

**Phonological Analysis of the Southern Dialect of Istro-Romanian/Vlashki as Compared to
Daco-Romanian**

Research Thesis

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Romance Studies in the Undergraduate Colleges of The Ohio State University

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Abstract

Istro-Romanian is a Balkan Romance language with two dialects spoken by less than 120 fluent and active speakers (Vrzić and Singler 2016). The language is spoken on the Istrian peninsula, where it has historically come in contact with the Čakavian and Štokavian dialects of the Bosnian, Croatian, Montenegrin, and Serbian (BCMS) polycentric language as well as Slovenian, Venetian, and Standard Italian. Istro-Romanian evolved from Common Romanian, although whether it evolved directly from Common Romanian or from Daco (standard) Romanian (after Daco-Romanian had evolved from Common Romanian) is unclear.

The purpose of this paper is the following: compare the Southern dialect of Istro-Romanian to Daco-Romanian. This comparison explores sound changes that have occurred due to language contact, establishes a more current phonological inventory of a language that is considered highly unstable (Nevaci 2017), and appears to be the first study dedicated solely to one of the dialects of Istro-Romanian.

Recordings from Dr. Zvezdana Vrzić's online project "Preservation of the Vlački and Žejanski Language" and Dr. Petru Neiescu's recordings from IstroRomanian.net were used for this analysis. Dr. Vrzić's recordings were recorded in 2009-2011 and Dr. Neiescu's recordings were recorded at an unknown date. The sample group consisted of 6 women and 3 men originating from Kostrčani, Letâj, Noselo, or Šušnjevića. While only 9 speakers were sampled for the purpose of this study, as it is estimated that there are only 50 speakers that speak the Southern dialect (Nevaci 2017), this accounts for 18% of the total population. Only words clearly shared by Istro-Romanian and Daco-Romanian were collected. All sampled recordings were downloaded and slowed down to 70% speed, after which phrases were listened to individually. All analysis was exclusively impressionistic, however transcriptions were reviewed with both Dr. Martínez-Gil and Dr. Lechintan-Siefer for accuracy.

In total 18 phonological differences between Istro-Romanian and Daco-Romanian shared words were identified, 10 of which were vocalic and 8 of which were consonantal. There are 2 phonological changes per word on average. The majority of the differences have multiple possible explanations for their origin, reflecting the ethnolinguistic diversity of the Istrian peninsula. Further research must be conducted to definitively conclude the origins of these identified changes.

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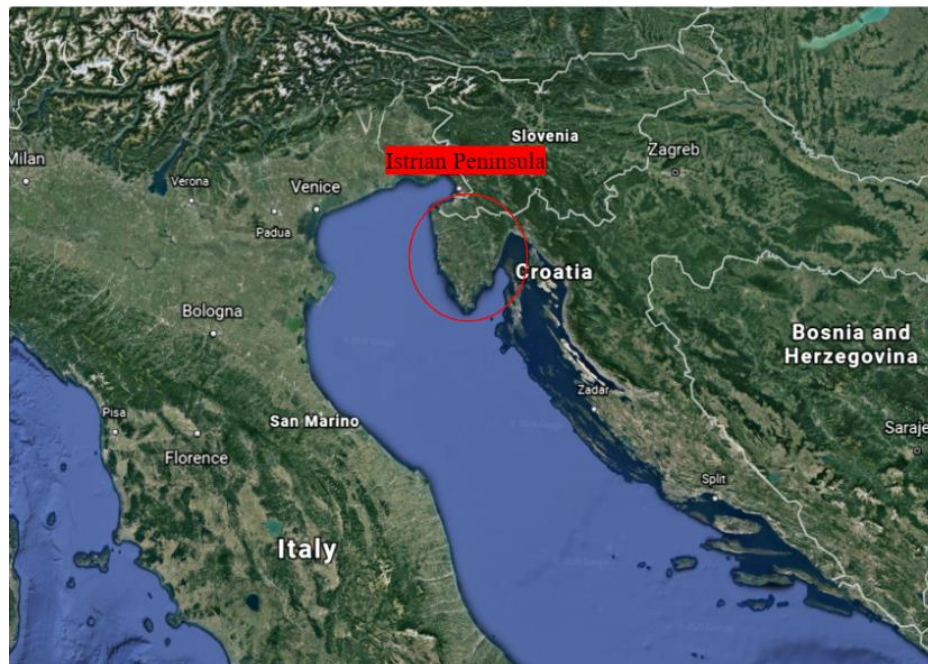
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Section 1: Introduction

1.1 Present Day Status

Istro-Romanian (hereafter abbreviated as IR), also known as Vlashki or Zheyanski, is a Balkan Romance language spoken in Istria, a peninsula in modern-day Croatia that also borders Slovenia and Italy (Posner, 2019). The language has had extensive contact with the following languages: the Bosnian, Croatian, Montenegrin, and Serbian polycentric language (hereafter abbreviated as BCMS¹), especially with the Čakavian dialect; Slovenian; Standard Italian; and Venetian (Zegrean 2012). The modern-day status of Istro-Romanian is that of a dying language leaving the UNESCO Atlas of the World's Languages in Danger to categorize it as "severely endangered" (UNESCO 2010). As of 2016, it is estimated that there are only 120² fluent and active speakers of Istro-Romanian in the villages where Istro-Romanian is historically spoken (Vrzić and Singler 2016). However, it is also estimated that there are 1,000 speakers in the world total, with around 450 speakers in other cities in Croatia and potentially another 400-500 speakers abroad (Vrzić and Singler 2016).



Map 1: The Istrian Peninsula

¹ BCMS is used throughout this paper as a politically neutral description of the polycentric language made up of the many dialects spoken in the former Yugoslav Republic. Today, the nations of the former Yugoslav Republic have their own national languages. The original description of authors, such as "Croatian" or "Serbo-Croatian", has been respected where differing from "BCMS".

² Based on 2011 Croatian census

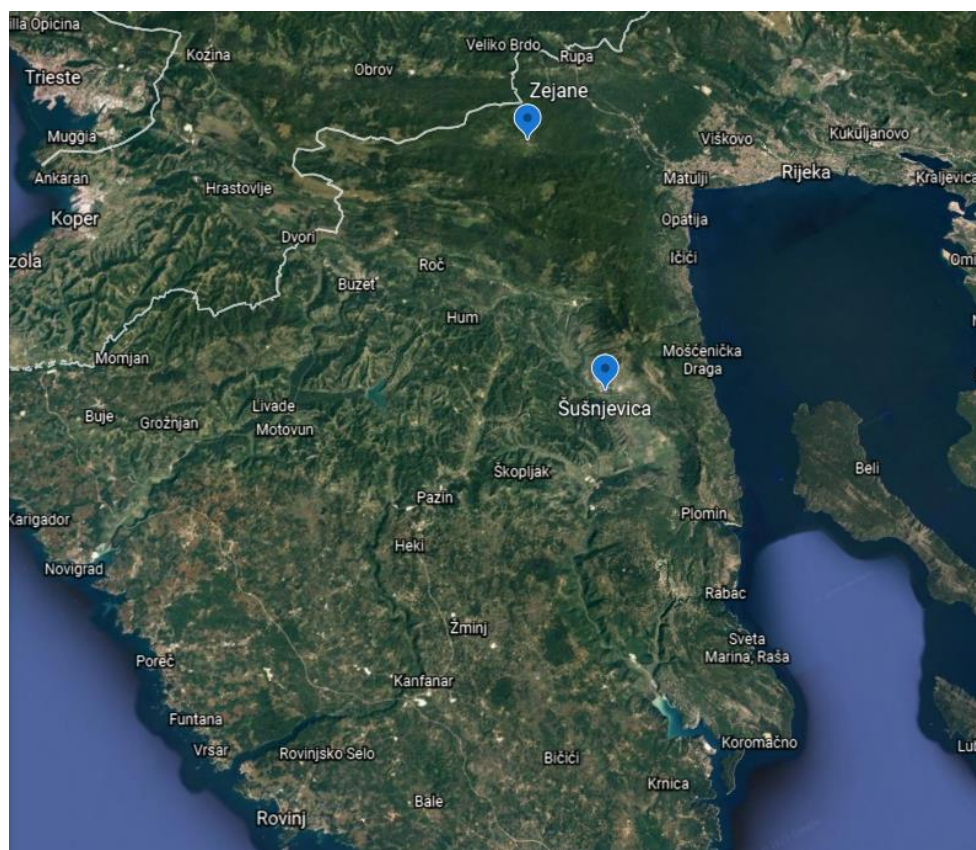
It must be noted that the majority of Istro-Romanian speakers in Istria are over the age of 60, so the risk that this language dies within the next few decades is high (Burlacu 2010). This risk is especially compounded by the fact that all Istro-Romanian speakers are bilingual, speaking both Istro-Romanian and Croatian. However, their bilingualism is asymmetric, as Istro-Romanian is only spoken at the family and village level (Sârbu 2005). This Istro-Romanian and Croatian bilingualism has been occurring since the early 16th century (Vrzić and Doričić 2014 cf. Kovačec 1998). This has led Vrzić and Doričić to classify Istro-Romanian on Thomason and Kaufman's Borrowing Scale (1988, p. 74–75) as a "Type 4/Strong cultural pressure" situation, where, in addition to extensive lexical borrowing, a moderate structural [(morphosyntactic)] borrowing occurs" (Vrzić and Doričić 2014).

Another factor compounding the risk of language extinction is the lack of younger speakers. According to the study done by Vrzić and Singler (sample size of 16), while older speakers who began schooling in Croatian³ in the 1950s and 1960s report having been monolingual Istro-Romanian speakers before starting school, all speakers reported speaking mostly Croatian to their children (Vrzić and Singler 2016). As a result, it appears that there are few, if any, speakers of Istro-Romanian under the age of 25 as of 2016 (Vrzić and Singler 2016). There is no official alphabet or official grammar, although Vrzić has proposed a unified alphabet (Vrzić 2009), so efforts to document the language are paramount to preserve its existence.

The language is presently spoken by two main populations separated by the Učka Mountain range, which is a natural barrier. Historically, there appears to have been a complete lack of contact between the two groups of speakers. This lack of contact has led to noticeable differences in the speech of the two populations, although mutual intelligibility still obtains (Hurren 1971). Thus, each population's variation of the language has been classified as separate dialect: the "Northern" dialect, spoken by residents of Žejane, and the "Southern" dialect, spoken by residents of Šušnjevića (the largest village), Noselo/Nova Vas, Sukodru/Jesenovik, Brdo, Kostrčân (Nevaci 2017). The speakers of the Northern dialect refer to their language as Zheyanski while the speakers of the Southern dialect refer to their language as "Vlashki" (Vrzić and Singler 2016). The number of speakers left per village, as estimated by Manuela Nevaci in 2017, is as follows:

³ The article by Vrzić and Singler does not indicate if Istro-Romanian speakers were taught standard BCMS in school or Čakavian, which is the BCMS dialect spoken in the Istrian region. It is likely that Istro-Romanian speakers have historically had contact with both the standard language and the regional dialect.

- Northern dialect: total 53
 - Žejane: 53 speakers
- Southern dialect: total 50
 - Šušnjeвица: 12 speakers
 - Noselo/Nova Vas: 20 speakers
 - Sukodru/Jesenovik: 5 speakers
 - Brdo: 2 speakers
 - Kostrčãn: 6 speakers
 - Zankovci: 3
 - Čepić: 2



Map 2: Map of villages where Istro-Romanian is spoken

The geographical distance between speakers of the Northern and Southern dialects has led to linguistic differences between the two dialects of Istro-Romanian, although as mentioned, they are still mutually intelligible (Hurren 1971). This in turn has led to varying degrees of similarity

with Daco-Romanian (hereafter abbreviated as DR)⁴, another Balkan Romance language which shares a common ancestor with Istro-Romanian known as “Common Romanian”⁵. Žejane, a village located in the Northern part of the Istrian Peninsula, is separated by the Učka Mountain range from the rest of the villages where Istro-Romanian is spoken. Due to its relative remoteness and distance from main roads or railways, it has preserved much of the “ancient morphosyntactic structures, as well as the old [lexicon]” (Sârbu 2005). However, because the Southern dialect is closer to several large Croatian cities such as Pazin, Labin, and Rijeka, the Southern dialect shows fewer points of similarity with Daco-Romanian than the Northern dialect due to the prolonged influence of Croatian and Italian (Sârbu 2005). It must be noted that speakers from either group do not understand Daco-Romanian, with the exception of isolated lexical terms, due to the high degree of divergence (Hurren 1971).

1.2 Purpose

With the majority of the population being over 60 years of age, it is absolutely critical that efforts are undertaken to preserve, analyze, and document this language before it disappears. The purpose of this project is to conduct a phonological comparison of the Southern dialect of Istro-Romanian and Daco-Romanian in order to study how the Istro-Romanian phonology differs from Daco-Romanian. This research inquiry is significant as it allows one to better understand the Slavic influences on Istro-Romanian due to language contact. This relates to the larger issue of phonological changes due to language contact not only in Istro-Romanian, but in all dialects of Romanian, which are often characterized by diminished mutual intelligibility with the other Romance languages due to the high degrees of Slavic language contact.

Additionally, this project is significant as it establishes more current phonological characteristics of a language that is highly unstable (Nevaci 2017) due to a dwindling number of speakers who are all asymmetric bilinguals. It seems that the majority of works (Hurren 1971; Neiescu 1980; Kovačec 1998) establishing the phonological inventory of Istro-Romanian were

⁴ I am using “Daco-Romanian” as a politically neutral way to refer to the standard language spoken as the national language of Romania. This is also terminologically convenient, as the simple term “Romanian” can be ambiguous between the language of Romania and the collection of the “Romanian” languages (Aromanian, Megleno-Romanian etc.).

⁵ Common Romanian was a reconstructed language descended from Vulgar Latin thought to have been spoken in the 7th or 8th century A.D. until the 10th century A.D (Renwick 2012 cf. Rosetti 1973, 1986).

written in the 1970s-1990s, thus utilizing samples taken from 2009-2011 gives a more updated insight into the phonology of the language.

Furthermore, this project suggests a number of historical sound changes that appear to have taken place autonomously in Istro-Romanian. The majority of the existing scholarship explains the existence of certain features in relation to contact with BCMS, however this paper also examines differences in relation to Slovenian, Standard Italian, and Venetian. This is significant because up to 19% of words in Istro-Romanian have a Slovenian origin (Sârbu 2005), because Standard Italian was the administrative and instructional language in Istria in the early 20th century (Vrzić and Singler 2016 p. 54), and because Venetian has been spoken in Istria since the 11th century (Kalsbeek 2011).

Finally, this appears to be the first study dedicated solely to one of the dialects of Istro-Romanian. My decision to focus on speakers of the Southern dialect was based on the supposition that since the Southern dialect is geographically less isolated than its Northern counterpart, it may well be more susceptible to language change due to higher frequency of language contact.

Section 2: Literature Review

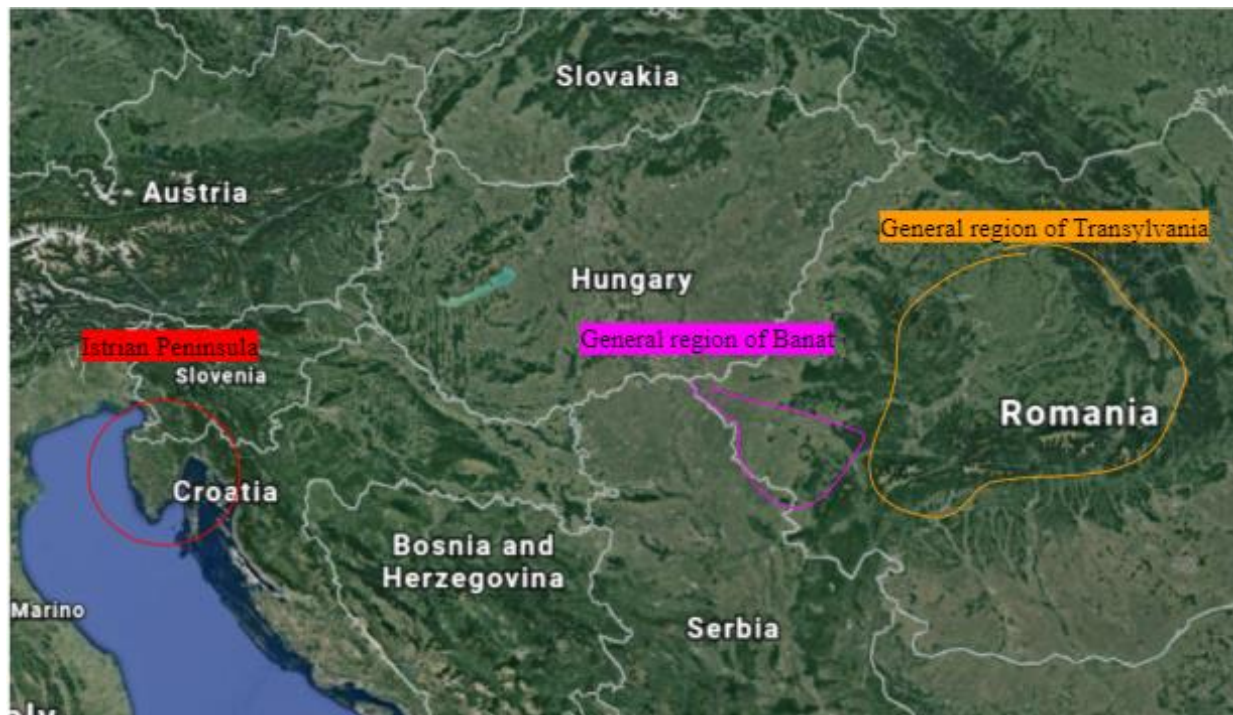
2.1 Historical Origins

It is estimated that the Istro-Romanians arrived in Istria sometime between the 9th-13th century (Burlacu 2019), however they did not settle in the villages where current speakers reside until the 16th century (Vrzić and Singler 2016 cf. Kovacec, 1998: 242–244). While the exact date of migration is unclear, it is clear that it occurred prior to Hungarian's influence on Daco-Romanian as Istro-Romanian contains no words of Hungarian origin (Vrzić and Singler 2016 cf. Frațilă and Sârbu 1998, p. 13–17; Niculescu 1990, p. 67; Mallinson 1990, p. 303).

The origins of Istro-Romanian are still unclear, however two main theories have emerged as to its origins. The non-autochthonous origin theory suggests that Istro-Romanian is a linguistic daughter of Daco-Romanian while the autochthonous origin theory suggests that Istro-Romanian is a linguistic sister to Daco-Romanian (Vrzić 2020). In other words, the non-autochthonous theory suggests that Istro-Romanian descended from Daco-Romanian, whereas the autochthonous theory proposes that Istro-Romanian and Daco-Romanian share a common ancestral language known as Common Romanian. Of note, both theories suggest that Istro-Romanian is descended from Common Romanian, but the question is if Istro-Romanian split directly from Common Romanian

(autochthonous theory) or from Daco-Romanian (non-autochthonous theory) after it had already split from Common Romanian.

Map 3 shows the location of the Istrian peninsula and the geographic regions of modern-day Romania where it is thought the ancestors of the Istro-Romanians originated from. Proponents of the non-autochthonous origin theory believe that the ancestors of the Istro-Romanians came from Banat and Crisana, near the Apuseni Mountains in Transylvania in modern-day Romania, while proponents of the autochthonous origin theory believe that the ancestors of the Istro-Romanians originated from some area south of the Danube (Marghescu 2013).



Map 3: Map of Istria, Banat, and Transylvania

The basis for both the non-autochthonous and autochthonous origin theories is derived from shared similarities between Istro-Romanian and dialects of Daco-Romanian. One theory shows the links between Istro-Romanian and the Daco-Romanian dialects spoken in Banat and South-Western Transylvania (Nevaci 2017 cf. Frațilă 2002, p. 210):

(1) Links between Istro-Romanian and Daco-Romanian

1. The central low vowel /a/ becomes its back and rounded counterpart /ɔ/
2. The unstressed pretonic central mid vowel /ə/ is lowered to /a/
3. Rhoticism of the alveolar /n/ in an intervocalic position
4. Formation of the conditional mood with the auxiliary *ręs*

The connection between Istro-Romanian and Daco-Romanian is not only confirmed by linguistic similarities, but also by folkloric legends passed down through generations. One Istro-Romanian man stated that according to local legend, "seven caravans [arrived] during Medieval times in Istria, from Transylvania. Six of them passed through the mountain passes of Mount Učka (i.e. Monte Maggiore) and one remained in the north" (Burlacu 2010, p. 17).

While the historical connections between Istro-Romanian and Daco-Romanian are clear, the lexicon of Istro-Romanian has significantly been influenced by other languages. This has led to only 25% of words in Istro-Romanian originating from Latin (Sârbu 2005). The breakdown of the Istro-Romanian lexicon, based on Sârbu's analysis of 2520 words, is as follows:

1. Serbo-Croatian origin--50%
2. Serbo-Croatian or Slovenian origin--16%
3. Slovenian origin--3%
4. Italian origin--4.7%
5. Old Slavonic--3.5%
6. Latin--25%

Sections 2.2-2.8 explore the existing phonological studies of Istro-Romanian, the phonology of Daco-Romanian and its dialects, and the phonology of the languages Istro-Romanian has come in contact with. Of note, two other known Romance languages have historically been spoken in Istria. The first is Dalmatian, whose Vegliot dialect was spoken on the island of Krk (east of the Istrian Peninsula) (Encyclopædia Britannica 2017). The last speaker of Dalmatian died in the late 19th century (Encyclopædia Britannica 2017). Istro-Romanian was also spoken on the island of Krk, however the last speaker of Istro-Romanian on Krk died in 1875 (Spicijarić Paškvan 2014). Due to uncertainty of the phonological characteristics of Dalmatian, any links between Istro-Romanian and Dalmatian are not explored in this thesis.

The other Romance language spoken in Istria is Istriot, which is spoken by 400 (Ethnologue) people in Southwest Istria and is thought to have originated from Ladin (Bartoli 1919). Istro-Romanian is spoken in Northeast Istria. No academic works have been found indicating any language contact between Istro-Romanian and Istriot, so the phonology of Istriot was not included in this thesis, however this would be an interesting subject for future research.

2.2 Istro-Romanian Phonology

Previous studies have established the phonemic inventories of Istro-Romanian. The following are characteristics indicated in prior research, mostly taken from samples from the mid-late 20th century:

(2) Istro-Romanian Phonology

- A. Stressed word-initial /a/ is dropped in the Southern dialect (Kovačec 1998).
- B. The low back rounded vowel /ɔ/ occurs in a stressed position, but in unstressed syllables there is never /ɔ/, only the low central unrounded vowel /a/ (Kovačec 1998).
- C. Vowels are nasalized when followed by a nasal /n/ (Neiescu 1980).
 - A. In any word of Latin origin, intervocalic alveolar /n/ becomes the rhotic /r/ (Neiescu 1980).
 - B. Homorganic nasal assimilation (Neiescu 1980).
 - C. Loss of /l/ in word-final position (Neiescu 1980).
 - D. Existence of palatal lateral /ʎ/ between a labial consonant and /j/ (Neiescu 1980; Pușcariu 1926).
 - E. Word-final /m/ → /n/ in first person plural present indicative conjugations (Neiescu 1980; Kovačec 1998).
 - F. /m/ + /j/ → /mj/ as in the example [mjel] (DR) ~ [mje] (IR) (Neiescu 1980).
 - G. Existence of the low front vowel /æ/, which in the Southern dialect can occur in final open unstressed syllables (Kovačec 1998; Zegrean 2012).
 - H. ⁶"Neuter nouns are borrowings from Croatian" (Zegrean 2012, p. 46).
 - I. For masculine plural nouns, such as those ending in "the labials /p, b, f, v, m/, some palatals, and the rhotic /r/ have the same overt realization for singular and plural [nouns]. Those

⁶ While this section touches on phonological characteristics, I did include certain morphological characteristics in bullets H-K as they differ in their phonological realizations. This is repeated in the rest of Section 2.

nouns that for the singular end in dentals /t, d, n/, velars /k, ɣ, h/, alveolar fricatives /s, z/ and the lateral /l/ display the number opposition through allomorphs” (Zegrean 2012, p. 46).

- J. Existence of "enclitic definite articles with dedicated forms for number (singular and plural) and gender (masculine, feminine)" (Zegrean 2012, p. 56). The singular definite article is enclitic, thus attaching to the end of a nominal stem; its exponence is /-u/ for the masculine and /-a/ for the feminine.
- K. Existence of the "indefinite article [as] a free morpheme preceding all the elements in the nominal expression" (Zegrean 2012, p. 54). The indefinite article is preposed: /un/ for the masculine singular and /o/ for the feminine singular.

Table 1 shows the differences between definite articles, indefinite articles, and no article in the nominative/accusative case in Istro-Romanian. Neuter nouns have not been included as according to Zegrean, "neuter nouns are borrowings from Croatian" (2012, p. 46) and thus not shared nouns with Daco-Romanian.

	Singular		Plural	
	Masculine	Feminine	Masculine	Feminine
Definite article	/-u/, /-le/	/-a/	/-i/ ⁷	/-e/, /-le/
Indefinite article	/ur/, /ən/	/o/	/uri/ ⁸	/ure/
No article	/-u/ ,/-o/ ,/-e/, Ø	/-a/, /-e/	/-i/; see (2i)	/-e/, Ø

Table 1: Istro-Romanian Nominative/Accusative Articles, Based on Zegrean 2012

Three sample IPA and vowel charts from different linguistics have been included. Each one has slight differences, thus there is no universally-accepted phonemic inventory of Istro-

⁷ Zegrean also lists "-li" as an enclitic masculine plural definite article, however she notes that it "has almost been completely lost" (2012, p. 59) so I have chosen not to include it since it did not appear in my samples.

⁸ Zegrean also lists "nuscarli" as a masculine and feminine plural definite article, however she notes it only appears in Zejane so I have not included it (2012).

Romanian. Tables 2-7 have all been rendered into IPA notation with the help of Dr. Fernando Martínez-Gil.

2.2.1 Istro-Romanian Consonants

Table 2 is my rendition of the consonant phonemic inventory Hurren provides in his 1971 doctoral thesis *A linguistic description of Istro-Rumanian*. Hurren describes six points of articulation with only four manners of articulation. There is a distinction between voiced and voiceless, for example the bilabial fricatives /v/ and /f/.

Hurren describes an "unclassified /l/" that he describes as " 'mono-featured', i.e. it only contains the feature [l-ness]" (Hurren 1971, p. 22). Hurren also describes /r/⁹ as being both a consonant and vowel, giving an example consonantal realization as /row/ "furrow" and a vocalic realization as /krt/ "how much" (Hurren 1971, p. 25).

	Bilabial	Dental	Alveolar	Alveo-Palatal	Palatal	Velar
Stop	/p/ /b/	/t/ /d/			/c/	/k/ /g/
Fricative	/f/ /v/		/s/ /z/	/ʃ/ /ʒ/		/h/
Affricate						
Nasal	/m/		/n/			

Table 2: Istro-Romanian Consonants (Hurren 1971)

Table 3 is my rendition of the consonant phonemic inventory Neiescu provides in his 1971 article "Din Fonologia Dialectului Istroroman". Neiescu describes six points of articulation with six manners of articulation. There is a distinction between voiced and voiceless, for example the bilabial fricatives /v/ and /f/.

Neiescu points out that in Šušnjevića, a village in the South, there are three consonantal phonemes less than in other villages. Instead of an opposition between the dental affricate /tʃ/ and the alveo-palatal affricate /tʃ/, either only /tʃ/ is pronounced or what Neiescu describes as an "intermediate" sound, which can be interpreted as a phonetic realization that exhibits variation in

⁹ Although Hurren gives a description of the context in which /r/ can occur, he does not include /r/ in his consonant inventory chart. I chose to respect his representation.

its precise point of articulation. Likewise, instead of an opposition between the alveo-palatal fricative /ʃ/ and the alveolar fricative /s/ or opposition between the alveolar fricative /z/ and the alveo-palatal fricative /ʒ/, an "intermediate" sound can be found between /s/ and /ʃ/ as well as /z/ and /ʒ/. (Neiescu 1998).

	Bilabial	Dental	Alveolar	Alveo-Palatal	Palatal	Velar
Stop	/p/ /b/	/t/ /d/			/c/	/k/ /g/
Affricate		/tʃ/		/tʃ/		
Fricative	/f/ /v/		/s/ /z/	/ʃ/ /ʒ/		/x/
Nasal	/m/		/n/		/ɲ/	
Lateral			/l/		/ʎ/	
Trill			/r/			

Table 3: Istro-Romanian Consonants (Neiescu 1998)

Table 4 is my rendition of the consonant phonemic inventory Kovačec provides in his 1998 book *Istrorumunjsko-hrvatski rječnik (sa gramatikom i tekstovima)* [*Istro-Romanian-Croatian dictionary (with grammar and texts)*]. Kovačec describes six points of articulation with six manners of articulation. There is a distinction between voiced and voiceless, for example the bilabial fricatives /v/ and /f/. Like Neiescu, Kovačec also mentions that in Šušnjevića, the oppositions between /tʃ/ and /tʃ/, /ʃ/ and /s/, and /z/ and /ʒ/ are often neutralized, resulting in an "intermediate" sound which can also be interpreted as a phonetic realization that exhibits variation in its precise point of articulation (Kovačec 1998).

	Bilabial	Dental	Alveolar	Alveo-Palatal	Palatal	Velar
Stop	/p/ /b/	/t/ /d/			/c/	/k/ /g/
Fricative	/f/ /v/		/s/ /z/	/ʃ/ /ʒ/		/x/
Affricate			/tʃ/	/tʃ/		
Nasal	/m/	/n/			/ɲ/	
Lateral		/l/			/ʎ/	
Trill		/r/				

Table 4: Istro-Romanian Consonants (Kovačec 1998)

2.2.2 Istro-Romanian Vowels

Table 5 is my rendition of the vowel phonemic inventory Hurren provides in his 1971 doctoral thesis *A linguistic description of Istro-Rumanian*. Table 5 shows that Istro-Romanian has three degrees of vowel height, three degrees of vowel backness, and both rounded and unrounded vowels.

	Front	Central	Back/Rounded
High	/i/		/o/
Mid	/e/	/ə/	/u/
Low		/a/	

Table 5: Istro-Romanian Vowels (based on Hurren 1971)

Table 6 is my rendition of the vowel phonemic inventory Neiescu provides in his 1971 article "Din Fonologia Dialectului Istroroman". Table 6 shows that Istro-Romanian has three degrees of vowel height, three degrees of vowel backness, and both rounded and unrounded vowels. Neiescu's version shows two more vowels--the low front /æ/ and low back rounded /ɒ/--than Hurren's version. Neiescu does state that the central low vowel /a/ is only found in an unstressed position.

	Front	Central	Back/Rounded
High	/i/		/o/
Mid	/e/	/ə/	/u/
Low	/æ/	/a/*	/ɒ/

Table 6: Istro-Romanian Vowels (Neiescu 1998)

Table 7 is my rendition of the vowel phonemic inventory Kovačec provides in his 1998 book *Istrorumunjsko-hrvatski rječnik (sa gramatikom i tekstovima)* [*Istro-Romanian-Croatian dictionary (with grammar and texts)*]. Table 7 shows that Istro-Romanian has three degrees of vowel height, three degrees of vowel backness, and both rounded and unrounded vowels. Like Neiescu's version, Kovačec's version shows two more vowels--/æ/ and /ɒ/--than Hurren's version.

	Front	Central	Back/Rounded
High	/i/		/o/
Mid	/e/	/ə/	/u/
Low	/æ/	/a/	/ɒ/

Table 7: Istro-Romanian Vowels (Kovačec 1998)

2.2.3 Istro-Romanian Minimal/Quasi-Minimal Pairs

Minimal or quasi-minimal pairs, rendered in IPA notation, are listed below. The symbol ~ is used to establish a contrast between the minimal pairs. Some of the minimal or quasi minimal pairs have been sourced from previously published work and others are sourced from the sample used for this thesis. The majority of the minimal pairs are vocalic minimal pairs as consonantal minimal pairs are more difficult to find.

(3) Istro-Romanian Minimal/Quasi-Minimal Pairs

1. /ɒ/ ~ /æ/ = /mɒrɛ/ ~ /mære/ - 'big' (masc. sing) : 'apples' (Neiescu 1998)
2. /ɒ/ ~ /o/ = /sɒrɛ/ ~ /sore/ - 'salt' : 'sun' (Neiescu 1998)
3. /ɒ/ ~ /e/ = /mɒr/ ~ /mer/ - 'big' (masc. pl) : 'apple' (Neiescu 1998)
4. /ɒ/ ~ /ə/ = /bɒtu/ ~ /bətʌ/ - 'knock on' : 'the stick' (Neiescu 1998)

5. /ɒ/ ~ /i/ = /cɒrɑ/ ~ /cira/ - 'to ask' : 'to dine' (Neiescu 1998)
6. /ɒ/ ~ /a/ = /pɒr/ ~ /pɑr/ - 'column' : 'couple' (Kovačec 1998)
7. /ɒ/ ~ /u/ = /pɒr/ ~ /pure/ - 'column' : 'to put' (Kovačec 1998)
8. /æ/ ~ /o/ = /mære/ ~ /more/ - 'apples' : 'to die' (Neiescu 1998)
9. /æ/ ~ /e/ = /mære/ ~ /mene/ - 'apples' : 'me' (Kovačec 1998)
10. /æ/ ~ /ə/ = /mære/ ~ /mərle/ - 'apples' : 'hands'
11. /æ/ ~ /a/ = /mære/ ~ /mare/ - 'apples' : 'tomorrow' (Kovačec 1998)
12. /æ/ ~ /i/ = /mære/ ~ /mire/ - 'apples' : 'for me'
13. /æ/ ~ /u/ = /tiræ/ ~ /tiru/ - 'dine!' : 'I dine' (Neiescu 1998)
14. /o/ ~ /e/ = /səro/ ~ /səre/ - 'healthy' : 'healthy' (fmn. pl) (Neiescu 1998)
15. /o/ ~ /ə/ = /sore/ ~ /səre/ - 'salt' : 'healthy' (fmn. pl) (Neiescu 1998)
16. /o/ ~ /i/ = /more/ ~ /mire/ - 'to die' : 'for me' (Neiescu 1998)
17. /o/ ~ /a/ = /kalo/ ~ /kasa/ - 'there' : 'home'
18. /o/ ~ /u/ = /sora/ ~ /sura/ - 'sister' : 'to pack' (Kovačec 1998)
19. /e/ ~ /ə/ = /per/ ~ /pər/ - 'hair' : 'breads' (Kovačec 1998)
20. /e/ ~ /i/ = /per/ ~ /pir/ - 'hair' : 'wedding' (Kovačec 1998)
21. /e/ ~ /a/ = /per/ ~ /pɑr/ - 'hair' : 'pair' (Kovačec 1998)
22. /e/ ~ /u/ = /sire/ ~ /siru/ - 'for him' : 'the breast'
23. /ə/ ~ /i/ = /səre/ ~ /sire/ - 'healthy' (fmn. pl) : 'for him' (Neiescu 1998)
24. /ə/ ~ /a/ = /pər/ ~ /pɑr/ - 'breads' : 'pair' (Kovačec 1998)
25. /ə/ ~ /u/ = /gutʉ/ ~ /bətʉ/ - 'the throat' : 'to knock' (Neiescu 1998)
26. /i/ ~ /a/ = /pir/ ~ /pɑr/ - 'wedding' : 'couple' (Kovačec 1998)
27. /i/ ~ /u/ = /cosit/ ~ /cosut/ - 'mown' : 'gray' (Kovačec 1998)
28. /a/ ~ /u/ = /tira/ ~ /tiru/ - 'to dine' : 'I dine' (Neiescu 1998)
29. /b/ ~ /p/ = /bet/ ~ /pet/ = 'drunk' : 'five' (Hurren 1971)
30. /v/ ~ /f/ = /vir/ ~ /fir/ = 'hay' : 'couple' (Hurren 1971)
31. /m/ ~ /n/ = /me/ ~ /ne/ = 'my' : 'snow' (Hurren 1971)
32. /d/ ~ /t/ = /de/ ~ /te/ = 'than' : 'you' (Hurren 1971)
33. /z/ ~ /s/ = /za/ ~ /sa/ = 'for' : 'his' (Hurren 1971)
34. /c/ ~ /ʒ/ = /ca/ ~ /ʒ/ = 'that' : 'sorry' (Hurren 1971)
35. /s/ ~ /l/ = /sa/ ~ /la/ = 'so' : 'at' (Hurren 1971)
36. /g/ ~ /k/ = /glas/ ~ /klas/ = 'voice' : 'ear of corn' (Hurren 1971)
37. /h/ ~ /k/ = /hlade/ ~ /klade/ = 'he shelters' : 'he puts' (Hurren 1971)

2.3 Daco-Romanian Phonology

In order to compare Istro-Romanian phonology to Daco-Romanian phonology, first a phonemic inventory of Daco-Romanian must be established.

Daco-Romanian is a Balkan Romance language spoken by approximately 23.9 million people primarily in Romania and Moldova (Sala 2019). Daco-Romanian's phonemic inventories are shown in Tables 8 and 9. The consonants exhibit contrasts in six points of articulations and six manners of articulation, as shown in Table 8. Daco-Romanian shows phonemic distinction between voiced and voiceless consonants, such as the bilabial stops /p/ and /b/. The vowel system contrasts front, central, and back rounded vowels with three degrees of vowel height: high, mid, and low, as shown Table 9.

	Bilabial	Dental	Alveolar	Palatal	Velar	Glottal
Stop	/p/ /b/	/t/ /d/			/k/ /g/	
Fricative	/f/ /v/		/s/ /z/	/ʃ/ /ʒ/		/h/
Affricate		/t͡s/		/t͡ʃ/ /d͡ʒ/		
Nasal	/m/		/n/			
Lateral			/l/			
Rhotic			/r/ ¹⁰			

Table 8: Daco-Romanian Consonants (Chițoran, 2001)

	Front	Central	Back/Rounded
High	/i/	/ɨ/	/o/
Mid	/e/	/ə/	/u/
Low		/a/	

Table 9: Daco-Romanian Vowels (Chițoran, 2001)

¹⁰ Chițoran states that "/r/ is generally realized as a flap [r] and occasionally as a trill in a word initial position" (2001, p. 10).

Various other features of Daco-Romanian include:

(4) Characteristics of Daco-Romanian

- A. Homorganic nasal assimilation (Neiescu 1998).
- B. The glides /w/ and /j/, which can be combined with every vowel to create both rising and falling diphthongs.
- C. Palatalization as a secondary place of articulation of consonants in a word-final position when followed by /j/ (represented as /C^j/).¹¹ This will hereafter be referred to as "secondary palatalization"¹².
- D. The definite articles are enclitic. /-ul/, or just /-l/ if the noun ends in /u/, attaches to the masculine and neuter singular nominative/accusative nominal stems. The word-final singular feminine markers /ə/ or /e/ are changed to /a/ as the exponent of the feminine definite article. For plural nouns, an /-i/ is added to masculine nouns while /-le/ is added to feminine and neuter nouns.
- E. The indefinite article is preposed: /un/ for masculine and neuter singular nominative/accusative nouns and /o/ for the feminine singular. /'ni.jte/ is used for the plural indefinite article for feminine, masculine, and neuter nominative/accusative nouns.

Table 10 shows the differences between definite articles, indefinite articles, and no article in the nominative/accusative case in Daco-Romanian. The masculine and neuter singular nouns are identical so they have been grouped together.

¹¹ This glide is "shorter and less sonorous than the syllabic [i]" (Cojocaru, 2003). While empirical studies have found a difference in tongue shape between phonemes with and without palatalization as a secondary place of articulation, the configurations differ by place of articulation, especially noticeable with a less robust contrast in post alveolars (Spinu et al, 2019).

¹² This is a term used by some linguists such as Nicoleta Bateman in her doctoral thesis *A Crosslinguistic Investigation of Palatalization* (2007).

	Singular		Plural		
	Masculine/Neuter	Feminine	Masculine	Feminine	Neuter
Definite article	/-ul/, /-l/	/-a/	/-i/	/-le/	/-le/
Indefinite article	/un/	/o/	/'ni.ʃte/	/'ni.ʃte/	/'ni.ʃte/
No article	/-C/ ¹³ , /u/	/-ə/, /-e/	/Cj/ ¹⁴	/-e/, /-i/, /-le/	/-uri/, /e/

Table 10: Daco-Romanian Nominative/Accusative Articles, based off of (Boțoman 1995)

2.4 Daco-Romanian Dialect Phonology

It is thought that the Istro-Romanians originated from around Banat or Crisana in modern-day Romania. The languages spoken in these regions are considered dialects of Daco-Romanian and are still mutually intelligible with standard Daco-Romanian, which is based on the Wallachian dialect (Sala 2009). While the Transylvanian¹⁵ dialect of Daco-Romanian and the Banat dialect of Daco-Romanian are similar, they are considered to be two different dialects (Ursan 2008). As these dialects are thought to be the ancestral dialects of the Istro-Romanians, it is prudent to note the unique characteristics of both Daco-Romanian dialects.

2.4.1 Transylvanian dialect of Daco-Romanian (Ursan 2008)

The Transylvanian dialect of Daco-Romanian is spoken in the Central and Western regions of Romania. This dialect is very similar to standard Daco-Romanian, however there are a few exceptions as listed in (5). Key differences include the existence of the open-mid front unrounded vowel /ɛ/, the existence of the open-mid back rounded vowel /ɔ/, and the existence of the palatal lateral /ʎ/.

¹³ Used to designate that most masculine and neuter nouns end in a consonant. Many neuter nouns end in /u/ as well, but masculine and neuter nouns ending in other vowels do exist (Boțoman 1995).

¹⁴ This is secondary palatalization, as described in (2c).

¹⁵ The language spoken in Crisana is considered to be part of the Transylvanian dialect (Ursan 2008).

(5) Characteristics of the Transylvanian dialect of Daco-Romanian

- A. The existence of open-mid front unrounded vowel /ɛ/, which can arise from the monophthongization of the diphthong /ɛa/ (Ursan 2008)
- B. The existence of the open-mid back rounded vowel /ɔ/, which can arise from the monophthongization of the diphthong /ɔa/ (Ursan 2008)
- C. The low central vowel /a/ in a pretonic position is raised to /ə/ (Ursan 2008)
- D. Conservation of /u/ in the stem of certain words that in other dialects become /o/, for example *adurm* vs *adorm* (to sleep) (Ursan 2008)
- E. /e/ → /ə/, /i/ → /i/, and /ɛa/ → /a/ after /s/, /z/, /ts/ (Ursan 2008)
- F. Existence of palatal lateral /ʎ/ (Pop, 1938)
- G. Rhoticism of the alveolar /n/ in an intervocalic position (Neiescu 1998)

2.4.2 Banat Dialect of Daco-Romanian

The Banat dialect of Daco-Romanian is spoken in the Southwest region of Romania. This dialect is very similar to standard Daco-Romanian, however there are a few exceptions, as listed below in (6). Key differences include the closing of unstressed vowels, rhoticism of the alveolar /n/ in an intervocalic position, and the monophthongization of /ɔa/. The symbol ~ is used to show a correspondence between standard Daco-Romanian and the dialect.

(6) Characteristics of the Banat dialect of Daco-Romanian

- A. /ɔa/¹⁶ tends to monophthongize to /o/ (Bădescu, 2011)
- B. Tendency to close unstressed vowels ie. /a/ → /ə/, /e/ → /i/, /o/ → /u/ (Bădescu, 2011)
- C. The existence of /ɛ/ after /j/, however it is more open than in the Transylvanian dialect (Ursan 2008)
- D. The mid front vowel /e/ centralizes to /ə/ after /s/, /dʒ/, /ʃ/, /j/, /ts/ ex. [dʒer] ~ [dʒər] (Ursan 2008)

¹⁶ For the purpose of this study, /ɔa/ and /wa/ will be considered interchangeable. The original notation of the cited author is used. However, it is important to note that while in 1959 Rosetti and in 1975 Ulivi demonstrated a phonemic contrast between the diphthong [ɔa] and the glide-vowel sequence [wa], in 2002 Chitoran states that the contrast is not statistically significant (Chitoran 2002). Chitoran explains that the phonetic neutralization may occur in part due to an increased difficulty in maintaining an acoustic difference in back rounded glides as opposed to front glides (Chitoran 2002).

- E. The high front vowel /i/ centralizes to /i/ after /s/, /d͡ʒ/, /ʃ/, /j/, /t͡s/ ex. [fi] ~ [fi] (Ursan 2008)
- F. The diphthong /ɛa/ monophthongizes to /a/ after /s/, /d͡ʒ/, /ʃ/, /j/, /t͡s/ ex. [ʃɛa.ra] ~ [ʃa.ra] (Ursan 2008)
- G. /t͡ʃ/ → /ʃ/ ex. [t͡ʃas] ~ [ʃas] (Ursan 2008)
- H. /d͡ʒ/ → /ʒ/ ex. [ʃu.d͡ʒe] ~ [ʃu.ʒe] (Ursan 2008)
- I. Diphthong /je/, before a labial, loses its glide ex. [ˈmer.kurʲ] ~ [ˈmjer.kurʲ] (Ursan 2008)
- J. Palatalization of dental consonants ex. [ˈdin.te] ~ [ˈdij.te] (Ursan 2008)
- K. Rhoticism of the alveolar /n/ in an intervocalic position (Neiescu 1998)

2.5 BCMS Phonology

As all Istro-Romanian speakers also speak BCMS, it is important to understand the consonant and vowel inventories of BCMS. BCMS is a South Slavic polycentric language whose mutually intelligible standard varieties are considered to be the national languages of Bosnia and Herzegovina, Croatia, Serbia, and Montenegro. These national languages emerged after the breakup of the former Yugoslav Republic. While each country claims its own national language, in reality the dialectal boundaries are not the same as the political boundaries, even for the sub-dialects of Štokavian (the standard dialect serving as the basis for each of the national languages). This is shown in Map 4. In fact, national policy makers actually struggled to clearly define and differentiate the characteristics of the "national" languages from one another (Greenberg 1998).



Map 4: Shtokavian Subdialects¹⁷ (Zintchenko Jurlina 2019 cf. Kapović 2015, p. 40-41)

The main dialects of BCMS include Štokavian (the standard taught in Croatia), Čakavian, and Kajkavian. Because it is most likely that Istro-Romanian speakers were taught the standard language in school, a phonemic inventory of Štokavian has been included. Tables 11 and 12 present the Ekavian variant of standard Štokavian.

Štokavian has six points of articulation and six manners of articulation, as shown in Table 11. BCMS shows phonemic distinction between voiced and voiceless consonants, such as the bilabial stops /p/ and /b/, although not between /f/ and /v/. The vowel system contrasts front,

¹⁷ Yellow: Eastern Herzegovinian, Orange: Zeta-South Sandžak, Light Green: Eastern Bosnian, Light Blue: Šumadija-Vojvodina, Cyan: Smederevo-Vršac, Dark Blue: Kosova-Resava, Violet: Prizren-South Morava, Pink: Svrljig-Zaplanje, Purple: Timok-Lužnica, Red: Younger Ikavian, Dark Green: Slavonian, Striped: dialects with an unchanged jat

central, and back rounded vowels with four degrees of vowel height: high, mid-high, mid-low, and low, as shown Table 12. Additionally, it is important to note that the dialects of BCMS are characterized by a pitch accent system, however the attention of this study is restricted only to segmental phonology and not accentual phonology.

	Bilabial	Dental	Alveolar	Alveo-Palatal	Palatal	Velar
Stop	/p/ /b/	/t/ /d/				/k/ /g/
Fricative	/f/		/s/ /z/	/ʃ/ /ʒ/		/x/
Affricate			/ts/	/tʃ/ /dʒ/	/tɕ/	
Nasal	/m/		/n/		/ɲ/	/ŋ/
Lateral			/l/		/ʎ/	
Rhotic			/r/			

Table 11: BCMS Consonants (Morén, 2005)

	Front	Central	Back/Rounded
High	/i/		/o/
Mid	/e/	/ə/	/u/
Low		/a/	

Table 12: BCMS Vowels (Morén, 2005)

Notable features of standard BCMS that differ from standard Daco-Romanian include:

(7) Differences between BCMS and Daco-Romanian

- A. Presence of the palatal lateral /ʎ/, the palatal lateral /ɲ/, and the palatal affricate /tɕ/
- B. Lack of the voiced labiodental fricative /v/
- C. Lack of the central mid vowel /ə/
- D. Lack of the high central vowel /ɨ/
- E. The front unrounded glide /j/ occurs but, unlike Daco-Romanian, it lacks the back rounded counterpart /w/

- F. Lack of articles (Ivić, 1983), except for the Torlak Serbian dialects spoken in southeastern Serbia (Vukovic and Samardzic 2018)

2.5.1 Čakavian Dialect Phonology

Čakavian is the most spoken dialect of BCMS in the areas where Istro-Romanian is spoken (Hurren 1971; Kovačec 1998; Sârbu 2005). Unique features of Čakavian include:

(8) Characteristics of Čakavian

- A. Word final /m/ may become /n/ (Kalsbeek 2011; Kovačec 1998), although it is thought this arose from Čakavian's contact with one of the Romance dialects traditionally spoken on the Istrian peninsula (Kalsbeek 2011 cf. Bidwell 1967)
- B. Deletion of word-final or syllable-final /l/ (Kovačec 1998)
- C. Merger of alveo-palatal and alveolar affricates /tʃ/ and /ts/ (Kalsbeek 2011)
- D. Merger of the alveolar and alveo-palatal fricatives /z/ and /ʒ/ as well as /t/ and /ʃ/; this merger is thought to be due to Čakavian's contact with Venetian (Kalsbeek 2011 cf. Bidwell 1967)
- E. Existence of the palatal lateral /ʎ/

2.6 Slovenian Phonology

Slovenian is a South Slavic language Istro-Romanian has had contact with due to the close proximity of Slovenia to the Istrian peninsula. Up to 19% of the lexicon of Istro-Romanian is made up of Slovenian words (Sârbu 2005). Slovenian has 48 individual dialects with varying degrees of mutual intelligibility to one another (Greenberg 2008). At this time, I have found no studies indicating which dialect of Slovenian has had the most contact with Istro-Romanian. Thus, phonemic inventories of the standard language have been provided. However, Slovenian is closer to the Čakavian dialect of BCMS than the Štokavian (standard) dialect.

Slovenian has five points of articulation and six manners of articulation, as shown in Table 13. Like BCMS, Slovenian shows phonemic distinction between voiced and voiceless consonants, such as /p/ and /b/. Two different phonemic inventories are included for Slovenian as there is debate between the status of certain vowels, namely the low back rounded vowel /ɒ/ and the high-mid back rounded vowel /o/. There is also debate to the height of the low-mid back rounded vowel

/ɔ/. Both table 14 and table 15 show that BCMS has four degrees of vowel height, three degrees of vowel backness, and both rounded and unrounded vowels.

	Bilabial	Dental	Alveolar	Alveo-Palatal	Velar
Stop	/p/ /b/	/t/ /d/			/k/ /g/
Fricative	/f/ /v/		/s/ /z/	/ʃ/ /ʒ/	/x/
Affricate			/tʃ/	/dʒ/	
Nasal	/m/		/n/		
Lateral			/l/		
Rhotic			/r/		

Table 13: Slovenian Consonants (Greenberg 2008)

	Front	Central	Back/Rounded
High	/i/		/u/
Mid-High	/e/	/ə/	/ɔ/
Mid-Low	/ɛ/		/ɒ ² /
Low	/a/ ¹⁸		/ɑ/

Table 14: Slovenian Vowels (Modic and Petek 2002)

¹⁸ /a/ is usually considered a front vowel and /ɒ/ is considered low, however the representations of the authors were shown.

	Front	Central	Back/Rounded
High	/i/		/u/
Mid-High	/e/		/o/
Mid-Low	/ɛ/	/ə/	/ɔ/
Low		/a/	

Table 15: Slovenian Vowel Chart (Greenberg 2008)

Notable phonological features of standard Slovenian that differ from standard Daco-Romanian include:

(9) Differences between Slovenian and Daco-Romanian

- A. Lack of the high central vowel /i/
- B. Occurrence of the back rounded vowels /ɒ/ and /ɔ/
- C. Occurrence of the mid-low front vowel /ɛ/
- D. The front unrounded glide /j/ occurs but, unlike Daco-Romanian, it lacks the back rounded counterpart /w/
- E. Lack of articles (Greenberg 2008)
- F. In some colloquial dialects, there is reduction of /i/ and /u/ to /ə/. Sometimes /i/ and /u/ are deleted in final syllables (Greenberg 2008).

2.7 Standard Italian Phonology

Due to Istria's geographic position (as shown in Map 1), the peninsula has always been a "political borderland throughout its history" with "Croatian, Italian, and Slovenian speakers [being] its main ethnolinguistic components for centuries" (Vrzić and Singler 2016, p. 54). Furthermore, from 1923-1945 Italian was the official language of instruction for all Istro-Romanian children (Vrzić and Singler 2016, p. 54) as well as the administrative language of the region. While this is a relatively short period of time, an entire generation of Istro-Romanian speakers would have been subjected to Italian instruction in school. Thus it is pertinent to understand the phonological

characteristics of Italian. While Vrzić and Singler do not specify what dialect of Italian was taught in schools, it is almost certain that Standard Italian (Tuscan--specifically Florentine) was taught.

Italian is an Italo-Romance language whose phonemic inventories are shown in Tables 16 and 17. The consonants exhibit contrasts in six points of articulations and six manners of articulation, as shown in Table 16. Standard Italian shows phonemic distinction between voiced and voiceless consonants, such as the bilabial stops /b/ and /p/. The vowel system contrasts front, central, and back rounded vowels with four degrees of vowel height: high, mid-high, mid-low, and low, as shown Table 17.

	Bilabial	Dental	Alveolar	Alveo-Palatal	Palatal	Velar
Stop	/p/ /b/	/t/ /d/				/k/ /g/
Fricative	/f/ /v/	/s/ /z/		/ʃ/ /ʒ/		
Affricate		/tʃ/ /dʒ/		/tʃ/ /dʒ/		
Nasal	/m/		/n/		/ɲ/	
Lateral			/l/		/ʎ/	
Rhotic			/r/			

Table 16: Standard Italian Consonants (Bertinetto and Loporcaro 2005)

	Front	Central	Back/Rounded
High	/i/		/u/
Mid-High	/e/		/o/
Mid-Low	/ɛ/		/ɔ/
Low		/a/	

Table 17: Standard Italian Vowels (Bertinetto and Loporcaro 2005)

(10) Differences between Standard Italian and Daco-Romanian

- A. Occurrence of the voiced dental affricate /tʃ/
- B. Lack of the high central vowel /ɨ/
- C. Lack of the mid central vowel /ə/
- G. Occurrence of the back rounded vowel /ɔ/
- H. Occurrence of the mid-low front vowel /ɛ/

2.8 Venetian Phonology

While Standard Italian was the administrative and educational language in the early 20th century, Venetian has been spoken in the Istrian region since the 11th century (Kalsbeek 2011). Venetian is an Italo-Romance language spoken by approximately 8 million people throughout the world, 50,000 people of whom live in Croatia (Zanin 2016 cf. Ethnologue). There is debate as to whether Venetian is an Italian dialect or if it is a language of its own, however it is clear that Venetian has unique phonological characteristics that differ it from Standard Italian (Zanin 2016).

Venetian's phonemic inventories are shown in Tables 18 and 19. The consonants contrast in six points of articulations and six manners of articulation, as shown in Table 18. Venetian shows phonemic distinction between voiced and voiceless consonants, such as the bilabial stops /b/ and /p/. The vowel system contrasts front, central, and back rounded vowels with four degrees of vowel height: high, mid-high, mid-low, and low, as shown Table 19.

	Bilabial	Dental	Labiodental	Alveolar	Palatal	Velar
Stop	/p/ /b/			/t/ /d/		/k/ /g/
Fricative		/θ/ /ð/	/f/ /v/	/s/ /z/		
Affricate					/tʃ/ /dʒ/	
Nasal	/m/			/n/	/ɲ/	
Lateral				/l/		
Rhotic				/r/		

Table 18: Venetian Consonants (Zanin 2016 cf. Zamboni 1974, p. 10)

	Front	Central	Back/Rounded
High	/i/		/u/
Mid-High	/e/		/o/
Mid-Low	/ɛ/		/ɔ/
Low		/a/	

Table 19: Venetian Vowels (Zanin 2016 cf. Zamboni 1974, p. 10)

(11) Differences between Venetian and Daco-Romanian

- D. Occurrence of the dental fricatives /θ/ and /ð/
- E. Lack of the high central vowel /ɨ/
- F. Lack of the mid central vowel /ə/
- G. Lack of the alveo-palatal fricatives /ʃ/ and /ʒ/
- H. Lack of the semi-vowel /j/ (Zanin 2016)
- I. Occurrence of the back rounded vowel /ɔ/
- J. Occurrence of the mid-low front vowel /ɛ/

Section 3: Analysis**3.1 Methodology**

The recordings used to carry out the analysis presented in this work are courtesy of Dr. Zvezdana Vrzić's online project "Preservation of the Vlaški and Žejanski Language". Samples, all of which were collected 2009-2011, were selected from "Memories from Šušnjevice and surroundings". Additionally, two other recordings were used. They are both samples from Frane Belulovici, a speaker of Istro-Romanian from the city of Šušnjevice born in 1921. The exact dates of Belulovici's samples are unknown. Frane Belulovici's recordings and translations into Daco-Romanian were made by Professor Petru Neiescu of the University of Cluj, published online courtesy of Istro-Romanian.net.

In total, recordings from 9 speakers were used. The sample group consisted of 6 women and 3 men originating from Kostrčani, Letâj, Noselo, or Šušnjevice. While there are only 9

speakers sampled for the purpose of this study, as it is estimated that there are only 50 speakers that speak the Southern dialect, this accounts for 18% of the total population (Nevaci 2017).

All recordings consisted of speakers describing past events. All 91 collected words are words clearly shared with Daco-Romanian, the majority of which have to do with domestic/home life or nature. Not all shared words in the recordings were used due to quality or clarity of the recordings, and additionally, not all 91 words were included in the analysis portion of this thesis as instances occurred where there was not enough evidence to establish a systemic change. All sampled recordings were downloaded and slowed down to 70% speed, after which phrases were listened to individually. All analysis was exclusively impressionistic, however transcriptions were reviewed with both Dr. Martínez-Gil and Dr. Lechintan-Siefer for accuracy.

The results were used to establish the language's phonemic inventory and further served as the main evidence for my analysis in the following sections. The total list of words and phrases can be found in the appendix. The analysis below shows first the Daco-Romanian IPA transcription, then the Istro-Romanian IPA transcription, and finally the English translation. The symbol ~ is used to signal a correspondence between the Istro-Romanian and Daco-Romanian words, not to imply that the Istro-Romanian words are derived from the Daco-Romanian counterpart.

3.2. Vowels

A majority of the phonological differences between Daco-Romanian and Istro-Romanian can be detected in their vowel systems. In the following sections I discuss the aspects in which the vowel systems differ, as identified in the sample. The analysis is organized according to vowel type or phonological change.

3.2.1 Monophthongization

The Daco-Romanian diphthongs /wa/ and /ɛa/¹⁹ are monophthongized in Istro-Romanian. The diphthong /wa/ is monophthongized to the high back rounded vowel /o/ and the low front vowel /æ/, while the diphthong /ɛa/ is monophthongized to the central low vowel /a/, as illustrated in (12) and (13) below.

¹⁹ It should be noted that in Daco-Romanian the diphthong /ɛa/ and the glide-vowel sequence /ja/, while similar, exhibit a contrast in duration (Chitoran 2002)

(12) /wa/ or /ɔa/ ~ /o/

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[pwa.te]	[po.te]	‘it can be (done)’
[ʃkwa.lə]	[ʃko.la]	‘school’
[pi.tʃɔa.re.le]	[pi.tʃor.le]	‘the legs/feet’
[pi.tʃɔa.re]	[pi.tʃo.re]	‘feet’

(13) /ɛa/ ~ /æ/, /a/

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[sɛa.rə]	[sæ.ra]	‘evening’
[lɛa.gə]	[læ.ga]	‘one ties’
[frun.ɛa]	[frun.ta]	‘forehead’

3.2.2 Diphthongization

When in a stressed position, the low central vowel /a/ in Daco-Romanian is realized as the raising diphthong /wa/ in Istro-Romanian, as illustrated in (14). An exception to this example is (DR) [in.və.tsat] ~ (IR) [an.ve.tsat] ‘learned’.

(14) /a/ ~ /wa/

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[ka.se]	[kwa.se]	‘houses’
[fra.te.le]	[frwa.te.le]	‘the brother’
[in.tre.'bat]	[ən.tre.'bwat]	‘asked’
[gaz]	[gwas]	‘gas’
[as.tə.zʲ]	[was.te.ze]	‘today’
[a.pə]	[wa.pa]	‘water’
[kje.məm]	[kje.mwan]	‘I call’
[pat.ru]	[pwa.tru]	‘four’
[pal.ma]	[pwa.ma]	‘palm’
[fa.se]	[twa.fe]	‘six’
[al.tə]	[wa.ta]	‘other’
[a.'ra.təmʲ]	[a.'rwa.tam]	‘show me’
[a.'ka.sə]	[kwa.sa]	‘home’
[a.vem]	[wa.rem]	‘we have’
[na.sul]	[nwa.su]	‘the nose’
[kər.'natsi]	[kər.'nwa.te.le]	‘the sausages’

Previous studies, such as those of Kovačec (1998) and Neiescu (1980), have reported a low back rounded vowel /ɒ/ instead of the diphthong illustrated in (15). However, a majority of the data from the recordings analyzed in this thesis clearly contain a labiovelar onglide preceding the nuclear /a/, not the monophthong reported by the aforementioned authors. Nonetheless, in four phonological environments stressed /a/ does change to monophthongal /ɒ/, as shown in (15), namely, word-finally (15a); after a tautosyllabic consonant cluster (15b); in contact with a labial (15c); in contact with an alveolar (15d):

(15) /a/ ~ /ɒ/

	<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	<i>Change</i>
a.	[aʃ.tɛp.'ta]	[ʃtɛp.'tɒ]	'wait'
b.	[o.'bra.ʒul]	[o.'brɒ.ʒu]	'the cheek'
	[luk.rat]	[lu.krɒ.'ta]	'worked'
c.	[kap]	[kɒp]	'head'
	[in.tre.'bat]	[ɒn.tre.'bɒt]	'asked'
d.	['la.sə]	['la.sa]	'he lets'

3.2.3 High central unrounded vowel /i/

The high central unrounded vowel /i/ in Daco-Romanian can be fronted to the front vowel /i/ or backed and rounded to the back vowel /u/, or it can lower to the central vowels /ə/ and /a/ in Istro-Romanian. While /i/~e/ appears to be the most common difference, these changes appear to occur in free variation.

(16) /i/ ~ /ə/, /i/, /a/, /u/

	<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	<i>English</i>
	['in.tɹu]	['ɒn.tɹu]	'inside'
	['in.sə]	['ɒn.sa]	'but'
	['mij.ni.le]	['mɛr.le]	'the hands'
	[in.tre.'bat]	[ɒn.tre.'bwat]	'asked'
	['sin.ul]	['si.ru]	'the breast'
	['in.və.ʔsat]	['an.ve.ʔsat]	'learned'
	['gi.tul]	['gu.tu]	'the throat'

3.2.4 Mid central unrounded vowel /ə/

The mid central unrounded vowel /ə/ in Daco-Romanian is realized as the low central unrounded vowel /a/ in Istro-Romanian. This change can occur in all contexts, but always occurs syllable-finally (in an open syllable). As mentioned in (2b) and (2c), in Daco-Romanian the word-final feminine marker /ə/ is changed to /a/ as the exponent of the feminine definite article.

In the Istro-Romanian data analyzed, no tokens of /-ə/ were found in word-final position. The Daco-Romanian distinction between the mere feminine marker /-ə/ (and no definite article) and the combination of the feminine marker and the enclitic definite article /-a/ has been lost. Instead, /-a/ exhibits syncretism, in that it has been generalized to both morphosyntactic contexts. In sum, in the words of Zegrean, "feminine nouns ending in –a are realized identically whether they are definite or non-definite" (2012, p. 49). For example, the usage of /-a/ to mark the feminine enclitic definite article still occurs in Istro-Romanian, such as (DR) ['pal.ma] ~ (IR) ['pwa.ma] 'the palm' or (DR) ['bar.ba] ~ (IR) ['bwar.ba] 'the beard', but (17) shows /-a/ marking the nouns with no article.

(17) /-ə/ ~ /-a/ word-finally: syncretism of exponent of feminine gender marking and enclitic definite article exponent

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	<i>English</i>	<i>Context</i>
['ʃkwa.lə]	['ʃko.la]	'school'	'first day of school'
['hra.nə]	['χrwa.na]	'nourishment'	'add bacon to their food'
[fə.'i.nə]	[fa.'ri.ra]	'flour'	'we make...with flour'
['al.tə]	['wa.ta]	'another'	'another world'
[slə.'ni.nə]	[sla.'ni.na]	'ham'	'you put ham'
['a.pə]	['wa.pa]	'water'	'cook in...water'

Other cases in which open-syllable /-a/ is found in a word-final position that does not mark the definite female article are shown in (18). The change from /-ə/ to /-a/ occurs when /-ə/ is preceded by a coronal consonant /r/, /s/, or /n/:

(18) /-ə/ ~ /-a/ word-finally: non-syncretism of exponent

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	<i>English</i>	
[a.'fa.rə]	[a.fwa'.ra]	'outside'	
['la.sə]	['la.sa]	'he lets'	
['bu.nə]	['bu.ra]	'good'	
[a.'ka.sə]	['ka.sa]	'home'	
['kum.pə.rə]	['kum.pa.ra]	'to buy'	
['lɛ̃a.gə]	['læ.ga]	'one ties'	
['in.sə]	['ən.sa]	'but'	
['sɛ̃a.rə]	['sæ.ra]	'evening'	'every evening'
[a.'fa.rə]	[a.fwa'.ra]	'outside'	'went outside'

(19) shows the non-word final cases in which /ə/ lowers to /a/ or fronts to /e/. There seems to be more instances in which /ə/ lowers to /a/ than fronts to /e/. The only instances when /ə/ in Daco-Romanian does not have a corresponding difference in Istro-Romanian is with the two examples (DR) [kər.'nats̃] ~ (IR) [kər.'nwa.te.le] and (DR) ['kət.re] ~ (IR) ['kət.ra]. While both of these words begin with the voiced velar stop /k/, (19) shows (DR) [kə.'zut] ~ (IR) [ka.'zu.ta] thus it cannot be said that the velar stop /k/ preceding a the mid central vowel /ə/ systematically prevents the /ə/ from changing.

(19) /ə/ ~ /a/, /e/: word-medially or initially

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	<i>English</i>
[kə.'zut]	[ka.'zu.ta]	'he fell'
[a.'ra.təm ^j]	[a.'rwa.tam]	'show me'
[nə.'sku.sem]	[na.'skut.sem]	'was born'
[kje.'məm]	[kje.'mwan]	'was called'
[slə.'ni.nə]	[sla.'ni.na]	'ham'
['kum.pə.rə]	['kum.pa.ra]	'to buy'
[fə.'tʃɛ̃a']	[fa.'tʃɛ̃.ja]	'he used to make/do'
[fə.'i.nə]	[fa.'ri.ra]	'flour'
['as.təz̃ ^j]	['was.te.ze]	'today'
[in.və.'tsat]	[an.ve.'tsat]	'he learned'
[ləs]	[las]	'I let'

3.2.5 Low central unrounded vowel /a/

The low central unrounded vowel /a/ is subject to apheresis in unstressed word-initial positions when located in an open syllable followed by the stops /k/ or /d/. In one single instance, (DR) [af.tep.'ta] ~ (IR) [ʃtep.'tɔ], /a/-apheresis also takes place in a closed syllable. According to Kovačec, this is a feature that occurs mostly in the Southern dialect (Kovačec 1998).

(20) unstressed word-initial /a/ elision

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[a.'ko.lo]	['ka.lo]	'there'
[af.tep.'ta]	[ʃtep.tɔ]	'wait'
[a.'ka.sə]	['ka.sa]	'home'
[a.'du.tʃɛa]	[du.tʃæ.'ja]	'he used to bring'

This pattern is supported by the examples in (21), in which the word-initial /a/ is in a stressed position and *not* elided. This is due to the placement of the stress as referenced in section 3.2.2.

(21) stressed word-initial /a/ non-elision

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
['a.l.tə]	['wa.ta]	'other'
[an]	[wan]	'year'
['a.pə]	['wa.pa]	'water'
['as.təzʲ]	['was.te.ze]	'today'
['a.vem]	['wa.rem]	'we have'

There are exceptions to this trend, as shown in two examples in (22), in which the unstressed word-initial /a/ does not undergo apheresis.

(22) unstressed word-initial /a/ non-elision

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[a.'fa.rə]	[a.'fwa.ra]	'outside'
[a.'ra.təmʲ]	[a.'rwa.tam]	'show me'

3.2.4 Close-mid front vowel /e/

In word-initial syllables the close-mid front vowel /e/ is lowered to /æ/.

(23) /e/ ~ /æ/

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[ˈze.t͡ʃe]	[ˈzæ.t͡ʃe]	‘ten’
[ˈvre.me]	[ˈvræ.me]	‘weather’
[ˈlem.ne]	[ˈlæm.ne]	‘wood’
[ˈme.re]	[ˈmæ.re]	‘apples’

Two exceptions to this pattern were found based on the collected data. (24) involves occurrences of /e/ in a word-initial open syllable directly followed by an affricate, in which case /e/ is either raised to /i/ or lowered and centralized to /a/. However (DR) [ˈze.t͡ʃe] ~ (IR) [ˈzæ.t͡ʃe] is an apparent exception, since /e/ is followed by an affricate and still surfaces as /æ/.

(24) /e/ ~ /i/, /a/

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[de.t͡ʃem.bri.je]	[di.t͡sem.bre]	‘december’
[de.d͡ʒe.te.le]	[ʒa.ʒe.te.le]	‘the fingers’

3.2.6 Epenthesis

Daco-Romanian verbs conjugated in the third person singular imperfect indicative tense are characterized by the presence of the diphthong /ɛa/ in a word-final position. In Istro-Romanian, the first member diphthong becomes nuclear, and an additional /j/ is inserted to break up the ensuing hiatus.

(25) /ɛa/ ~ /e.ja/, /i.ja/

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[fə.t͡ʃɛa]	[fa.t͡ʃe.ˈja]	‘he used to make/do’
[ve.nɛa]	[ve.ˈri.ja]	‘he used to come’
[a.ˈdu.t͡ʃɛa]	[du.t͡ʃæ.ˈja]	‘he used to bring’
[zi.t͡ʃɛa]	[ze.ˈja]	‘he used to say’
[pu.nɛa]	[pu.re.ˈja]	‘he used to put’

3.3 Consonants

With regard to consonants, in general, the inventory of consonants in Istro-Romanian is identical to that of the Serbo-Croatian dialect that surround the villages where Istro-Romanian is spoken (Kovačec 1998). In addition to the observations noted by Kovačec, the present study, based on the collected samples, brings to light significant differences between consonants in Istro-Romanian and Daco-Romanian.

3.3.1 Rhoticism

The Daco-Romanian intervocalic alveolar nasal /n/ corresponds to the rhotic /r/ in Istro-Romanian, as shown in (26).

(26) /n/ ~ /r/

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[ˈsi.ne]	[ˈsi.re]	‘himself’
[ˈmi.ne]	[ˈmi.re]	‘myself’
[ˈbi.ne]	[ˈbi.re]	‘good’
[bun]	[bur]	‘good’ (masc. sing)
[ˈbu.nə]	[ˈbu.ra]	‘good’ (fem. sing)
[ˈpu.ne]	[ˈpu.re]	‘to put’
[pu.ˈne̯a]	[pu.re.ˈja]	‘he used to put’
[pu.ˈne̯aj]	[pu.ˈraj]	‘you used to put’
[fə.ˈi.nə]	[fa.ˈri.ra]	‘flour’
[ˈsin.ul]	[ˈsi.ru]	‘the breast’
[vin]	[vir]	‘wine’
[dʒe.ˈnun.kij]	[ze.ˈrun.kij]	‘the knees’

3.3.2 Syllable-final /l/-deletion

In Daco-Romanian, /-ul/ is the enclitic singular masculine nominative article. In Istro-Romanian, the word-final /l/ is deleted, marking the loss of this exponent of the singular masculine definite article. Of note, "masculine nouns ending in -u are realized identically whether they are definite or non-definite" (Zegrean p. 49).

(27) Word-final /l/ deletion

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[ˈfo.kul]	[ˈfo.ku]	‘the fire’
[ˈsin.ul]	[ˈsi.ru]	‘the breast’
[o.ˈbra.ʒul]	[o.ˈbrɔ.ʒu]	‘the cheek’
[ˈgi.tul]	[ˈgu.tu]	‘the neck’
[ko.ˈla.kul]	[ko.ˈla.ku]	‘the [pastry]’
[ˈtʃer.ul]	[ˈtser.u]	‘the roof’
[ˈna.sul]	[ˈnwa.su]	‘the nose’
[ˈpjep.tul]	[ˈkjep.tu]	‘the chest’

Deletion of syllable-final /l/ also takes place in word-internal position, as shown in (28) In my Istro-Romanian data, I have found no instances of syllable-final /l/, whether word-finally or word-internally.

(28) Syllable-final /l/ deletion

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[ˈpul.pe.le]	[ˈpu.pe.le]	‘the calves’
[ˈpal.ma]	[ˈpwa.ma]	‘palm’
[ˈal.tə]	[ˈwa.ta]	‘other’

3.3.3 Depalatalization

When found in intervocalic position, the postalveolar affricate /tʃ/ undergoes depalatalization in Istro-Romanian, and it is realized as the dental affricate /ts/.

(29) /tʃ/ ~ /ts/

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[de.ˈtʃem.bri.je]	[di.ˈtsem.bre]	‘december’
[ˈtʃer.ul]	[ˈtser.u]	‘roof’
[pi.ˈtʃjor]	[pi.ˈtsor]	‘leg/foot’
[pi.ˈtʃɔa.re.le]	[pi.ˈtsor.le]	‘the legs/feet’

Additionally, this can occur word-finally due to the elision of a glide that in Daco-Romanian causes secondary palatalization.

(30) Loss of secondary palatalization

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[mar ^j]	[mwar]	‘large’ (pl)
[‘as.tə.z ^j]	[‘was.te.ze]	‘today’
[a.‘ra.təm ^j]	[a.‘rwa.tam]	‘show me’

3.3.4 Loss of the palatal lateral /ʎ/

The palatal lateral /ʎ/ has previously been described as part of the Istro-Romanian consonant inventory (Nevaci 2017; Neiescu 1977; Kovačec 1998; Cantemir 1932). However, it is absent in all recent recordings used for this analysis. The data analysed for this thesis is essentially identical to Daco-Romanian in that no palatal lateral is exhibited.

(31) Loss of /ʎ/

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	<i>Expected</i> (Neiescu Transcription)	
[dʒe.‘nun.kij]	[ze.‘run.kij]	[ze.runk.ʎi]	‘the knees’
[‘pjep.tul]	[‘kjep.tu]	[kʎep.tu]	‘the chest’
[‘o.kij]	[‘o.kij]	[ok.ʎi]	‘the eyes’
[u.‘re.ki.le]	[u.‘re.ki.le]	[u.rek.ʎi.le]	‘the ears’
[‘kje.məm]	[‘kje.mwam]	[kʎe.mwan]	‘we call’

3.3.5 Word-final /m/ ~ /n/ of the first person plural of the present indicative

In the first person plural of the present indicative, the word-final /m/ in Daco-Romanian becomes /n/ in Istro-Romanian.

(32) /m/ ~ /n/

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[‘kje.məm]	[‘kje.mwan]	‘we call’
[a.‘vem]	[wa.‘ren]	‘we have’

3.3.6 Usage of /-le/ to mark the plural masculine nominative/accusative definite article

As established in Tables 1 and 10, both Daco-Romanian and Istro-Romanian use the nominative/accusative enclitic article /-i/ to mark masculine definite plural nouns (Zegrean 2012). Additionally, word-final /-le/ is used as the nominative/accusative enclitic article for the masculine singular and feminine plural nouns in Istro-Romanian (Zegrean 2012). However, in

the samples used for this analysis, /-le/ is used to mark the masculine *plural* article in Istro-Romanian. The only exception was (DR) [d̥ʒe.'nun.ki] ~ (IR) [ze.'ru.kij] 'the knees', which is a masculine noun and exhibits the enclitic article /-i/ as expected.

Tables 1 and 10 have been provided again for the reader's convenience.

	Singular		Plural		
	Masculine/Neuter	Feminine	Masculine	Feminine	Neuter
Definite article	/-ul/, /-l/	/-a/	/-i/	/-le/	/-le/
Indefinite article	/un/	/o/	'ni.ʃte/	'ni.ʃte/	'ni.ʃte/
No article	/-C/ ²⁰ , /u/	/-ə/, /-e/	/C ⁱ / ²¹	/-e/, /-i/, /-le/	/-uri/, /e/

Table 1: Daco-Romanian Nominative/Accusative Articles, based off of (Boțoman 1995)

	Singular		Plural	
	Masculine	Feminine	Masculine	Feminine
Definite article	/-u/, /-le/	/-a/	/-i/ ²²	/-e/, /-le/
Indefinite article	/ur/, /ən/	/o/	/uri/ ²³	/ure/
No article	/-u/, /-o/, /-e/, Ø	/-a/, /-e/	/-i/; see (2n)	/-e/, Ø

Table 10: Istro-Romanian Nominative/Accusative Articles, Based on Zegrean 2012

²⁰ Used to designate that most masculine and neuter nouns end in a consonant. Many neuter nouns end in /u/ as well, but masculine and neuter nouns ending in other vowels do exist (Boțoman 1995).

²¹ This is secondary palatalization, as described in (2c).

²² Zegrean also lists "-l'i" as an enclitic masculine plural definite article, however she notes that it "has almost been completely lost" (2012, p. 59) so I have chosen not to include it since it did not appear in my samples.

²³ Zegrean also lists "nuscari'i" as a masculine and feminine plural definite article, however she notes it only appears in Zejane so I have not included it (2012).

(33) /-le/ marking the plural masculine nominative/accusative definite article

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[kər.'natsi]	[kər.'nwa.te.le]	'the sausages'
[u.'me.ri]	[u.'mer.le]	'the shoulders'
[pi.'tʃ̣a.re.le] ²⁴	[pi.'tsor.le]	'the legs/feet'
['de.dʒe.te.le] ²⁵	['ʒa.ʒe.te.le]	'the fingers'

(34) Shows where /-le/ is used to mark the plural feminine nominative/accusative definite article, as has been noted by other researchers. It appears that there has been a loss of contrast between the masculine and feminine plural definite article in Istro-Romanian, different from what is suggested in Table 10.

(34) /-le/ marking the plural feminine nominative/accusative definite article

<i>Daco-Romanian</i>	<i>Istro-Romanian</i>	
[uŋ.gi.le]	[uŋ.gi.le]	'the nails'
[u.'re.ki.le]	[u.'re.ki.le]	'the ears'
['mij.ni.le]	['mər.le]	'the hands'

²⁴ This word is neuter in Daco-Romanian, but Zegrean lists it as masculine (2012, p. 47).

²⁵ This word is neuter in Daco-Romanian, however according to the dictionary on Dr. Vrzić's website *Preservation of the Vlaški and Žejanski Language*, in Istro-Romanian it is masculine.

Section 4: Discussion

Chapter 4 explores the potential origin of the changes present in Istro-Romanian. The discussion of changes is in the same order as the order of examples in Section 3.

4.1 /wa/ ~ /o/ and /ɛa/ ~ /æ/

The monophthongization of /ɔa/²⁶ > /o/ is a feature present in the Banat dialect of Daco-Romanian (Bădescu 2011). Additionally, the monophthongization of /ɛa/ to /ɛ/ (which is slightly less open than /æ/), is present in the Transylvanian dialect of Daco-Romanian.

However, monophthongization is also a feature of BCMS. Due to this tendency and to schooling, Istro-Romanian speakers with formal education in Croatian have a tendency towards a certain "unification" of pronunciation (Kovačec 1998). Thus, there are multiple explanations for this occurrence.

4.2 /a/ ~ /wa/ and /a/ ~ /ɔ/

The low back rounded vowel /ɔ/ exists in Slovenian (Modic and Petek 2002). However, it also occurs in the Transylvanian dialect of Daco-Romanian (Ursan 2008). Thus, there are multiple possible explanations for the existence of /ɔ/ in Istro-Romanian.

The origin of the diphthongization of /a/ is less clear. The diphthong /wa/ does not occur in Venetian, Slovenian, or BCMS. This diphthong does occur in Daco-Romanian and Standard Italian, but the tendency in the Banat and Transylvanian dialects of Daco-Romanian is actually to monophthongize /ɔa/²⁷ (Bădescu 2011). The origin of this change is unclear.

As mentioned in 3.2.2, previous studies, such as those of Kovačec (1998) and Neiescu (1980), have reported the backing and rounding of /a/ in a stressed position (i.e., (DR) /a/ ~ (IR) /ɔ/) instead of the diphthongization of /a/ as shown in (15). The origin of this change is unclear, however it must be noted that both the glide /w/ and the low vowel /ɔ/ are back and rounded.

²⁶ As mentioned in footnote 5, /ɔa/ and /wa/ are used interchangeably, although in 1959 Rosetti and in 1975 Ulivi demonstrated a phonemic contrast between the diphthong [ɔa] and the glide-vowel sequence [wa].

²⁷ As mentioned in footnote 5, /ɔa/ and /wa/ are used interchangeably, although in 1959 Rosetti and in 1975 Ulivi demonstrated a phonemic contrast between the diphthong [ɔa] and the glide-vowel sequence [wa].

4.3 /i/ ~ /ə/, /i/, /u/, /a/

/i/ is the most recently developed vowel in Daco-Romanian, which Renwick cites (Vasiliu 1968; Sala 1976; Coteanu 1981; Rosetti 1986) as appearing around the 16th century (Renwick 2012). This appearance occurs after the theorized arrival of Istro-Romanian speakers in Istria between the 9th-13th century (Burlacu 2019). Thus it is clear that for words with shared origin in which /i/ appears in Daco-Romanian, the existence of /i/ is due to the separate evolution of Daco-Romanian, not due to influences on Istro-Romanian.

4.4 /ə/ ~ /a/: *syncretism and non-syncretism of exponent of feminine gender marking and enclitic definite article exponent*

The changes described in (17) - (19) are explored in the context of the history of Daco-Romanian.

As /ə/ is shared among all dialects of Romanian (Daco-Romanian, Aromanian, Istro-Romanian, and Megleno-Romanian), it appears that it was present during the Common Romanian period (the period before the four dialects of Romanian split apart) (Renwick 2012). The Common Romanian period occurred from roughly the 7th or 8th century A.D. until the 10th century A.D (Renwick 2012 cf. Rosetti 1973, 1986). Renwick agrees with Coteanu (1981) and Vasiliu (1968) that [ə] became a phoneme--instead of an allophone of /a/--in Common Romanian due to its role as a differentiator between the definite and indefinite female article and therefore the creation of minimal pairs ('ka.sa/ 'the house' vs /'ka.sə/ 'house'). /ə/ is not a phoneme present in Serbo-Croatian (Kovačec 1998).

4.4.1 and 4.4.2 explore the various influences that could have caused the change from /ə/ ~ /a/ in different contexts.

4.4.1 /-ə/ ~ /-a/ *word-finally: syncretism of exponent of feminine gender marking and enclitic definite article exponent*

In an example such as (DR) ['jkwa.lə] ~ (IR) ['jko.la] "school", the change /ə/ > /a/ is actually a morphosyntactic change. This is because syncretism has occurred: word-final /-a/ in Istro-Romanian can act as either the feminine marker or the conjunction of the feminine marker *and* the definite article. As both Slovenian (Greenberg 2008) and Serbo-Croatian (Ivić 1983) are article-less languages, this syncretism could be due to Istro-Romanian's contact with both of these languages.

4.4.2 /ə/ ~ /a/ non-syncretism of exponent

In the Banat dialect of Daco-Romanian, as mentioned in section 2.3.2, there is the tendency to reduce unstressed vowels i.e., /a/ → /ə/ (Bădescu 2011). This is the opposite of /ə/ → /a/. It is possible that this change occurred due to Istro-Romanian's contact with Standard Italian or Venetian, which do not contain the mid central vowel /ə/. However, the change /ə/ → /a/ occurs in other dialects of Daco-Romanian such as the dialects spoken in Timisoara or the region of Moldova (Ursan 2008), so it is possible that this change occurred due to independent evolution. The true origin of this change is unclear.

4.5 Unstressed /a/ word-initial elision

The elision of unstressed word-initial, unstressed /a/ is not an attested feature in the Transylvanian or Banat dialects of Daco-Romanian, nor a feature of BCMS, Standard Italian, Venetian, or Slovenian. However, the reduction of unstressed vowels, sometimes to zero, is common in the Balkan Sprachbund (Friedman 2006).

4.6 /ɛ/ ~ /æ/

/æ/ and /ɛ/ are two open vowels which are similar both from an articulatory and acoustic point of view. Thus, in considering the emergence of the front low vowel /æ/, it would seem of interest to consider the occurrence of the open front mid vowel /ɛ/ in languages that Istro-Romanian has been in contact with. In the Transylvanian dialect of Istro-Romanian, /ɛ/ is the result of the monophthongization of the diphthong /ɛa/ (Ursan 2008). In addition, it occurs as the second member of a raising front diphthong /jɛ/ in the Banat dialect, although in this dialect the phoneme is slightly more open than in the Transylvanian dialect, so it could be considered /æ/. BCMS lacks the open front vowel /ɛ/, although it does occur in Slovenian, Venetian, and Standard Italian.

In the examples shown in (23) such as (DR) ['ze.tʃe] ~ (IR) ['zæ.tʃe], none of the words in Daco-Romanian contain a diphthong. Since /ɛ/ does not occur in the same position in Istro-Romanian as it does in the dialects of Daco-Romanian, it is most likely that this change originates from Istro-Romanian's contact with Slovenian, Venetian, or Standard Italian.

4.7 /j/ insertion in the 3rd person singular of the imperfect indicative

The insertion of a yod in a word-final position in the imperfect indicative third person singular conjugation is not a known feature of any dialect of Daco-Romanian. Additionally, while in BCMS diphthongs with the onglide /j/ can occur as the first member, there is a tendency to monophthongize (Kovačec 1998). The origin of this change is unclear.

4.8 Rhoticism

Rhoticism is a feature that occurs both in the Banat and Transylvanian dialects of Daco-Romanian (Neiescu 1980). This is not a standard feature of BCMS, Standard Italian, Venetian, or Slovenian. Thus, rhoticism is most likely due to a shared origin with the Daco-Romanian dialects.

4.9 Deletion: Word-final /l/

Although the deletion of word-final /l/ is a feature found in the Čakavian dialect of Croatian (Kovačec 1998), the process is also found in uninterrupted Daco-Romanian speech (Vasilescu et al. 2019). It is possible that the linguistic contact with BCMS may be a factor favoring /l/-deletion. However, it is also possible that this change has independently evolved both in Daco-Romanian and Istro-Romanian.

4.10 Deletion: Syllable-final /l/

Word internal syllable-final /l/-deletion is not a common feature in any of the Daco-Romanian dialects. However, in Serbo-Croatian "/l/ becomes /o/ when syllable-final" (Bochner 1981, p. 18 cf. Rabadjija 1977). This is otherwise known as /l/-vocalization. Similarly, /l/-vocalization occurs in some Italian dialects pre-consonantly before dental and alveolar stops, fricatives, and affricates (Recasens 1996 cf. Kolovrat 1923, Rohlf's 1996). Additionally, the dialects of Venetian can have three allophonic realizations of /l/: [l] word-medially when followed by a consonant; a lenited articulation, which leads to a semi-vocalic realization commonly known as "evanescent el" (Zanin 2016 cf. Tomasin 2010, p. 729) when word-initially or intervocalic; complete deletion "between vowels and contiguous to the front vowels [e, i]" (Zanin 2016, p. 17).

In the three examples listed in (28), for example (DR) ['pul.pe.le] ~ (IR) ['pu.pe.le], the syllable-final [l] is deleted and not vocalised. In each case, [l] is followed by a consonant. The

origin of this change is unclear, however it could be due to contact with BCSM, Italian, or Venetian.

4.11 Depalatalization

As shown in (29), the change from the alveo-palatal affricate /tʃ/ to the dental affricate /ts/ exhibits depalatalization. This is not a change observed in the Banat or Transylvanian dialects of Daco-Romanian, Standard Italian, or Slovenian. The Venetian phonemic inventory does not include /ts/. The merger of /tʃ/ and /ts/ is a feature found in the Čakavian dialect of Serbo-Croatian (Kalsbeek 2011), however the Southern dialect of Istro-Romanian clearly exhibits both /tʃ/ and /ts/. The origin of this change is unclear.

4.12 Absence of secondary palatalization

As mentioned in (2e), a feature of Daco-Romanian is palatalization as a secondary place of articulation of consonants in a word-final position when followed by /j/ (represented as /C^j/). This feature is referred to as "secondary palatalization". Palatalization as a secondary place of articulation is also exhibited in velar consonants in Slovenian (Jurgec 2016), but it is not a known feature in BCMS, Venetian, or Standard Italian. However, even in Daco-Romanian, there is high individual variation in pronunciation of the secondary palatalization and depending on primary place of articulation, the contrast has various levels of neutralization (Spinu 2019). The absence of secondary palatalization could be due to Istro-Romanian's contact with BCMS, Venetian, or Standard Italian, or it could be an independently-evolved feature.

4.13 Loss of palatal lateral /ʎ/

As mentioned, previous studies have reported a palatal lateral in Istro-Romanian (Nevaci 2017, Neiescu 1977, Kovačec, 1998, Cantemir 1932). However, in the samples used for this analysis, the palatal lateral /ʎ/ was not present at all. This phoneme is not present in the phonemic inventories of Slovenian or Venetian. Additionally, Guillem cites Calero Vaquera as stating that the "lateral phoneme /ʎ/ is not considered to be very stable and durable because it is integrated into an isolated and weak opposition" (Guillem p. 8). It is possible that the loss of the palatal lateral /ʎ/ is due to Istro-Romanian's contact with Slovenian, however it is also possible that it was lost due to its instability.

4.14 Word-final /m/ ~ /n/

In the first person plural present indicative, word-final /m/ becomes /n/ in Istro-Romanian verbs. This is a feature found in the Čakavian dialect of Serbo-Croatian (Kovačec 1998), however it is thought that this feature developed in Čakavian due to the influence of the Romance languages spoken in the area (Kalsbeek 2011). However, it must also be noted that the neutralization of $m > n$ occurs in other languages. For example, “final -m became -n” between Proto-Indo-European and early Greek (c. 15th c. BC) (Fortson IV 2010, p. 228). “*m > n word-finally” additionally occurred in Armenian (Beekes 2003, p. 168). In sum, it is possible that /m/ > /n/ may be a natural sort of neutralization and not due to language contact.

4.15 /-le/ marking the plural masculine nominative/accusative definite article

As shown in (33) and (34), it appears that there has been a loss of contrast between the masculine and feminine plural definite article in Istro-Romanian as /-le/ is used to mark both. In addition, /-le/ is used to mark the singular definite masculine article along with /-u/. According to Zegrean, "Istro-Romanian has developed new forms for masculine singular, by suffixation with –i-le (e.g. *totile*), in order to avoid form overlapping with adverbial forms. Allegedly, this enclitic morpheme originates from one of the masculine singular definite article morphemes, but it is now a marker for masculine singular" (2012, p. 81).

In the samples used for this analysis, no masculine singular nouns were found with the enclitic article /-le/. It is possible that the enclitic article /u/, as shown in (27), is the only singular masculine article used while /-le/ has evolved to function as the plural marker. More research must be conducted with a larger sample size in order to make a definitive conclusion.

Chapter 5: Conclusion

The summarized results of the discussion are listed below in Table 20. 10 of the analysed phonological differences are vowel changes while 8 are consonant changes. The results of this study reflect the Istrian Peninsula's diverse history: 8 out of the 18 identified differences between Daco-Romanian and Istro-Romanian have multiple possible causes. This analysis, though using a limited sample size, indicates a high degree of language change is occurring in Istro-Romanian (on average, 2 phonological changes per word). Furthermore, the results of this analysis solidify the finding that Istro-Romanian is a highly unstable language. The absence of the palatal lateral /ʎ/, as well as the diphthongization of /a/ in a stressed position instead of backing and rounding to /ɔ/, appear to be new developments of the language. Both of these features had been recorded as recently as 1998 by Kovačec and are absent in these recordings taken from 2009-2011. However, it is clear that Istro-Romanian has preserved some of its Common Romanian roots by the occurrence of shared characteristics with Daco-Romanian dialects.

Difference	Origin of Difference
/wa/ ~ /o/	Multiple possible explanations
/ɛa/ ~ /æ/	Multiple possible explanations
/a/ ~ /wa/	Unclear
/a/ ~ /ɒ/	Multiple possible explanations
/i/ ~ /ə/	Independent evolution
/-ə/ ~ /-a/ word-finally: syncretism of exponent	Slovenian or BCMS influence
/-ə/ ~ /-a/ non-syncretism of exponent	Multiple possible explanations
Unstressed /a/ word-initial elision	Unclear
/e/ ~ /æ/	Multiple possible explanations
/j/ insertion in the 3rd person singular of the imperfect indicative	Unclear
/n/ ~ /ɲ/	Shared Daco-Romanian dialect characteristics
Word-final /l/ elision	Multiple possible explanations
Syllable-final /l/ elision	Unclear
/tʃ/ ~ /ts/	Unclear
Loss of secondary palatalization	Multiple possible explanations
Lack of /k/	Multiple possible explanations
/m/ > /n/	Multiple possible explanations
/-le/ marking the plural masculine nominative/accusative definite article	Unclear

Table 20: Analysis of Differences

Table 21 and 22 are my proposed phonemic inventories of the Southern dialect of Istro-Romanian based on my data. I propose that Istro-Romanian exhibits six points of articulation and

six manners of articulation with phonemic distinction between voiced and voiceless consonants, such as /b/ and /p/. My proposed consonant inventory differs from Hurren's (1971), Kovačec's (1998), and Neiescu's (1980) in that it does not consider palatal to be a point of articulation (although it does consider alveo-palatal). Additionally, my chart includes the voiceless dental affricate /t͡s/, which Hurren's (1971) does not. Furthermore, my inventory includes the velar fricative /χ/, which was not included in Hurren's (1971), Kovačec's (1998), or Neiescu's (1980) charts. I chose to include this due to the token ['χrwa.na], however further study must be done to determine if this phoneme is present in other words as well.

I propose that the vowel system contrasts front, central, and back rounded vowels with three degrees of vowel height: high, mid, and low. My proposed vowel inventory is the same as Kovačec's (1998) and Neiescu's (1980), however it varies from Hurren's (1971) in that it includes the low front vowel /æ/ and the low back vowel /ɒ/.

A limitation of my inventories is that I only used words shared with Daco-Romanian, which only account for up to 25% of Istro-Romanian's lexicon (Sârbu 2005). Further research must be conducted on a more representative sample of words of all origins in Istro-Romanian.

	Bilabial	Dental	Alveolar	Alveo-Palatal	Velar	Uvular
Stop	/p/ /b/	/t/ /d/			/k/ /g/	
Fricative	/f/ /v/	/s/ /z/		/ʃ/ /ʒ/		/χ/
Affricate		/t͡s/		/t͡ʃ/ /d͡ʒ/		
Nasal	/m/		/n/			
Lateral			/l/			
Rhotic			/r/			

Table 21: Proposed Consonant Inventory of the Southern dialect of Istro-Romanian

	Front	Central	Back/Rounded
High	/i/		/o/
Mid	/e/	/ə/	/u/
Low	/æ/	/a/	/ɒ/

Table 22: Proposed Vowel Inventory of the Southern dialect of Istro-Romanian

This study is a preliminary study on the phonology of the Southern dialect of Istro-Romanian. In general, further inquiry must be done to characterize in more detail and more accuracy the phonology of the Southern dialect of Istro-Romanian. Specifically, more research must be conducted to determine the origin of the sound changes that appear to have taken place autonomously in Istro-Romanian. It would also be prudent to identify with which of the 48 Slovenian dialects the Southern dialect has had contact with. Additionally, it would be interesting to note which, if any, words of Dacian origin have been preserved. Likewise, it could be illuminating to compare the phonology of Istro-Romanian and Istriot to see if the two languages did indeed have contact at some point in time. Furthermore, study of the phonotactic rules of Istro-Romanian should be undertaken, with special consideration to the restriction of syllable-final consonants (suggested due to the existence of syllable-final /l/ deletion). Finally, more study must be done on the Northern dialect of Istro-Romanian so that a thorough comparative analysis of the two dialects can be accurately executed.

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Appendix

This appendix contains all of the data collected for the purpose of this analysis. The first column contains the orthographic representation of the words in Daco-Romanian, followed by the phonetic transcription in Daco-Romanian, followed by the phonetic transcription in Istro-Romanian, followed by the orthographic representation in English.

<Daco-Romanian>	[Daco-Romanian]	[Istro-Romanian]	<English>
a căzut	[kə.'zut]	[ka.'zu.ta]	'(he) fell'
a lucrat	[luk.rat]	[lu.krɔ.ta]	'he worked'
acasă	[a.'ka.sə]	[ka.sa]	'home'
acolo	[a.'ko.lo]	[ka.lo]	'there'
aducea	[a.'du.tʃɛa]	[du.tʃæ.'ja]	'he used to bring'
afară	[a.'fa.rə]	[a.'fwa.ra]	'outside'
altă	['al.tə]	['wa.ta]	'other'
an	[an]	[wan]	'year'
apă	['a.pə]	['wa.pa]	'water'
arată-mi	[a.'ra.təmʲ]	[a.'rwa.tam]	'show me'
astăzi	['as.təzʲ]	['was.te.ze]	'today'

aștepta	[aʃ.tep.'ta]	[ʃtep.'tɔ]	'wait'
avem	['a.vem]	['wa.rem]	'we have'
barba	['bar.ba]	['bwar.ba]	'the beard'
bine	['bi.ne]	['bi.re]	'good' (pl)
bun	[bun]	[bur]	'good' (masc. sing.)
bună	['bu.nə]	['bu.ra]	'good' (fem. sing)
cap	[kap]	[kɔp]	'head'
care	['ka.re]	['kwar.le]	'which'
carnați	[kəɾ.natsi]	[kəɾ.nwa.te.le]	'the sausages'
case	['ka.se]	['kwa.se]	'homes'
câte	['ki.te]	['ki.ta]	'which'
către	['kət.re]	['kət.ra]	'towards'
cerul	[tʃer.ul]	[tser.u]	'the roof'
chemăm	['kje.məm]	['kje.mwan]	'we call'
ciment	[tʃi.ment]	[si.ment]	'cement'

cinci	[tʃin.tʃ]	[tʃinz]	‘five’
colacul	[ko.'la.kul]	[ko.'la.ku]	‘the [pastry]’
decembrie	[de.'tʃem.bri.je]	[di.'tsem.bre]	‘december’
degetele	[de.dʒe.te.le]	[ʒa.ʒe.te.le]	‘the fingers’
fabrica	[fa.bri.ka]	[fa.'bri.kay]	‘factory’
face	[fa.tʃe]	[hwa.tʃe]	‘does’
facea	[fə.'tʃe̞a]	[fa.tʃe.'ja]	‘he used to make/do’
făină	[fə.'i.nə]	[fa.'ri.ra]	‘flour’
focul	[fo.kul]	[ʻfo.ku]	‘the fire’
fratele	[ʻfra.te.le]	[ʻfrwa.te.le]	‘the brother’
fruntea	[ʻfrun.tɕa]	[ʻfrun.ta]	‘forehead’
gâtul	[gi.tul]	[gu.tu]	‘the throat’
gaz	[gaz]	[gwas]	‘gas’
genunchii	[dʒe.'nun.kij]	[ze.'ru.kij]	‘the knees’

guri	['gu.rij]	['gu.ra]	'(of the) mouth'
hrană	['hra.nə]	['ɣrwa.na]	'food/nourishment'
înăuntru	[in.ə.un.tru]	[ə.nun.tru]	'inside'
însă	['in.sə]	['ən.sa]	'but'
întrebat	[in.tre.'bat]	[ən.tre.'bɔt]	'asked'
întru	['in.tru]	['ən.tru]	'inside'
învăţat	[in.və.ʔsat]	[an.ve.ʔsat]	'learned'
lăs	[ləs]	[las]	'I let'
lasă	['la.sə]	['la.sa]	'he lets'
lemne	['lem.ne]	['læm.ne]	'wood'
luat	[lwat]	[lwat]	'he lets'
A lucrat	[lu.'krat]	[lu.'krɔ.ta]	'worked'
mainile	['mij.ni.le]	['mər.le]	'the hands'
mama	['ma.ma]	['mwaj.a]	'Mother'
mari	[mar ^j]	[mwar]	'large (pl)'

mere	['me.re]	['mæ.re]	'apples'
mine	['mi.ne]	['mi.re]	'myself'
născusem	[nə.'sku.sem]	[na.'skut.sem]	'(i) was born'
nasul	['na.sul]	['nwa.su]	'the nose'
obrajul	[o.'bra.ʒul]	[o.'brɔ.ʒu]	'the cheek'
ochii	['o.kij]	['o.kij]	'the eyes'
palma	['pal.ma]	['pwa.ma]	'the palm'
patru	['pat.ru]	['pwa.tru]	'four'
picior	[pi.'tʃɔr]	[pi.'tsɔr]	'foot'
picoare	[pi.'tʃɔa.re]	[pi.'tso.re]	'feet'
picoarele	[pi.'tʃɔa.re.le]	[pi.'tsɔr.le]	'the legs/feet'
pieptul	['pjep.tul]	['kjep.tu]	'the chest'
prima	['pri.ma]	['pɛr.va]	'First'
pulpele	['pul.pe.le]	['pu.pe.le]	'the calves'

pune	['pu.ne]	['pu.re]	'to put'
punea	[pu.'ne̞a]	[pu.re.'ja]	'he used to put'
puneai	[pu.'ne̞aj]	[pu.'raj]	'you used to put'
purteau	[pur.t̞e̞au]	[pur.two.ya]	'they carried (me)'
sânul	['sin.ul]	['si.ru]	'the breast'
sare	['sa.re]	['swa.re]	'salt'
șase	['ʃa.se]	['twa.ʃe]	'february'
școală	['ʃkwa.lə]	['ʃko.la]	'School'
se cumpără	[kum.pə.rə]	[kum.pa.ra]	'one buys'
se leagă	['le̞a.gə]	['læ.ga]	'one ties'
se poate	['pwa.te]	['po.te]	'it can be done'
seara	['se̞a.ra]	['sæ.ra]	'Night'
sine	['si.ne]	['si.re]	'himself'
slănină	[slə.'ni.nə]	[sla.'ni.na]	'ham'
umerii	[u.'me.ri]	[u.'mer.le]	'the shoulders'

unghiile	[uŋ.gi.le]	[uŋ.gi.le]	'the nails'
urechile	[u.'re.ki.le]	[u.'re.ki.le]	'the ears'
venea	[ve.nɛa]	[ve.ri.'ja]	'he used to come'
vin	[vin]	[vir]	'wine'
vreme	['vre.me]	['vræ.me]	'weather'
zece	['ze.tʃe]	['zæ.tʃe]	'ten'
zicea	[zi.'tʃea]	[ze.'ja]	'he used to say'