ⟨uu⟩.

3.2.5 Summary of Descriptive Statistics

The descriptive statistics do not give any concrete evidence for the division of the vowels into etymological classes. Most of the French and Cree vowel pairs are not distinguishable from each other. This is true for the mid front, low, and back vowels. The only case where the etymological classes can be distinguished is the high front vowels ⟨i⟩/⟨ii⟩. However, both the French and Cree ⟨i⟩/⟨ii⟩ show differences in both duration and quality, suggesting that either the difference between the classes is an accident of the data or that there is some other factor causing the difference. One possible explanation is that the French long vowels have exceptional duration when stressed, perhaps due to the shortness of the French words when compared to the Cree words.

3.3 Statistical Model

A simple binomial model can be used to determine what factors have an statistical effect on the choice of phoneme for both a split system and a unified system. The phonetic factors included in the models were F1, F2, F3 and the residual of duration as predicted by stress. Taking the residual of duration by stress should remove or reduce any effect that stress has on duration and allow for duration to have an independent effect.

For each vowel contrast, if the the phonological system is split, the hypothesis is that the Cree-origin vowels should show an effect of duration while the French-origin vowels should show an effect of at least one of the quality factors. If the system is unified, any of the factors could, in principle, be used to distinguish the phonemes.

3.3.1 Model for ⟨i⟩ and ⟨ii⟩

For the high front vowels, there are surprising results when divided by origin. French vowels show significant effects of F2 and the duration residual while Cree vowels show significant effect of F2 and F3 (see Table 4). This is, in some sense, the opposite of the predicted results in that French vowels can be accounted for in part by duration while Cree vowels can not. Both French and Cree high front vowels are sensitive to quality.

Coefficient	z-value	Pr(>|z|)	
(Intercept)	−5.127	2.95e−07	***
F1	−3.158	0.00159	**
F2	5.677	1.37e−08	***
F3	1.704	0.08841	.
Resid(dur∼stress)	3.121	0.00181	**

Table 3: Factors for unified ⟨i⟩ and ⟨ii⟩.

The unified system shows significant coefficients for F1, F2 and the duration residual (see Table 3), suggesting that in a unified system both quality and quantity are useful for determining phoneme.

	French				Cree		
Coefficient	z-value	Pr(>|z|)		Coefficient	z-value	Pr(>|z|)	
(Intercept)	−2.906	0.00366	**	(Intercept)	−4.787	1.69e−06	***
F1	−0.087	0.93065		F1	−1.060	0.2892	
F2	4.194	2.74e−05	***	F2	4.538	5.67e−06	***
F3	−0.885	0.37604		F3	−2.040	0.0413	*
Resid(dur∼stress)	3.030	0.00245	**	Resid(dur∼stress)	0.158	0.8747	

Table 4: Binomial model factor coefficients for French and Cree ⟨i⟩ and ⟨ii⟩.

3.3.2 Model for ⟨e⟩ and ⟨ee⟩

Like the high front vowels, the coefficients of the factors for the mid front vowels seem to show the opposite result than predicted. French vowels show significant effects of F1 and the duration residual while Cree vowels only show a significant effect of F1 (see Table 6). Thus it seems again that the French vowels are sensitive to quality and quantity while Cree vowels are only sensitive to quality.

Coefficient	z-value	Pr(>|z|)	
(Intercept)	4.366	1.26e−05	***
F1	−5.412	6.24e−08	***
F2	−1.258	0.20833	
F3	0.875	0.38180	
Resid(dur∼stress)	3.179	0.00148	*

Table 5: Factors for unified ⟨e⟩ and ⟨ee⟩.

The unified system shows significant coefficients for F1 and the duration residual (see Table 5), suggesting again that in a unified system both quality and quantity are useful for determining phoneme.

	French				Cree		
Coefficient	z-value	Pr(>|z|)		Coefficient	z-value	Pr(>|z|)	
(Intercept)	1.228	0.21931		(Intercept)	4.194	2.74e−05	***
F1	−2.822	0.00477	**	F1	−4.298	1.72e−05	***
F2	−0.006	0.99529		F2	−1.334	0.182	
F3	0.604	0.54555		F3	0.304	0.761	
Resid(dur∼stress)	2.925	0.00345	**	Resid(dur∼stress)	1.571	0.116	

Table 6: Binomial model factor coefficients for French and Cree ⟨e⟩ and ⟨ee⟩.

3.3.3 Model for ⟨a⟩ and ⟨aa⟩

The low vowels are unlike the front vowels in that both the French and Cree vowels show effects from quality and quantity coefficients. The French vowels show significant effects of F1 and the duration residual and the Cree vowels show significant effects of F2 and the duration residual (see Table 8). In addition, the French vowels show an almost significant ($p<.1$) effect for F2 and the

Cree vowels show an almost significant effect for F1. Taken together, both the French and the Cree low vowels are accounted for by both quality and quantity.

The unified system shows significant coefficients for F2 and the duration residual (see Table 7), thus suggesting that both quality and quantity are useful for determining phoneme in a unified system.

Coefficient	z-value	Pr(>|z|)	
(Intercept)	0.459	0.646	
F1	0.459	0.646	
F2	−4.101	4.11e−05	***
F3	−0.047	0.962	
Resid(dur∼stress)	5.617	1.94e−08	***

Table 7: Factors for unified ⟨a⟩ and ⟨aa⟩.

	French				Cree		
Coefficient	z-value	Pr(>|z|)		Coefficient	z-value	Pr(>|z|)	
(Intercept)	1.816	0.06930	.	(Intercept)	0.195	0.84572	
F1	−3.139	0.00169	**	F1	1.738	0.08229	.
F2	−1.907	0.05649	.	F2	−3.280	0.00104	**
F3	0.363	0.71630		F3	−0.731	0.46469	
Resid(dur∼stress)	4.842	1.28e−06	***	Resid(dur∼stress)	4.111	3.94e−05	***

Table 8: Binomial model factor coefficients for French and Cree ⟨a⟩ and ⟨aa⟩.

3.3.4 Model for ⟨u⟩ and ⟨uu⟩

The results of the factor coefficients for the back round vowels do not show many significant results, most likely because the number of tokens in this class is quite small (refer to Table 2 above). There are no significant coefficients for French or Cree as separate systems, although the duration residual is nearly significant ($p<.1$) for the Cree vowels (see Table 10). Only duration is significant for the unified system (see Table 9).

Coefficient	z-value	Pr(>|z|)	
(Intercept)	−0.743	0.4575	
F1	0.131	0.8959	
F2	0.155	0.8768	
F3	0.494	0.6214	
Resid(dur∼stress)	2.557	0.0105	*

Table 9: Factors for unified ⟨u⟩ and ⟨uu⟩.

	French			Cree		
Coefficient	z-value	Pr(>|z|)	Coefficient	z-value	Pr(>|z|)	
(Intercept)	1.025	0.306	(Intercept)	−0.743	0.4574	
F1	−0.689	0.491	F1	−0.173	0.8624	
F2	−0.639	0.523	F2	0.678	0.4979	
F3	−0.834	0.404	F3	0.766	0.4435	
Resid(dur∼stress)	0.753	0.451	Resid(dur∼stress)	1.936	0.0529	.

Table 10: Binomial model factor coefficients for French and Cree ⟨u⟩ and ⟨uu⟩.

3.3.5 Conclusions for Statistical Models

The statistical models do not give any evidence towards treating Michif vowel phonemes as two separate systems based on etymological origin. In the cases where there did seem to be a difference between the French- and Cree-derived vowels, such as high and mid front vowels, the effects were in the opposite direction than the hypothesis would predict. That is, French vowels seemed to be sensitive to duration while Cree vowels did not. In the other cases, i.e., for the low and back vowels, the French and Cree phonemes seemed to behave largely the same as each other. Modeling a unified system, on the other hand, suggests that Michif vowel phonemes are sensitive to both quality and quantity.

4 Conclusion

This paper investigated the claim that Michif phonology is split into two subparts based on etymological origin. Two case studies were presented: the phonological process of liaison and the phonetic contrasts of the vowel phonemes.

For liaison, a split phonology would predict no liaison across phonological units from different subparts. We find instances where liaison does occur between French and non-French words, suggesting that liaison cannot be restricted to a French subpart. This suggests that there is no division between French and non-French parts with respect to application of phonological rules in Michif.

For the phonetic contrasts of the vowel phonemes, a split phonology would predict that each subpart could have independent phonetic contrasts to distinguish between phonemes. Based on etymological origin, we expect to find French vowels showing a difference in quality and Cree vowels showing a difference in quantity. The Cree and French phonemes are generally not strongly differentiable by either the descriptive statistics or the statistical models. In cases where the statistical model did show a difference, it was in the opposite direction than expected. This suggests that the phonemic inventory is better described as a single system sensitive to both quality and quantity.

Both case studies suggest that the phonology of Michif should be treated as a single system rather than a split system.

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