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Table of Contents

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Preface to our 23rd volume

This volume is in celebration of Minority Languages. We encouraged submissions from all fields of linguistics: form applied linguistics to theoretical linguistics, as the subject of a linguistic analysis, to the topic itself. We were thrilled to receive a broad selection of papers, with a common thread being minority languages.

In reading this issue you will be taken on a linguistic journey around the world. You will learn about Najdi Arabic in Saudi Arabia, the relatedness of four Tupi Monde languages spoken in Brazil, the effects of Persian on Azeri in Iran, a profile of three languages spoken in the Salento region of Italy, the interplay of Mandarin and English in English as an additional language speakers in Canada, a linguistic analysis of Blackfoot spoken in current day Alberta, Hoisan-wa in California, and the influence of Dutch on the Turkish spoken by the immigrant community in the Netherlands. It is a truly diverse issue, highlighting minority languages.

Enjoy your trip!

Editorial Committee,
WPLC 23

Editorial committee

Wh-in-situ in Najdi Arabic

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This paper investigates wh-in-situ in Najdi Arabic. It provides the distribution of the in-situ wh-phrases in Najdi Arabic and compares it to Lebanese Arabic studied by Aoun et al. (2010). It also discusses the two major analyses for wh-in-situ languages; LF movement and the unselective binding analysis. Islands insensitivity of the Najdi data supports the unselective binding analysis and rejects, along with data from other in-situ languages, the covert movement analysis. Further, the paper discusses selectional restriction and how each analysis works to satisfy it. Scope is also used to argue for the adopted analysis.
Keywords: wh-in-situ; Najdi Arabic; LF movement; unselective binding

1 Introduction

Najdi Arabic (henceforth, NA) is a dialect spoken in the central region of Saudi Arabia. The name "*najd*" means 'highland' in Arabic. In the modern time, Riyadh, Qassim, and Hail regions are generally called Najd. The city of Riyadh, which is in Riyadh region, is the capital of Saudi Arabia. According to Lewis (2013), the population of NA speakers is about eight million. The word order is interchangeably SVO or VSO (Ingham, 1994). NA has been studied in the literature by Abboud (1964), Ingham (1994), and Aldawyan (2008), among others. However, syntactic studies on wh-formation in NA are very limited. Therefore, this paper presents a discussion of wh-formation in NA and contributes to the study of NA in particular, and to the general work on in-situ languages.

NA forms wh-questions with a variety of strategies. It can form wh-questions by moving the wh-phrase to the specifier of CP, (1), or it can leave the wh-phrase in-situ, (2). In addition, NA also displays a strategy of resumption, (3). The following data display the three strategies:

(1) meen kalam Aħmad il-yum?
who called Ahmad the-day
'who(m) did Ahmad call today?' (wh-fronting)

(2) kalam -t ams meen?
called -you yesterday who
'who(m) did you call yesterday?' (wh-in-situ)

(3)	min	illi	kalam	-t	-h	ams
	called	*that*	*called*	*-you.2p*	*-him*	*yesterday*
	‘who(m) did you call yesterday?’					(resumption)

The goal of this paper is to investigate the wh-in-situ strategy illustrated by (2). The paper is organized as follows. Section 2 discusses the distribution of wh-in-situ in NA. Section 3 presents two analyses of wh-in-situ from the literature: the covert movement analysis and the unselective binding analysis. Section 4 presents data arguing that the unselective binding analysis is superior for NA. Next, in section 5, I show how the unselective binding analysis accounts for the scope, which takes over either an embedded clause or a matrix clause. Finally, in section 6, I end with a brief conclusion.

2 Distribution of wh-in-situ

It is relevant to introduce the wh-phrases in NA before proceeding to the discussion. Following the categories given to the variety of Arabic dialects by Aoun, Benamamoun, and Choueiri (2010), I categorize NA wh-phrases into two categories; nominal and adverbial.

	Nominal	*Translation*	*Adverbial*	*Translation*
a.	Meen	‘who’	ween	‘where’
b.	eiʃ /weiʃ	‘what’	mita	‘when’
c.	ʔey	‘which’	keef/ʃloon	‘how’
d.	Kam	‘howmany/ much’	leeʃ/warah	‘why’

The distribution of in-situ wh-phrases varies between the dialects of Arabic. Aoun et al. (2010) investigate wh-in-situ in Egyptian Arabic (EA) and Lebanese Arabic (LA). The former is quite different from NA because the in-situ strategy is the default to form a question (Wahba, 1984; Soltan, 2010), thus, its distribution is comprehensive, therefore, difficult to be discussed here. In contrast, LA shows relatively similar wh-formation strategies to NA but differs in different patterns; thus, I investigate some facts in LA to draw the differences with NA.

As far as in-situ strategy is concerned, NA, generally speaking, does not have a distinction between the nominal and adverbial wh-interrogatives while LA does (Aoun et al.). Further, there is a distinction between simplex clause and complex clause holds in LA that NA does not have. Accordingly, there are differences in the wh-in-situ distribution between NA and LA; the latter shows some restrictions that are not found in former.

First, in the nominal wh-phrases, both dialects generally allow them in-situ regardless of whether or not they appear in a simplex or complex clause. They are in as seen in (4) and (5) for LA and NA respectively. The only difference occurs between *ʃu* ‘what’ in LA and its corresponding wh-phrase in NA *eiʃ*

'what'. Aoun et al. (2010) posit that LA does not license *ʃu* in-situ, as sentence (6) below illustrates. Unlike LA, this fact does not hold in NA, as (7) illustrates:

(4) a. ftakaro ʔənno ħkiito maʕ miin l-yom (LA)
thought.2P that talked.2P with who the-day
'They thought that you talked with whom today?'
(Aoun et al., 2010: 155)

b. btiftikro ʔənno b-tibʕu Bayruut ʕan (LA)
thought.2P that be-far Beirut from
Traablus kam kilometer?
Tripoli how many kilometer
'How many kilometers do you think is the distance between Beirut and Tripoli?
(Aoun et al. 2010: 155)

(5) a. ʕbdullah y-aʕrif ʔən Aħmad raħ (NA)
Abdullah 3ms-know than Ahmad went
maʕ meen?
with who
'Abdullah knows that Ahmad went with who?'

b. (t)tawagaʕ ʔən al-RiyaD t-ibʕid ʕan
think.2ms that the-Riyadh be-far from
al-Qassim kam kilo?
the-Qassim how many kilometer
'How many kilometers do you think is the distance between Riyadh and Qassim?'

(6) *ʃtriito ʃu mn -l -maħall? (LA)
bough.2p what from the store
'You bought what from the store?' (Aoun et al., 2010: 156)

(7) eʃtrii -t eiʃ min el-maħall? (NA)
bought -2ms what from the-store
'You bought what from the store?'

On the other hand, the adverbial wh-phrases in the two dialects show a major difference in terms of distribution. NA allows adverbial wh-phrases to be in-situ while they are degraded in LA (Aount et al., 2010). Let the following sentences in (8) and (9) illustrate this distribution in LA[1] and NA respectively:

[1] All LA data in this paper are from Aoun, Benamamoun, and Choueiri (2010).

(8) a. ? raħ tnyamu -u ween el-maħall? (LA)
FUT sleep.2p him where the-store
'Where are you going to put him to sleep?'
(Aoun et al., 2010: 155)

b. ? fall lee? (LA)
left why
'Why did he leave?' (Aoun et al., 2010: 155)

(9) a. t(bi) nomun(u) -h ween (NA)
FUT sleep.2p -him where
'Where are you going to put him to sleep?'

b. (Aħmad) mʃa leeʃ? (NA)
Ahmad left.2p why
'Why did he leave?

Another difference in the distribution is carried out in the asymmetry observed in LA in terms of simplex and complex clauses; adverbial wh-in-situ in simplex clause is degraded as seen above in (8a-b), but it is ungrammatical in complex clauses (10a-b) except if it is a referential adverbial (10c) (Aoun et al.). In contrast, NA allows referential and non-referential adverbial wh-phrases remain in-situ in embedded clauses (11a-c).

(10) a. *ftakaro ʔənno [fall lee] ? (LA)
thought.2p that left.3ms why
'Why did you think he left? (Aoun et al., 2010: 155)

b. *ftakaro ʔənno [Sallahti -i kiif] ? (LA)
thought.2p that left.3ms -it how
'How did they think you fixed it? (Aoun et al., 2010: 155)

c. ftakaro ʔənno raħ ynaymu -u ween (LA)
thought.2p that FUT sleep.3p *-him where*
'Where did you think they were going to put him to sleep?'
(Aoun et al., 2010: 155)

(11) a. tawagaʕ ʔənno [mʃa leiʃ] ? leiʃ? (NA)
thought.2p that left.3P why
'Why did you think he left?'

b. tawagaʕ -to ʔənno [Sallahtu -h kiif? (NA)
thought.2p you.PL that fixed.3p *-it how*
'How did they think you fixed it?'

c. tawagaʕ ʔənno b- ynaumnu -h ween? (NA)
thought.2p that FUT sleep.3p *-him where*
'Where did you think they were going to put him to sleep?'

Having discussed the distribution and provided a general picture of it, I will discuss below in section 3 how the analysis accounts for in-situ interrogatives in NA.

3 Analysis for NA wh-in-situ

A considerable amount of literature has been published on in-situ languages. Fundamentally, there are two analyses; LF movement, namely the covert moment analysis (Huang, 1982) and the Unselective Binding (UB) analysis (Pesetesky, 1987; Aoun and Li, 1993; Cole and Hermon, 1994).

The covert analysis claims that the wh-phrase in in-situ languages undergoes movement after Spell Out, i.e., moves covertly. Huang (1982) adopts the covert analysis to account for Chinese wh-interrogatives. He posits that the interpretation of the questions in in-situ comes from the LF movement of the wh-phrase. However, the main argument of this analysis is concerned with syntactic constraints. Huang claims that LF movement does not obey Subjacency (Chomsky 1973), which is distinctly obeyed in the overt movement. Huang's claim about the violation of Subjacency in the covert movement received a considerable argument in literature. Pesetsky (1987), Aoun and Li (1993), Mathieu (1999), Bruening and Tran (2006) argue that since covert movement is a "movement", it should undergo the same constraints that hold in the overt movement. This comes from a variety of in-situ languages; Chinese, French, Vietnamese, and others. Let's consider a Vietnamese sentence that Bruening and Tran (2006: 327) use to argue against the covert movement:

(12) *Tan se thua cuoc [$_{CP}$ vi ai
Tan ASP lose event because who
lam hu xe cua anh ta] ?
make damage vehicle belong he
'Tan will lose the race because who will damage his car?'

Bruening and Tran argue that Huang's analysis will predict the above sentence as grammatical because it does allow violating Subjacency at LF. Thus, they state that the only way to account for the ungrammaticality of this sentence is to posit that LF movement obeys Subjacency. This problem with the covert movement analysis suggests that it is not compatible with all in-situ languages, and NA is no exception. Accordingly, I adopt the unselective binding for wh-in-situ in NA for several reasons discussed next, but I will first introduce the UB analysis.

The second analysis for wh-in-situ is proposed by Pesetesky (1987). He posits an analysis of Unselective Binding. The wh-phrase is in-situ, but is bound

by a null question operator in spec,CP. The scope of the in-situ wh-phrase is determined by the position of the null operator, which interprets the scope according to the configuration of the null question operator binding the variable. Three pieces of evidence from NA support unselective binding; island insensitivity, selectional restrictions, and scope interpretation. The first is discussed in section 4 below, while selectional restrictions and scope interpretation are discussed together since they are associated with each other.

4 Islands

The first evidence to argue against covert movement and to favor unselective binding is that wh-in-situ in NA is insensitive to islands; the following data reveal that the wh-phrases occur inside islands. I follow Soltan (2010) in the islands diagnosis.

(13) a. Aħmad iʃtaka [$_{CNPC}$il- reʒel illi Darab xaled]
Ahmad sued.2ms the man who hit Khaled
'Ahamd sued the man who hit Khaled'

b. Aħmad iʃtaka [$_{CNPC}$il- reʒel illi Darab meen?]
Ahmad sued.2ms the man who hit who
'Who$_i$ did Ahmad sue the man that hit him$_i$?

(14) a. ʔli twaDaf baʕadma Aħmad istigal
Ali hired after Ahmad resign
'Ali was hired after Ahamd retired'

b. ʔli twaDaf baʕadma meen istigal
Ali hired after who *resign*
'Who$_i$ was Ali hired after he$_i$ retired?'

(15) a. ʔli rakkab Aħmad wa fahad
Ali picked-up Ahmad and Fahad
'Ali gave a ride to Aħmad and Fahad.'

b. Aħmad iʃtaka [$_{CNPC}$il- reʒel illi Darab meen?]
Ahmad sued.2ms the man who hit who
'who$_i$ did Ali gave a ride to Ahmad and him$_i$?'

Adopting the argument that Soltan uses against covert analysis for Egyptian Arabic, I argue that the unselective binding analysis is superior to the covert analysis in NA as well due to the insensitivity to islands. In (13b), even though there is a violation of the complex noun phrase constraint (CNPC), this does not give rise to the ungrammaticality of the question which is a piece of evidence that NA is insensitive to CNPC. Additionally, (14b) illustrates that NA also violates the adjunct island; if the wh-expression is fronted to the specifier of the matrix clause forming a direct question with a gap strategy, the question will be grammatical. Finally, the sentence (15b) displays that NA also violates coordinate structure constraint.

Accordingly, due to the insensitivity of islands in NA, there is no covert movement operation occurring with wh-in-situ. Therefore, since covert movement does not account for NA wh-in-situ, I adopt the unselective binding analysis for NA wh-in-situ. In the next section, I discuss how the unselective binding analysis accounts for the selectional restrictions and the scope of in-situ wh-phrases in embedded clauses.

5 Selectional Restrictions and the wh-scope in NA

The second piece of evidence to support unselective binding comes from selectional restrictions and scope. It has been argued that wh-in-situ scope and lexical selection are related. Huang (1995) shows that the selectional requirement is met in 'English-like' languages where there is overt movement of the wh-phrase. In 'Chinese-like' languages, LF movement satisfies the selectional restrictions. Further, he posits that the scope is interpreted by the wh-phrase either by overt movement or covert movement.

Regardless of the constraint issue in the LF movement discussed above, selectional restrictions and scope interpretation hold the same importance in the unselective binding analysis that I adopt for wh-in-situ in NA. The difference between the unselective binding analysis and the LF movement analysis lies in the operator, found in the former analysis, but not in the latter. Matheiu (1999) states that the question operator in the unselective binding has three functions: "(a) to indicate the scope of a wh-phrase, (b) to provide a binder (an antecedent) for the wh-phrase, (c) to check the strong feature of C wh-phrases remain in situ and are variables rather than operator" (p. 460). Accordingly, I investigate three verbs to show the selection restrictions and scope in NA in order to show the function of the operator.

The selection and the scope in unselective binding distinguish the direct question from the embedded question. The three verbs I look at are *yas*ʔel *'*ask/wonder*', yaDun* 'think', and *yaʕrif* 'know'. First, let's consider the verb *yas*ʔel *'ask/wonder'* which selects [+wh], as illustrated below:

(16) a. Muħammed *yas*ʔel (ʔiða) xhaled tazawadʒ Fatimah
Muhammed wonder.3p if Khaled married Fatimah
'Muhammed wonders if Khaled got married to Fatimah.'

b. *Muħammed *yas*ʔel (ʔenn) xhaled tazawadʒ Fatimah
Muhammed wonder.3p that Khaled married Fatimah
'Muhammed wonders that Khaled got married to Fatimah.'

c. *Muħammed *yas*ʔel xhaled tazawadʒ meen.
Muhammed wonder.3p Khaled married who
'Muhammed wonders Khaled got married to who.'

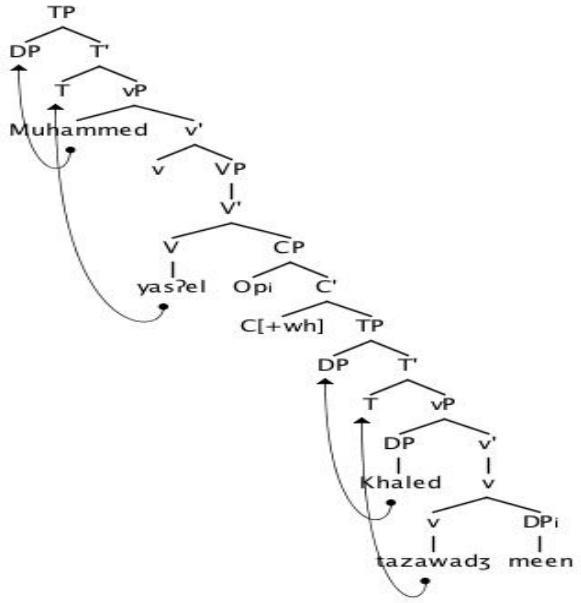
d. *Muħammed *yas*ʔel xhaled tazawadʒ meen.
Muhammed wonder.3p Khaled Married who
'Muhammed wonders who Khaled got married to.'

The verb *yas*ʔel 'ask' selects an interrogative, i.e., the embedded C bears a strong feature, [+wh]. Violating the lexical selection of the interrogatives [+wh] of the verb gives rise to the ungrammaticality of sentence (16b). Similarly, consider (16c-d) where the lexical entry is satisfied by the wh-phrase. The scope of the wh-phrase comes into play in this instance. The question that arises here is which clause does the wh-phrase takes over, does it take scope over the embedded clause or the matrix clause? If it takes scope over the embedded clause, it will be an indirect question, and if it takes scope over the matrix clause, it will be a direct question. The wh-expression in both (c) and (d) takes the scope over the embedded clause according to the selectional restrictions of the verb. The operator, which is base-generated in the specifier of the CP in the embedded clause, functions to indicate the scope and to check the strong feature of C. The interpretation for (16c), which is identical to (16d), is (17a), not (17b):

(17) a. Muhammed wonders, for which x, Khaled got married to x.
b. *For which x, Mohammed wonders whether Khaled got married to x?

The scope according to the unselective binding will be as follows:

(18)



Accordingly, the scope takes over the embedded clause due to the selectional restriction of the verb *yas*ʔel 'ask/wonder'. The reading (17b) is ruled out because the operator is required to be in spec,CP due to the C bearing a strong feature. Also, from the derivation above, V-to-T is a movement that occurs in Arabic for word order alternations of SVO and VSO; thus, the verbs in the sentence above moved to T. In addition, both the external arguments of the verbs, i.e., DPs, move to the specifier of the TPs to satisfy the EPP.

Next, I will consider the verb *yaDin* 'think/believe', which selects a non-interrogative clause, [-wh]. When an interrogative clause is selected for this verb, the sentence will be ungrammatical. Let this be illustrated by the following data:

(19) a. fahad *Dan* ʔin ʕli raħ li- ʒamʕah
Fahad thought. if Ali went the-university
'Fahad thought that Ali went to the campus'

b. *fahad *Dan* ʔiða ʕli raħ li- ʒamʕah
Fahad thought. if Ali went the-university
'*Fahad thought if Ali went to the campus'

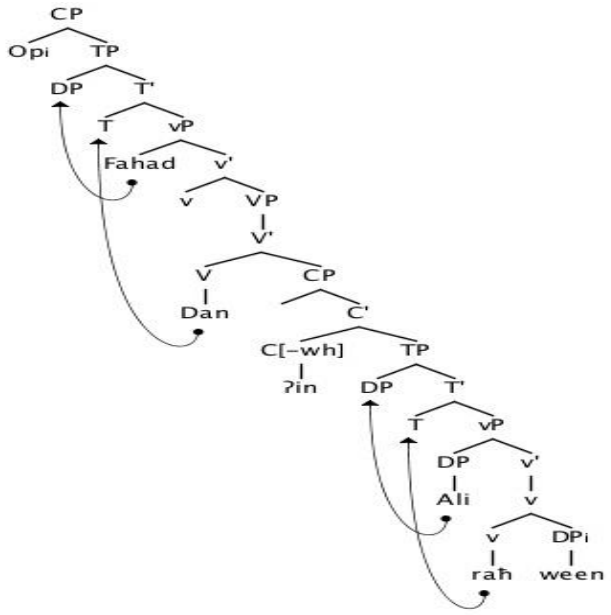
c. fahad *Dan* ʔin ʕli raħ li- ween?
Fahad thought. if Ali went to- where
'Where did Fahad think that Ali went to?'

Because there is no selectional restriction on the wh-expression in the embedded clause, the scope takes over the matrix clause to form a direct question as in (19c) having the interpretation (20a) not (20b):

(20) a. For what place x, Fahad thought, Ali went to x?
b. *Fahad thought, for what place x, Ali went to x.

The operator is base-generated in the specifier of the matrix CP because the selectional restriction does not require the operator to be base generated in the specifier of the embedded CP, as the following derivation illustrates:

(21)



The verb *Dan* does not select [+wh], therefore, the C does not bear [+wh] requiring the operator to be base generated to satisfy the selection. Instead, with this verb the C bears [-wh], which prevents the operator from occurring in the specifier of CP because it violates the selectional restriction and provides the wrong interpretation as well. Additionally, the DP *Ali* moves to the specifier of the TP to satisfy the EPP.

Unlike the two verbs discussed above, if a verb selects either [+wh] or [-wh], this would trigger a scope ambiguity. A verb such as *yaʕrif* 'know' in NA selects either an interrogative clause or a non-interrogative clause. Thus, there will be ambiguity in the scope of the wh-phrase due to the feature that C bears: if it bears [+wh], it will be an indirect question, while if it bears [-wh], it will be a direct question. The following data provide a good illustration of the selections of the verb *yaʕrif:*

(22) a. Fahad yaʕrif ʔin xaled raħ l-il-riyaD
Fahad knows.3p that Khaled went.3p to-the-Riyadh
'Fahad knows that Khaled went to Riyadh.'

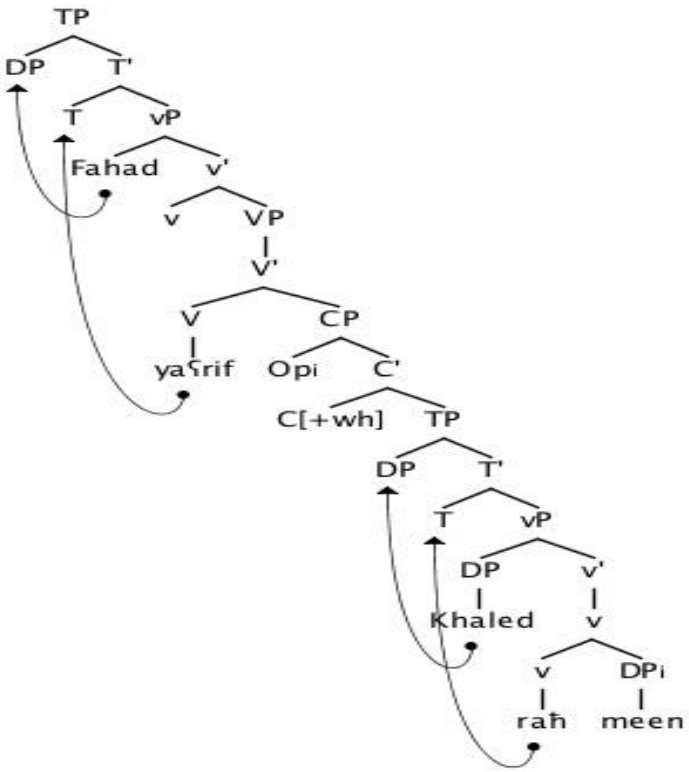
b. Fahad yaʕrif ʔiða xaled raħ l-il-riyaD
Fahad knows.3p if Khaled went.3p to-the-Riyadh
'Fahad knows if Khaled went to Riyadh.'

c. Fahad yaʕrif ʔin xaled raħ ween
Fahad knows.3p that Khaled went.3p where
'Fahad knows where Khaled went to.'

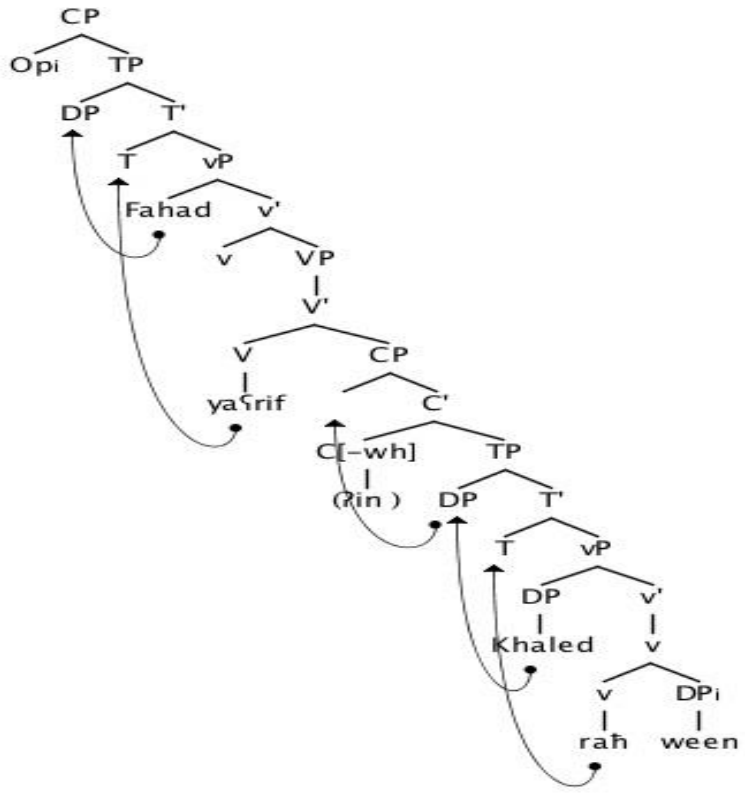
d. Fahad yaʕrif xaled raħ ween?
Fahad knows.3p Khaled went.3p where
'Where does Fahad know that Khaled went to?'

The ambiguity of the scope in (22c-d) is illustrated according to the unselective binding as follows:

(23)



(24)



In (23), the selectional requirement of [+wh] is met by having the operator base generated in the specifier of the embedded clause. That is, it is not a direct question, but an embedded question. Unlike (23), (24) shows that the selectional requirement of the [-wh] feature on C forces the scope not to take over the embedded clause, but to take over the matrix clause interpreted as a direct question.

6 Conclusion

In this paper, I provided data that demonstrated wh-in-situ in NA. I argued that the best analysis for wh-in-situ in NA is the unselective binding approach because NA is insensitive to islands, which means that there is no movement operation occurring. This suggests that the covert movement is not applicable for NA. Finally, I discussed the selectional restrictions of the verbs. Particularly, when a verb selects a non-interrogative clause, the scope will take over the matrix clause; however when a verb selects an interrogative clause, the scope will take over the embedded clause.

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A report and comparative-historical look at the Cinta Larga, Suruí, Gavião and Zoró languages

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This study investigates the relationships between four Tupi-Monde languages: Cinta Larga, Suruí, Gavião and Zoró. Two word lists were collected from each of these languages, and they were analyzed using the comparative method. The results show that these languages are not genetically related in the way previously supposed. The possible historical reasons and implications of these new findings are discussed. A new genetic tree is proposed to take into account the new analysis
Keywords: Brazil; indigenous languages; Tupi-Guarani; Mondé; Amazon; endangered languages

1 Introduction

This paper discusses the social situation and language relatedness of four Tupi-Monde languages. It proposes a different genetic tree based on results from using the historical comparative method. It also discusses how an alternative interpretation of history could explain this new subgrouping. This proposal depends on the presupposition that the first split in the Mondé family was when Gavião diverged from the ancestor of the other three languages. Much later, the Gavião and Zoró lived together for a considerable period of time, resulting in their borrowing sounds from each other.

2 Background

The Mondé languages (Salamãy, Aruá, Gavião, Cinta Larga, Suruí, and Zoró) are spoken in the southwest of the Brazilian Amazon basin, between the states of Rondônia and Mato Grosso. The groups live in several Indigenous territories, which are surrounded to the east, west, and south by major and minor Brazilian cities and towns. Over the years outsiders have been drawn to this part of Brazil seeking rubber and animal pelts. Today the commodities which draw people to the region include lumber, diamonds, and gold. Logging, mining, and primarily, agriculture have greatly affected the land and forest.

Mondé is a small branch of the great Tupi family (Rodrigues 1985, Fabre 2005, Ethnologue 2009). In 2007, Dave Eberhard and I (Stan Anonby) travelled to the area to research four of the six languages: Gavião, Cinta Larga, Suruí, and Zoró (the other two are almost extinct). The purpose of our survey was to ascertain the level of intelligibility of the four groups.

The Portuguese term Cinta Larga, meaning wide belt, was formerly used to refer to several indigenous groups. These tribes still inhabit the region near the border between Rondônia and Mato Grosso states. Today Cinta Larga refers to one language group with three divisions that inhabits several Indigenous territories (Encyclopedia 2003h). The Suruí are divided into four moieties on the border between Rondônia and Mato Grosso. The Gavião live in the state of Rondônia. The Zoró live mostly in the state of Mato Grosso with some living near the Gavião (Brunelli 1986, Silva 1987).

The traditional, subsistence economy is in decline; as all four groups become more and more involved in the global, market economy. Because of this, people are immigrating to the urban areas, and are speaking increasingly more Portuguese. It would be safe to assume Portuguese would become the dominant language of the families living in the cities. At this time there appears to be little danger of any of these languages dying out in the villages.

Figure 1. General area where the Monde tribes live[1]

[1] Author's maps of Brazil and the area where the Mondé languages are found

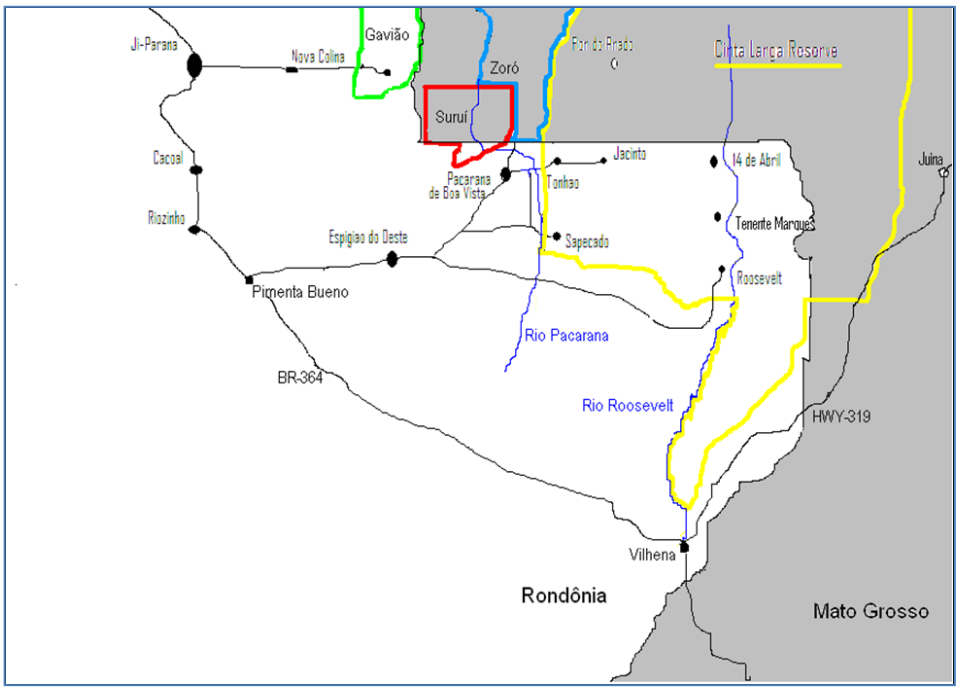

*Figure 2***.** Specific area where the Monde tribes live.

3 History

3.1 General history

One of the first draws to the Amazon region of Brazil was rubber. Between 1898 and 1910 rubber production in Brazil peaked, constituting 26% of its export revenues (Fausto 1999:176). It was the installation of telegraph lines (from 1907 – 1913) that really began to open up the region where the Cinta Larga, Suruí, Gavião, and Zoró lived. The renowned Brazilian anthropologist Darcy Ribeiro (1967:97) claims that during this short time, 15 or more of those groups became totally extinct.

In the second half of the 20th century, the Porto Velho-Cuiabá highway, BR-364, opened up the area to further colonization (Meade 2003:175-177). Coimbra (1989:23) sums up the period as follows: "The completion of the BR-364 highway during the 1960s allowed thousands of landless colonists from different regions of the country, but particularly from the south, to migrate northward into Rondônia. The prospect of a rich region, with plenty of good soil and titled land for all, provoked the largest migratory movement ever in Amazonian history". These southern immigrants created a shift in economic emphasis. No longer were logging or mining the main economic draws. Commercial agriculture now began eclipsing them.

3.2 Recent history of specific groups[2]

3.2.1 Cinta Larga

The Cinta Larga today are a combination of three bands of indigenous peoples who speak dialects of the same language. The survey demonstrated they do not consider themselves a homogeneous group. Research indicates that in the past they have not peacefully co-existed. Rather, their relations with each other have often been characterized by conflict (Junqueira 1981:55).

3.2.2 Suruí

The Suruí migrated from the south in the 1800s. According to Coimbra, the Suruí were in a constant state of warfare for decades. He says that "Conflicts with rubber tappers have been common ever since the beginning of this century, as one realizes from the depositions of various Suruí informants. The Suruí attacked many camps of rubber tappers, prospectors and hunters, always resulting in deaths on one side or both" (1989:30). The first peaceful contact between the Suruí and Brazilian society occurred in 1969. Shortly, outsiders began to move into the territory. For ten years, beginning in 1971, there were numerous violent clashes. According to Bill and Carolyn Bontkes, some of this was due to the Suruí stealing knives and other metal tools (personal communication, April 12, 2007).

3.2.3 Gavião

The Gavião migrated westward in the early part of the 20th century. The move was due to pressure from other Indigenous groups, most likely the Cinta Larga (Moore 1984:1). The Gavião have had a longer relationship with the outside world than the Cinta Larga, Suruí, or Zoró. Their first interactions began the 1940s (Moore 1984:4).

3.2.4 Zoró

According to Zoró oral tradition, they formed one group with the Gavião until the early 20th century, when they split off and moved away (Santos and Coimbra 1991:797). Moore (1981:46) believes the Zoró fled the Gavião village later, in the 1940s. An intriguing question is, whether the Zoró and Gavião (a) originally were two language groups that opted to live together in a single village as one people, or were they (b) originally a single group, whose language only started to

[2] Unless otherwise indicated, information for this section was taken from: Encyclopedia 2003f.

diverge after the Zoró faction moved away. The traditional hypothesis would seem to support scenario (b), while my proposal supports (a).

Permanent contact was established later for the Zoró than for the others. In 1977, the Gavião, who were part of the contact expedition, expressed concern for the Zoró and invited them to live in their village. They stayed with the Gavião until the end of the year. Within that time they abandoned many of their traditional ways of living. Eventually most returned to the Zoró territory, but some who intermarried with the Gavião stayed (Moore 1981:50-51).

4 The historical comparative method applied to Monde languages

The historical comparative method, which studies sound changes, would lead us to believe that contrary to popular and academic opinion, Gavião and Zoró are not very similar genetically. The comparative method also seems to indicate Zoró is more similar to Suruí than was expected (cf. Figure 4). This paper proposes that the similarities between Zoró and Gavião are due to contact-induced borrowing, rather than close genetic relationship.

Local experts, as well as the anthropological and linguistic literature agree that Gavião, Cinta Larga, and Zoró are very closely related (Furtado 2007, Moore 2005). Most researchers (e.g., Moore 2005, Stute 2007), consider Zoró and Gavião to be the same language. According to Moore (1981:46), the Suruí speak a sister language to Gavião, Zoró and Cinta Larga. Rodrigues lists both Zoró and Cinta Larga as separate languages from Gavião (1986:46). Bill and Carolyn Bontkes have worked with the Suruí for decades and they identified Suruí as being the furthest away from Cinta Larga (personal communication, April 12, 2007). Scholars seem to agree that Suruí is the most divergent member of the group. They arrive at the classification and subgroupings in Figure 3 (below) based on evidence from mutual intelligibility and lexical comparisons.

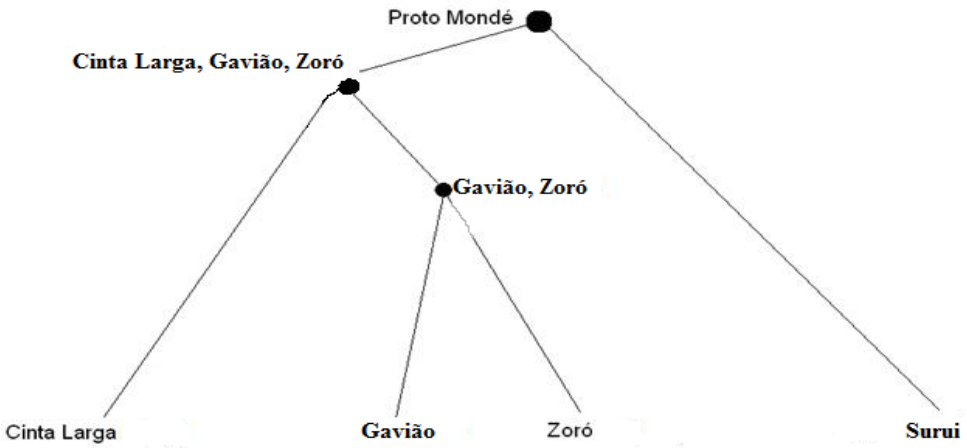

Figure 3. Family tree proposed by Moore (2005), based on mutual intelligibility, sound correspondences, and lexical comparisons.

This paper reports on an investigation of the relationship between these four languages, using data from two word lists: a list of 375 words we collected in 2007, and a list of 124 words collected and phonemicized by Projeto Açai (Sampaio 2000). These data lead us to posit eleven sound changes. They are attested in only some of the languages, and we base our classification on the patterns of shared innovation. The phonological evidence leads us to posit the subgroupings given in Figure 4 (below). The comparative method seems to indicate Zoró is most similar to Suruí. The most divergent language appears to be Gavião.

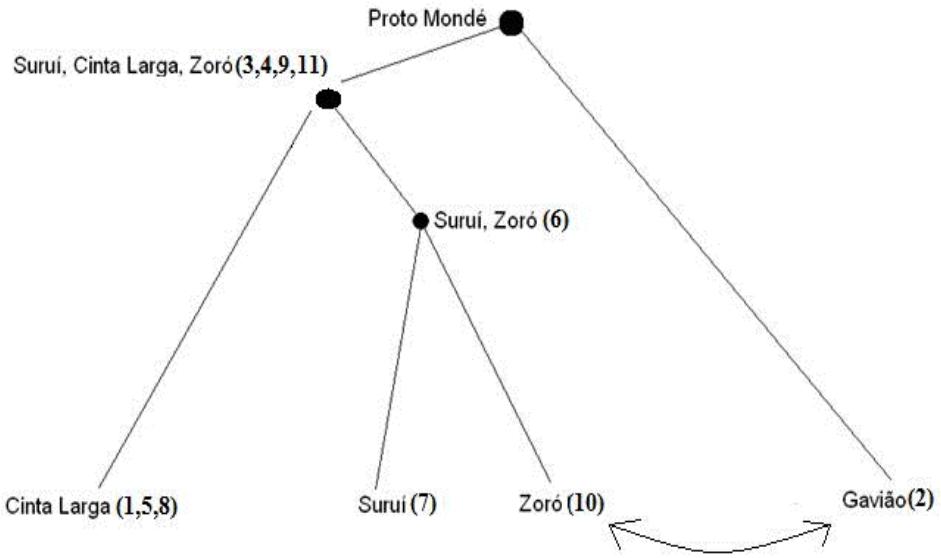

Figure 4. New family tree based on historical-comparative evidence.

I believe the reason Gavião and Zoró were lumped together before probably has much to do with their rather high degree of mutual intelligibility. Also, when asked, the Zoró and Gavião say they speak the same language. I propose the similarities are due to contact-induced borrowing, rather than close genetic relationship.

4.1 The comparative methodology

I will primarily use the comparative method, described in Campbell (1999:122-167). This method tries to reconstruct the ancestor language (proto-language) by comparing its daughter languages. It assumes parts of the proto-language are preserved in the daughter languages.

There are two steps in the comparative method. The first step is to line up similar words (cognate sets) in all four languages. We assume these descend from a single word in the proto-language. I have two different sets of words. Some

data is taken from Projeto Açai. The words are phonemicized. Other data was recorded on the survey itself. These words are transcribed phonetically. The second step in the comparative method is to compare these cognate sets and look at the sounds which are similar (sound correspondences).

The sounds in Suruí, Gavião, Cinta Larga, and Zoró are referred to as reflexes. The comparative method assumes they descend from a single sound in a proto-language. Campbell outlines guidelines that historical comparative linguists have developed to help determine how sounds usually change throughout the years. This leads us to the third step, which is to reconstruct the proto-sound in the proto-language (Proto-Mondé in this case).

Campbell also talks about how to subgroup languages and make family trees. He claims, "The only generally accepted criterion for subgrouping is *shared innovation"* (1999:190). A shared innovation is a change in some trait of the proto-language which is shared by a subset of daughter languages. It is assumed that this change did not happen simultaneously in all daughter languages. Rather, it is more likely the change happened in a single daughter. This one language subsequently split up into various daughter languages. All of these retained this shared innovation. So this innovation is evidence that the daughters were once a single language, thus they are a subgroup.

In this paper I will explain in detail the eleven sound changes in Suruí, Gavião, Cinta Larga, and Zoró. It will then become clearer why it is possible to interpret the relationship between the Mondé languages as in Figure 4 above.

5 Rules for sound changes

5.1 Vowel raising: o > u

Vowel raising is a sound change frequently attested in many languages. In this case, it applies to Cinta Larga. The data below comes from the phonetic transcription.[3]

Portuguese	**English**	**Suruí**
maduro	ripe	ijóp
ficar em pé	stand	en**ó**te
longo	long	ʃakt**o**p
Vir	come	(a)**ó**r
banana	banana	mok**o**bá
tabaco	tobacco	maʃ**o**ʔ

[3] In 2007 Stan Anonby and Dave Eberhard conducted a sociolinguistic survey of the four tribes in question. One of the activities of the survey was to collect several lists of the same 375 common words in all four languages. Some of the proposed sound changes were based on the phonetic transcriptions of these word lists taken on the survey.

Gavião	Cinta Larga	Zoró
v**o**g	p**u**p	v**o**p
ad**ó**tẽ	end**u**tá	mond**ó**təʔ
at**ó**	tat**ú**	tat**ó**ʔ
(ʔá) v**o**loʔ	(a)ʔ**u**lá	(o)v**o**loʔ
bak**o**á	mak**u**va	mbak**o**ptía
matʃ**o**ʔ	maʃ**u**	mãitʃ**o**(kóm)

5.2 Spirantization: p > v / __#

Spirantization (a stop becoming a fricative) is also a sound change attested in many languages. In this case, we have p>v in word final position in Gavião. It is most clearly seen in the phonemicized data used below.

Portuguese	English	Suruí
arvore	tree	ihb
patoá		yoykab
estrela	star	txoy(kab)
cerejeira	cherry tree	ihb (ka**p**)kod
óculos	glasses	la(kaba) omi(sibeab)
feijão	beans	mixãga**p**

Gavião	Cinta Larga	Zoró
ih**v**	ii**p**	i**p**
ójkàh**v**	ujkaa**p**	ujka**p**
gati(kúh**v**)	juj(káá**p**)	zuj ka**p**
a(kàh**v**)	a(kaá**p**)	a(ka**p**)
adja(káh**v**) sábéh	paja(káá**p**) sabeeap	paja ko**p** sabe
korakáv	kuraka**p**	kurakap

5.3 h Deletion with compensatory lengthening: Vh>V$_{[long]}$

Compensatory lengthening is a common sound change. When a segment is lost (in this case an h), a vowel is lengthened to compensate for that loss. This is a regular sound change, found throughout Cinta Larga. That is, wherever h is lost, the preceding vowel is lengthened. The data below is phonemicized.

Portuguese	English	Suruí
patoá		yoykab
arvore	tree	i**h**b
tatu	armadillo	waloy
dente de cutia	agouti tooth	wakĩ ikab
mutum	curassaw	wajaõ
arara	macaw	kasar

Gavião	Cinta Larga	Zoró
ójkà**h**v	ujk**aa**p	ujkap
i**h**v	**ii**p	ip
mazó**h**j	wanz**úú**j	wazuj
vaki ji**h**j	wakĩĩ j**êê**j	wakî(jîj)
vakó**h**j	wak**úú**j	wakuj
kasá**h**l	kas**áá**l	kasal

5.4 Bilabial lenition: b>m/#__

In Suruí, /b/ weakens to /m/ in word initial position. This is a regular change, occurring throughout Suruí. The data is phonemicized.

Portuguese	English	Suruí
banana	banana	**m**okowa
catete	pig	(**m**en)bekod
peixe	fish	**m**orib
porco	pig	**m**ẽbe kod
queixada	peccary	**m**ẽbe
espingarda	shotgun	**m**okaĩab

Gavião	Cinta Larga	Zoró
bákóva	m**b**akubaa	**b**akuwá
beekor	(m**b**e)bekut	(**b**e)bekut
bolív	m**b**ulíp	**b**ulip
bebe(poh)	m**b**ebe kabaa	**b**ebe(pu)
bebe	m**b**ebe tere	**b**ebe
	m**b**áákamán	

5.5 Word final vowel lengthening: V>$V_{[long]}$/___#

This sound change applies to Cinta Larga. Cinta Larga vowels are lengthened when they occur at the end of a word, as seen from the phonemicized data below.

Portuguese	English	Suruí
banana	banana	mokow**a**
coqueiro	coconut palm	pasapw**a**
lua	moon	ga(t**i**) kad
ventilador	fan	wag**o**
veado	deer	it**i**ap
rio	river	**i**h

Gavião	Cinta Larga	Zoró
bákóv**a**	mbakub**aa**	bakuw**á**
pas**a**v	pasab**aa**	pasaw**a**
gár(t**i**)	ngat t**ii**	ga(t**i**)
bás**ó** dig	mbaas**úú**	bos**u**
it**i**	it**ii**	it**i**
i	**ii**	**i**

5.6 Glottalization: V>Vʔ/__#

This sound change applies to Zoró. The data comes from the phonetic transcription of a word list taken on the survey. In phonemic data set, ʔ isn't marked.

Portuguese	English	Suruí
morrer	die	aj**í**
garra, pata	claw, leg	hobaɣ(pi)kũ**i**
mutum	curassaw	wa(kojá)
lavar	wash	pij**á**
cacique	chief	ləbiwá**i**
esfregar	rub, scratch	kapkáb**a**

Gavião	Cinta Larga	Zoró
av**i**	pav**i**	pav**iʔ**
(tʃĩ) pi (kó**i**)	pupa(be)kũ**i**	(tʃĩ)pi(kõ'**iʔ)**
oa(kó**i**)	va(ku**i**)	wa(kó**iʔ**)
pitʃ**ã**'	piʃ**á**	pitʃ**áʔ**
dzawidʒa**i**	naveá**i**	dzawijá**iʔ**
kijkij**a**	kipkiv**a**	kipkiw**aʔ**

5.7 Rhinoglottophilia: Vh > $V_{[nasal]}$h

Rhinoglottophilia applies sporadically to Cinta Larga, Zoró, and Suruí, thus providing evidence to group these three together. In this case of rhinoglottophilia, vowels nasalize when followed by a proto h. The table contains phonemicized data.

Portuguese	English	Suruí
espingarda	shotgun	
fósforo	match	moka**ĩ**(a)
flauta	flute	w**ã**ahp
cará	type of manioc	roah
terra	land	g**õ**hi
aranha	spider	gerp**ã**

Gavião	Cinta Larga	Zoró
tog**áh**v	--	tung**ã**m
pók**áhj**	puk**ã**j ap	pukaj
váv	wa'áp	kuxi(rap)
mojà	mujââ	muj**ã**
gój	ngûûj	g**ũ**j
gérépà	ngerep**ã**	gerepâ

5.8 Deletion: Vh > V

This applies to Suruí, Cinta Larga, and Zoró, thus providing evidence to group these three together. Periodically it even applies to Gavião, as some examples in the following table demonstrate. In Gavião, h deletion appears in only a few cases, indicating the change may be in the initial stages. It is likely the result of recent contact with the Zoró. It looks like a wave change that started with Suruí, progressed to Zoró, and is just beginning in Gavião. The data below is from the phonemicized word list.

Portuguese	English	Suruí
castanha	Brazil nut	man(g**a**p)
estrela	star	txoy(k**a**b)
cerejeira	cherry tree	ihb (k**a**p)kod
lagoa	lagoon	ik**a**ra
fósforo	match	mok**aĩ**(a)
foto	photo	**i**xo

Gavião	Cinta Larga	Zoró
mav(g**áh**v)	máam ng**a**p	mam(g**a**p)
gati(k**úh**v)	juj(k**áá**p)	zuj k**a**p
a(k**àh**v)	a(k**aá**p)	a(k**a**p)
ík**àh**r	ik**áá**t	ik**a**t
pók**áh**j	puk**ã**j ap	puk**a**j
p**àh**xo	p**áá**xú	p**a**xu

5.9 Loss of prenasalization: ng > g/#__

Prenasalized consonants lose prenasalization in Suruí and Zoró. The Gavião later lost prenasalization under the influence of Zoró. In the early 20th century, the Gavião and Zoró lived together in a single village. Later, after the Suruí attacked them in the 1970s, all the Zoró again moved into the Gavião village for a time. The two groups intermarried and continue interacting until today. I surmise that it was this contact that caused the Gavião to lose prenasalization. It is most clearly seen in the phonemicized data, used in the examples.

Portuguese	English	Suruí
floresta	Forest	**g**ara
lua	Moon	**g**a(ti)kad
castanha	Brazil nut	man(**g**ap)
sol	Sun	**g**ad
terra	Land	**g**õhi
aranha	Spider	**g**erpã

Gavião	Cinta Larga	Zoró
gàla	**ng**ala	**g**ala
gár(ti)	**ng**at tii	**g**a(ti)
mav(**g**áhv)	máam **ng**ap	mam(**g**ap)
gár	**ng**át	**g**at
gój	**ng**ûûj	**g**ũj
gérépà	**ng**erepã	**g**erepâ

5.10 Labial weakening: v>w/{#}_

In Suruí, Cinta Larga, and Zoró, /v/ weakens to /w/ word initially. This change groups Suruí, Cinta Larga, and Zoró together. This phenomenon occurs quite frequently, and is also known as lenition. It is particularly common for a consonant to weaken to a glide. I have posited this change because weakening to a glide is common, and because Suruí, Cinta Larga, and Zoró share other innovations. The data below is phonemic.

Portuguese	English	Suruí
Jenipapo	type of bush	**w**exoa
Anta	tapir	**w**asa
Jacaré	alligator	**w**ao
Cutia	agouti	**w**akĩ
Mutum	curassaw	**w**ajaõ
Papagaio	parrot	a**w**ara

Gavião	Cinta Larga	Zoró
vesóa	**w**esúa	**w**esua
vása	**w**ásа	**w**asa
va**v**ó	**w**a**w**ú	**w**a**w**u
váki	**w**akĩĩ	**w**a'kĩ
vakóhj	**w**akúújj	**w**akuj
a**v**álav	a**w**áálap	a**w**alap

5.11 Deaffrication: tʃ>ʃ

Deaffircation applies to Suruí, Cinta Larga, and Zoró, and supports subgrouping them together. The Zoró lived with the Gavião, on the Gavião reserve for many

years and they continue to live in close proximity. The Zoró most likely reverted back to tʃ under the influence of the more numerous, and prestigious, Gavião. (It may be in the realm of an areal feature). The Zoró would have borrowed affrication from the Gavião. As a result, this change would not be expected to follow regular sound correspondences. It is seen most clearly in the phonetically transcribed a word list taken on the survey.

Portuguese	**English**	**Suruí**
noite	night	miʃ̃aŋ
pedra	rock	iʃá
tabaco	tobacco	maʃoʔ
pequeno	small	iʃ́in
pedregulho	pebble	iʃəkəlá
molhar	wet	ʃija(muŋap)

Gavião	**Cinta Larga**	**Zoró**
bi**tʃ**aŋ(i)	mi**ʃ**a	bi**tʃ**əŋ
i**tʃ**ía	i**ʃ**á	i**tʃ**á
ma**tʃ**oʔ	ma**ʃ**u(kũ')	mãi**tʃ**o(kóm)
tʃi**tʃ**it	kip**ʃ**ĩ	tʃi**tʃ**ín
i**tʃ**əkʌ'p	i**ʃ**ákiɾá	i**tʃ**aɣə'p~i**tʃ**asaiɾía
tʃiʔá	**ʃ**imá	**tʃ**imã'ʔ

6 Ordering

Some of the above sound changes only make sense when they are ordered. These will be explained below.

6.1 Vh > $V_{[nasal]}$h must come before Vh>$V_{[long]}$

The sound change Vh>$V_{[long]}$ (h deletion with compensatory lengthening, seen in §5.3) must come after Rhinoglottophilia, Vh > $V_{[nasal]}$h (the sound change seen in §5.7). Historically, rhinoglottophilia (§5.7) came before h deletion with compensatory lengthening (§5.3). Logically, it could not have been the other way around. If h deletion with compensatory lengthening (§5.3) had come first it would have left Cinta Larga with no h in that context. Then rhinoglottophilia (§5.7) could not have taken place because there would be no /h/ to act upon. Furthermore, rhinoglottophilia affected Cinta Larga, Suruí, and Zoró when all three were in fact a single language and shared the innovation of rhinoglottophilia. Later on, Cinta Larga diverged from the mother language, and underwent h deletion with compensatory lengthening (§5.3).

6.2 ng > g/#__ must come before b>m/#__

Bilabial Lenition (b>m/#__, seen in §5.4), is an ordered sound change, coming after loss of prenasalization, ng > g/#__ (seen in §5.9). Loss of prenasalization (§5.9) comes before bilabial lenition (§5.4). Loss of prenasalization must have come before bilabial lenition because loss of prenasalization clearly affected both Suruí and Zoró when both were in fact a single language and shared the innovation of loss of prenasalization. Later on, Suruí diverged from Zoró, and underwent bilabial lenition (the sound change seen in §5.4).

6.3 Vh > $V_{[nasal]}$h must come before sound change ng > g/#__

Rhinoglottophilia (the sound change §5.7, Vh > $V_{[nasal]}$h) is an ordered rule, coming before loss of prenasalization (the sound change in §5.9, ng > g/#__). Rhinoglottophilia must have come before loss of prenasalization, because rhinoglottophilia clearly affected affected Cinta Larga, Suruí and Zoró when all three were a single language and shared the innovation of rhinoglottophilia. Later on, Suruí and Zoró diverged from the mother language, and together underwent loss of prenasalization.

6.4 Vh > $V_{[nasal]}$h must come before sound change Vh > V

h-deletion (the sound change in §5.8, Vh > V) is an ordered sound change, coming after rhinoglottophilia (Vh > $V_{[nasal]}$h, seen in §5.7). Logically, it could not have been the other way around. If h-deletion (§5.8) had come first it would have left the Cinta Larga, Suruí and Zoró proto family with no h in the context needed for rhinoglottophilia (§5.7). Rhinoglottophilia could then not have taken place because there would be no h for the sound change to act upon.

7 Summary of comparative method findings

The following list summarizes all the changes I have talked about, and Table 1 below summarizes the languages affected by each change:

1) o > u (Cinta Larga)
2) p > v / __# (Gavião)
3) Vh>$V_{[long]}$ (Cinta Larga)
4) b>m/#__ (Suruí)
5) V>$V_{[long]}$/___# (Cinta Larga)
6) V>Vʔ/__# (Zoró)
7) Vh > $V_{[nasal]}$h (Cinta Larga, Zoró, Suruí)
8) Vh > V (Cinta Larga, Zoró, Suruí)
9) ng > g/#__ (Zoró, Suruí)
10) v>w/{#}_ (Cinta Larga, Zoró, Suruí)
11) tʃ>ʃ (Cinta Larga, Zoró, Suruí)

Table 1. Languages affected by sound changes.

	Cinta Larga	Suruí	Zoro	Gaviao
o > u	X			
p > v / __#				X
Vh > $V_{[nasal]}$h	X	X	X	
ng > g/#__		X	X	
V>$V_{[long]}$/___#	X			
V>Vʔ/__#			X	
Vh>$V_{[long]}$	X			
Vh > V	X	X	X	
b>m/#__		X		
v>w/{#}_	X	X	X	
tʃ>ʃ	X	X	X	

So, how do the rules outlined above support my position that Zoró is not closely related genetically to Gavião, but rather to Suruí? For the new position to be true, the first change we see, furthest back in history, is that Cinta Larga, Suruí, and Zoró diverged from Gavião when the three were a single language. When Cinta Larga, Suruí, and Zoró were still a single language, the proto-language they formed underwent the same four sound changes: 7) rhinoglottophilia, 8) h-deletion, 10) labial weakening and 11) deaffrication. These shared innovations act as evidence that they went through the sound changes together.

Much later, the daughter language of Suruí/Zoró shared loss of prenasalization in (9), setting them both apart from Cinta Larga. This innovation did not happen in Suruí and Zoró simultaneously, at some later date. Rather, the loss of prenasalization happened at a time when Suruí and Zoró were a single daughter language of Cinta Larga, Suruí and Zoró. The fact that this sound change occurred in Suruí and Zoró only is evidence that they once formed a single language.

Later, all four groups underwent sound changes separately. Cinta Larga underwent 1) Vowel Raising: o > u, 3) h-deletion with Compensatory Lengthening: Vh>$V_{[long],}$ and 5) Word Final Vowel Lengthening: V>$V_{[long]}$/___#; Suruí underwent 4) Bilabial Lenition: b>m/#; Zoró underwent sound change 6) Glottalization: V>Vʔ/__#; and Gavião underwent sound change 2) Spirantization: p > v / __#. The fact that these sound changes are unique to each group is evidence that they happened after Gavião, Cinta Larga, Suruí, and Zoró had split into different languages.

Then, after the above sound changes took place, my position is that the Gavião and Zoró languages influenced each other because the two groups lived together. According to oral tradition, the Zoró lived with the Gavião until the early 20th century, when they split off and moved away (Santos and Coimbra 1991:797). My proposal theorizes that the Zoró and Gavião had already split into two language groups when they opted to live together in a single village. Much

later, in the 1970s, during a time of duress, the Zoró once again returned to live in the Gavião village for a time. Because of their time living together, both groups had some influence on each other. Gavião has begun to show signs of sound change 8) h-deletion: Vh > V, characteristic of the Zoró. Gavião has also lost prenasalization 9) ng > g/#__ because of the influence of the Zoró. Zoró has borrowed affrication from the Gavião, thus has lost sound change 11) deaffrication: tʃ>ʃ.

8 Conclusion

Based on the comparative method of shared sound changes, I propose that Gavião diverged very early on from Proto-Monde. At two later occasions, they spent considerable time living together with the Zoró. This explains why Zoró and Gavião appear to be closely related. Their similarity is a result of having recently lived together and borrowed sounds from each other. Because of this, there is a high degree of mutual intelligibility, which led people to assume Zoró and Gavião had only recently diverged.

This is by no means an airtight theory. I intend it merely as an alternate proposal to the prevailing view that Zoró and Gavião are very closely related genetically. There are limitations to the claims, the most striking being the thin evidence grouping Suruí and Zoró. The paper is also based on the assumption that the Zoró and Gavião were separate groups living together in the early 20th century. It does not assume the Zoró only became separate linguistically after moved away from the Gavião.

The data in this paper is based on two lists, totalling 507 words. In the future, a much larger database would make the conclusions less tenuous. This could take the form of a bigger word list or a large corpus. There are translations of the Bible in Gavião and Suruí, which may serve as sources. The other languages, Zoró and Cinta Larga, have smaller corpuses of legends that could provide more common words and thus possibly more shared sound innovations.

Finally, there may be historical or archaeological evidence that could shed light on the living arrangements of the four tribes. This type of information could possibly tell us if it is realistic to group the Suruí and Zoró together early on, and the Zoró and Gavião later on.

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Azeri compound nouns: The influence of Persian on a Turkic language

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This is a study of the effects of language contact on the structure of Azeri, a minority language spoken in Iran. Azeri, the second largest language in Iran, is a Turkic language, but it is heavily influenced by the national language Persian, an Indo-European language. Turkic languages are head-final: in noun phrases, modifiers appear before head nouns. In contrast, Persian is head-initial: modifiers follow head nouns. Notably, Azeri allows both head-final and head-initial structures. A field study conducted with ten Azeri speakers in Tabriz, Iran, revealed that in noun compounds the two types of structures are used almost equally. However, older and monolingual speakers prefer the head-final structure, while younger, educated bilingual speakers prefer the head-initial structure. This shows that Azeri is becoming persified in this domain, as predicted in such situations of language contact involving a politically-dominant language. However, all speakers accept head-final structure, showing the persistence of Turkic morphosyntax despite a millennium of intense social and cultural contact with Persian.
Keywords: Language contact; Azeri morphosyntax; Turkic language; bilingualism; noun compounding

1 Introduction

Iran is a diverse country, with people of many religious and ethnic backgrounds who speak different languages as their first language. Persian is spoken as a first language by only 53% of the population. Alongside Persian, there are several minority languages, e.g. Azeri and other Turkic languages are spoken by 23% of the population, Kurdish by 10%, Lori by 6%, Baluchi by 2% and Arabic by 2% (Mehriyar 2000). The following map illustrates where different minority languages are spoken in Iran.

Figure 1. Map of Iran with diverse languages[1]

Persian is the dominant language, and native speakers of Persian often do not learn a minority language. However, most speakers of minority languages in Iran also speak Persian to some degree. Over half of Iran's population is bilingual. Persian serves as a lingua franca in Iran, and most publications and mass media are in this language. There is only limited publication or broadcasting programs in the other relatively popular languages of Iran, such as Azeri and Kurdish. In some societies, people use one language in their families, local communities, and work, but another language for education and official business. This is the situation in Iran: the only official language of Iran is Persian, and it is the only language used for education, including in Azeri-speaking areas. Many educated Azeris are totally fluent in both Azeri and Persian. Equally comfortable in both languages, bilingual speakers often engage in code-mixing when speaking to each other.

Azeri is a Turkic language, but it is strongly influenced by Persian, an Indo-European language. Azeri, with approximately 15–20 million speakers, has more speakers than any other non-Persian language in Iran (Crystal 2010). Most Azeri speakers inhabit the four provinces in the northwestern part of Iran. Each province has its own dialect—the Ardabil dialect in Ardabil province, the Tabriz dialect in East Azerbaijan province, the Urmia dialect in West Azerbaijan province, and the Zanjan dialect in Zanjan province. The dialects are mutually intelligible, although they are distinguished by phonological and lexical criteria (Dehghani 2000). Among these dialects, the dialect of Tabriz is the prestigious dialect and serves as the norm for Iranian Azeri (Menges 1951, Johanson 1998). I am a native speaker of Azeri, born and raised in Tabriz, capital of East Azerbaijan

[1] This map is retrieved November 1, 2012 and adapted from http://en.wikipedia.org/wiki/File:Iran_main_languages.png

province in northwestern Iran. The following map shows where different dialects of Azeri are located in Iran.

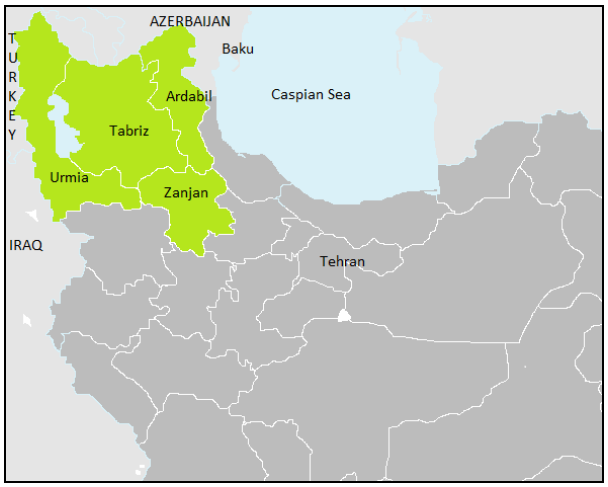

Figure 2. Map of Azeri-speaking areas in Iran[2]

Given the dominance of Persian, and the long period of intensive contact, a more interesting observation is that some Azeri speakers have remained monolingual.[3] Many people of the older generation in Azeri-speaking areas did not have a chance to attend school when they were children, especially in rural areas. These people can only speak Azeri, though they cannot read and write it. They also cannot read or write Persian, though some read a little Arabic due to their study of the Quran. That is why many older Azeri speakers and those who are living in rural areas do not know Persian, but are monolingual in Azeri. In sum, Azeri speakers differ in their fluency in Persian, ranging from monolinguals to fully functional bilinguals. People from the older generation who have little or no education are not able to read, write or speak Persian fluently. However, those who have higher education, which includes most of the younger generation, can read, write and speak Persian fluently. The reason is that they have been in contact with Persian for many years, they read academic publications in Persian, and of course, many of the educated people need to write academic texts.

Thomason and Kaufman (1988: 74–76) propose that when languages are in close contact with each other, borrowing lexical items is common, and in fact, many lexical items borrowed from Persian have become a part of the Azeri lexicon. Lee (2008) claims that, educated speakers tend to replace native Azeri

[2] This map is retrieved November 1, 2012 and constructed using the map template from http://en.wikipedia.org/wiki/File:Blank-Map-Iran-With-Water-Bodies.png

[3] I use the term ‘monolingual’ to refer to those who are able to communicate comfortably only in Azeri and the term 'bilingual’ to refer to those Azeri people who use Persian in their daily life.

words with their Persian equivalents. For example, the following text is part of an e-mail to my cousin, who is bilingual in Azeri and Persian. The italic/bolds words are of Persian origin but have been borrowed into Azeri, undergoing phonological and morphological accommodation.

> bayram ***taʔtilat***i xoş geşdi? ***hesabi*** dolandin? inşalah ***ki hämişä şad vä sälämät*** olasiz. ***bahar*** havasinan neynisiz? burda ***ki*** hala ***bahar***di ***vä*** agaçlar gözäl ***gül***lar açiplar ***vä*** här yer ***şukufa***di. ***küçä***lärdän ***tamam*** gül iyi gälir, adam deyir durum baxim bu ***gül***lara ***vä äks*** salim. bizdä ***tebge maʔmul, zendagani***ğa ***mäşğul***ux ***vä*** günlarimiz gecir.
>
> How was your New Year's ***holiday***? Did you have ***much*** fun? I wish you ***happiness and health always***. How is your ***spring*** time going? ***Here*** it is still ***spring and*** trees have beautiful ***blooms***, everywhere is full of ***flowers***. The smell of fresh flowers is ***everywhere*** in the ***streets***, so you want to stop everywhere and watch ***them***, and take ***pictures***. ***As usual***, we are busy with ***life*** and the days are passing.

However, borrowing is not limited to lexical items. Myers-Scotton (1993) states that when two languages that are not genetically related share a geographical location, and there is a high degree of bilingualism or multilingualism, grammatical features of the dominant language may be adopted by the minority language. Since, Persian is the only official language in Iran it has political and cultural dominance over Azeri. This is exactly the sort of situation where one would expect the structure of a language to be influenced by another language, even if it is typologically dissimilar. Erfani (2012) explored this issue for a variety of morphosyntactic constructions in Azeri and found that several show signs of persification. For example, in Azeri compound nouns, the head noun follows the modifier in (1):

(1) dämir qapı
iron *door*
'iron door'

However, it is also possible to have a compound in which the head noun precedes the modifier, as in (2):

(2) ustad -i danişgah
professor *-EZ* *university*
'university professor '

The modifier-head order is the native Turkic word order, while the head-modifier order arises under influence from Persian:

(3) dar -e âhani
door -EZ Iron
'iron door'

The main objective of this paper is to examine patterns of language variation among Azeri speakers in their use of compound nouns in order to determine the degree of influence of Persian on Azeri structure. To do this, I designed a study to investigate Azeri compound noun constructions, collecting data from a variety of Azeri speakers. Section 2 gives an introduction to noun compounding in Azeri, as compared to Turkish and Persian. Section 3 describes the field study detailing the methodology and data coding. Section 4 analyses the compound noun data and discusses the results in terms of two sociolinguistic factors—the age and level of education of the speaker. Finally, section 5 summarizes the results of this study and discusses what it reveals for the future of the Azeri language.

2 Noun compounding

Compounding, which is probably the most common morphological process cross-linguistically, can be defined as a lexical item consisting of two or more words used for generic rather than referential function, e.g. English *garbage man* or *popcorn* (Fabb 1998: 66). Azeri compound nouns come in two forms: one can be regarded as the native Turkic variant and the other variant is borrowed from Persian. Thus noun compounding can serve as a measure of Persian influence on Azeri. Native Azeri has right-headed noun-noun and adjective-noun compounding:

(4) märmär daş (Participant 3: 2012)
marble stone
'marble stone'

(5) gümüş güldan (Participant 9: 2012)
silver vase
'silver vase'

(6) taxta qapı (Participant 1: 2012)
wood door
'wooden door'

(7) böyük -maman (Participant10: 2012)
big -mother
'grandmother'

(8) sarı -kök (Participant 5: 2012)
yellow -root
'turmeric'

(9) boş -qab (Participant 4: 2012)
empty -container
'plate'

The above compounds are bare, but for noun-noun compounds, it is more common to use the linker *–(s)I*.[4]

(10) Azerbaijan türk -ü (Participant 3: 2012)
Azerbaijan turk -LNK
'Azerbaijani Turk'

(11) Isfahlan känd -i (Participant 2: 2012)
Isfahlan village -LNK
'Isfahlan village'

(12) lobya kükü -si (Participant 5: 2012)
bean omelet -LNK
'green bean omelet'

(13) kitab ev -i (Participant 4: 2012)
book house -LNK
'library'

[4] The suffix *–(s)I* has the same shape as the third person singular possessive suffix *–(s)I* in Azeri , but it does not necessarily indicate possession. It may express the relation between the elements, for instance, in place names:

(i) Eynali Dağ -ı
Eynali mountain -LNK
'Eynali Mountain'

In contrast, the possessive suffix *–(s)I* expresses possession, as in:

(ii) Ali -nin kitab -ı
Ali GEN book -LNK
'Ali's book'

(14) qapı qabaq -ı (Participant 1: 2012)
door *front* *-LNK*
'in front of the door'

Right-headed compound structures are typical in Turkic languages. As in Azeri, the most productive and frequently used compounds in Turkish are noun-noun and adjective-noun (Kornfilt 1997, Göksel and Kerslake 2005, Göksel 2009, Ralli and Bağrıaçık 2011, among others).

(15) ipek Çorap
silk *Sock*
'silk sock

(16) böyük -anne
big *-mother*
'grandmother'

(17) böyük -baba
big *-father*
'grandfather'

Noun-noun compounding can also be formed with an *–(s)I* suffix, as in:

(18) para çanta -sı
money *bag* *-LNK*
'purse'

(19) İngiliz edebiyat -ı
English *literature* *-LNK*
'English literature'

(20) kuş yuva -sı
bird *nest* *-LNK*
'bird nest'

Persian also has bare noun-noun and noun-adjective compounds:

(21) âb -havij
water -carrot
'carrot juice'

(22) pedar -bozorg
father -big
'grandfather'

(23) doxtar -xâle
girl -aunt
'cousin'

The above examples are left-headed, which is considered the default order of compounds in Persian (Kalbasi 1992, Shariat 2005, Anvari and Ahmadi-Givi 2006, Mahoozi 2006, Vahidian-Kamyar and Omrani 2006, Foroodi-Nejad and Paradis 2009), though right-headed compounds also occur.

(24) noxost -vazir
first -minister
'prime minister'

Another way of forming compounds in Persian is by means of the Ezafe construction.[5] The head noun is suffixed with the Ezafe *–(y)e* (the glide *-y-* occurs after vowels).

(25) daryâ -ye xazar
sea -EZ Caspian
'Caspian sea'

(26) miz -e utu
table -EZ iron
'ironing board'

(27) otâg -e nešiman
room -EZ sitting
'living room'

[5] In Persian, the Ezafe construction with a vowel *-e* occurs with various kinds of post-nominal modifiers, including APs, descriptive NPs, genitive NPs, and some PPs (Samiian 1994).

Such compounds are left-headed. Persian is a language that has variable head positions in noun compound structures. Azeri speakers also frequently use the left-headed Ezafe construction:

(28) müdir -i mädräsä (Participant 3: 2012)
director -EZ school
'the school director'

(29) zäban -i türki (Participant 6: 2012)
language -EZ Turkish
'Turkish language'

(30) karmänd -i bank (Participant 7: 2012)
employee -EZ bank
'bank employee'

(31) ädäbiyyat -i maktüb (Participant 8: 2012)
literature -EZ written
'written literature'

(32) ustad -i danişgah (Participant 9: 2012)
professor -EZ university
'university professor'

These are formed with the Ezafe suffix, which is borrowed from Persian. The above phrases, which are direct quotation from Persian, could alternatively be expressed in Azeri by right-headed equivalents:

(33) mädräsä müdir -i
school director -LNK
'school director'

(34) türki dil -i
Turkish language -LNK
'Turkish language'

(35) bank karmänd -i
bank employee -LNK
'bank employee'

(36) yazılı ädäbiyyat -i
written literature -LNK
'written literature'

(37) danişgah ustad -i
university *professor* *-LNK*
'university professor'

I consider the right-headed compound in Azeri to be the native Turkic pattern since Turkish generally lacks left-headed compounds.

3 Methodology and data coding

In order to investigate the morphosyntax of Azeri and the influence that Persian has on it, I travelled to Tabriz, Iran, to conduct a field study. This project is a qualitative/quantitative study designed to compare Azeri as spoken by the younger and older generations.

3.1 Participants

This field research involved ten participants divided into two groups. The participants in the older generation (aged 65+) were mostly monolingual in Azeri and the participants in the younger generation (aged 20–35) were mostly bilingual in Azeri and Persian. They can be further sub-divided by their level of education (basic education or higher education). The following table summarizes the basic biographical information on each participant:

Table 1. Participants' information

Participant	Age	Language (Mono/Bilingual)	Level of Education
1	88	monolingual	basic reading
2	72	monolingual	basic reading
3	69	bilingual	higher education (BS)
4	65	monolingual	basic reading/writing
5	65	monolingual	none
6	36	bilingual	higher education (MS)
7	35	bilingual	higher education (PhD)
8	28	bilingual	higher education (PhD)
9	26	bilingual	higher education (MA)
10	22	bilingual	higher education (BS)

3.2 Procedure

The interviews were recorded with a high quality digital voice recorder (Olympus WS 801). The participants were each involved in a 30-45 minute free conversation in an informal setting in a quiet room at the participant's home. The interviews resulted in a total of 6 hours and 50 minutes of speech (189 minutes by older speakers, 221 minutes by younger speakers). Selected data were transcribed and translated and these formed the basis of my dataset.

3.3 Data coding

As stated earlier, the native Azeri compound noun construction is right-headed and formed with or without the linker *–(s)I*:

Right-headed compounds:

(38) äbrişäm färş (Participant 3: 2012)
silk *rug*
'silk rug'

(39) Tabriz püstä -si (Participant 1: 2012)
Tabriz *pistachio* *-LNK*
'Tabriz pistachio'

(40) ät maşın -ı (Participant 4: 2012)
flesh *machine* *-LNK*
'meat grinder'

(41) dars kitab -ı (Participant 7: 2012)
lesson *book* *-LNK*
'study book

(42) ev şirni -si (Participant 5: 2012)
home *sweet* *-LNK*
'homemade sweet

In comparison, the Persian-style compound is left-headed with the Ezafe *–(y)I*:

Left-headed compounds:

(43) istgâh -i ahoodäşt (Participant 1: 2012)
station *-EZ* *ahoodasht*
'Ahoodasht station'

(44) zäban -i madäri (Participant 7: 2012)
language *-EZ* *motherhood*
'mother tongue'

(45) danişkäde -ye fänni (Participant 10: 2012)
faculty *-EZ* *engineering*
'the faculty of Engineering'

(46)	näzär	-e	şäxsi	(Participant 8: 2012)
	idea	*-EZ*	*personal*	
	'personal idea'			

(47)	kitab	-i	dastan	(Participant 6: 2012)
	book	*-EZ*	*Story*	
	'story book'			

The noun compound data were analyzed on these grounds.

4 Data analysis

Over the last forty years, language variation theorists have developed a methodology for applying sociolinguistic analysis to the variation found in the phonological, morphological, syntactic, and semantic structure of a language. Labov (1972c) defines a linguistic variable as simply "two ways of saying the same thing." Tagliamonte (2006: 70) refines this notion, saying that the variants should not result from performance anomalies, but be linguistically well-formed. Furthermore, the frequency of variation should be robust: both variants must occur with sufficient frequency. A variationist approach to linguistic analysis can then look for factors that elucidate the systematic distribution of the variants. Ferguson (1959), Calteeaux (1994), Thomason and Kaufman (1998) and Thomason (2003) are among those to discuss the effect of social factors in language contact. When speakers of different languages live in close contact, their languages influence each other, but they do so in piece-meal fashion, leading to complexities in the synchronic language structure and differences among speakers. Variations that gain popularity can gradually lead to loss of a variant and result in language change. According to Labov (1994, 2001), some of the socio-cultural factors that can affect the use of linguistic variables are age, sex, social class, ethnicity, race, and community size.

My research seeks to examine language change in progress in the Azeri language by comparing the data from monolingual Azeri speakers to the data from bilingual Azeri-Persian speakers. This study shows that two socio-cultural factors, age and level of education, are relevant to morphosyntactic variation in Azeri. First, we look at the effect of the age and next the effect of education. The age of the speaker has been demonstrated to be an important social factor in language variation (Labov 2000). Differences between generations in linguistic behavior illustrate clear examples of language change in progress. Thus, the age of the speaker becomes an important factor when investigating the status of a linguistic structure in a community. One goal of my field study was to see whether the factor of age influences the choice of compound noun variant.

As stated earlier, Azeri has two compound noun variants: the left-headed variant, in which the head precedes the modifier, and the right-headed variant, in which the head follows the modifier. In this study, right-headed and left-headed compounds are both robustly attested, with a slight preference for the latter. My

data yielded 225 tokens of CNs: 43% were right-headed (96 CNs) and 57% were left-headed (129 CNs). In other words, the persified left-headed CNs was slightly preferred over the native Turkic right-headed construction. See Figure 3.

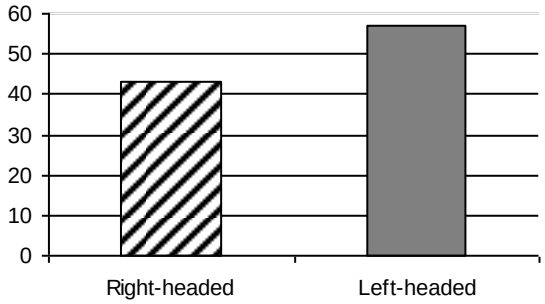

Figure 3. Percentage of right-headed and left-headed compound nouns

These results suggest that compound nouns provide a good linguistic variable to investigate because both variants are produced frequently in daily speech. Given the results of the CN data above, an obvious question to ask is whether the social factors of age and education influence the choice of variants in noun compounding.

4.1 Effect of age

The following gives a break-down in the results of the two types of the compound nouns as produced by older and younger groups of speakers.

Table 2. Number and percentage of right-headed and left-headed compound nouns by older and younger groups

Participants	right-headed		left-headed		Total
	#	%	#	%	#
older group	51	58	37	42	88
younger group	45	33	92	67	137
Total	96	43	129	57	225

As Table 2 illustrates, the older speakers produced 51/88 right-headed compounds and 37/88 left-headed compounds, whereas the younger speakers produced 45/137 right-headed compounds and 92/137 left-headed compounds. Therefore, the results show that older participants tend to produce more of the right-headed compound noun variant (58%), whereas the younger participants tend to produce more of the left-headed borrowed variant (67%). The older participants tend to produce slightly more compounds with native Azeri structures than with the borrowed Persian order, whereas the younger participants

tend to produce more compounds with the borrowed structure than with the native one. See Figure 4.

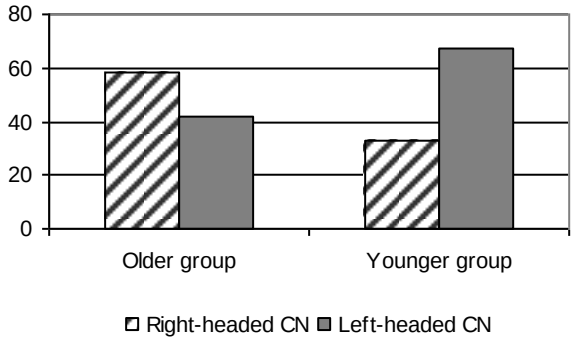

Figure 4. Percentage of right-headed and left-headed compound nouns by older and younger groups

4.2 Effect of education

In the sociolinguistic literature, many studies have been done on the effect of education on language variation. Education may be the best factor measuring the social evaluation of features in a community, with higher levels of education correlating with linguistic features held to have prestige (Labov 2002: 60). In this study, the effect of education has been investigated differentiating between participants with little or no education versus those with some post-secondary education. The following Table 3 presents the number and percentage of right-headed versus left-headed compound nouns tabulated for two groups of speakers—those with little or no education and those with higher education.

Table 3. Number and percentage of right-headed and left-headed compound nouns by level of education

Participants	**right-headed**		**left-headed**		**Total**
	#	%	#	%	#
less educated	40	71	16	29	56
higher educated	56	33	113	67	169
Total	96	43	129	57	225

Table 3 illustrates, the less educated speakers produced 40/56 right-headed compounds and 16/56 left-headed compounds, whereas the more highly educated speakers have produced 56/169 right-headed compounds and 113/169 left-headed compounds. The results show that the less educated participants tend to produce more of the right-headed variant (71%), whereas the more highly educated participants tend to produce more of the left-headed variant (67%). See Figure 5. This statistic shows that the less educated participants favor the native Azeri structure. In contrast, the behavior of the educated speakers shows that they tend to produce more compounds with the borrowed structure.

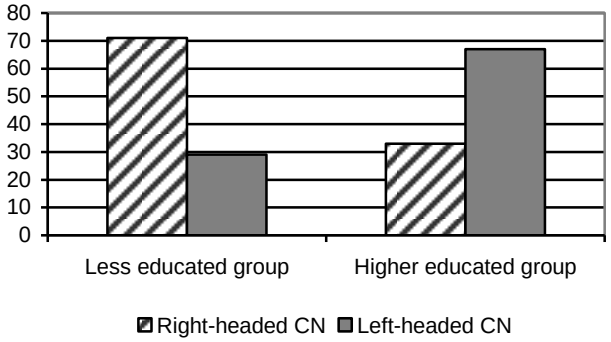

Figure 5. Percentage of right-headed and left-headed compound nouns by less educated and higher educated groups

Investigating the behavior of individual participants may reveal the linguistic and non-linguistic characteristics of a variation more clearly (Labov 1972, 1994, 2001; MacLagan, Gordon and Lewis 1999; among others). Therefore, when I divided the participants based on their level of education, I moved participant 3 to the group of participants with higher education. It is insightful to examine the results for participant 3, who is an older but highly educated participant. His results for compound nouns more closely resemble the results of the younger highly educated group than those of the other older speakers. This participant produced more left-headed compound nouns, whereas the other participants in the older group with less education produced more right-headed compound nouns. If we compare his behavior with the younger educated speakers, we see that his choice of variants is in the same range as the other participants in the educated group. In other words, the result from participant 3 suggests that the factor of education is stronger than the factor of age. The following table gives the results for participant along with their level of education.

Table 4. Number and percentage of right-headed and left-headed compound nouns by level of education

Participant	Age	Level of Education	right-headed		left-headed		Total
			#	%	#	%	#
5	65	None	6	100	0	0	6
1	88	basic reading	12	60	8	40	20
2	72	basic reading	10	83	2	17	12
4	65	basic reading	12	67	6	33	18
SUB-TOTAL			*40*	*71*	*16*	*29*	*56*
3	69	higher education, BSc	11	34	21	66	32
10	22	higher education, BSc	4	33	8	67	12
9	26	higher education , MA	5	33	10	67	15
6	36	higher education, MSc	2	7	27	93	29
7	35	higher education, PhD	14	42	19	58	33
8	28	higher education, PhD	20	41	28	59	48
SUB-TOTAL			*56*	*33*	*113*	*67*	*169*
TOTAL			**96**	**42**	**129**	**58**	**225**

To summarize, the findings in the present study show that noun compounds are a good sociolinguistic variable in Azeri because both right-headed and left-headed compound nouns are well attested. The data show that the factors of age and education influence the choice between variants. Summarizing the results overall, young and educated speakers, who have more contact with Persian through media, education and social contact, are more influenced by Persian structure. In contrast, older speakers, who are mostly monolingual and have less education in the Persian language, retain more native Azeri structures in their speech.

5 Conclusion

This study examines linguistic issues in Azeri, a minority language spoken in Iran, specifically, the effect of Persian on Azeri morphosyntax. Iranian Azeri has been strongly influenced by Persian, an Indo-European language. Intensive linguistic and cultural contact has led to considerable convergence between the two languages. Northwestern Iran is an ethno-linguistic contact zone where Azeri and Persian have been spoken side by side for more than a millennium.

We saw that in noun compounding, left-headed and right-headed compound nouns were used with almost equal frequency by the participants. However, the choice of structure differed slightly by the age and education of the participants. The finding of the current study is compatible with the findings of other studies on languages of the region. Johanson (1998) claims that persification in the Irano-Turkic area is promoted by increased education and communication. These findings also show that Azeri is becoming persified, as predicted in situations of language contact involving a politically-dominant

language. An interesting future study would be to compare the status of Azeri to other varieties of the Azerbaijan language, particularly Northern Azerbaijani, the official language in the Republic of Azerbaijan.

According to the results of my study, the influence of Persian is seen to be greater among young, educated speakers. With respect to the factor of age, Sankoff and Thibault (1981) claim that if a syntactic variant is correlated with age, this may be evidence of language change in progress. For example, left-headed variant correlates with the younger group and thus this might be an indication of an evolution in the grammar of Azeri toward Persian structure. Sankoff and Thibault (1981) further argue that when variants coexist for a long time, it should be expected that this equivalence will be grammaticalized at a later time. Therefore, we should expect structures such as left-headed compound nouns, which has been borrowed from Persian and has coexisted with native Turkish structure for a long time, will be eventually be considered as canonical structures in the grammar of Azeri.

Furthermore, the difference between the two groups of speakers in my study suggests that the rate of persification of Azeri is accelerating. However, due to the small number of participants and tokens, these conclusions can only be suggestive. Additional quantitative studies with sufficient data are required to verify these results. This discovery is an issue of some concern. The topic of language endangerment often focuses on languages with small populations of people, e.g. indigenous languages of North America. But even when a language is spoken by millions of people, it can undergo rapid change in the face of contact.

Language use and attitudes towards language use are tied to issues of cultural identity. The Azeri people maintain a Turkic cultural identity even though they live in Iran. If they lose their language, they will lose the link to this heritage. Unfortunately, there is much pressure—both from society at large and from families who desire their children to be upwardly mobile—to focus on learning Persian rather than Azeri. As fluency in the language is lost, so is the tie to Azeri culture. The future of Azeri, the Azerbaijani language as it is spoken in Iran, remains to be seen.

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Salentino Dialect, Griko and Regional Italian: Linguistic Diversity of Salento

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This paper is a first attempt at presenting the complete linguistic situation of contemporary Salento (Italy), where three different languages are spoken: Italian (in its regional variety), Salentino dialect and Griko. Though it has a limited diffusion in present day Salento, Griko has been widely analysed in literature since dialects of the extreme south of Italy are structurally very divergent from other Italian dialects, supposedly due to the influence of Greek. This paper briefly introduces the Italian linguistic context and the multitude of co-existing varieties and linguistic systems. The main aim of this research is to present the non-standard and minority languages of Salento, and to describe the grammatical systems of the area from a perspective of contact. The authors discuss this major phenomenon in Salentino and Griko and reflect on the origins of the latter. Regional Italian is yet another variety taken into consideration since, as shown in this paper, it presents structural differences from Standard Italian also on a morphosyntactic level.
Keywords: Salento; Salentino; Griko; grammatical description; languages contact.

1 Introduction

This paper focuses on Salento, an area in the extreme south of Italy characterized by the presence of three language systems: Italian (in its regional variety), Salentino (an Italo-Romance dialect), and Griko (a Greek dialect spoken in eight villages of central Salento). Thus, the language situation in Salento makes it an interesting area to study on both a sociolinguistic and a linguistic level. The vitality of the dialect, the linguistic diversity within a restricted geographical area, and the social prestige of language make this a region rich for research. In part due to the popularity of a number of contemporary music bands from

[1] The paper results from the close collaboration of both authors; however, for academic purposes, Ekaterina Golovko is responsible for Sections 2 and 3, Vladimir Panov for Sections 4 and 5. Both authors are responsible for Section 1.

Salento, the region has obtained its own recognizable linguistic profile. The Italian spoken in Salento has become emblematic of youth subcultures; the accent and pronunciation are now considered stylish and socially prestigious. Due to this particularity of the Salentino linguistic context leads, the authors believe that Regional Italian is a phenomenon that matters and should be considered for study. This paper will examine phenomena caused by language contact, and specifically those differentiating Salento from the rest of Italy, resulting in a unique linguistic profile.

Southern Italy presents two rather distinct dialectal zones. The term "southern" is usually applied to the dialects of northern Apulia, northern Calabria, Basilicata, and the regions located further north. This group is distinct from the so-called "Sicilian" group, which includes – aside from Sicilian itself – the varieties of southern Apulia (non-officially named Salento) and southern Calabria. One can also find the term "Sicilian language" applied to the entire area. The corresponding Italian labels are *Dialetti meridionali estremi*, *Dialetti del tipo siciliano*, *Lingua siciliana*. Two distinct lines separate the southern dialects from Sicilian-type dialects: Nicastro – Crotone in Calabria and Taranto – Brindisi in Apulia.

The dialectal border of the two zones is rather clear-cut, thus transitional forms are almost absent (the dialect of Taranto presents a possible exception, combining a number of features from both areas). The characteristics of the entire Sicilian-type zone are as follows.

Beginning with phonetics, the vocalic system is based on five vowels (with their possible development into diphthongs in particular varieties) in contrast with the seven-vowel system of the dialects north of the area. The "reduced" number of vocalic elements is due to the transition of the Latin <ĭ>, <ē> into <i> and of the Latin <ŭ>, <ō> into <u>, which further transformed into the closed <e> and <o> respectively in southern and central dialects of Italy; a transformation which occurred in the majority of Western Romance languages. The consonantal system is characterized by the presence of the so-called cacuminal sound *ll* > *ḍḍ*. This Sicilian phoneme exists in various forms in different dialects with varying degrees of cacuminalization and can also be pronounced as the simple non-cacuminal [dd] geminate. The common Italian <rr> geminate, the initial <[r]> and the group <tr> may also have a cacuminal pronounciation (as a voiced retroflex sibilant [ʐ] and [tʃɹ] respectively) in many dialects of the zone: Sic. *terra* [teʐa] 'land', *riccu* [ʐik:u] 'rich', *travagghiu* [tʃɹavag':u] 'work'.

Moving on to mophology and syntax, first, restricted use of the past perfect (it. *passato prossimo*), or a complete lack of one, to different degrees in various dialects of the zone, for example in Sic. *Come* ***manciasti****?* 'How have you eaten?' where the simple past is used in a typically perfect context. Second, restricted use of the infinitive and its substitution with subordinating clauses introduced by modal conjunctions that vary from dialect to dialect or within serial constructions. The constructions follow more or less common patterns across the Sicilian-like dialects though they use different language material (Cal.

mo, *mi*, Sal. *cu*) (Chillà 2009). Third, diffusion of SOV basic word order (cf. ex. 32, 33 of the present paper), and finally use of two semantically distinct copulas: '*essere*' and '*stare*' (see the section 3.3).

The dialects undeniably have common features on all linguistic levels while occupying a peculiar geographic territory. Two factors lead us to consider the nature of this astonishing homogeneity: i) Sicilian-type dialects are not a part of the dialectal continuum of Southern Italy. The border separating them from other southern dialects is clear-cut with the lack of natural borders such as mountains as is the case of the defined border between Gallo-Romance dialects and the dialects of Tuscany, and ii) The "continental" part of the zone, namely Salento and southern Calabria, is not united, but rather separated in two parts by the Lucanian dialect. The Lucanian dialect, though containing a number of archaic features and particularities, belongs to the group of southern dialects and not to the Sicilian group. At the same time, the dialects of Salento and southern Calabria seem to be relatively mutually comprehensible.

It is common practice in Romance linguistics to ascribe the homogeneity of the aforementioned dialects to a certain linguistic substrate, Greek usually being the first candidate. Others are the Italic and non-Italic proto-Latin languages that are far from being known to us. In the case of Sicily, these are the Sicel and Sicanian languages, while in Salento, there is probably a Messapic substrate (Baldi, 2002). Due to the lack of reliable knowledge of these languages, tracing the common features from proto-Latin languages seems to be quite a speculative attempt. However, the Greek substrate theory, being the most commonly accepted, deserves more detailed consideration. Though it is a known fact different types of Greek have been present in Southern Italy since ancient times (~8th c. BC), accurate knowledge as to the spread of Greek among the populations of this region over different epochs remains unclear. Historical questions concerning the extension of Greek speakers throughout Salento are discussed in detail by Aprile (1994).

In contrast, small Greek-speaking communities are still present in Calabria (province of Reggio Calabria) and in Salento (province of Lecce). In both varieties, the name of the language is "Griko". The origins of Griko-speaking communities are still debated; the following are the main two points.

First, modern Griko-speaking communities can be traced back to the ancient population of *Magna Grecia* (perhaps they were later subject to some Byzantine influence). This position is generally accepted by Greek linguists (Καραναστάσης, 1997) and was supported by the great German linguist and researcher of Griko, Gerhard Rohlfs.

Second, modern Griko-speaking communities have no relation to *Magna Grecia* and can be traced back to the High Middle Ages. Therefore they derive from a Byzantine population. This theory is supported, among others, by the previously mentioned historian, Rocco Aprile.

As Aprile (1994) demonstrated, it is extremely difficult to establish a factual history of the region's rural populations, including the language change

process, on the basis of written sources and archeological data.Therefore, in our case, the language itself is the most important historical source.

The goal of this study is to examine the parallel phenomena in the language structures of the Salentino dialect and the Griko of Salento in order to reach a conclusion on the language contact behind their similarities and differences, as well as understanding from when this contact may date. Thus, this study aims to explain the facts of both languages through a comparison between them and with other modern Greek and Italian dialects.

Before moving to detailed descriptions of Salentino and Griko in sections 3 and 4, respectively, we wish to first present some data concerning the Italian linguistic situation, including Italian dialects and the linguistic repertoire of their speakers.

2 General information on the Italian language situation

2.1 Italian dialects and Standard Italian

The treatment of local dialects as independent linguistic systems, and not as varieties of Italian, has already gained firm ground in Italian dialectology. Berruto states, "Italo-romance dialects have their own history, many of them have a (notable) literary tradition" (Berruto, 2005, 82). Italian dialects, according to the scheme proposed by Coseriu (1980 cited by Berruto, 2005), "belong to primary dialects." Nevertheless, the linguistic repertoire (lingua cum dialectis) is characterized by the presence of tertiary dialects, i.e. regional varieties of Italian. "Regional Italian is a variety of Italian, essentially oral, spoken by well-educated persons in a determined geographical area, and is characterized by its distance from the varieties of other areas, on the one hand, and from [Standard Italian], on the other" (Tempesta, 2005, our translation). It is worth noting that there is a certain structural distance separating Reginal Italian (RI) from both Salentino and Italian (RI is a variety of Italian). As a consequence of this strict distinction between the two systems, we have:

> "a continuum with two subcontinua; one on the side of the dialect and the other on the side of Italian. In certain cases, this continuum can resemble well-known creole repertories with an acrolect and many basilects, whereas in other cases, it appears quite like a gradatum with fairly clear-cut borders between the different varieties" (Berruto, 1989, p. 8).

The 'standard' Italian may be identified as an ideal form of Italian, legitimized by grammar reference books and mainly with no (or very few) native speakers. We chose to consider regular prescribed norms of Italian that are accepted throughout the entire country as the standard. Following the scheme proposed by Auer (2005, 22), we can state that the present situation in Salento is similar to diaglossia or repertoire Type C.

Variation in Italy is traditionally referred to in four dimensions: social (diastratia), situational (diaphasia), geographical (diatopia), and means of communication (diamesia). We will observe features that can be classified as diatopical in the RI of Salento, and will not refer to the other three dimensions.

RI is a geographical variety of the standard in which several innovations and 'simplification'[2] of Italian are represented, as are "fossilized dialect interferences" (Cerruti, 2011, 15). Most authors agree on the extremes of the continuum or gradatum, but as Berruto underlines, "there appears to be a remarkable amount of uncertainty concerning its intermediate zone" (1989, p. 11).

2.2 Historical account of the Italian linguistic situation: internal migration

The Italian situation is characterized by a relatively new bilingualism due to the recent co-existence of two languages (local dialect and Italian language) in speakers' repertoire. It is fair to assume that the escalation of national language use was spurred by the massive northbound internal migration. "The so-called internal migration... is... the moving, especially in the period after World War II, of millions of people from all over Italy toward the northwestern area known as the 'industrial triangle" (Berruto, 1989, p. 13). This process corresponded with the state policy for the promotion of education and the elimination of illiteracy. Salento had only an outward-bound migration. This permitted the region to maintain a rural and marginal linguistic landscape and not lose its dialect as a primary means of communication (as was the case of most southern Italian areas) (Dal Negro and Vietti, 2011, p. 73).

In the 1950s and 1960s, many young Italians learned the national language in school, while the only language spoken out of school was the local dialect. The following generations were raised understanding the necessity of the national language – notions of which had already been passed down by their parents. The first generation of varieties induced by contact between dialects and the Italian language included those spoken by immigrants from areas of the south of Italy in the industrial areas of the north. The result is something referred to as *italiano popolare* – a variety of Italian strongly influenced by dialects – defined by Cortelazzo (1972) as a "type of Italian imperfectly acquired by people who have dialect as their L1." At the present moment, as attested by national census, bilingualism "has considerably increased in the last 20 years, especially at the expense of dialect monolingualism" (Dal Negro and Vietti, 2011, p. 72). In Salento, most are bilingual and use both varieties in everyday life. It can be concluded that the spoken language, alongside the local dialect, is RI. This

[2] We place the term simplification in quotation marks in order to convey its relative significance, not to express the 'wrong or deviant construction', but a new construction 'born' from the contact of two varieties.

observation is valid not only for Salento but also for the rest of the country (see Cerruti, 2011, and Dal Negro and Vietti, 2011).

The widespread consideration of the interaction between Italian and local dialects is that Italian is influencing local dialects, and as a consequence, their system undergoes so-called Italianization, i.e. convergence towards the dominant system. For example, in Salento, more detailed observation of interaction of Italian, Salentino, and Griko showed that Regional Italian is influenced both by dialectal and standard Italian features and as a consequence native speakers of Regional Italian transmit them to future generations (see for discussion Golovko, 2012).

The next section will present data on Salentino and Regional Italian, paying particular attention to phenomenon as verbal periphrasis, copula selection and general overview of verbal system.

3 Salentino dialect

3.1 Brief overview of literature on Salentino

Research on Salentino began with the definition of and distinction between northern Apulian and southern Apulian dialects. Ribezzo (1911) was one of the first to identify the borders of the Salentino area. His work is significant as it presents the earliest description of particular features of Salentino compared with Barese. Parlangeli (1960) and D'Elia (1957) followed, providing very significant analyses. In the 1970s we saw a decade of active research on Italian dialects and their systematic description. In that time several still-relevant works were published, including Mancarella (1975), and various studies by Rohlfs (1933, 1972, 1980), who conducted a series of research of fundamental importance concerning the extreme-southern dialects of Italy. Rohlfs penned the Salentino dictionary (1956) which remains the only substantial and systematic work on the lexicon of Salento (1956). Despite substantial attention to the area, no grammar of Salentino has been produced. Mainly panoramic descriptions exist as separate volumes (Sobrero & Tempesta 2002), or as part of broader dialectological aerial studies (Maiden, 1997; Ledgeway, 2000). Over the last decades, substantial studies were dedicated primarily to the absence of infinite clauses (Calabrese, 1991 and Miglietta, 2002), and the distribution of the subjunctive mood (Bertocci, Damonte, 2007). These two areas of interest led authors to discuss systems of complementation in Salentino and the distribution of *cu* and *ca* complementizers (Ledgeway, 2003). Due to a rich bibliography on the subjunctive and the complementizer system, this paper will not discuss these, but rather will attempt to shed light on lesser studied aspects of Salentino grammar.

3.2 Description of the verbal systems of Salentino and Italian

This paragraph briefly describes the structural divergences between Italian and dialectal verbal systems. It is important to underline certain differences as they

are subsequently reflected in the regional varieties of Italian and thus change the grammatical system of spoken Italian. Examples of such features are the absence of future tense forms (to be discussed in the present section), divergent uses of past tenses and the conditional mood.

In the **present** tense, the most frequent phenomena that merit mentioning are the various verbal periphrases discussed in a separate section. The progressive periphrasis is often used in speech, not only to express progressive actions, but also durative and sometimes even habitual ones (see 3.4).

The **simple past** is formed by an auxiliary verb and a past participle of a lexical verb. There are two auxiliaries, "be" and "have", as in Italian and unlike the dialects of the Brindisi border area between Salento and nothern Apulia, where only one auxiliary verb, "have", is used. In Salento "have" is used as the auxiliary of the verb "have" and other transitive verbs:

(1) Aggiu pijatu sulu nu libru e na penna
Have-AUX take-PTCP only one book and one pen
'I took only one book and one pen'

The verb "to be" is used as the auxiliary of itself and of motion verbs:

(2) Su ssutu lu pane?
Be-AUX come.out-PTCP the bread?
'Did the bread come out of oven?'

(3) Su ssuti li cornetti?
Be-AUX the croissants?
'Did the croissants come out?'

(4) Su statu a mmare
Be-AUX be-PTCP on sea
'I was at the sea side'

In Salentino, "have" is more widely used, for example, with reflexive verbs, which in Italian are accompanied by the auxiliary *essere*:

(5) S'ia cangiata
REFL-have-AUX change-PTCP
'She changed her dress'

(6) M'agghiu custipatu
REFL-have-AUX sick-PTCP
'I caught a cold'

This use is different from other southern dialects such as Neapoletan and Barese which use *essere* more extensively.

The simple past is not common in the extreme south of Italy, where past events are dominantly expressed using the absolute past (passato remoto), which extends to cover even very close events. In Standard Italian, the absolute past is found mainly in written texts and to indicate singular events in the distant past that do not have any link with the present. Northern Italy is characterized by the predominant use of the simple past and the total lack of the absolute past in speech. Instead, the south is characterized by the predominant use of the absolute past, thus diverging structurally from Italian. This characteristic of the dialectal system also causes interferences that can be noted in the regional Italians of the extreme south of Italy. The absolute past is predominantly used in central and southern Salento, in Sicily and in Calabria, even for events that took place the very same morning, and it is often present as the only dialectal means for expressing perfective actions:

(7) Stamane cantai
This morning sing- AOR
'I sang this morning'

(8) Tornasti
Return-AOR
'I returned'

(9) Scisti
Go.out -AOR.
'I went out'

This phenomenon is widely considered of Greek influence and is common in those areas of the south where Greek was previously spoken and the aorist was the only form of the past prior to the latinization of the area. This consideration can be found in Rohlfs (1969, 45), but it must be remembered that the analytic perfect forms are innovations for both Greek and Romance languages. Therefore, restrictions of their use in Salentino is an archaism and not an innovation. Moreover, Griko possesses a parallel construction absent in other Greek dialects, thus suggesting its possible Romance origins. This implies that the use of the simple past in given examples is not innovative, but rather an archaism, possibly supported through language contact (Aikhenvald, 2002, Breu, 2011). This transfer of the verbal form is reproduced in Regional Italian, and the simple past is still less frequent in the Salento area. Nonetheless, some features demonstrating the Italianization of the dialect were found through the distributed questionnaires. A speaker with a very high level of education, and residing in the north of Italy, constantly used the past simple in the dialect - a consequence of continued exposure to northern varieties of Italian:

(10) Aggiu lettu sulemente na fiata ddhr' articulu.
Have-AUX read-PTCP only one time this article.
'I read this article only one time'

The **imperfect** in Salentino is used, as in Italian, to describe past events in the imperfective aspect which do not emphasize the start or the end of the action or process. There are no particular functional differences between Salentino and the Italian language concerning the use of the imperfect tense.

In Salentino, a separate verbal form for **future tense** is absent. Frequently the present tense is used in reference to the future:

(11) Ti lu tau
To.you it give
'I will give it to you'

In romance languages, and particularly in Italian, futures derive from the Latin construction *habeo + infinite.* Late Latin and vulgar Latin began substituting the original synthetic form (*amābo* «amerò», *amābis* «amerai»), while the common Italian future originates from the form in which the infinitive preceded the verb *avere* (capirò<*capire ho). The opposite order of elements can be found in Southern Italy, particularly in Salento. Rohlfs (1968, 335) also describes the future construction **habeo ad cantare*, where a preposition is added before the infinitive. In Salentino, the preposition has disappeared and its presence is reflected in the doubling of the first consonant or vowel of the verb:

(12) Aggiu ffare
Have do
'I will do'

(13) Aggiu ppurtare
Have bring
'I will bring'

(14) Aggiu amare
Have love
'I will love'

In such constructions, the preposition can be omitted and absorbed by the first consonant of the lexical verb.

Furthermore, another means for expressing the future is the periphrastic construction of intention, applying the verbs voiu, pozzu + lexical verb, as in "Lu pozzu kkattare krai" (Calabrese, p. 30).

(15) voiu[3] (ku) ddormu
want-1SG *sleep-1SG*
'I want to sleep'

(16) Voiu fazzu sta cosa
Want-1SG *do-1SG* *this* *thing*
'I want to do this'

The subjunctive (the congiuntivo) was lost in the south of Italy and is normally replaced by the indicative mood.

(17) Oju cu la finisci
Want-IND *that* *it* *finish-IND*
'I want you to stop'

(18) Te tissi cu bbieni
You *tell-AOR* *that* *come-2SG*
'I told you to come'

(19) Iddu ulia cu llu ddicu
He *want-IPF* *that* *to.him* *say-1SG*
'He wanted me to tell him'

Some traces of the subjunctive mood can be found throughout the territory of Salento:

(20) Tocca cu bbiscia
Need *that* *see-SBJV*
'(that) I need to see it'

This can be compared with:

(21) Bisogna che veda
Need *that* *see-SBJV*
'(that) I need to see it'

Though the subjunctive mood in the final clauses is not rare in Salento and other areas of Southern Italy, the indicative mood is normally used after the conjunction *cu*, and only in rare cases and when it exists the subjunctive form is used. Few forms of the subjunctive mood exist in Salentino: Avere (have): Aggi,

[3] There are no unified orthographical rules in Salentino. In this paper we quote examples as speakers wrote them. So different spellings of the same word can be encountered in the text. For example, *oiu* or *vogghiu* 'want' etc.

aggia; dare (give): descia; stare (stay): stescia; potere (can): pozza. In the area of Lecce, forms like *eggia, bbesu* exist and are the subjunctive of "be":

(22) Ulia cu bbessu
Want-IPF that be-SBJV
'I wished you were there'

The imperative mood is not structurally different from Italian and thus does not present particular interest for this paper.

The conditional mood is totally lacking in Salentino. The Greek influence generally considered the cause of this lack. The imperfective indicative tense is used to express the conditional:

(23) Ieu te lu dava
I you it give-IPF
'I would give it to you'

In conditional sentences throughout Salento, we find both in apodosis and protasis imperfective indicative mood. This feature was described by Rohlfs (1969, 146) and was attributed to the Greek influence (see discussion in 4.2.3.):

(24) Manciavi ci te tenia fame
Eat-IPF if you have-IPF hunger
'You could eat if you were hungry'

(25) Ci tinia fame mangiava
If have-IPF hunger eat-IPF
'If you were hungry, you could eat'

This use is reflected in the regional Italian of the area and was particularly frequent in *italiano popolare*. However, with the change of the linguistic situation and the growing number of Italian L1 speakers, this form has become more socially marked, used by the non-educated population with a dialect as their dominant language.

3.3 Copula selection in Salentino, Regional Italian and Standard Italian

Salentino and other southern dialects have a double copula system. Two verbs, present in Italian can be selected as the copula: "to be" *essere* and "to stay" *stare*. This double copula system can also be found in Spanish and Portuguese, but not in the Standard Italian or northern Italian dialects. The principle of copula selection is semantic and is based on the type of nominal predicate that follows the copula: Individual-level (IL) or Stage-level predicates (SL). IL predicates express constant quality and, consequently, cannot take temporal or spatial modifiers. These predicates are introduced by the verb *essere* in Salentino. On

the contrary, SL predicates indicate temporal qualities of the subjects and thus are modified by spatial and/or temporal adverbs. These predicates are introduced by *stare* in Salentino. Though Italian does not share this characteristic, in the Regional variety of Italian of Southern Italy, we can normally observe the double copula system, which will later be illustrated.

Individual-level predicates:

(26) Suntu salentino
Be-1SG salentino
'I am Salentino'

(27) Iddhru è ertu basciu siccu
He be-3SG high short skinny
'He is tall, short, skinny'

(28) Iddha ete de Cutrufianu
She be-3SG from Cutrofiano
'She is from Cutrofiano'

The conjugation of the verb *essere* is particular as it presents long and contracted forms:

(29)

Singular	Plural
ieu suntu (su')	nui simu
tie sinti (si')	ui siti
iddhu/iddha ete (è)	iddhi suntu (su')

Only a contracted form can be used as the auxiliary:

(30) Su' statu a mmare
Be-AUX be-PRCP on sea
'I was at the seaside'

As a copula verb, often the contracted and long form can be used interchangeably:

(31) Su'/suntu salentino
Be-AUX/Be-1SG salentino
'I am Salentino'

In the preliminary research on the distribution of contracted and long forms, some pragmatic constraints emerged. In the final position the long form is

found more often, as in (32) below, while in the first position, we can find both the contracted and full forms, as shown in (31).

(32) De Lecce suntu
From Lecce be-1SG
'I am from Lecce'

The same effect can be produced in the Regional Italian typical of Southern Italy:

(32) Francesco sono
Francesco be-1SG
'I am Francesco'

The verb in the final position is typical of the Latin construction with the verb in the postnominal position:

(33) Marcus sum
Marcus be-1SG
'I am Marco'

In Salentino, the Latin SOV order is maintained, in contrast to the Italian SVO word order:

(34) Sono Marco
Be-1SG Marco
'I am Marco'

This structure is preserved in Salentino even if in other Romance languages, particularly Italian, it no longer exists. The last position of the verb changes the typical unmarked information structure and increases the focus on the verb. Especially when used in Italian, this kind of construction is highly marked as a 'southern' feature.

In the unmarked sentence structure, the verb "to be" is often used in its contracted forms, when available (1sg, 2sg, 3sg, 3pl), in the typical copular position:

(35) È chiu ertu de mie
Be-3SG more tall than me
'He is taller than me'

Furthermore, in exclamatory and interrogative sentences, a particular form of the verb "to be" is normally used, *gghe*, which can also be conjugated in the imperfect:

(36) Ce gghè beddu
what be-3SG beautiful
'How beautiful!'

(37) Ce ghera beddu
what be-IPF beautiful
'How beautiful!'

In central Salento, for example, Gallipoli and Galatina, this form can be found only in the third person, both in the present and the imperfective. Bertocci and Damonte (2007) advanced the hypothesis that this form derives from the amalgam of the locative/oblique clitic node, widespread in the area of central Salento and also in Calabria. This clitic derives from the Latin *inde*, in which the dental became a retroflex consonant, similar to the shifts in the common sounds *ll* > *ḍḍ.*

Another very restricted form of the verb "to be" is *bbè* (Lecce and north of Lecce) which is used after the conjunction *e*:

(38) E bbè cuntente
And be-3SG happy
'And he was happy'

This form can be used in the imperfect as well:

(39) E bbèra lu rre
And be-IPF the king
'And he was the king'

This form can be explained by the rule, introduced by Rohlfs, that the words starting with the letter "b" are preserved in Northern Italy and Tuscany. In the south, the passage b > v can be observed. In Salentino, as in some dialects of Calabria, there is the bb- type in the initial position instead of the v-, which can be found in Sicily, northern Calabria and Naples (Rohlfs, I, p. 195): cchiu bbautu, bbeccu etc.

The second copula, the verb *stare*, is used in contexts related to transitional states, positions or qualities:

(40) Osci stau mutu contentu (presciatu)
Today stay-1SG very content
'I am very happy today'

(41) Iddhri stannu a Lecce
They stay-3PL in Lecce
'They are in Lecce'

(42) Moi stau a casa
Now stay-1SG in home
'Now I am at home'

(43) De dumineca stau sempre a mare
Sunday stay-1SG always on sea
I always spend Sundays at the seaside'

Even when the action is habitual and presents a temporal restriction, the copula *stare* will be selected. The same distribution is typical of Regional Italian in Salento:

(44) Mo' sto al mare
Now stay-1SG on sea
'Now I am at the seaside'

(45) Oggi ci sta Rai3 a Otranto
Today there stay-3SG Rai3 in Otranto
'Today Rai3 is in Otranto'

(46) Stiamo ancora in viaggio
Stay-1PL still in travel
'We are still travelling'

In Standard Italian, the verb *stare* is used to express location or position:

(47) Il negozio sta in via Indipendenza 3
The shop stay-3SG in street Indipendenza 3
'The shop is at number 3 via Indipendenza'

(48) Lui le sta sempre vicino
He to.her stay-3SG always close
'He is always next to her'

This feature of Regional Italian is widespread in Salento and the rest of Southern Italy and can be explained as deriving from contact between two systems. In this case, the dialectal feature is transferred to Regional Italian and dominates there. Hence, this case is important for the analysis of language change in the repertoire of speakers, since this feature shows that the influence is not only unilateral – from the dominant variety to the less diffused and less prestigious – but also moves from the dialect to the dominant variety.

3.4 Verbal periphrasis in Salentino, Regional Italian and Standard Italian

The best known and widely used periphrasis in Salentino is used to express the progressive aspect and can also be extended to future actions. The Romance future is not known in Southern Italy (Rohlfs, 1968, 333), as mentioned in (3.2.). In Salentino, the present tense can be used to express the future:

(49) Ègnu quannu scapula
Come-1SG when finish-1SG
'I will come when I finish working'

Or the progressive periphrasis:

(50) Crai sta bbau a Roma
Tomorrow stay go-1SG to Rome
'Tomorrow I will go to Rome'

Durative periphrasis in Salento is expressed with the Latin form *sto ac bibo, stamus as cantamus*, where the preposition is lost and the only feature suggesting its past presence is the doubling of the first consonant. In Salento, the auxiliary *sta* is presented as an invariable form and "has even been grammaticalized as an obligatory marker of imperfectivity" (Bertinetto, 2000). This form is present in the areas of Taranto, Ostuni and all of Salento, where the first verbal element became invariable and mechanical or, as Rohlfs called it, obligatory. Thus, we can see that, in Salentino, *sta* is a verbal element that can be proposed before almost any lexical verb:

(51) Sta bbau a lu cinema sabatu
Stay go-1SG to the cinema Saturday
'I will go to the cinema on Saturday'.

(52) Sta pparlu
Stay speak
'I am speaking/I speak'.

It can signify progressive periphrasis or the present indicative. Insofar as this periphrasis is expressed with the gerund in Standard Italian, interference between two constructions is obvious. In Salentino, we can often find Regional Italian constructions involving the gerund, that is, progressive constructions referring to the future:

(53) Sabato sto andando al cinema
Saturday go-GER stay-1SG to.the cinema
'I will go to the cinema on Saturday'.

This kind of interference is a transfer of the construction and use of the grammatical means of the target language.

Rohlfs illustrated a widely used inchoative periphrasis in Southern Italy: *vado ac dico*. Sornicola distinguishes between this periphrasis and its variant *vado a* + infinite. The second is very frequent in the Regional Italian of Salento and in this corpus:

(54) Probabile che vado a finire un' ora dopo
Probable that go-1SG to finish one hour later
'It is probable that I will finish one hour later'.

In standard Italian, the future tense would be used in this case:

(55) Probabile che finirò un' ora dopo
Probable that finish-FUT one hour later
'It is probable that I will finish one hour later'

We can see that, in Salento, even speakers with L1 Italian tend to use more periphrastic constructions to express future actions rather than the synthetic form widely used in Standard Italian. This is further evidence of language contact and influence on the national language by the local variety.

3.5 Transitive and intransitive verbs in Salentino, Regional Italian and Italian

The change of subcategorization properties of some verbs, particularly verbs of motion, is one of the most salient and best known traits characterizing 'southernness' throughout Italy. This type of change represents the insertion of the dialectal verb (replication of the dialectal construction) into the Italian utterance and the consequent modification.

We would like to examine the verb *'ssire* "exit", which is of central interest for dialectologists and linguists working on Southern Italy and dealing with the use of monorhematic verbs rather than syntagmatic verbs. This verb alters transitivity properties in Sicily (Amenta, 2007) and in northern Puglia, but not in Salento.

The following examples express the utterance "I take the dog out [for a walk]" in Standard Italian:

(56) Porto fuori il cane
Bring-1SG out the dog
'I take the dog out'

In this case, we have a syntagmatic construction following Talmy's scheme presenting verb + satellite construction (2000).

(57) Cacciu lu cane
Take.out-1SG the dog
'I take the dog out'

In Salento, contrary to other southern areas, the verb *uscire* is not transitive. In the RI of Salento, the typical construction would use the verb *cacciare*, meaning "take out" or "take away". This is a case of replication of the dialectal verb, while the same verb exists but carries a different meaning in Italian. It is interesting to note that some native speakers of Salentino affirmed that expressions such as (57) and (58) are equally grammatical and possible:

(58) sta portu ddra fore lu cane
stay-1SG bring-1SG out the dog
'I take the dog out'

This example shows the reconstruction and replication of the SI construction in the dialect, along with the Italian language-influenced change from the monorhematic verb *cacciare* – typical of the dialect – to the syntagmatic verb widely used throughout Italy, especially in the north (Masini and Jacobini, 2009). The informants who deemed this example both possible and grammatically correct are young with high levels of education and ample mobility opportunities. Thus, this may present one of the possible directions of change occurring in the dialect and may be widespread among the younger generations under the influence of SI.

A 'classical' case of transitivity change, equally common in RI, is the substitution of the verb, that is, the use of a monorhematic verb instead of a syntagmatic construction typical of SI:

(59) Io scendo la valigia
I descend-1SG the bag
'I bring the bag down' (RI)

(60) Scindu la valigia
Descend-1SG the bag
'I bring the bag down' (Salentino)

(61) Io porto giù la valigia
I bring-1SG down the bag
'I bring the bag down' (SI)

The phenomenon observed is the transfer of the more economical dialectal verb to the Italian structure. This is the case when the dialectal verb is monorhematic and is preferred to the dialectal Italian structure using syntagmatic verbs. It can usually be found in semantic couples, such as 'enter – exit' and 'climb – descend'. Let the data in (62) illustrate this.

(62) a. *Nchianame* la posta
‘Climb-me the mail’ (Salentino)

b. *Sali* la posta
‘Climb the mail’ (RI)

c. *Porta su* la posta
‘Bring the mail up’ (SI)

In these cases, the speaker uses a more ‘suitable’ verb with a corresponding translation in the Italian language, yet the semantic and syntactic characteristics remain those of the dialect. This is one of the examples where bilingual speakers attempt ‘to align the structures’ (Matras and Sakel, 2007, p. 834), resulting in “the syncretization of processing operations in the two languages, allowing speakers to apply similar mental organization procedures to propositions in both languages of their repertoire” (ibid, 835). In our example of RI, we can see that the speakers take lemmas from the dialect and apply them in actual Italian, maintaining properties of the dialectal verbs. This choice may be accounted for by factors such as sentence economy and ‘simplification’ of the structure in RI compared with the Italian sentence. Winford’s (2008, 140) example explains that in such a situation, “the subcategorization properties of substrate motion or transfer verbs […] are imposed on superstrate lexical items”. In Salento we are dealing with the introduction of the change (imposition or replication of L1 lemma to L2 item) and its gradual diffusion and acceptance among speakers.

4 Griko in Salento

4.1 Greek dialects in Italy

Salento Greek is one of the two varieties of Greek spoken in Southern Italy (the other variety can be found in the province of Reggio Calabria). These two enclaves present the only Greek-speaking communities on the Italian peninsula whose historical origins are not clear (unlike other Greek-speaking groups, for example, Venetian Greeks, a community formed over recent centuries). Thus, they can be called “autochthone” Greeks in the broadest sense of the term.

The people of both enclaves call their language Griko and refer to themselves as *griki* (Nom.pl.). The other term applied to the language and culture is ‘grecanico’ which is more frequently used in Italian and in Modern Greek (τα Γκραικάνικα). The origin of the word Griko is slightly obscure: if there is any relation to the Latin root *graec-*, the transition *ae>i* cannot be explained either within the framework of the historical phonetics of the Salento dialect or the historical phonetics of Griko itself (in both cases we would expect an **e* and not an *i*).

Scientific interest in Griko surfaced during the second part of the nineteenth century and is clearly related to the development of the Italian school of historical linguistics. The two earliest works devoted to Greek dialects of Southern Italy are (Comparetti 1866) and (Morosi 1870). The former concerns both the varieties of Calabria and Salento, while the latter limits itself to the dialect of Salento (Terra d'Otranto). Both books contain a number of folk texts, comments on them and grammatical sketches.

The rediscovery and detailed elaboration of grammatical descriptions, as well as the creation of a lexicon, is credited to the German scholar Gerhard Rohlfs, also known for his research in historical Romance linguistics and Italian dialectology. His pioneering work (Rohlfs 1977), multiple articles on different concrete topics devoted to the questions of historical linguistics and multilingualism in Southern Italy, provide rich and reliable images of Griko and still can be considered a source of primary importance. However, despite the obvious value, Rohlfs work should be recognized as somewhat antiquated, firstly due to the methods of his fieldwork – he never used audio recordings, but rather collected all the data exclusively in written form (the process of his fieldwork is presented in a TV film by RAI 3 channel, 1977) – and secondly, some of his data, especially concerning the phonetics and morphonology of Griko, requires revision.

Also worthy of note is Karanastasis who created a comprehensive grammar of both varieties (Καραναστάσης, 1997) – which is, however, highly influenced by Rohlfs, as well as the ample lexicon (Καραναστάσης, 1984-1992), containing the greatest number of lexical items of all the dialects of the area, marking the exact location where each item is found, and providing etymological information.

The two above mentioned linguists share an equal number of presuppositions: firstly, they consider the Greek dialect of Salento and that of Calabria as one, without any serious discussion as to the possibility of observing them as separate and without attempting to evaluate the degree of similarity or difference between them. The solution to this problem is not obvious.

Greek dialects of Southern Italy are still of relatively small interest to scholars studying modern Greek dialectology. The two most important works, aimed at creating a general perspective of modern Greek dialects, were produced by Kondosopulos (Κοντοσόπουλος, 2001), and Newton (Newton, 1972a). Kondosopulos examines Griko, though very briefly and relying entirely on Rohlfs and Karanastasis, while Newton does not consider Griko at all.

4.2 Overview of Griko in Salento and literature on the subject

This study will concentrate exclusively on the Griko of Salento and will consider some of its important characteristics in the aerial contexts. The authors will rely on existing sources as well as on their own data collected during fieldwork in Calimera and other small towns (it. *paesi*) where Griko is still spoken.

In the area of Salento we find a number of towns with different levels of Griko-speaking populations (mostly people over sixty). Since the 1970s, the towns have come together in an official cultural union called *Grecìa Salentina*. Twelve towns now take part in this union, though not all of them are still Griko-speaking and some may never have been. According to our own data, Griko is still commonly spoken among the older generation in the following towns: Calimera, Martano, Martignano, Sternatìa, Castrignano-dei-Greci, Corigliano d'Otranto, Zollino. All members of the Griko-speaking population, including the oldest informants, are bilingual or trilingual, able to communicate in the Salentino dialect and, in the majority of cases, Italian. Many of the informants say that their parents' generation, that is the generation raised before the Second World War, was predominantly monolingual, particularly the women who were not accustomed to leaving their hometowns. The men often left in order to work beyond the Griko-speaking zone. Until the Second World War, the town most open to the external world was Calimera, which was a local trade center, while the rest of the communities were exclusively agricultural (producing olives and tobacco).

Thus, Calimera can be considered the capital of Griko culture and its literary tradition, today mainly represented by the cultural circle *Ghetonìa* (Neighbourhood), counting some distinguished scholars born and raised in Calimera among its members (for example, the historian, writer and one of the founders of the circle Rocco Aprile, the philologist and poet Franco Corlianò, and the philologist, writer and poet Salvatore Tommasi).

Salvatore Tommasi and Salvatore Sicuro (the Italian translator of Rohlfs' works, born in Martano) also edited and published the manuscripts of the greatest Griko-language writer, poet and scholar Vito Domenico Palumbo (1854(56)-1918). A Dante and a Shakespeare of Griko culture, he made a serious attempt at creating a literary Griko based on the dialect of Calimera and a modified Italian orthography. He was also the author of the lyrics of the most famous Griko song, even beyond Grecìa Salentina, *"Kalinifta"*).

Scholars from towns other than Calimera, including Antonio Greco from Castrignano dei Greci and Leonardo Tondi from Zollino, have published a number of grammars, dictionaries and texts, in different varieties of Griko. However, these editions, including the works of Vito Domenico Palumbo, are difficult to find beyond *Grecìa Salentina*.

4.3 Characteristics of Griko

4.3.1 General

As mentioned in the introduction and in the first part of this article, some of the characteristics of the romance dialect of Salento have been ascribed to a Greek influence. Since the only object we have at our disposal is present-day spoken Griko and the older, but not very numerous, written documents (dating from the late nineteenth century), it is worth considering the language in greater detail in order to unsderstand if it really may be the linguistic influence that has made Salentino so particular. Let us now consider some aspects of the Griko language system.

Griko grammar is not so distinct from the "typical" modern Greek system, including that of Standard Modern Greek (hereon SMG) which has its base in the Peloponnese variety and its marginality can by no means be compared with dialects such as Tsakonian, Cappadocian or even Pontic. Thus, the order of clitics in Griko is the same as in SMG:

(63) itela na su po ena prama
would.like-1SG conj you(CL) tell one thing
'I would like to tell you one thing'
SMG: (θα) ήθελα να σου πω ένα πράγμα

(64) pemmuo!
tell-me-it
'tell it to me!'
SMG: πες μου το!

In the above examples, the indirect object clitic precedes the direct object clitic, both precede the verb in the indicative and follow the verb in the imperative. However, this order of clitics is shared with Italian and some other Romance languages, as well as languages of the Balkan Sprachbund:

(65) dimmelo!
tell me it
'tell it to me'

It is unlike Cypriot, Pontic and Mariupol Greek varieties that have a different order, probably preserving a more archaic order of clitics (for details see Kisilier 2012):

(66) αυτά είχα να έλεγα **τον**
these had to told ***him***
'I had to tell him this' (Pontic)
SMG: έπρεπε να **του** πω αυτά (Kisilier 2012: 357)

According to the work from which the previous example is taken, the order of pronominal clitics is an important innovative isogloss among Greek dialects. Therefore, at least in this aspect, Griko shows its affinity with the dialects of the northern and Peloponnese groups.

4.3.2 Phonology

Nonetheless, Griko remains almost incomprehensible to the speakers of SMG and other Greek dialects. The reasons, as we see it, are as follows: 1) its phonetic system is very distinct from that of common Greek, especially its consonant system. 2) beyond the core lexicon, there is a huge amount of Romance lexical borrowings, including conjunctions and discursive markers.

The characteristics of the Griko phonetic system as compared to SMG are describe in § 4.3.2.1 through to 4.3.2.5.

4.3.2.1

Lack of common Greek consonants /θ/, /δ/, /γ/. They have disappeared or lost their fricative quality: SMG ***θ***έλω VS Griko ***t****elo*, SMG *ή****θ****ελα* VS Griko *i****t****ela/i****s****ela* 'I would like', SMG *με****γ***άλη VS Griko *mali* 'big (f.)', SMG *βρά****δ***υ VS Griko *vrai* (Calimera, Martano), *vra****d****i* (Sternatìa) 'evening'. Calabrian Greek preserves the fricative dentals and [γ].

4.3.2.2

Presence of the cacuminal *ḍḍ* sound (from the common Greek geminate *ll*): SMG *άλλος* vs Griko *aḍḍo* 'other' shared with the Salentino dialect (as well as with other dialects of the extreme south of Italy and the Sardinian language). However, a similar phenomenon can be found in Greek dialects of Dodecanese (Κοντοσόπουλος 2001) though the exact diffusion of such sound transition among Greek dialects is uncertain due to the lack of reliable dialectal descriptions.

4.3.2.3

Disappearance of both final *-s* and *-n*, provoking the development of morphonological germination of the initial consonants of the words coming next:

(67) i Kalimera (Nom.) < η Καλημέρα
i Kkalimera (Gen.) < την Καλημέρα(ν)
i Kkalimera (Dat.) < της Καλημέρας

A phenomenon almost equal in form is to be found in the dialect of Cyprus and Dodecanese. The example below is from Dodecanese.

(68) tol lao (Acc.) < τον λαό
o lao (Nom.) < ο λαός (Κοντοσόπουλος 2001: 43)

It is not clear whether we can consider the following transition an exact Griko-Cypriote isogloss or an independent parallel development (such doubts are among the greatest problems of modern Greek dialectology, especially when we are speaing about dialects that are geographically absolutely isolated from one another, modern Greek being for the most part a language of enclaves and exclaves).

4.3.2.4

Preservation of ancient Greek geminated consonants. This is another similarity with the Cypriote dialect, facing the same problem as that of the previous paragraph. In any case, the preservation of a common archaism may not be considered sufficient proof of language affinity.

4.3.2.5

Reflection of the Ancient Greek koine υ [ü] as [u] with the palatalization of the following consonant in some cases, as opposed to SMG and the major part of other dialects (with some parallels in this case as well, e.g. in Pontic, Tsakonian and Cretan) (Κοντοσόπουλος, 2001).

The following conclusion can be drawn concerning the phonological development of Griko: although it presents a number of particularities different from SMG, almost all of these find their parallel in other Greek dialects. Thus, relation or not to these dialects, represents common tendencies in Greek. Only two cases seem to present a relative exception: the presence of the cacuminal sound [ḍḍ] and the complete loss of fricative dentals and [γ]. Both characteristics may be attributed to the Romance influence or at least coincide with the corresponding characteristics of Salentino.

4.3.3 Morphology, Syntax and Grammatical semantics

As mentioned above, Griko does not possess any significant structural differences compared with other Greek dialects. It preserves the three genders and three cases (nominative, genitive and accusative) in the nominal system, while preserving two inflectional voices (active and medio-passive) and three inflectional tenses (present aorist and imperfect) in the verbal system. Nonetheless, we will discuss grammatical differences among Griko, SMG and the dialectal varieties of Greek and discuss their nature in § 4.3.3.1 to 4.3.3.4.

4.3.3.1

Griko does not possess the SMG future tense construction (particle θα+personal form of perfective/imperfective stem):

(69) θα γράψω
Part write-PFV-1SG
'I will write'

Instead, we find the use of the present applied to the future:

(70) Avri pame totzu
Tomorrow we-go-PRES to.the. field
'Tomorrow we will go to the field'

The progressive construction (see the next paragraph) can also be applied to the future situation:

(71) Avri ste pame totzu
Tomorrow PART we-go-PRES to.the.field
'Tomorrow we will go to the field'

The two previous ways of expressing the future also exist in the Salentino dialect (as showed in (50) and (52)). The third is particular to Griko. There is still a modal component (necessity) in its semantics:

(72) Avri enna pame totzu
Tomorrow need we-go-PRES to.the.field
'Tomorrow we will go to the field'

According to Rohlfs (1977) and Newton (1972b), the etymology of the modal particle *enna* is the contraction of two words: echi (SMG έχει '*has*') and the conjunction *na* (SMG *να*) which introduces all types of subordinate clauses. The same construction is present in the Cypriote dialect (Newton 1972b), where it has a purely modal meaning (necessity), while in Griko it has started to develop a future meaning as well.

4.3.3.2

Griko possesses a progressive construction consisting of a personal verb form preceded by an unchangeable particle *ste*, which is a reduced form of the grammaticalized verb *steo*, meaning '*stand*', and has also acquired copula uses in the Salentino dialect:

(73) ce sto daso, mian alipuna ste kulusa enan alao
and in the forest, a fox STAND chases a hair (no individualized gloss)
'and a fox is chasing a rabbit in the forest'

4.3.3.3

Griko does not possess the SMG form traditionally labeled as "perfect", whose meaning, however, is almost purely experiential:

(74) έχω πάει στην Αμερική
have-1SG (gone) to America
'I have been to America'

The form of the main verb (go) is actually not a participle, but a special form used only in this construction since it etymologically derives from the Ancient Greek aoristic infinitive. It is not present in many of the dialects where the only inflectional aorists and imperfects are used as past tenses. Griko has developed an analytic perfect similar to that present in the Salentino dialect, formed by a passive particle and an auxiliary verb 'be' or 'have':

(75) eχo famena
have-1SG eaten
'I have eaten'

The choice of the auxiliary seems to correspond to the romance model, that is, the tendency is to use the auxiliary "be" with motion verbs and "have" with all other verbs.

(76) en ene artomeno
not is come
'he (she) has not come'

4.3.3.4

Griko possesses the infinitive in contrast with other Greek dialects (this is the aoristic stem infinitive). The infinitive has a very restricted use: the only modal verb requiring an infinitive is *sozzo* 'be able to':

(77) sozzo milisi o griko
can 1SG speak Griko
'I can speak Griko'

In such circumstances, Salentino uses a serial verb construction (cf. (16)).

5 Conclusions

The following conclusions can be drawn: Griko is a typical modern Greek dialect in its structure. The particularities that are not present in SMG are usually shared by one or more dialects of the Greek world (particularly, there are many affinities with Cypriote Greek whose nature will be explained in the future). The other features of Griko that are shared by neither SMG nor other dialects usually find corresponding phenomena in Salentino. Such features include the cacuminal [ḍḍ] sound, the perfect periphrasis and the progressive form. The same features, however, distinguish Salentino (along with some other dialects of the extreme south) from the all other Italian dialects, that is, we are dealing with an areal development where the exact source of linguistic changes is difficut to establish and cannot be ascribed to the Greek influence. Yet many of the features are shared by both languages of Salento.

Therefore, we have every reason to unite Griko and Salentino dialect to a mini-Sprachbund (let us call it the Salento Sprachbund). The following are two possible directions for future development of the topic.

First, according to (Aikhenvald, 2007, 5), the borrowings from one language to another follow the order: lexicon > pragmatics > syntactic structures > morphology. We have considered the latter two points. Yet, to better understand the nature of language contact between Griko and Salentino, a detailed study of lexicon and pragmatics of both Griko and Salentino should be made which will probably clarify the answer to the essential question: which of the two languages is to be considered substratal and which is adstratal?

Second, a broader area will be studied following the same methodology, first and foremost, the Calabrian dialect and its contact with Greek. An interesting case is also a comparison with the Albanian varieties in Norhern Apullia, Basilicata, Sicily and Calabria.

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Lexical schwa and inserted schwa produced by Mandarin Chinese EAL learners

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This study examines different types of vowel/schwa insertion in L1 illegal English consonant clusters by Mandarin Chinese (MC) English-as-an-additional-language (EAL) learners, as well as differences and similarities in phonetic qualities among inserted vowels by MC EAL learners, lexical schwas by MC EAL learners, and lexical schwas by native Canadian English (CE) speakers. In this study we have conducted a reading, a repetition and two syllabification tasks with 6 intermediate MC EAL speakers and 3 native CE speakers. There are three main findings: 1) Even with written cues, two MC EAL speakers likely have underlying vowels, which do not exist in native English speakers' underlying representation (UR); three MC speakers may have inserted excrescent schwas due to gestural mistiming rather than phonological schwas, and one MC speaker may have inserted excrescent schwas, because the individual likely has had extraprosodic consonants that are not linked to the syllable nodes. 2) English lexical schwas produced by CE speakers tend to be more variant in the second formant (F2) than those produced by MC learners, and lexical schwas by MC EAL learners have been occasionally rhotacized and deleted/devoiced. 3) MC EAL learners may not have explicitly understood the English syllable structures, even though some of them are aware of the presence or absence of vowels. Based on the findings, this paper proposes that it is important for instructors and learners to be aware that language learners may exhibit several different error types in the production of consonant sequences. Meanwhile, MC EAL learners may benefit from explicitly knowing the concept of English syllables.
Keywords: English consonant cluster; schwa insertion; excrescent schwa; extraprosodic consonant; Mandarin Chinese EAL learners

1 Introduction

In the field of second language (L2) phonology, a number of studies (e.g., Chan, 2006; Hansen, 2001; Miao, 2005) showed that Chinese EAL (English-as-an-additional-language) speakers may use vowel insertion as a common strategy to resolve English consonant clusters which are illegal in the first language (L1). Nogita and Fan (2012) found that Mandarin Chinese (MC) English-as-an-additional-language (EAL) speakers occasionally inserted a schwa-like sound in L1 illegal English consonant clusters. However, whether their vowel insertion was due to phonological vowel epenthesis or phonetic gestural mistiming was not

fully figured out. Also, Nogita and Fan's model is unable to handle learners who are aware of the presence or absence of vowels but are not aware of syllabification as a higher prosodic unit than segments. This study examines the nature of MC EAL learners' vowel insertion, and adds another pattern of vowel insertion (i.e., extraprosodic consonants) to their model, as a follow-up study of Nogita and Fan (2012). This study replicates their study, in which the participants produced English nonsense words with L1 illegal consonant clusters and orally syllabified each stimulus word. The purpose of the design is to examine L2 learners' underlying representation (UR), and investigate acoustic properties of MC EAL learners' inserted schwa-like sounds, their lexical schwas, and native English speakers' lexical schwas.

2 Previous studies and research question

2.1 Four types of vowel insertion in consonant sequences in L2

Nogita and Fan (2012) proposed three different types in vowel insertion (see (a), (b), (c) in Figure 1): 1) L2 learners incorrectly memorize the underlying representation (UR) in their inter-language (IL) mental lexicon (e.g., /ɾʌgɯ̲bi/[1] in UR with an extra vowel instead of /ɾʌgbi/ *rugby*, /təɹant_/ with one vowel missing instead of /təɹanto/ *Toronto*); 2) L2 learners explicitly understand their L2 syllable structure and UR, but they still cannot automatize their proper production, so that they consciously or unconsciously insert a lexical vowel to repair L1 illegal syllable structure; in other words, a lexical vowel epenthesis; and 3) their UR is correct, but they fail to coordinate two consonants and result in a short schwa-like vocalic sound in the surface representation (SR), which is an excrescent vowel intrusion.

In the current study, we revised this model by adding the fourth type, an extraprosodic consonant followed by a non-lexical vowel. In the syllabification task in Nogita and Fan (2012), the participants were asked to orally divide each English word into syllables. One Japanese participant divided the word *webnet*, for example, into [wɛ-bʉ̆-nɛ-tu̥ɪ]. Apparently, the individual added extra syllables, but the inserted vowels (i.e. [bʉ̆] and [tu̥ɪ]) were notably short or devoiced. Presumably, the participant was aware of where to pronounce or not pronounce a vowel, but consonants without a following vowel were independent in their inter-language. Such consonants were linked to mora nodes but not to syllable nodes. Phonetic realizations of such unsyllabified consonants vary, but typically occur in conjunction with a short/voiceless vowel. A few similar occasions by MC participants were observed by Nogita and Fan (2012) as well, for example, /kokənʌt/ *coconut* →[ko-kə-nʌ-tə̥]. These EAL learners may have not been explicitly taught the rules of English syllables, specifically, how to assign consonants into syllables. The fourth type is shown in Figure 1(d) with another example, *subject*.

[1] /ɯ/ is the default epenthetic vowel in Japanese.

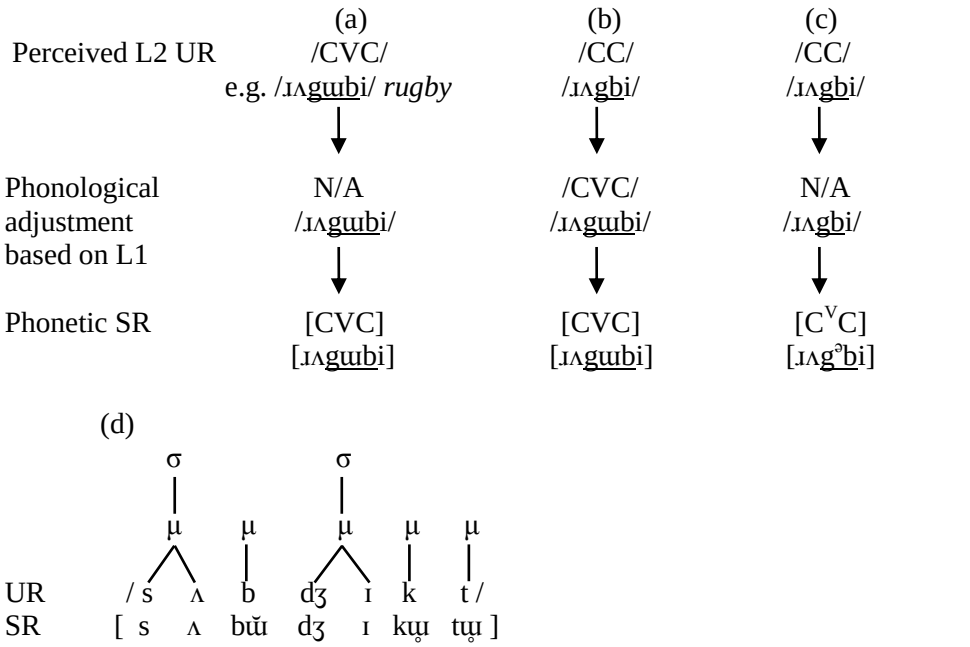

Figure 1. Differences among (a) misinterpreted L2 UR, (b) lexical vowel epenthesis, (c) excrescent vowel intrusion, and (d) extraprosodic consonants

Extraprosodic consonants are possible in actual languages. For example, in Nxaʔamxcín (Moses-Columbia Salish) the maximal syllable structure is CVC, but various consonant clusters occur with extraprosodic consonants, which are not incorporated into syllables, as in *scílksq't* where only the underlined portion fits into the syllable template (Czaykowska-Higgins & Willett, 1997, p. 385). These unsyllabified consonant sequences are optionally along with a short transitional schwa or a voiceless schwa (Czaykowska-Higgins & Willett, 1997). This is much like some of the L1 illegal English consonant clusters produced by Japanese and MC EAL learners in Nogita and Fan's study. Similarly, the initial /s/ in English as in *sky* is arguably "an appendix", directly linked to the higher prosodic nodes (Sperbeck, 2010, p. 55). If this is the case, /s.CV/ might be more complex than /CV/ with a simplex onset, but less complex than /CCV/ with a true branching onset as in *cry* in terms of syllable structure (Sperbeck, 2010). As for L2 phonology, appearing as a production mistake, extraprosodic consonants were produced by Japanese and MC EAL learners, when they were dealing with true consonant clusters in English (Nogita & Fan, 2012). Therefore, it might be the case that L2 speakers are prone to less complex extraprosodic consonants rather than to more complex true tautosyllabic consonant clusters.

2.2 Excrescent schwa in L2 production

Some previous studies (e.g., Davidson, 2005 & 2006; Davidson & Stone, 2003) discovered that non-native speakers would insert a schwa-like sound in L1 illegal consonant clusters. These studies also demonstrated that there were acoustic distinctions between lexical schwas in the target languages and the inserted schwas. According to their explanations, the inserted schwas were mostly caused by the gestural mistiming, that is, an unsuccessful gestural coordination of consonant sequences. Gafos (2002) proposed three possible gestural coordination patterns (see Figure 2). In this figure, consonant segments are represented as plateaus with a horizontal line indicating the articulation target. In pattern (1), the articulation of two adjacent consonants has no gestural overlap at all; pattern (2) indicates a partial overlap of the two consonants with an intervening acoustic release between C1 and C2; pattern (3) shows a more substantial gestural overlap with no open vocal tract between the articulation of C1 and C2.

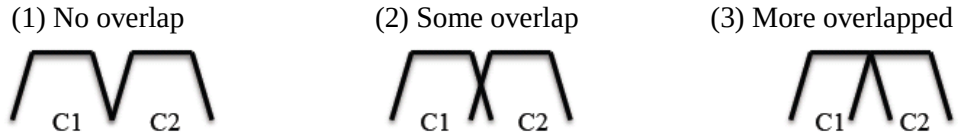

Figure 2. Patterns of gestural coordination in consonant clusters

These patterns are language specific (Gafos, 2002) and English consonant sequences typically follow pattern (3), more overlapped (Fan, 2011). Fan's (2011) research focused on MC EAL speakers' acquisition of English consonant clusters. By comparing the articulation data produced by 31 MC EAL speakers and 8 native English speakers from western Canada, Fan observed that MC speakers had on average less consonantal overlapping than English speakers, and that the performance of the advanced EAL speakers was more similar to that of native speakers, compared with low-intermediate speakers. Based on these findings, she proposed that the differences in the consonantal gestural overlap between native English speakers and MC EAL learners might contribute to Chinese speakers' foreign accent in English.

2.3 Mandarin Chinese phonotactics vs. English phonotactics

The possible syllable shapes in Mandarin Chinese (MC) include (C)(G)V(X)[2] (San, 1990). An example of a maximal syllabic structure is *nian* [njæn] "Year"[3]. Some researchers (e.g., Fan, 2011; Lin, 2001) proposed that the pre-nucleus glide

[2] C=Consonant; G=Glide; V=Vowel; X=Nasal, Glide or [r]; bracketed segments are optional

[3] The examples of disyllabic words are provided in Pinyin, IPA, and their meanings in English.

(G) should be included in the rhyme, while other researchers (e.g., San, 1990) argued that no phonetic evidence to date could support that the pre-nuclear CG were actually two segments in MC phonotactics and that the initial part is a single onset C^G. Both these assumptions hold that there are no unambiguous consonant clusters in either onset or coda position in MC phonotactics. On the other hand, heterosyllabic consonant clusters are possible: e.g., *benbu* [pɤnpu] 'headquarters', *benlai* [pɤnlai] 'original' (Lin, 2001). As for English, it allows complex, or branching, onsets and codas (e.g., *string*, *sixth*), which is distinct from MC. Thus, the error types of MC EAL speakers listed in Figure 1 may be due to the phonological difference between MC and English.

2.4 Acoustic properties of lexical schwas in North American English

The lexical or phonological English schwa, a mid central vowel, is characterized as a short and reduced vowel, which is restricted to unstressed syllables. A schwa in English easily assimilates to its segmental contexts and its second formant (F2) frequencies especially tend to vary (Flemming & Johnson, 2007; Kondo, 1994). Flemming and Johnson (2007) analyzed the formant structures of word-final and non-final schwas in a carrier sentence 'Say ___ to mə' by nine native American English speakers. The finding is that word-final schwas, as in *Rosa, sofa, comma,* and *umbrella,* consistently maintained the quality as a mid-central vowel (average F1 = 665Hz; average F2 =1772Hz). However, word-medial schwas, as in *suppose, today,* and *probable,* showed various qualities determined by its surrounding context; their average F1 (428Hz) indicated a relatively high vowel and F2 covered a wide range depending on the adjacent consonants. In addition, Klatt (1976) observed that in English connected discourse the average duration of stressed vowels was about 130 milliseconds (ms), while that of schwas was about 70ms, which was very similar to the average duration for consonants (71ms). Similarly, the average duration for non-final schwa in Flemming and Johnson's (2007) study was 64ms. The tendency for schwas to assimilate to their neighboring contexts may be caused by the fact that schwas have short duration, in which there is insufficient time for the tongue to arrive at the target position (Flemming, 2004; Lindblom, 1963). The failure of achieving the target position is regarded as the phenomenon of "undershoot" (Lindblom, 1963). This explains Flemming and Johnson's (2007) findings that word-medial schwas assimilate more easily to its segmental context compared with word-final schwa, which had longer average duration.

Schwas in the word-medial position may have the characteristics of a relatively high vowel (Flemming & Johnson, 2007), but they are not necessarily targetless (Browman & Goldstein, 1992). If they are, the tongue should smoothly move from the preceding sound to the following one (Van Bergem, 1995). In Browman and Goldstein's study (1992), they used X-ray micro-beam technology to examine the articulatory data of the stimuli [$pV_1pəpV_2pə$] produced by an American English speaker, and V_1 and V_2 were selected from a vowel set [i, ɛ, ɑ, ʌ, u]. The results indicated that the tongue body positions from V_1 to V_2

sometimes did not show a linear movement and did try to reach a target position of the first schwa. Echoing what Flemming and Johnson (2007) discovered about schwa's assimilation to its surrounding sounds, the stimulus [pipəpipə] in Browman and Goldstein's study (1992) was produced with the first schwa as a relatively high vowel, instead of a mid-vowel. The possible reasons included the influence of a neighbouring vowel sound [i], as well as the inherent target of schwa. It is also worth noting that the speakers' tongue moved slightly downwards between two high vowels [i], instead of maintaining a high position during for the first schwa. For this reason, it is not wise to view schwas as completely targetless sounds.

2.5 Research questions

The present study aims to answer the following three research questions:
1. Are there any differences or similarities between lexical schwas produced by native English speakers and lexical schwas produced by MC EAL speakers? If yes, what are they?
2. Are there any differences or similarities between lexical schwas and inserted vowels produced by MC EAL speakers? If yes, what are they?
3. Ultimately, what is the nature of MC EAL speakers' vowel insertion? Is it (a) misinterpreted L2 UR, (b) lexical vowel epenthesis, (c) excrescent vowel intrusion, or (d) extraprosodic consonants?

3 Methodology

3.1 Participants

The present study involved nine voluntary participants: six MC EAL learners, and three native Canadian English (CE) speakers. As shown in Table 1, all the MC speakers were exchange students at the University of Victoria with a length of residence (LOR) in Canada of two to three months. According to their self-reported language test scores (see Table 1) and the rubrics posed on the official websites of *TOEFL*[4] and *IELTS*[5], they were intermediate level English learners. The CE speakers, who were graduate students in the Department of Linguistics at the University of Victoria, all came from western Canada. None of the MC and CE participants reported any history of speech or hearing impairments.

[4] *TOEFL* score interpretation: http://www.ets.org/toefl/institutions/scores/interpret/
[5] *IELTS* score interpretation:
http://www.ielts.org/researchers/score_processing_and_reporting.aspx

Table 1. Participant information

		Chinese speakers *N* = 6	English speakers *N* = 3
Gender		3M3F	1M2F
Age in Years	Range	18-26	26-52
	Mean	23.3	36.7
Length of Residence	Range	2-3 months	N/A
	Mean	2.5 months	
Reported *TOEFL* Scores	*N*	4	N/A
	Range	87-95	
	Mean	90.5	
Reported *IELTS* Scores	*N*	2	N/A
	Range	5.0-6.5	
	Mean	5.75	

3.2 Speech stimuli

The speech materials included two groups of sequences (Target Stimuli: CVCC and CCVC; Control Stimuli: CVCəC, CVCCə, CəCVC, and əCCVC) both written with IPA symbols. There were 18 target stimuli, in which the consonant clusters in onset or coda positions were allowed in English phonotactics, but illegal in MC. As the comparing stimuli, Control Stimuli included lexical schwa where MC EAL learners were expected to insert a vowel in CVCC and CCVC (Hansen, 2001; Miao, 2005). The purpose of using IPA representations was to minimize the influence of English orthographic representations, and to make sure that all the participants would know that there were lexical schwa sounds in Control Stimuli. Table 2 shows the speech stimuli. A cross-linguistically common vowel sound [a][6] was used as the V in all the stimuli. C_1C_2 in the coda position included 12 types of consonant sequences: stop + stop (/pt/, /kt/), stop + fricative (/ks/, /ts/, /dz/, /gz/), fricative + stop (/sp/, /ʃt/), and /l/ + stop (/lk/, /lt/, /lb/, /ld/); C_1C_2 in the onset position included six consonant sequences: /s/ + voiceless stops (/sp/, /sk/) and stops + /l/ (/pl/, /kl/, /bl/, /gl/). A common word-initial as well as word-final consonant [k] was used as C_0 and C_3 in the stimuli. There were also 16 fillers with no consonant clusters.

[6] In Canadian English it is typically realized as a low back vowel [ɑ]. Because Canadian English does not phonologically contrast the central [a] and the back [ɑ], in this study we used the broad transcription [a], which is more familiar to the linguistically naïve participants.

Table 2. Stimuli words

Target Stimuli (18)		**Control Stimuli (36)**	
$C_0VC_1C_2$	/kápt/ /kákt/ /káks/ /káts/ /kádz/ /kágz/ /kásp/ /káʃt/ /kálk/ /kált/ /kálb/ /káld/	$C_0VC_1əC_2$	/kápət/ /kákət/ /kákəs/ /kátəs/ /kádəz/ /kágəz/ /kásəp/ /káʃət/ /kálək/ /kálət/ /káləb/ /káləd/
		$C_0VC_1C_2ə$	/káptə/ /káktə/ /káksə/ /kátsə/ /kádzə/ /kágzə/ /káspə/ /káʃtə/ /kálkə/ /káltə/ /kálbə/ /káldə/
$C_1C_2VC_3$	/spák/ /skák/ /plák/ /klák/ /blák/ /glák/	$C_1əC_2VC_3$	/səpák/ /səkák/ /pəlák/ /kəlák/ /bəlák/ /gəlák/
		$əC_1C_2VC_3$	/əspák/ /əskák/ /əplák/ /əklák/ /əblák/ /əglák/
Fillers (16)			
CVC	/kát/ /kád/ /kák/ /kág/ /káf/ /káv/ /káz/ /káʃ/		
CVCə	/kápə/ /kábə/ /kátə/ /kádə/ /kákə/ /kágə/ /kávə/ /kásə/		

3.3 Data collection

Employing the same procedure from Nogita and Fan's (2012) study, the current study required participants to perform four experiment tasks (see Table 3): a reading task, a syllabification task with written stimuli, a repetition task, and a syllabification task with sound stimuli.

Table 3. Procedure

	MC EAL Speakers *N* = 6	Native CE Speakers *N* = 3
Task 1	Reading	Reading
Task 2	Syllabification with written stimuli	N/A
Task 3	Repetition	Repetition
Task 4	Syllabification with sound stimuli	N/A

First, MC and CE participants individually performed Task 1, the reading task. They looked at 70 written stimuli on PowerPoint Slides and read them aloud. After the reading task, only MC participants did Task 2, in which they verbally syllabified each stimulus by pausing between syllables. If they thought there was only one syllable in the sequence, they did not make a pause. Task 3 was a repetition task, in which participants listened to each stimulus once from the pre-recorded clip without any written cues. The pre-recorded clip was provided by a female graduate student in the Linguistics Department at University of Victoria. Immediately after listening to each stimulus, participants repeated it. After that, only MC participants performed Task 4, in which they listened to each stimulus again and then verbally syllabified it by pausing between two syllables. All the verbal data were recorded with the software Audacity set at 44100Hz and 32-bit

float. The recordings were saved as .wav files. The reading task was done before the repetition task in order to extract the MC participants' own productions without being influenced by the native English speakers' productions. The reading task was also conducted before the syllabification task in order not to get the participants to focus on the syllable structures of the stimuli.

3.4 Data analysis

3.4.1 Coding and measurement of inserted vocalic elements

We examined whether the six MC participants had inserted schwa-like vowels in consonant clusters. We analyzed the waveform and spectrogram for the 108 (6×18) tokens from the reading task and the 108 (6×18) tokens from the repetition task using the software PRAAT. Vowel insertion was judged under the following criteria in accordance with Davidson (2006): 1) in Stop/fricative + stop/fricative, any periods of voicing with formant structure that appeared between two obstruents, and 2) in Liquid /l/ + stop, the voice bar of vocalic elements tended to be darker than that of liquid /l/. With an inserted vowel after /l/, there is typically an abrupt raising intensity, a clear change in the wave form patterns. The duration and F1 and F2 at midpoint of inserted vocalic elements were measured based on Davidson's (2006) and Fan's (2011) criteria. The duration was manually measured from the first zero-crossing point of the first glottal pulse of the vowel to the last zero-crossing point of the last glottal pulse. Figure 3 illustrates a coded display of the token /kats/, which had two inserted vowels (i.e., [kat̲əs̲ə]) produced by a female MC participant labelled C3. The first and the second authors independently coded and measured all inserted vowels. The inter-rater reliability was 82.73%. The two coders discussed all the disagreement codes until 100% agreement was achieved.

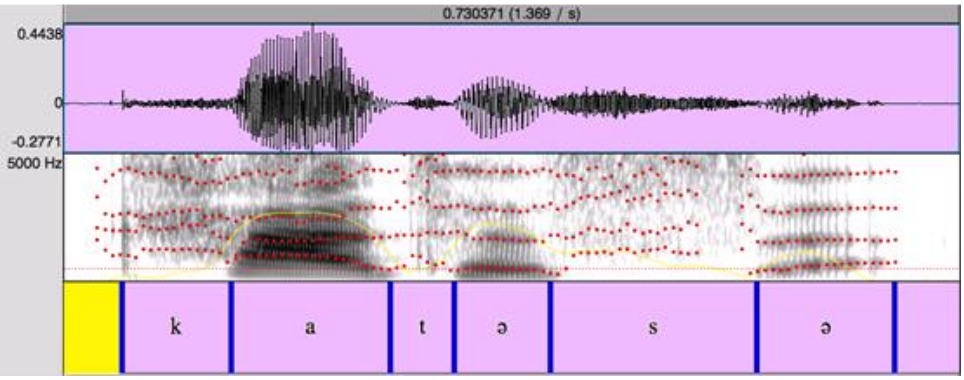

Figure 3. /kats/ produced by a female MC speaker

We also counted the number of deleted lexical schwas (e.g. /kákəs/ realized as [káks]), and rhotacized lexical schwas (e.g. /kákəs/ realized as [kákəɹs] or

[kákə̲s]) in all 70 tokens including target stimuli, control stimuli, and fillers, in both tasks. Figure 4 shows a male participant C4's production of the stimulus /kalət/ realized as [kaləɹt] with a rhotacized schwa whose F3 was lowering.

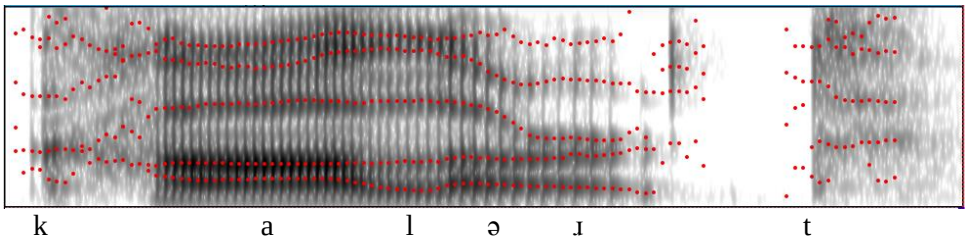

Figure 4. /kalət/ produced by a male MC speaker (showing up to 5000Hz)

3.4.2 Measurement of lexical schwas

Since MC participants did not show insertion in all the sequences in Target Stimuli, this study only measured the lexical schwa in the sequences corresponding to the target sequences, which had been coded with a vowel insertion (Davidson, 2006). For example, as mentioned above, /kats/ was pronounced as [katə̲sə̲], so that the lexical schwas in /katə̲s/ and /katsə̲/ produced by both the MC and the English speakers were measured. Descriptive statistics for the lexical schwas and the inserted schwa-like vowels will be presented in section 4.

3.4.3 Performance in syllabification tasks

The two syllabification tasks were designed to examine whether MC speakers had extra lexical vowels in their UR of their inter-language mental lexicon. We also examined the number of extra vowels and missing lexical schwas in the participants' syllabification.

4 Results

4.1 Vowel insertion, lexical schwa deletion/rhoticization patterns

In the reading task, all six MC EAL learners had vowel insertion errors. 23 tokens out of 108 (21.29%) were found as vowel insertion cases. In contrast, in the repetition task, only 4 insertion errors out of 108 (3.7%) by three participants were found. Table 4 presents the frequencies of vowel insertion in the reading and repetition tasks. Insertion errors decreased dramatically from the reading task to the repetition task, which agrees with Nogita and Fan's (2012) findings, but the general pattern remained consistent across the two tasks. The participant labeled C3 had the most insertion errors and C5 had the least insertion errors in both tasks. Table 5 shows vowel insertion patterns in specific sequences. This revealed that most insertions happened in the onset sequences of stop + /l/ and

the coda sequences of stop + fricative. MC participants did not insert a vowel in onset /s/ + stop sequences in both production tasks. As for the position of insertion, among the 23 tokens with insertion, 16 of them were CVCəC cases, nine of them were CəCVC cases, one was CVCCə case, and one was CVCəCə case with two inserted vowels. Such differences might be an effect of the different number of onset vs. coda conditions. Table 6 shows lexical vowel deletion and lexical schwa rhotacization in all the 70 stimuli × 6 participants in the reading and repetition tasks. Schwa deletion and rhotacization also generally decreased in the repetition task except for C3. Table 7 shows lexical schwa deletion and lexical schwa rhotacization based on the phonetic contexts. Deletion occurred almost universally. Again, the apparent distribution may be an effect of the different number of conditions. For example, 6 stimuli have the /Sə/ ending and 2 have the /Fə/ ending. Rhotacization occurred only once in the first syllable and the rest occurred in the second syllable. Neither deletion nor rhotacization occurred in word-initial schwas, as in /əklák/.

Table 4. Frequencies of vowel insertion by MC speakers in 108 tokens

C1		C2		C3		C4		C5		C6	
Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp
2	0	3	1	13	2	2	0	1	0	2	1

Note. Rd=the reading task; Rp=the repetition task

Table 5. Vowel insertion frequencies in specific sequences in 108 tokens

	Onset (CCVC)				Coda (CVCC)							
	/s/ + S		S + /l/		S + S		S + F		F + S		/l/ + S	
	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp
Insertion	0	0	7	2	2	0	8	2	1	0	5	0

Table 6. Lexical schwa deletion/rhotacization by MC speakers in 420 tokens

	C1		C2		C3		C4		C5		C6	
	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp
De	13	10	3	2	1	4	0	1	3	1	1	1
Rh	0	0	3	1	0	4	31	3	2	1	3	0

Note. Rd=the reading task; Rp=the repetition task; De schwa deletion; Rh schwa rhotacization.

Table 7. Lexical schwa deletion/rhotacization in specific contexts in 420 tokens

	C<u>ə</u>CVC						CVC<u>ə</u>C					
	/səS/		/Səl/		/SəS/		/SəF/		/FəS/		/ləS/	
	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp
Deletion	0	2	1	7	2	0	4	1	1	0	1	0
Rhoticize	1	0	0	0	2	0	4	1	3	0	6	0
	CVC<u>ə</u>						CVCC<u>ə</u>					
	/Sə/		/Fə/		/SSə/		/SFə/		/FSə/		/lSə/	
	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp
Deletion	9	2	0	1	2	2	0	1	0	2	1	1
Rhoticize	6	2	2	0	2	0	3	0	5	4	5	2

4.2 Acoustic properties of inserted vowels

The mean duration and midpoint F1 and F2 of the inserted vowels by the six MC speakers are presented in Table 8. These acoustic data indicate that most of the inserted sounds were mid central vowels, i.e. schwas. On average, schwas in the repetition task were higher in place, that is more like [ɨ], and shorter in duration than those in the reading context. The acoustic data of the inserted schwas by individual participants are presented in Table 9. The formant frequencies and duration values of the inserted schwas have variations within and across speakers. For the MC speakers (C2, C3, C6) who had insertion errors in both tasks, the mean durations and F1 frequencies decreased in the repetition context. Note that C4 inserted vowels only twice but both were fairly long, and one of them was rhotacized. This rhotacized schwa may have been caused by the participant's misreading of the written stimulus /kádzə/ as /kádəz/, which was realized as [kádɚ:zə].

Table 8. Averaged acoustic properties of inserted vowels

		Reading Task		Repetition Task	
		Female	Male	Female	Male
F1(Hz)	Mean	608	454	613	395
	SD[a]	93	62	27	68
F2(Hz)	Mean	1623	1310	1737	1465
	SD	121	134	69	33
Duration (ms)	Mean	72	89	42	29
	SD	41	87	11	6

[a]Note. SD = standard deviation

Table 9. Individual acoustic properties of inserted vowels by MC speakers

			C1 F	C2 M	C3 F	C4 M	C5 F	C6 M
Reading	F1(Hz)	Mean	532	500	622	468	579	370
		SD	15	21	99	4		33
	F2 (Hz)	Mean	1613	1331	1625	1216	1624	1372
		SD	183	177	126	29		134
	Dur. (ms)	Mean	82	34	74	214	20	46
		SD	54	10	40	27		1
Repetition	F1(Hz)	Mean		443	613			347
		SD			27			
	F2 (Hz)	Mean		1441	1737			1489
		SD			69			
	Dur. (ms)	Mean		25	42			33
		SD			11			

Note. See Table 4 for the total number of vowel insertion.

The acoustic data of the inserted schwa elicited from the reading task were used for the data analysis in this paper. The first reason was to minimize the effect of task variables (written stimuli vs. sound stimuli) on MC speakers' production. Second, the MC participants had much more insertion instances in the reading task than that in the repetition task (23 vs. 4), and not all six MC participants made insertion errors in the repetition task. Third, the MC participants' productions – without being influenced by sound cues – were most likely their "genuine" inter-language productions.

A scatter plot of the midpoint F1 and F2 frequencies of the inserted 23 sounds in the reading task is displayed in Figure 5 (females) and Figure 6 (males). As a reference, seven American English vowels (i.e., /i/, /ɪ/, /æ/, /ɑ/, /ʌ/, /ʊ/, /u/ from Hillenbrand et al.'s (1995) data from 45 English speaking males, 48 females, and 46 children) are also indicated. As seen in these figures, most of the inserted vowels fell within the area of mid central vowels. Two inserted vowels were produced with a higher tongue position in the contexts /ʃt/ and /gz/ involving coronal consonants, which would raise F1. One inserted vowel in /gl/ was relatively back, where /l/ might lower F2.

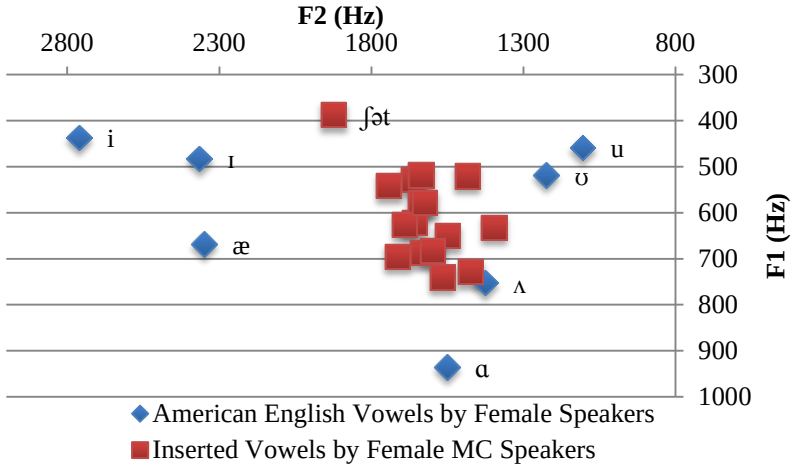

Figure 5. Inserted vowels by **female** MC speakers

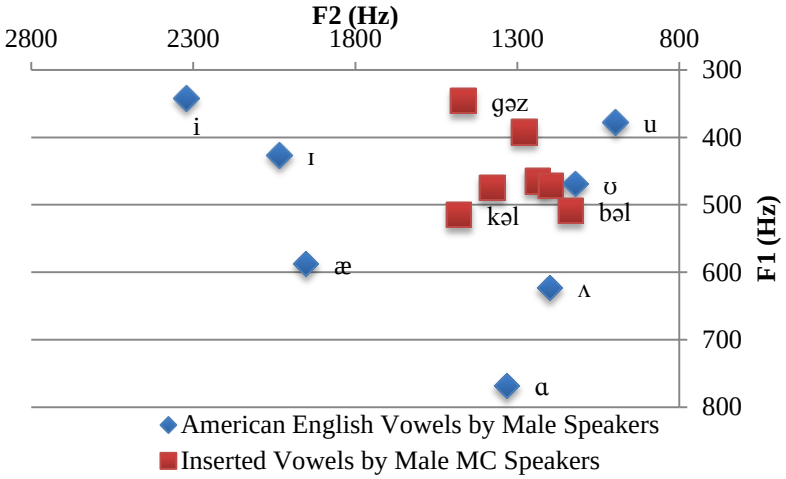

Figure 6. Inserted vowel by **male** MC speakers

4.3 Lexical schwas by MC and English speakers

We analyzed lexical schwas in MC EAL and native CE speakers' productions of 14 consonant sequences (see Table 10), whose corresponding sequences in the Target Stimuli had been coded as vowel insertion in the reading context. For example, the acoustic properties of the lexical schwa in /kə̲lák/ were examined because one or some MC participant(s) inserted a vowel between /k/ and /l/ in /klák/.

Table 10. The 14 sequences with lexical schwa

		Sequences with Lexical Schwa
Onset	Stop + /l/	/kəlak/ /pəlak/ /bəlak/ /gəlak/
Coda	Stop + Stop	/kákət/ /káptə/
	Stop + Fricative	/kátəs/ /kágəz/ /kádəz/
	Fricative + Stop	/káʃət/
	/l/ + Stop	/kálət/ /káləd/ /káləb/ /kálək/

The data from the reading task showed that the lexical schwas produced by the MC speakers and the English speakers were similar in terms of F1, F2, and duration (see Table 11). Generally, these were mid-central vowels.

Table 11. Acoustic properties of lexical schwa in the reading task

		MC Speakers $N = 6$	CE Speakers $N = 3$
F1 (Hz)	Mean	556	571
	SD	85	120
F2 (Hz)	Mean	1479	1599
	SD	164	193
Duration (ms)	Mean	101	93
	SD	53	44

In Table 12, the acoustic properties of the lexical schwas by individual participants are presented. In terms of F1 average, female MC speakers were similar to female CE speakers, while the male MC speakers' lexical schwas tended to be lower in position (or higher in F1) (C2: 539Hz, C4: 505Hz, C6: 496Hz) than the male CE speaker's (E3: 467Hz). As for F2, two female MC speakers performed (C1: 1581Hz, C2: 1588Hz) quite similar to one female CE speaker (E1: 1583Hz), but different from the other female CE speaker (E2: 1778Hz). The duration values (Minimum: 73ms; Maximum: 142ms) were quite different among the nine speakers. The values were not similar either within the same language group or within the same gender group. In more details, two MC EAL speakers' standard deviation values were quite bigger than those of CE speakers. Within the groups, the CE speakers' mean values ranged between 77 and 112ms, whereas that of the MC speakers was between 73 and 142ms. This suggests that MC EAL speakers' schwas were even more varied in duration than those by CE speakers. Still, the measured data (i.e., duration, midpoint F1 and F2) were quite different even within the CE group. For example, E3 produced a relatively long lexical schwa compared to the production of E1 and E2.

A scatter plot (see Figure 7 and 8) presents the midpoint F1 and F2 frequencies of the lexical schwa produced by MC and CE speakers. Overall, most of the production fell into the mid-central vowel area. The three CE speakers produced lexical schwas with more F2 variations than the six MC EAL speakers did, while they were performing the same reading task.

Table 12. Acoustic properties of lexical schwa by MC and English Speakers in Reading Task

		C1 F	C2 M	C3 F	C4 M	C5 F	C6 M	E1 F	E2 F	E3 M
F1	Mean	571	539	630	505	606	496	677	577	467
	SD	100	23	85	63	88	59	63	123	53
F2	Mean	1581	1371	1588	1315	1630	1486	1583	1778	1473
	SD	155	126	147	62	76	100	121	212	116
Dur	Mean	73	94	75	132	142	81	86	77	112
	SD	36	46	27	62	70	21	42	35	46

Note. *N* = 14, F1 and F2 measured in hertz, and Dur (duration) measured in milliseconds

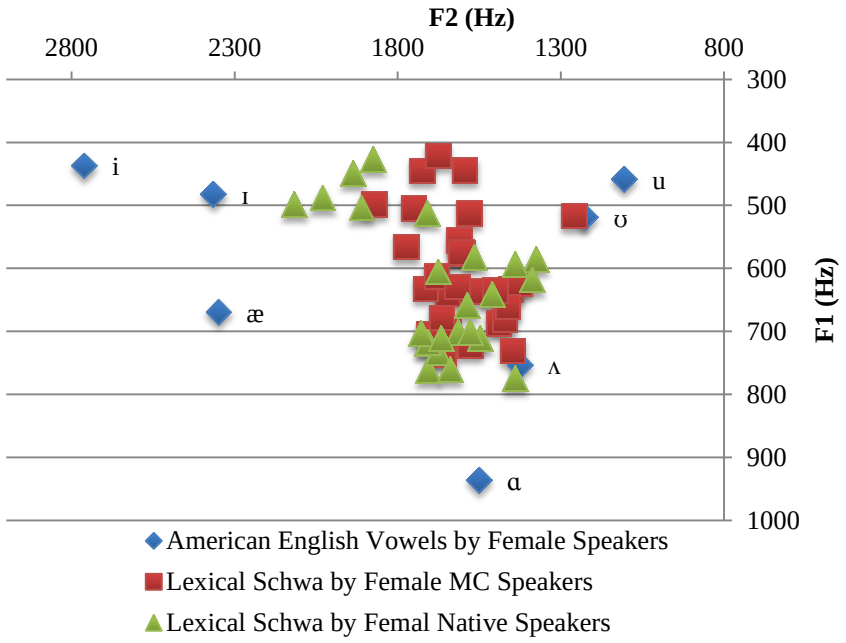

Figure 7. Lexical schwas produced by **female** MC and CE speakers

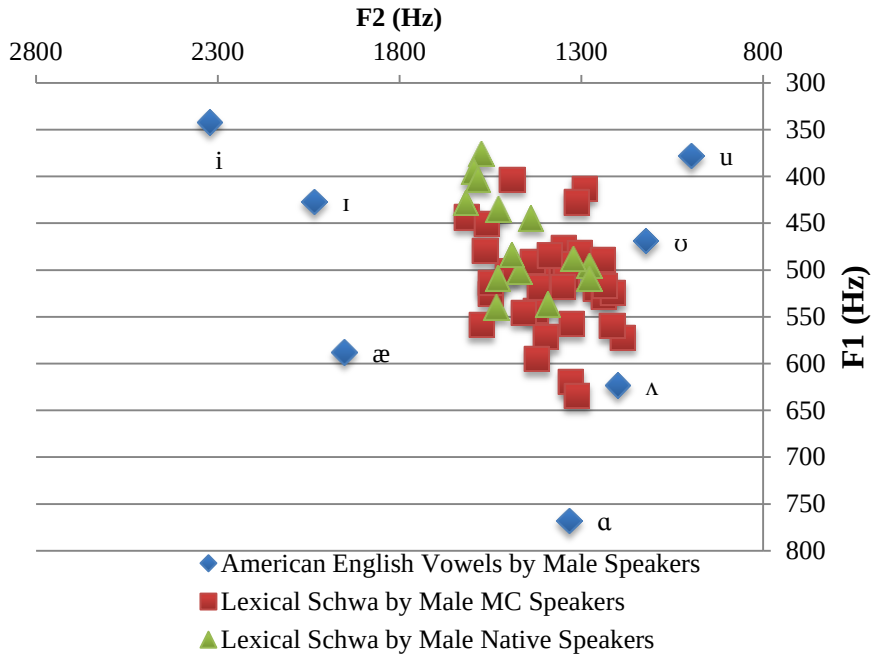

Figure 8. Lexical schwas produced by **male** MC and CE speakers

4.4 Comparison between lexical and inserted schwas

In terms of the mean F1 frequencies, all the MC EAL speakers articulated the inserted vowels with a higher tongue position than they did with the lexical schwa. As for the duration values, three MC EAL speakers (C2, C5, C6) inserted clearly shorter vowels than their lexical schwas. Table 13 shows the overall results.

Table 13. Inserted vowels and lexical schwas in the reading task

		C1 *N* = 2	C2 *N* = 3	C3 *N* = 13	C4 *N* = 2	C5 *N* = 1	C6 *N* = 2
Lexical	F1 (Hz)	571	539	630	505	606	496
	F2 (Hz)	1581	1371	1588	1315	1630	1486
	Dur (ms)	73	94	75	132	142	82
Inserted	F1 (Hz)	532	500	622	468	579	370
	F2 (Hz)	1613	1331	1625	1216	1624	1372
	Dur (ms)	**82**	34	74	**214**	20	46

Note. Bold numbers are unexpected results.

C5 and C6 had only three schwa insertion errors in the reading task. Table 14 shows the details. Compared with their lexical schwa counterparts produced in the same consonant sequences, the F1 and F2 frequencies and the duration values (bold numbers in Table 14) of the inserted vowel sounds were all lower.

Table 14. Inserted vowels and lexical schwas by participants C5 and C6

	C5		C6			
	[kálᵊb]	[káləb]	[gᵊlák]	[gəlák]	[kágᵊz]	[kágəz]
F1 (Hz)	**579**	606	**393**	541	**346**	451
F2 (Hz)	**1624**	1630	**1278**	1413	**1467**	1559
Duration (ms)	**20**	142	**46**	75	**47**	89

To examine the differences and similarities between the lexical schwas and the inserted vowels by MC speakers in terms of the place of articulation, we classified the acoustic data of the schwas into two categories: involving /l/ vs. only obstruents. Figure 9 (females) and Figure 10 (males) display the lexical schwas and the inserted schwas produced in /l/ contexts.

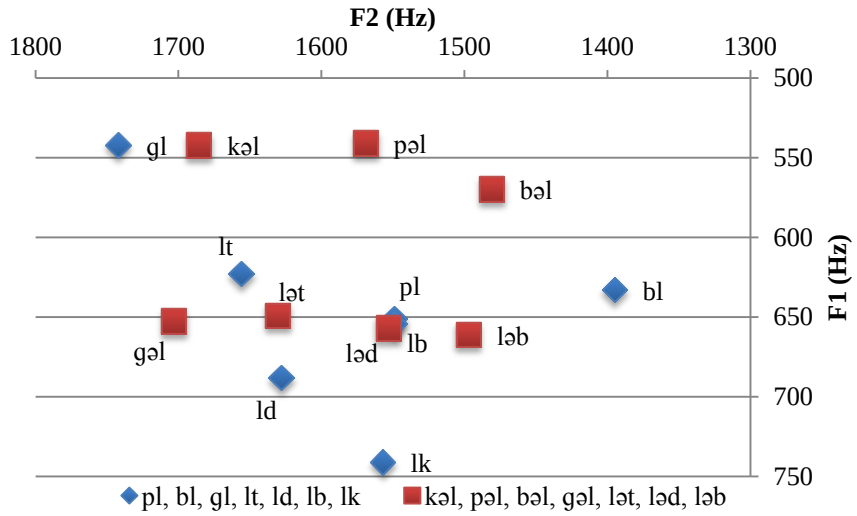

Figure 9. /l/ contexts: Inserted vs. lexical schwas by **female** MC speakers

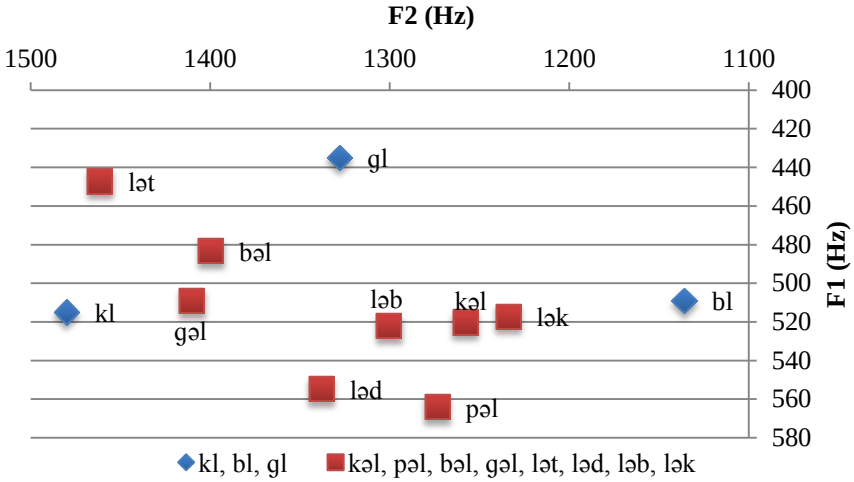

Figure 10. /l/ contexts: Inserted vs. lexical schwas by **male** MC speakers

Figure 11 (females) and Figure 12 (males) display the lexical schwas and the inserted vowels in obstruent contexts. In the females' productions, except for the inserted vowel in [ʃt], which sounded like a high front vowel, the average midpoint F1 and F2 frequencies of the lexical schwas and the inserted vowels were similar. In the males' productions, both F1 and F2 values of the inserted vowels were lower than those of the lexical schwas.

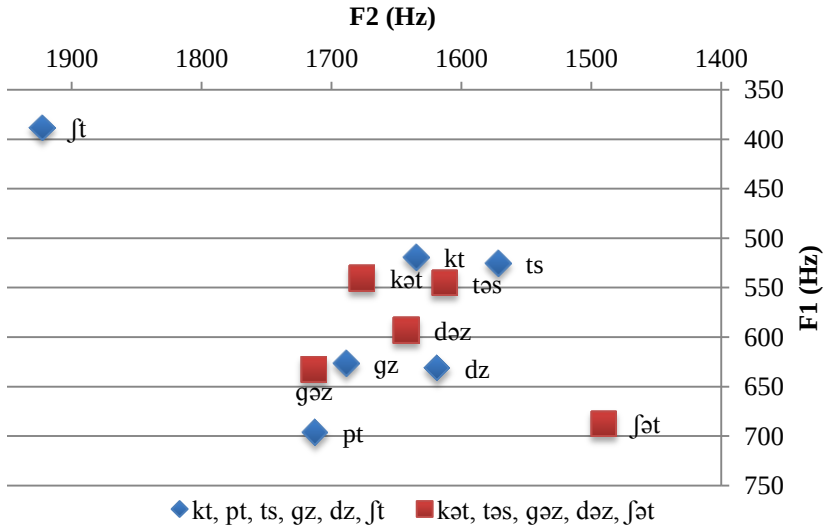

Figure 11. Coronal contexts: Inserted vs. lexical schwas by **female** MC speakers

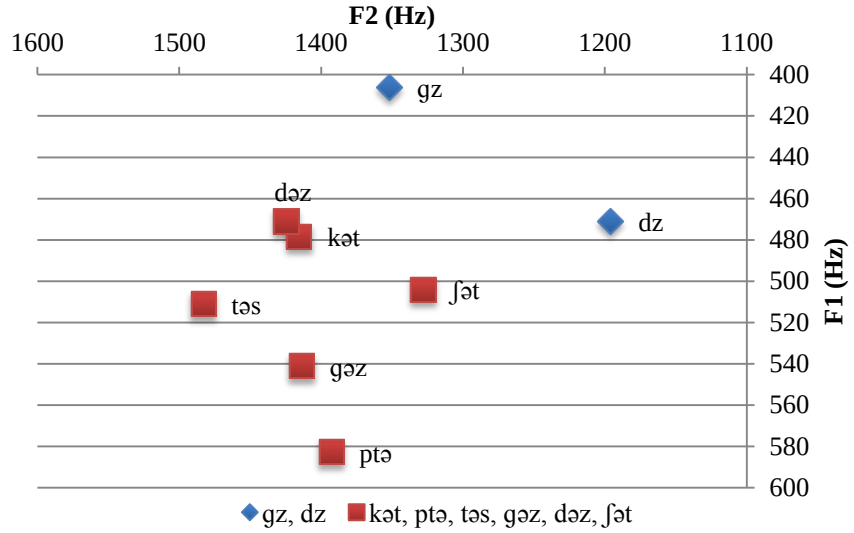

Figure 12. Coronal contexts: Inserted vs. lexical schwas by **male** MC speakers

Figure 13 shows the mean duration values of the inserted vowels and the lexical schwas by all participating speakers. In the examined 14 consonantal contexts, the mean duration of the inserted vowels were shorter than that of the lexical schwas.

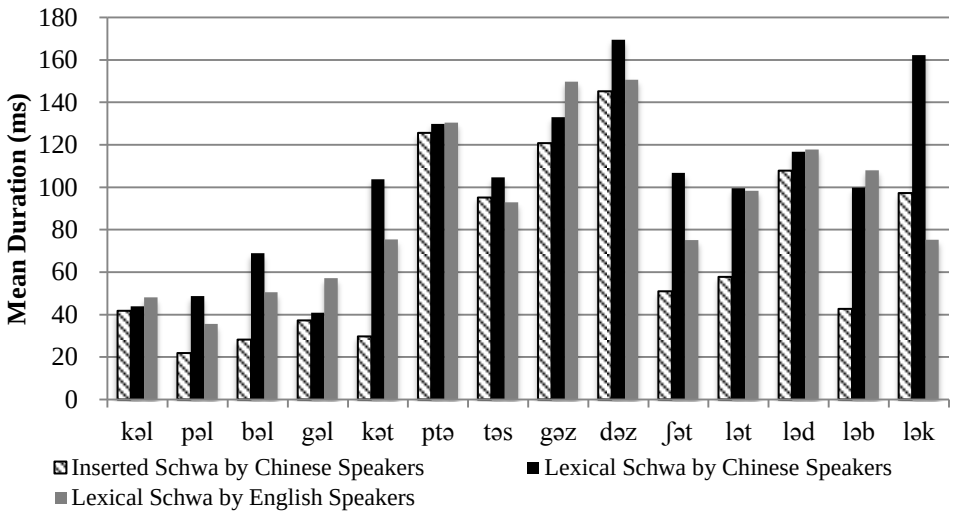

Figure 13. Mean duration values of inserted vowels and lexical schwas

4.5 Performance in syllabification tasks

Table 15 shows the frequencies and the percentages of vowel insertion errors the MC participants made in Target Stimuli in the two syllabification tasks. There were individual differences. C1, C3, and C4 often inserted vocalic sounds into CVCC and CCVC stimuli items to syllabify them as two- or three-syllable sequences. Participants performed consistently across Task 2 (only written stimuli) and Task 4 (only sound stimuli). For example, C2, C5, and C6, who performed with fewer vowel insertions in Task 2 tended to have fewer vowel insertions in Task 4.

Table 15. Vowel insertion errors in four tasks

	C1		C2		C3		C4		C5		C6	
	N[a]	%[b]	N	%	N	%	N	%	N	%	N	%
Task1[c]	2	11%	3	17%	13	72%	2	11%	1	6%	2	11%
Task2	11	61%	0	0%	18	100%	15	83%	0	0%	2	11%
Task3	0	0%	1	6%	2	11%	0	0%	0	0%	1	6%
Task4	12	67%	2	11%	18	100%	18	100%	3	17%	1	6%

Note. [a]N refers to the number of vowel insertion errors in a task. [b]% refers to the percentage of the insertion errors in relation to the target 18 CVCC and CCVC tokens. [c]Task1=reading task, Task2=syllabification task with written stimuli, Task3=repetition task, Task4= syllabification task with sound stimuli.

In the two syllabification tasks, some interesting patterns were observed. Sometimes, vowels were inserted and these were syllabified; at other times, vowels were inserted but not syllabified. It is also interesting to find that, in some cases, only consonants were syllabified without an inserted vowel. Some lexical vowels were not syllabified, a few were not pronounced, and a few were devoiced; some lexical vowels were syllabified, but not pronounced. Table 16 shows the details of MC speakers' performance in the syllabification tasks with all 70 stimuli × 6 participants, including Target Stimuli, Control Stimuli, and Fillers. Table 16 also shows each participant's error type judging from all the data of this study. The error patterns will be discussed in §5.1.4.

Table 16. Performance of MC speakers in the syllabification tasks

	C1		C2		C3		C4		C5		C6	
Task	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp	Rd	Rp
σ error	20	27	4	15	60	54	51	54	8	18	25	34
ins.V̩ σ	11	8		1	73	71	17	16	1	2	4	1
Ç σ	11	15	1	6	4	1	50	57	1	2		1
ins.V̲	3	4	7	3	7				2	1	8	7
lex.V̲ (V̥)		6	1	11 (3)	1				7 (5)	15 (3)	21	33 (3)
lex.V̥ σ	14	17	2	1			1	3				
Type	Incorrect UR?		Excres-cent		Incorrect UR		Extra Metric		Excres-cent		Excres-cent?	

Note. σ error = The number of errors in syllabification out of 70 stimuli words; ins.V̩ σ = syllabified inserted vowel: e.g., /kalb/ → [kal-bə]; Ç σ = syllabified consonant without vowel insertion: e.g., /kapt/ → [kap-t̩]; ins.V̲ = unsyllabified inserted vowel: e.g., /kalb/ → [kalbə̲]; lex.V̲ (V̥) = unsyllabified lexical vowel, which is supposed to be syllabified including devoiced/deleted ones (the bracketed numbers are the only devoiced/deleted ones among all the unsyllabified lexical vowels): e.g., /ka-pət/ → [kapə̲t] ([kapt]); lex. V̥ σ = syllabified but devoiced/deleted lexical vowels: e.g., /ka-pət/ → [ka-pt] or [ka-kə̥t]; Type = presumed error types shown in Figure 1.

5 Discussion

5.1 Key findings

5.1.1 Vowel insertion patterns in CVCC and CCVC

All six MC EAL learners inserted a vowel in L1 illegal consonant clusters in CVCC and CCVC at least once, but the frequency of insertion was low, which was consistent with Nogita and Fan's (2012) results. The vowel insertion errors decreased greatly from the reading task to the repetition task in the current study, similar to the conclusions by Funatsu et al. (2008) and Nogita and Fan (2012). Contrary to vowel insertion, lexical schwas were occasionally deleted (or devoiced) and rhotacized. This may be because [ə] is difficult to produce for MC speakers, so they either deleted or rhotacized it.[7] Interestingly, lexical vowel deletion/rhotacization patterns also decreased from the reading task to the repetition task, except for C3, who deleted and rhotacized more lexical vowels in the repetition task. All the participants may have attempted to make their productions closer to the native CE speakers' productions when they listened to the sound stimuli as the model. C3's vowel insertion dramatically decreased in the repetition task, and the participant might have over-deleted vowels, including lexical vowels. These results suggest that the EAL speakers could successfully

[7] Note that [ɹ] is a common sound in MC, or if they had an impression that consonant clusters and rhotic vowels were common in North American English, they might have hyper-corrected their productions.

perceive the consonant clusters produced by a native speaker and could successfully imitate the target overlap patterns at the phonetic level to some degree.

More specifically, MC speakers in this study seemed to experience difficulties in pronouncing the sequences of stop + /l/ and /l/ + stop. They inserted vowels in all /kl/, /pl/, /bl/, /gl/, /lt/, /ld/, /lb/, and /lk/ combinations. The frequency of insertion errors in these eight sequences was 14, out of the total 27 insertion cases. Similarly, Nogita and Fan (2012) observed that vowel insertion by MC speakers tended to occur before /l/.

5.1.2 Acoustic properties of inserted vowels

Most of the inserted vowels were mid-central vowels and met the description of English schwa according to previous studies (e.g., Flemming, & Johnson, 2007; Kondo, 1994). The average F1 of 27 inserted schwas was 536 Hz; their average F2 was 1565 Hz, and the mean duration was 56 ms.

5.1.3 Native vs. non-native lexical schwas in English

There were no notable differences between MC speakers' and CE speakers' schwas in terms of F1 and F2. However, this does not necessarily mean that MC speakers' schwas are almost native-like. In fact, as Table 6 and 7 above showed, schwas were occasionally rhotacized. Specifically, C4 frequently rhotacized schwas in the reading task. From an acoustic point of view, even though F1 and F2 values of schwas are similar across MC and CE situations, F3 can be quite different if schwa rhotacization occurs because [ɹ] lowers F3. Since /ə/ and /ɚ/ are phonemic in the majority of North American English dialects, schwa rhotacization by MC EAL speakers may need a further investigation. Also, in very careful speech, as in the syllabification tasks in this study, some schwas (especially by C3) sounded like [ɨ] after /s/, and were diphthongized after /g/ and /k/. Certain speech styles may affect the degree to which MC speakers' schwa productions are influenced by their L1 phonology. As well, although schwa deletion/devoicing was possible by native CE speakers in a fast speech, such as /pə̲teˈɾoʊ/ *potato* → [pʰteˈɾoʊ̥], in MC learners' productions quite a few schwas were deleted/devoiced in a relatively formal speech style, i.e. word reading tasks. This difference is noteworthy. In terms of the F2 values, native speakers' schwas were more varied than that in MC speakers' productions. We propose two possible reasons. First, the sample size of native speakers was only three. Second, L2 learners might not have native intuition or experience of allophonic variations in English schwas. Future studies can work on this assumption.

5.1.4 Lexical schwa vs. inserted schwa

Recall the four types of L2 vowel insertion shown in Figure 1: a) lexical vowels in misinterpreted L2 UR, b) lexical epenthetic vowels to repair L1 illegal syllable

structures, c) non-lexical excrescent vowels caused by gestural mistiming, and d) non-lexical short (or excrescent) vowels along with unsyllabified extraprosodic consonants in misinterpreted L2 UR. When the participants made mistakes in the syllabification tasks, they likely had problems in their UR, suggesting either a) lexical vowels in UR, or d) non-lexical vowels with extraprosodic consonants in UR.

Because C3 almost consistently inserted a vowel in the syllabification task, C3's type of error was assumed to be a misinterpretation of L2 UR, and the inserted vowels existed in their mental lexicon. An interesting case was in the reading task: C3 pronounced /káks/ as [ká:kəsɨ], but pronounced /kákəs/ as [ká:ks]. In C3's IL, both /káks/ and /kákəs/ may be stored as /kákəsə/ (or /kákəsɨ/ or better described as /kákəsi/) in UR, and in SR, she allophonically deleted the weak vowel(s), like /ə/ (and /ɨ/), just as Japanese EAL learners did in Nogita and Fan's (2012) study. C1 also made quite a few errors in the syllabification tasks, suggesting that her problem was also likely a UR issue. C1 deleted lexical schwas more often than inserting extra vowels in the reading and repetition tasks. Also, C1 often syllabified consonants alone in the syllabification tasks. These suggest that in this participant's IL [ə] and [ɨ] may be allophonic variations, but whether [ə] is underlyingly present or absent is not certain. Both C3 and C1's inserted vowels and lexical vowels did not show a difference in duration. This may support the analysis that their inserted vowels tend to be lexical vowels in nature.

One might argue that it is unusual that the written stimuli clearly show the presence or absence of vowels, but the L2 learners still cannot correctly interpret their phonological representations. However, such misinterpretation would be completely possible if learners assume that English orthography or IPA is an abugida or alphasyllabary system, in which each consonant letter is along with a default vowel sound. In fact, Matsumoto (2011) reported that many Japanese learners of Spanish in a Spanish class claimed that *frío* /frío/ and *julio* /xúljo/ were complete homophones, even when the learners looked at the spelling as well as listened to the sounds. Aside from the consonant confusions in /ɾ/ vs. /l/ and /f/ vs. /x/, *xul* and the consonant cluster *fr* confused the learners. Some Japanese EAL learners in Nogita and Fan's (2012) research showed a similar tendency. Previous reports and the current study suggest that spelling cannot necessarily help L2 learners be aware of the difference between CC and CVC.

C2 made the fewest errors in the syllabification tasks. The F1 and F2 values of C2's inserted vowels were lower than those of their lexical vowels, and the duration was much lower in the inserted vowels than that in the lexical schwas as shown in Table 13. According to Davidson (2006), if the inserted schwa is an excrescent sound, its F1 and F2 values can be predicted to be lower than those of lexical schwas. Thus, C2's inserted vowels may be considered as excrescent vowels caused by the gestural mistiming. C2 made much more errors in the syllabification task with the sound stimuli as shown in Table 16. His error patterns were mostly unsyllabified lexical schwas. This might be because he could not detect schwas in the sound stimuli as syllabic unit. In fact, the Japanese

participants in Sperbeck's study (2010) often could not detect schwas, so that in the repetition task, the sound stimulus [Cəl], for example, was often produced as [Cl], even though the [Cl] is illegal in Japanese. As shown in Table 14, we conclude that C5's and C6's inserted vowels may be excrescent vowels. Although these two, especially C6, made many errors in the syllabification tasks as shown in Table 16. They mostly did not syllabified lexical schwas, which was very similar to C2's performance. Thus, C5 and C6 may be aware of the presence or absence of vowels in English, but they (especially C6) may not have the knowledge of a higher prosodic structure.

C4's production errors fit in the extraprosodic consonant type. Interestingly, he inserted a vowel only twice in the reading task, but these vowels were fairly long as shown in Table 13. These vowels may be because he simply misread the sound stimuli. In the syllabification tasks, he mostly syllabified consonants alone without inserting a vowel: e.g. /əklák/ → [ə-k^{h}-la-k^{h}]. Inserted vowels in the syllabification tasks mostly followed the release of voiced stops or /l/s: e.g. /blák/ → [b^{ə}-la-k^{h}]. This is similar to the case of aforementioned Japanese participants in Nogita and Fan's (2012) study. Thus, participant C4 may be well aware of the presence or absence of vowels; in his IL, each consonant not followed by a vowel was independent and was not attached to the syllable node.

As for the consonantal contexts, the inserted vowel in [ʃt] produced by C3 was odd, as shown in Figure 11 – it was a high front vowel and its mean duration was short (51 ms). Its highness and frontedness are likely due to the high and front tongue positions of [ʃ] ([Dorsal, Coronal]). Another interesting phenomenon is that the inserted vowel in [ʃt] has clear formant structures and a clear voice bar in the spectrogram, even though its surrounding consonants are both voiceless. In the same fashion, a voicing bar can occur between voiceless consonants (i.e., [k^{ə}t, p^{ə}t, t^{ə}s]). Vowels in such conditions were produced with a target, or at least the speaker actively vibrated his/her vocal fold. In such cases, there are two possibilities. First, based on Lindblom's (1963) Undershoot Hypothesis, such lexical schwas are undershot. For example, C3's short inserted vowels were considered to exemplify this phenomenon, and even C3's devoiced lexical schwas may be undershot. Additionally, one of the reasons that the number of vowel insertions in the repetition task decreased can be explained by lexical vowels being undershot. In fact, Nogita and Fan (2012) concluded that many of their Japanese participants undershot underlying vowels to produce apparent consonant clusters in SR. Second, if the speaker is aware of the absence of vowels but not the syllable structure, he/she might pronounce a consonant as an independent unit. Then, in order to make each consonant more perceptible, he/she might end up with a short schwa-like vowel. Similar phenomena can be observed in other languages, such as in Salish languages, in which non-lexical schwas occur in extraprosodic voiceless consonant sequences (Czaykowska-Higgins & Willett, 1997).

5.2 Implications

Pedagogically, the findings of the present study provide insight into the performance of intermediate level MC EAL learners while pronouncing English consonant clusters. It is important for instructors and learners to be aware that language learners may have specific error types (see Figure 1) in the production of consonant sequences. Moreover, none of the MC participants correctly syllabified all the stimuli. Rather, there were quite a few errors. They might not have known the generlaization that one vowel is assigned to one syllable. It would be helpful in English learning if EAL speakers could explicitly learn the concept of English syllabification.

5.3 Limitations and Future Studies

There are several limitations of this study. First, this preliminary study has only involved six intermediate MC EAL learners. The findings may not be generalized to learners at other English proficiency levels. Meanwhile, only three native CE speakers have participated in this study and their production of English lexical schwas may not be representative of the schwa production by a larger native CE speaker population.

Second, the data of schwas generated from this study are not sufficient in number to run factorial ANOVA tests, so it is hard to know the effects of different factors on the acoustic properties of schwa. For example, the lexical/inserted conditions (e.g., reading vs. listening) may exert a bigger influence on the nature of schwa than the segmental contexts do (Davidson, 2006).

In the theoretical aspect, this study observes that English lexical schwas produced by non-native speakers are more consistent in F2 than the lexical schwa produced by native English speakers. Studies (Flemming & Johnson, 2007; Kondo, 1994) have revealed that the English lexical schwas produced by native speakers fail to be targeted compared with other English vowels. More studies are needed to explore the nature of English lexical schwas produced by non-native speakers from different linguistic backgrounds to see whether non-native English lexical schwas are more targeted than the native English lexical schwa.

6 Conclusion

This study provides insight into the acoustic characteristics of schwas in three different conditions: native English lexical schwa, non-native English lexical schwa, and non-native inserted schwa.

In terms of the nature of inserted schwa, at least two MC speakers (C1 and C3) may have intentionally inserted a target schwa into L1 illegal English consonant sequences CVCC and CCVC because schwas likely exist in their incorrectly memorized inter-language UR. The other three MC speakers (C2, C5, C6) may have the tendency to produce an excrescent insertion. The excrescent

schwas are by-products, when the speakers are unable to sufficiently overlap the consonant gestures. Another possibility is that when the speaker is not aware of syllable nodes, some consonants would be left unsyllabified. Since these consonants are treated as one unit and it may be perceptually salient for the speaker, an excrescent vowel may occur. If the speaker becomes aware of syllable nodes, such excrescent vowels may be less likely to occur. One MC participant (C4) shows extraprosodic consonant error patterns: he would potentially pronounce excrescent vowels, although he has not pronounced unambiguous excrescent vowels in the reading and repetition tasks. In any case, it is unnecessary and unwise to define or claim that all the insertion behaviours by non-native speakers are a phonological insertion or a transitional sound. Even within the same L1 background, learners use different production strategies.

As for the lexical schwas, CE speakers and MC speakers have had similar production, in terms of midpoint F1 and duration. Nevertheless, this does not necessarily mean that MC speakers' schwas are native-like. In fact, lexical schwa rhoticization and deletion have been observed. As for the F2 values, lexical schwas produced by MC speakers tend to be more stable in F2 than those produced by native CE speakers. One of the possible explanations is that MC speakers are not as sensitive to allophonic variations as native CE speakers do. As stated before, few empirical studies to date have compared English lexical schwas produced by native and non-native speakers. It is meaningful to find that there are both similarities and differences in the English lexical schwa produced by these two groups. To explain the similarities between native and non-native English lexical schwa found in this study, future L2 studies could conduct the phonetic comparison between the MC lexical schwa by native MC speakers and the English lexical schwa by native English speakers.

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The Properties and Classification of Psych-Predicates in Blackfoot

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In this paper, I present the properties of psych-predicates in Blackfoot, a topic which has not been studied in detail. I discuss how the psych-predicates show different syntactic and semantic properties depending on their morphological markings (i.e., finals). In particular, I focus on the comparison between non-psych- and psych-verb stems with AI finals with respect to their transitivity. Moreover, this paper addresses how the psych-forms can be classified, with respect to the well-known three types of psych-predicates described in the literature.
Keywords: psych-forms; finals; pseudo-transitives; unergatives; instrument markers

1 Introduction

The goal of this paper is to describe the properties of psych-predicates in Blackfoot, a topic which has been understudied in the literature. I also aim to determine whether the psych-predicates in Blackfoot can be classified according to the well-known three classes of psych-predicates (I-III) outlined by Belletti and Rizzi (1988).

Blackfoot is an Algonquian language spoken in Southern Alberta, Canada and Northwestern Montana, U.S.A. In this language, the person, number and gender of maximally two core arguments are cross-referenced via verbal affixes, and the respective roles of the arguments are marked by direct/inverse morphology (see section 4.2 for details). In the literature on Algonquian languages, it is generally assumed, following Bloomfield (1946), that verb stems can be subcategorized into one of four classes, depending on their transitivity and the animacy of their arguments. These four classes are given in (1):

(1)

	Verb class	*Indication*
a.	Animate Intransitive (AI)	Subject is animate
b.	Inanimate Intransitive (II)	Subject is inanimate
c.	Transitive Animate (TA)	Object is animate
d.	Transitive Inanimate (TI)	Object is inanimate

The verb classes are distinguished by the morphemes that appear at the right edge of the stems; these are called 'finals'. The first two verb classes (1a-b) are intransitive verb stems; they are marked by different finals, namely AI and II.

These finals indicate that the subject is animate or inanimate, respectively.[1] The other two verb classes (1c-d) are transitive verb stems marked by TA or TI finals. These two finals indicate that the object is animate or inanimate, respectively. In other words, these finals indicate the transitivity of the verb and the animacy of the subject or object. For instance, the verb stem 'eat' in Blackfoot can be realized with TA, TI, or AI finals, as illustrated in (2):

(2)

a.	*oow*	*-at*	'eat-TA'	The object is animate
b.	*oow*	*-atoo*	'eat-TI'	The object is inanimate
c.	*ooy*	*-i*	'eat-AI'	The subject is animate

(Ritter and Rosen 2010)

Since it has been shown that there are no psych-forms with II finals (Johannson 2007), the discussion throughout this paper will be centred on psych-verb stems with TA, TI, or AI finals.

This paper is organized as follows. Section 2 presents how psych-forms can be morphologically marked. Section 3 discusses psych-verb stems with AI finals and shows that they are unergative, unlike non-psych-verb stems with AI finals, which are argued to be pseudo-transitive (Ritter and Rosen 2010). Section 4 addresses whether psych-forms in Blackfoot can be classified into the well-known three classes of psych-predicates, and in particular, it discusses the issues regarding Class I predicates. Section 5 discusses whether Class II predicates exist in Blackfoot. Section 6 concludes the paper.

2 Morphological marking on psych-forms

In Blackfoot, psych-verb stems can take either regular or irregular forms. Regular forms are marked with different finals: TA, TI, or AI, depending on the animacy of the subject or object, as noted earlier (see also the examples in section 3). Examples are given in (3):[2]

[1] I use 'subject' and 'object' for ease of exposition. It has been shown that 'subject' and 'object' are not important distinctions in the grammar of Algonquian languages (e.g., Ritter and Wiltschko 2004).

[2] Unless otherwise noted, all data presented in this paper are from my own fieldwork. The data presented come from the Kainaa (Blood) dialect. The following abbreviations are used in the paper: 1/2/3 – 1st/2nd/3rd person; AN – animate; ACC – accusative; CAUSE – causative marker; CONJ – conjunctive paradigm; DAT – dative; DEC – declarative; DIR – direct object theme; DEM – demonstrative; DUR – durative; IA – intransitive animate; II – intransitive inanimate; IN – inanimate; INST – instrument; INV – inverse theme; NOM – nominative; NONFACT – nonfactive; OBV – obviative; PL – plural; PRO – pronoun; PROX – proximate; PST – past; SG – singular; TA – transitive animate; TI – transitive inanimate. The Blackfoot data in this paper are illustrated morpheme-by-morpheme gloss, and do not reflect sound changes.

(3)		*TA*	*TI*	*AI*	*Meaning*
	a.	a'ka-imm	a'ka-i'tsi	a'ka-i'taki	hate
	b.	a'poina'-imm	a'poina'-i'tsi	a'poina'-i'taki	be bothered
	c.	ika-imm	ika-i'tsi	ika-i'taki	dislike
	d.	oksists-imm	oksists-i'tsi	oksists-i'taki	be interested in
	e.	awaakomi-imm	awaakomi-i'tsi	awaakomi-i'taki	love

As illustrated in (3), TA forms are marked with the final *-imm*, TI forms are marked with the final *-i'tsi*, and AI forms are marked with the final *-i'taki*.

However, some psych-forms do not follow this pattern:

(4)		*TA*	*TI*	*AI*	*Meaning*
	a.	sstonno	sstonno	____	fear/be afraid of
	b.	sski'si	_____	sski'tstaa	frighten
	c.	a'pitsiihtaa	a'pitsiihtaa	a'pitsiihtaa	worry
	e.	i'taam-imm	i'taam-i'tsi	i'taam-issi	happy
	f.	sstoyisi	sstoyisi	sstoyisi	be shy

These forms do not take the regular finals, unlike in (3). Moreover, some forms are absent. For example, there is no AI form for 'fear/be afraid of'. In some cases, the same form is employed for TA, TI, and AI. For example, the form *a'pitsiihtaa* 'worry' is listed as an AI form in the dictionary of Frantz and Russell (1995). However, it seems that the same form can be used for both TAs and TIs interchangeably, as illustrated in (5a) and (5b). As a TA form (5a), its object is animate, as in 'your son', while as a TI form (5b), its object is inanimate, as in 'the house'. The same form can also be used as an AI form, as in (5c), with the animate subject 'I'. Despite being the same form, the verb forms in (5) cannot be treated in the same way. That is, they should be understood as different forms-TA (5a), TI (5b), and AI (5c) forms respectively. In Blackfoot, TA and TI forms have different direct markers (see section 4.2 for details). The direct marker *-a* appears with TA forms when the subject is 1st or 2nd person singular and the object is a 3rd person animate noun, while the direct marker *-'p* appears with TI forms when the subject is 1st or 2nd person singular and the object is a 3rd person inanimate noun. These two direct markers appear on the forms in (5a) and (5b), respectively, which suggests that the form in (5a) is TA and the form in (5b) is TI. As for AI forms, there is no dedicated direct marker, and this is true with the verb form in (5c).

(5) a. nit- a'potsiihtaa -a -wa kohko
1SG worry DIR -3SG your son. AN
'I worry about your son.'

b. nit- a'potsiihtaa -'p -wa amo napioyisi
1SG worry DIR -3SG DEM house. IN
'I worry about this house.'

c. nit- a'potsiihtaa
1SG worry
'I am worried.'

The same is true of *sstoyisi* 'be shy', which is listed as an AI form by Frantz and Russell (1995). One note should be made about the form 'happy' here. It seems to be marked with the regular TA and TI finals, *-imm* and *-i'tsi*, respectively. However, the AI final is *-issi*, not the regular AI final *-i'taki*. For this reason, the form 'happy' is considered to have an irregular pattern.[3]

3 No pseudo-transitive psychological AI forms

Ritter and Rosen (2010) argue that in Blackfoot TA and TI forms must take a DP object, and not an NP object. The relevant examples are given in (6).

(6) a. na- oow -at -yii -wa
PST eat TA -DIR -3SG
amo mamii/ *mamii
DEM fish.AN fish.AN
'S/he ate this fish'

b. na- oow -atoo -m -wa
PST eat -TI -DIR -3SG
ani akoopis/ *akoopis
DEM soup.IN soup.IN
'S/he ate this soup'

[3] It appears that the TA and TI irregular forms in (4) are not different from the regular forms in (3) in that the types of DP objects they take depends on the objects' animacy. Moreover, unlike regular psych-AI forms (see section 5), the AI forms in (4) do not need to be prefixed with the instrument marker in order to take an additional object. Instead, TA or TI forms are used. In this paper, the discussion will mostly be centred on the regular morphological psych-forms.

On the other hand, AI forms cannot take a DP object; they can only take an NP object, as in (7):

(7)

na-	ooy	-i	-wa	mamii/akoopis	
PST	*eat*	*AI*	*-3SG*	*fish/soup*	
*amo	mamii/	*ani	akoopis		
DEM	*fish.AN*	*DEM*	*soup.IN*		

'S/he ate (fish/soup)'

Considering this difference in the types of objects that TA/TI and AI forms can take, Ritter and Rosen conclude that AI forms as in (7) are pseudo-transitives. They argue further that AI forms may be unergative, pseudo-transitive, or unaccusative. Unergative/pseudo-transitive and unaccusative AI forms never take the same finals. For example, based on a study of the dictionary of Blackfoot (Frantz and Russell 1995), Ritter and Rosen discovered that the AI finals for agentive and experiencer subjects are *-aki* and *-i'taki*, respectively. On the other hand, unaccusative AI verbs such as stative and change of state verbs take the finals *-ssi* or *-a'pssi*. Of importance is that the finals *-aki* and *-i'taki* never appear on unaccusative AI verbs.

As illustrated in section 2, morphologically regular psych-AI forms take the final *-i'taki*, as also noted by Ritter and Rosen (2010). Given Ritter and Rosen's finding that *-i'taki* can be unergative/pseudo-transitive, but never unaccusative, the question arises as to what psych-AI forms are: unergative or pseudo-transitive? Verbs such as *love*, *(dis-)like*, or *fear* seem to be pseudo-transitive, as they can appear with two participants. Thus, we would predict that they take an NP rather than a DP object, just like the non-psychological AI forms in (7). However, predicates such as *happy*, *angry*, or *sad* may be unergative, since they usually appear with only an experiencer subject, and not with an object NP or DP.

Surprisingly, all the psych-AI forms I encountered in my fieldwork turn out to be unergatives, and not pseudo-transitives, regardless of whether they appear with one or two participants.[4] First, evidence comes from the fact that the AI forms are ungrammatical with DPs and with NPs, as illustrated below:

(8) a.

*nit-	a'ka	-i'taki	amo	mamii	/mamii	
1SG-	*hate*	*AI*	*DEM*	*fish. AN*	*fish. AN*	

'I hate the fish/fish.'

b.

*nit-	a'ka	-i'taki	ani	akoopis	/akoopis	
1SG-	*hate*	*-AI*	*DEM*	*soup. IN*	*soup. IN*	

'I hate the soup/soup.'

[4] The form *awaakomi-i'taki* 'love-AI' may be an exception to this generalization. One of my consultants allows bare NPs and DPs only with this form, but not with any other psych-AI forms, as illustrated in this section. 'Love' does not pattern with the non-psychological AI forms discussed by Ritter and Rosen (2010) either. I leave this issue for further research.

Furthermore, whether the object is mass or count has no influence on the grammaticality of the sentence. Both the count noun *saahkomaapi* 'boy' (9a/10a) and the mass noun *koonssko* 'snow' (9b/10b) without a demonstrative are not allowed with psych-AI forms. The bare plural form of the count noun, *saahkomaapi-ksi* 'boys' is not allowed either, as indicated in (9a/10a).

(9) a. *nit- a'ka -i'taki saahkomaapi /saahkomaapi-ksi
1SG- hate AI boy. AN boy. AN-PL
'I hate the boy/boys.'

b. *nit- a'ka -i'taki koonssko
1SG- hate -AI snow. IN
'I hate snow.'

(10) a. *nit- ookii -i'taki saahkomaapi/ saahkomaapi-ksi
1SG- angry AI boy. AN boy. AN-PL
'I am angry with the boy/boys.'

b. *nit- ookii -i'taki koonssko
1SG- angry -AI snow. IN
'I am angry with the snow.'

The fact that the psych-AI forms cannot take any type of object clearly indicates that they cannot be (pseudo)-transitives, as shown in (11):

(11) a. nit- a'ka -i'taki
1SG- hate AI
'I have hatred.'/* I hate (someone/something).'

b. nit- ookii -i'taki
1SG- angry -AI
'I am angry.' /*'I am angry (with someone/something).'

Further support for the conclusion that psych-AI forms are intransitive comes from the fact that the sentences in (11) cannot have an interpretation with an implicit theme. For instance, the sentence (11a) cannot mean 'I hate (something) or (someone)'. To express such a meaning, either a TA or TI form must be used, as illustrated in (12).

(12) a. nit- a'ka -imm -wa
1SG- hate TA -3SG
'I hate (someone).'

b. nit- a'ka -i'tsi -wa
1SG- *hate* *-TI* *-3SG*
'I hate (something).'

The findings in (8)-(12) indicate that psych-AI forms are intransitives.

We must now investigate whether the psych-AI forms show characteristics of unergatives. In other words, the question is whether the sole argument of psych-AI forms is an experiencer or a theme. This can be determined by the use of a preference task. The results of a preference task with pictures indicate that the arguments are experiencers. Several images were presented with paired sentences, and Blackfoot language consultants were asked to pick out the sentence that correctly described each image. An example from the task is given in (13).

(13) a. b.

(14) a. ana Mickey a'ka -i'taki
DEM *Mickey* *hate* *-AI*
'Mickey has hatred.'

b. ana Minnie a'ka -i'taki
DEM *Minnie* *hate* *-AI*
'Minnie has hatred.'

In the picture, Mickey is smiling, but Minnie is frowning. The context given to the consultant was that Mickey likes Minnie, but Minnie hates Mickey. The consultants were then presented with a pair of sentences with the verb 'hate', as in (14). Only the Blackfoot sentences were presented: the morphemic glosses and the interpretation of the sentences were not provided to the consultant. If the argument of the AI form were an experiencer, sentence (14b) would be picked. In the images in (13), only Minnie is closer to the emotional state described by the form 'hate'. If the argument of the AI form were a theme, the sentence in (14a) would be picked out. As mentioned, Mickey was hated by Minnie, although he liked her. In the task, sentences such as (14b), where the argument would be interpreted as an experiencer, were consistently selected by the consultants. This suggests that the sole argument of psych-AI forms is an experiencer.

Unergatives are typically agentive across languages (e.g., Perlmutter 1978).

Moreover, there are psychological predicates that can be agentive in some languages (Arad 1998). If psych-AI forms in Blackfoot are unergative, we would expect them to show properties related to agentivity. This turns out to be the case. First, an agent-oriented adverb can modify the experiencer of AI forms, as exemplified in (15).

(15) a. nit- awaat awaakomi -i'taki
1SG- *willingly* *love* *AI*
?‘I am in love on purpose .'

b. nit- awaat a'ka -i'taki
1SG- *willingly* *hate* *-AI*
?‘I am hating on purpose.'

The psych-AI forms are also compatible with 'try X' or 'want to X' phrases, as illustrated in (16), just like agentive non-psych-AI forms (17):

(16) a. ana John essaako- awaakomi -i'taki
DEM *John* *try* *love* *-AI*
‘John tries to be in love.'

b. ana John eksstaa- aahk- awaakomi -i'taki
DEM *John* *want* *NON.FAC* *love* *-AI*
-hsi
CONJ
‘John wants to be in love.'

(17) a. ana John essaako- ooy -i akoopis
DEM *John* *try* *eat* *-AI* *soup. IN*
‘John tries to eat soup.'

b. ana John eksstaa- aahk- ooy -i
DEM *John* *want* *NON.FACT* *eat* *-AI*
-hsi akoopis
CONJ *soup. IN*
‘John wants to eat soup.'

Another indication that psych-AI forms are agentive comes from the fact that they can be used in the expression 'Let's X', i.e., a propositive form. Non-agentive verbs are usually not compatible with this form, as in **Let's arrive* or **Let's know*. Interestingly, the propositive forms of psych-AI forms are grammatical in Blackfoot, as illustrated in (18).

(18) a. a'ka -i'taki y'op
hate *-AI* *let's*
'Let's hate.'

b. a'poina' -i'taki y'op
bother *-AI* *let's*
'Let's bother.'

In addition, like agentive AI forms (19), psych-AI forms can be imperatives (20). The imperative ending *-t* appears on the non-psychological agentive AI form 'eat' in (19) (Frantz 2009). This ending appears when the addressee is singular. The same ending can also appear with psych-AI forms to indicate that the sentences are imperatives (20).

(19) Ooyi -t
eat.AI *-2S.IMP*
'Eat!' (Frantz 2009)

(20) a. a'ka -i'taki -t
hate *-AI* *2S.IMP*
'Hate!'

b. a'poina' -i'taki -t
Bother *-AI* *2S.IMP*
'Bother!'

In sum, the data presented in this section strongly support the idea that psych-AI forms are unergative, and not pseudo-transitive.

4 The classification of psych-forms in Blackfoot

4.1 Psych-predicates across languages

Cross-linguistically, psychological predicates are typically classified into the three types established by Belletti and Rizzi (1988) for Italian psychological predicates. Class I is often called the Subject-Experiencer (Subj-Exp) construction. The subject of a Subj-Exp construction is an experiencer, and it typically takes nominative case, as the following English example shows. The theme argument is in the accusative.[5]

(21) He fears the news/her.

[5] This discussion is restricted to nominative-accusative languages.

Class II predicates also take both an experiencer and a theme argument. Contrary to Class I, however, the experiencer appears in object position (22):

(22) The news/she frightened him.

For this reason, Class II is often called the Object-Experiencer (Obj-Exp) construction. The subject argument is widely viewed as a causer. That is, 'the news' in (22) is the cause of the emotional state in the experiencer. In languages like Korean, Japanese, or Finnish, the verbs of Obj-Exp constructions are affixed with a causative morpheme, which confirms the thematic status of the subjects of Obj-Exp constructions. Consider the following example from Korean (23):

(23)	ku	muncey-ka	Swuni-lul	kwoylop	-hi	-ess
	DEM	*problem-NOM*	*Suni-ACC*	*distress*	*-CAUSE*	*-PST*
	-ta					
	-DEC					
	‘That problem distressed Suni.'					

As in English (22), the object is an experiencer in the accusative. The verb is suffixed with the causative morpheme *-hi*, and the causer 'the news' appears in the nominative.

Class III predicates are called Dative-Subject constructions. They are similar to Class I Subj-Exp constructions in that the subject is an experiencer. However, the case on the experiencer is dative, and not nominative. As a consequence, the theme is marked with the nominative and not the accusative. An example of a Class III predicate in Korean is shown in (24).

(24)	Swuni-eykey	Inho-ka	silh	-ess	-ta
	Suni-DAT	*Inho-NOM*	*hate*	*PST*	*-DEC*
	‘Suni hated Inho.'				

The question that I will explore in the following section is how to can classify the psych-forms in Blackfoot. This is interesting, as the classification is centred on thematic role-based languages, and often the distinction among the classes is expressed by case marking. As mentioned earlier, Blackfoot is an animacy-based language (Ritter and Rosen 2010, Ritter and Wiltschko 2004), and there is no case marking in the language. As a result, Class III, i.e., the dative-marked subject construction, seems to be absent in Blackfoot. More support for the absence of Class III in Blackfoot comes from the cross-linguistic observation that Class III is always non-agentive (Arad 1998, Landau 2010). As shown by the examples in (15)-(18) and (20), psych-predicates in Blackfoot are agentive, unlike canonical Class III predicates cross-linguistically. The discussion to follow will focus on whether Classes I and II exist in Blackfoot. Class I appears to be present, but whether Class II exists in Blackfoot is unclear. It should be noted here that the discussion will mainly be focused on the roles of

the arguments in the relevant classes and not on the particular properties of each class, e.g., the existence of psych-effects with Class II, but their absence with Class I.[6]

4.2 Does Blackfoot have Class I psyc-predicates?

Class I Subj-Exp constructions are possible in Blackfoot; they are expressed with TA and TI finals.[7] Consider the examples in (25). In Blackfoot, word order is relatively free, and it does not bear any crucial relevance to the current issue.

(25) a. nit- awaakomi -imm -a -wa kohko
1SG *love* *TA* *DIR* *3SG* *your son. AN*
'I love your son.'

b. nit- a'ka -imm -a -wa kohko
1SG *hate* *TA* *DIR* *3SG* *your son. AN*
'I hate your son.'

(26) a. amo napioyisi nit- awaakomi -i'tsi -'p
DEM *house. IN* *1SG* *love* *TI* *-DIR*
'I love this house.'

b. amo napioyisi nit- a'ka -i'tsi -'p
DEM *house. IN* *1SG* *hate* *TI* *DIR*
'I hate this house.'

When the object is animate, as in (25), the TA final *-imm* appears on the stem. In contrast, the TI final *-i'tsi* appears on the stem when the object is inanimate, as in (26). The subject is marked with a person prefix, such as *nit-* '1SG' (25-26), and is interpreted as an experiencer. Thus, these sentences correspond to Subj-Exp constructions of Class I.

The direct/inverse system in Algonquian languages was viewed as a case system by Fabri (1996). However, Ritter and Rosen (2010) and Ritter and Wiltschko (2004) have shown that direct/inverse markings in Blackfoot cannot

[6] The literature on psych-predicates has focused on the presence or absence of psych-effects among the classes (e.g., Belletti and Rizzi 1988, Arad 1998, Landau 2010, among others). However, it is difficult to test for these effects in Blackfoot without first establishing which classes exist in the language. Moreover, the discussion of the psych-effects is often based on language-specific properties or diagnostics for a particular phenomenon, not all of which apply to Blackfoot.

[7] Class I is assumed to be stative verb (Belletti and Rizzi 1988, Grimshaw 1990, Arad 1998); however, this does not seem to be the case for Blackfoot. For example, my fieldwork shows that psych-predicates in Blackfoot can take the imperfective aspect marker *a-*, and have the interpretation 'Exp is psych-V-ing right now.' This type of example seems to suggest that psych-predicates in Blackfoot are not stative verbs.

be equated with a case system. Rather, the direct-inverse system makes reference to a person-animacy scale, as in (27) (Aissen 1997; Dryer 1992; Junker 2004).[8]

(27) 1st > 2nd > 3rd PROX > 3rd OBV > 3rd inanimate

When the subject is in the first or second person and the object is in the third person, the verb is marked with a direct marker. If there is a third person subject and a first or second person object, then the verb is marked with an inverse marker. For example, in (25a), the direct marker *-a* on the verb indicates that the first person outranks the third person. That is, the first person is the subject, i.e., the experiencer, and the third person is the object theme. Inverse markers on the verb change the subject-object relation. Consider the example in (25a) with an inverse marker on the verb, as shown in (28).

(28)	kohko	nit-	awaakomi	-imm	-ok
	your son.AN	*1SG*	*love*	*TA*	*-INV*
	-wa				
	-3SG				
	'Your son loves me.'				

As the gloss in (28) indicates, the direction of the action has changed. The inverse marking indicates that the third person outranks the first person. In other words, in contrast to the examples with direct marking in (25), in (28), the third person is the subject and the first person is the object. Importantly, the subject is still an experiencer and the object is the theme. Irrespective of whether the verb has direct or inverse marking, the psych-TA finals correspond to the Subj-Exp Class I.

As mentioned earlier, TI finals indicate that the object is inanimate. Thus, verbs marked with TI finals have the meaning where an animate subject acts on an inanimate object. In Blackfoot, the subject cannot be an inanimate third person; consequently, there is no inverse suffix for the interaction between inanimate subjects and animate themes. As mentioned earlier, there is no direct or inverse marker for AI forms. I conclude that in Blackfoot psych-verb stems marked with TA and TI finals belong to Class I.

5 Does Blackfoot have Class II psyc-predicates?

Recall that in Class II, an experiencer appears as an object, and the causer is the subject. In Blackfoot, it appears that there are two ways to express more or less the same meaning as Class II psych-clauses. One is by employing the instrument prefix *iiht-~oht-* and the other is by means of the causative suffix *-attsi*.[9]

[8] As the distinction between the proximate and obviative are not relevant to the current topic of this section, I do not discuss them here.

[9] According to Frantz (2009), there is another variant of this marker, *omoht-*. I did not find this form with my consultants. Frantz also mentioned that the distribution of the

As discussed in section 2, psych-AI forms do not allow DPs or NPs, as illustrated by the contrast between (29a) and (29c) here. However, a DP can appear when the verb is prefixed with an instrument marker, as illustrated in (29b), where the instrument prefix *oht-* allows the DP object of the instrument 'John'. The DP is interpreted as the causer of the clause. As psych-AI forms are unergative, they cannot take an object without this instrument marker, as shown in (29c).

(29) a. nit- a'ka -i'taki
1SG- *hate* *AI*
'I have hatred.'

b. nit- oht- a'ka -i'taki ana John
1SG- *INST* *hate* *-AI* *DEM* *John*
'John makes me angry.'

c. *nit- a'ka -i'taki ana John
1SG- *hate* *-AI* *DEM* *John*
'John makes me angry.'

Another way of expressing the same meaning as Class II predicates is to add a causative suffix, as in other languages (see (22)).

(30) ana John nit- awaakomi -i'taki -attsi
DEM *John* *I* *love* *AI* *CAUSE*
-ok *-wa*
INV *3SG*
'John makes me feel love.'

The causer is 'John', and the causee is 'me', which is an experiencer. Here the third person animate acts on the first person animate, and thus inverse marking occurs on the verb.

In terms of thematic roles, it seems that Blackfoot has two ways of expressing the meaning of Class II predicates, as exemplified in (29b) and (30). However, this does not necessarily mean that the predicates must be Class II. The relevant sentences are expressed with the prefix *iiht-* ~ *oht-* and the suffix *-attsi*. The functions and meanings of the affixes seem to be different. In the section to follow, I will examine these two types of affixes in more detail and show that Blackfoot may not have Class II psych-forms.

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variants is not the same. *iiht-* appears in word-initial position, *omoht-* appears immediately following a person prefix, and *oht-* appears elsewhere. The data presented in this paper seem to support this generalization. As this is not the focus of the paper, I will not discuss this issue any further.

5.1 A comparison of psych-AI forms with *iiht- ~ oht-* and *-attsi*

The instrument marker is a prefix and the causative marker is a suffix. This difference seems to affect the status of the DP that each affix introduces. In particular, the causative marker has been treated as a TA final (Frantz 1991). This means that the suffix *-attsi* adds an external argument, assuming Ritter and Rosen's (2010) analysis of finals in Blackfoot as the realization of an external argument-introducing head.

In contrast, the element added by the instrument marker is an adjunct (Frantz 2009). The range of argument meanings added by *iiht- ~ oht-* can vary: instrument, means, source, content, or path. Examples involving an instrument and path are shown in (31a) and (31b), respectively. We can also add a causer role, as shown in (29b).

(31) a. oma isttoana iiht- sikahksinii'pi annistsi ikkstsiksiistsi
DEM knife.AN INST cut.TI-PL those branches
'The knife cut off those branches.'

b. iiht- a- waawahkaa yi aawa
INST DUR walk -PL PRO
om -yi -ma niitahtaa -yi
that IN.SG STAT river-IN.SG
'They are walking along the river.' (Frantz 2009)

Although the instrument marker can add a causer role to its argument, this argument cannot be treated the same as causers added by the causative suffix.

The first reason is based on the difference in animacy of the DPs that each affix introduces. In Blackfoot, it is well known that participants that are licensed by a final must be sentient animates (Ritter and Rosen 2010). On the other hand, there is no such requirement on participants that are introduced by non-final affixes, e.g., instrumental prefixes. In other words, a participant introduced by a final is treated as an argument, whereas a participant introduced by a non-final is treated as an adjunct. The sentient animacy requirement is observed with the causative final *-attsi* on psych-AI forms:

(32) a. ana John nit- awaakomi -i'taki -attsi
DEM John 1SG love AI CAUSE
-ok -wa
INV 3SG
'John makes me feel love.'

b. *ani isttoana nit- awaakomi -i'taki -attsi
DEM *knife. AN* *1SG* *love* *AI* *CAUSE*
-ok *-wa*
INV *-3SG*
'The knife makes me feel love.' (i.e., 'I love that knife.')

As illustrated in (32a), the sentient animate 'John' is licensed by the causative final *-attsi*. In contrast, the non-sentient 'the knife', which is animate in Blackfoot, cannot be licensed by the same causative final, as the ungrammaticality of (32b) shows.

In contrast, participants introduced by the instrument marker can be (non)-sentient animate or inanimate. In (33a), the psych-AI form is prefixed with *oht-*, and the prefix introduces a non-sentient animate causer, 'the knife'. It can also license a sentient animate causer, such as 'John' in (33b). An inanimate causer such as 'the house' is also possible, as in (33c).

(33) a. ani isttoana nit oht- awaakomi -i'taki
DEM *knife. AN* *I* *INST* *love* *AI*
'The knife makes me feel love.'

b. ana John nit oht- awaakomi -i'taki
DEM *John* *I* *INST* *love* *AI*
'John makes me feel love.'

c. ani napioyisi nit- awaakomi -i'taki
DEM *house. IN* *I* *love* *AI*
'The house makes me feel love.' (i.e., 'I love the house.')

Agreement marking is also different for the arguments introduced by the instrument prefix and the causative suffix. In Blackfoot, a person prefix is viewed as an agreement marker (Frantz 2009). For instance, in (34), the first person verbal prefix 'I' is licensed by the TA final *-imm*, and it is the subject of the sentence.

(34) nit- awaakomi -imm -wa ana John
1SG- *love* *-TA* *-3SG* *DEM* *John*
'I love John.'

When a causer is licensed by a causative TA final and is in the first or second person, it appears as a person marker, as shown in (35):

(35) a. ana kohko nit- awaakomi -i'taki -attsi
DEM *your son* *1SG* *love* *-AI* *CAUSE*
-a -wa
DIR *3SG*
'I make your son feel love.'

b. ana kohko kit- awaakomi -i'taki -attsi
DEM *your son* *2SG* *love* *-AI* *CAUSE*
-a -wa
DIRECT *3SG*
'You make your son feel love.'

However, the argument introduced by the instrument marker cannot be marked on the verb, regardless of its person. For instance, when the first person is licensed by an instrument marker and appears as a prefix on the verb, the sentence is ungrammatical, as in (36b). The grammatical way of expressing the sentence is to employ an independent pronoun, such as *niisto* 'I', as in (36a). The contrast between (36a) and (36b) indicates that the argument introduced by the instrument prefix cannot be marked as agreement on the verb.

(36) a. niisto oht- awaakomi -i'taki ana John
I *INST* *love* *-AI* *DEM* *John*
'Lit. By means of me, John is in love.'

b. *nit- oht- awaakomi -i'taki ana John
1SG *INST* *love* *-AI* *DEM* *John*
'Lit. By means of me, John is in love.'

The following table provides a summary of the comparison of the instrument and causative markers:

(37)

	Properties	*Instrument*	*Causative*
a.	argument type	adjunct	(external) argument
b.	agreement	no	yes
c.	animacy	no restrictions	only sentient animates
d.	type of affix	prefix	final (suffix)
e.	role	can vary	causer

As presented in the table in (37), the two markers are very different in nature. The absence of agreement (37b) and animacy restrictions (37c) on DPs introduced by the instrument marker follows from the fact that the instrument marked DPs are adjuncts (37a). This also explains why the roles marked by the instrument can vary (37e).

The question raised in this section was whether Blackfoot has Class II psych-forms. Given the results of the comparison of the instrument and causative

markers, I tentatively conclude that there are no Class II psych-forms with instrument markers. Recall that with Class II the subject is a causer and the object is an experiencer (see (22-23)). Moreover, these two roles correspond to grammatical relations, namely, the subject and the object. However, with psych-AI forms marked with an instrument marker, there is a single argument, a subject. The other argument is an adjunct licensed by the instrument marker. Additional evidence that psych-AI forms marked with the instrument prefix cannot be Class II is found in Louie (2009). She shows that the instrument-marked argument in Blackfoot merges lower than the subject. With canonical Class II psych-verbs, however, it is the causer that merges higher than the theme (i.e., experiencer) role. As for psych-AI forms with the instrument marker, I suggest that they are just like the bare psych-AI forms discussed in section 3. In other words, the instrument-marked psych-AI forms are unergative with an adjunct phrase.

Psych-forms with the causative suffix, as in (35), on the other hand, might be classified as Class II, as the subject is a causer and the experiencer appears to be an object. However, the experiencer cannot be an object in Blackfoot, unlike canonical Class II clauses. Psych-forms marked with the causative suffix *-attsi* (35) seem to be bi-clausal, unlike canonical Class II clauses. For instance, the clauses in (35) allow an agent-oriented adverb, e.g., 'willingly', and the sentences are ambiguous as to whether the causer or the experiencer is interpreted with the adverb (Kim 2012). More research is required in this area in order to make a firm conclusion on this issue.

6 Conclusion

This paper has shown that psych-forms in Blackfoot can have morphologically regular or irregular forms. A surprising finding is that psych-AI forms are unergative, unlike non-psychological AI forms. Another issue addressed was how psych-forms in Blackfoot can be classified with respect to the three well-known classes of psych-predicates discussed in the literature. It was shown that Class I could be expressed via psych-TA and -TI finals. Regardless of the presence or absence of an instrument marker, psych-AI forms are unergative, and thus may belong to Class I without a theme. The psych-AI forms marked with the causative suffix may not be Class II, as it could be the case that an experiencer does not correspond to the grammatical role of object. More research is required to reach a more solid conclusion. Unsurprisingly, Class III psych-predicates, which are non-agentive cross-linguistically, do not exist in Blackfoot, as psych-predicates in Blackfoot are agentive.

An interesting finding is that an instrument marker can introduce a causer with psych-AI forms, which has not been reported in the Blackfoot literature. As noted earlier, the instrument marker seems to mark a range of adjunctival meanings. However, the roles are not as random as one would expect. In fact, the instrument marker is called a 'linker' and is known to mark an oblique role (Frantz 2009). This marker does not show the same properties as the applicative

marker, which is a suffix and a final in Blackfoot. It will be interesting to find out how the instrument linker (as well as other linkers) can be formally differentiated from the applicative final.

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Domain analysis of contemporary Chinese American language use in northern California: Some implications for minoritized Chinese languages in the U.S.

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This paper uses domain analysis to look the language use of 93 Chinese American people of Hoisan heritage in northern California. *Hoisan-wa* is one of the languages linking all early Chinese immigrants to the U.S.A., but no substantive research has focused solely on people of this language and cultural heritage. Participants were asked to self-report their language proficiencies and use across domains for four languages (*Hoisan-wa*, Cantonese, Mandarin, and English). Results show that *Hoisan-wa* is used most frequently with grandparents and parents, while the younger generation used Cantonese more than *Hoisan-wa*. English prevailed as the language used by the younger generation. Mandarin was not used with much frequency across all generation groups. This research offers implications for *Hoisan-wa* and other minoritized Chinese languages in the U.S. currently under pressure because of "Chinese-as-Mandarin" ideologies in public and foreign language learning discourse.
Keywords: Hoisan-wa/Toishanese; Chinese Americans; language maintenance; U.S.; minority languages

1 Introduction

Cantonese, like other minority languages in the U.S.A., currently faces a host of challenges in terms of language maintenance by its speakers. While present trends of U.S. immigration show a vast spread of ethnic Chinese immigrants of various language backgrounds, nearly all Chinese immigrants from the 1800s to 1970s spoke some variety of "Cantonese" originating in the Lliyip/Szeyap/Seiyap (四邑, literally: "Four Districts") region in Guangdong (廣東) province in mainland China which consists of four districts: Taishan (台山), Kaiping (開平), Enping (恩平), and Xinhui (新會). Because of the proximity of this region to various seaports, much of the early ethnic Chinese immigration to the U.S. came from these four districts, with Taishan sending off the largest population of people, mostly as laborers from agrarian villages. Speakers from the Taishan

region of the Four Districts spoke *Hoisan-wa* (台山話)[1], also known as "Toisanese" or "Toishanese," as it is rendered from Standard Cantonese, and "Taishanese," as it is rendered from Modern Standard Mandarin.

Chinese Americans who can trace their ancestors' arrival in the U.S.A. back to the 19th and mid-20th centuries come from a shared Lliyip ancestral heritage language that differs greatly linguistically, culturally, and historically from Mandarin, the current standard language of China and Taiwan. This particular population is not at all small, as it encompasses a sizable proportion of third-generation Chinese Americans and nearly all fourth-generation-plus Chinese Americans. Chan and Lee (1981) note that "The Seiyap group accounted for approximately 70-90% of the resident Chinese population in various communities in the period 1870-1930" (p. 121). The exponential rise in the status of Mandarin today has resulted in the heightened demand for and consumption of Mandarin, thus impacting Chinese Americans of various "Cantonese" backgrounds and shifting in the political economy of languages. Put under a different light, this also means that even without institutional support, *Hoisan-wa*, despite ongoing repositioning and changes in context of use and esteem, has still managed to remain visible and operative for over 150 years, through all the phases of ethnic Chinese immigration to the U.S.A. For various Chinese Americans, *Hoisan-wa* is a language that is an L1, L2, heritage language (HL), and even a foreign language (FL), spoken with varying degrees of fluency. Still, there is no substantive documentation in the U.S.A. of speakers of this language background, their family language practices, or their various ideologies about *Hoisan-wa* in relation to Standard Mandarin and Standard Cantonese. This dearth of research stems multi-directionally from confusion in the West over "Chinese" and what constitutes a "language" and "dialect," as well as the tendency in China to level language varieties as being part of a single standard due to imagined linguistic and national boundaries (cf. Anderson, 1983/1991).

Broadly, the need to distinguish *Hoisan-wa* from Cantonese is a move that serves the practical means of honing onto a variety that so many Chinese Americans can so readily trace their roots to but know so little about. This distinction becomes an absolutely necessary component in tracing the shifting language ideologies of the varieties of Chinese in the U.S. as well as

[1] The romanization of 台山話 is something I have struggled with for a very long time. I have chosen to romanize *Hoisan-wa* as such because this is how its speakers pronounce it. Many refer to *Hoisan-wa* as "Toisanese," with a voiceless alveolar plosive [t], indicative of how a Cantonese speaker – but not a *Hoisan-wa* speaker – would say it. As a user of both varieties, and also having discussed this issue with younger speakers of *Hoisan-wa* in the U.S., I feel it is most fair to call *Hoisan-wa* in the way I am choosing, maintaining the glottal [h] sound. I recognize this seemingly slight distinction is an… …ideologically-fraught marker of alliance. I am staying away from the Mandarin romanization "Taishanese." I recognize that these choices break from traditional romanization schemes but am opting to make *Hoisan-wa* visible and deemphasize Cantonese and Mandarin. For standardized place locations in China only, I will maintain the Modern Standard Mandarin (MSM) romanization (e.g., Taishan).

understanding the contributions of Chinese Americans to U.S. history by recognizing and celebrating their language varieties. No research to date has specifically looked systematically at intergenerational language transmission and use specifically by those of *Hoisan-wa* language and ancestral heritage backgrounds. In a climate where Mandarin-language education is so publicized and valued, it becomes even more critical to look at the historical shaping and language learning experiences of and prospects for this neglected Chinese American population of *Hoisan-wa* heritage, whose very important histories and language backgrounds will continue to be slowly erased if left perpetually omitted in research as they have been the last 150 years.

2 Framework and review of relevant literature

The following section will briefly discuss the framework and relevant literature related to *Hoisan-wa* language maintenance, including issues related to (socio)linguistics, minoritized languages and language/cultural loss, and reversing language shift.

2.1 Understanding *Hoisan-wa* in (socio)linguistic terms

One of the reasons why people typify *Hoisan-wa* as sounding "harsh" is because it has a voiceless lateral fricative [ɬ], often Romanized as "thl", "tl", or "ll", a sound not found in the sound inventories of either Cantonese or Mandarin. As this is a sound that requires forcing the breath through a partially obstructed passage in the vocal tract while pulling the tongue back to the alveolar ridge, it is not uncommon for Cantonese speakers to mock *Hoisan-wa* speech through the use of this sound. Historical linguists, however, indicate that this sound is a relic of Middle or Elder Sinitic/Chinese (Cheng, 1973). There are also several other qualities of *Hoisan-wa* that point to its long linguistic life and survival, including tonal inflection for personhood as opposed to adding a lexical morpheme to the singular forms and the use of the negation particle *mo4*, documented only in the older generation of speakers in Macau and Hong Kong (Kuong, 2008).

Nonetheless, these phonological and lexical peculiarities are precisely the reasons why people cast such negative judgments on *Hoisan-wa*. As Kroskrity (2001) states of African American English and other "nonstandard" languages, "Rather than being understood as linguistic differences, such perceived inadequacies are instead naturalized and hierarchized in a manner which replicates social hierarchy" (p. 503). The devaluing and subordination of *Hoisan-wa* can also be understood in terms of the perceived value of social capital attached to a so-called "standard language", be it Standard Cantonese or Modern Standard Mandarin, both of which seem to be "presented as universally available [and] commoditized and presented as the only resource which permits full participation in the capitalist economy and an improvement of one's place in its political economic system" (Kroskrity, 2001, p. 503). As this process involves erasure, where "ideology, in simplifying the sociolinguistic field, renders some

persons or activities (or sociolinguistic phenomena) invisible" (Irvine & Gal, 2000, p. 38) and limiting access to participation, it is one that needs to be both questioned and re-evaluated. How *Hoisan-wa* speakers and people of Hoisan heritage are grappling with such issues of reconciling history with their language's continued existence is an area no one has yet explored and, with the number of monolingual *Hoisan-wa* speaking elders becoming fewer and fewer, this investigation and presentation of the research is indeed time-sensitive.

2.2 Minoritized languages and language/cultural loss

Language hegemony is largely seen through the lens of the English-speaking world (Fishman, Cooper & Conrad, 1977; Maurais & Morris, 2004), and the hegemony of Mandarin Chinese is not usually brought up in traditional discussions about linguistic imperialism and language rights. While Mandarin might fall short when compared to the far-reaching scope of English globally, within the less-heard talk of Chineses, Mandarin is considered a hegemonic force (Hsiau, 2000; Snow, 2004). As such, work by Skutnabb-Kangas and Phillipson (1994) greatly informs the way *Hoisan-wa* and other non-Mandarin varieties are viewed currently in light of Mandarin, which many construct as a "world language," and why, now more than ever, it becomes even more important to look at the effects of language hegemony on a local community. Left unchecked, language hegemony has the capacity to set off "linguistic genocide" of minority languages and is especially potent in the realm of education. As an institution, education at all levels is likely to perpetuate – if not exacerbate – language hegemony and existing ideologies about language.

The notion of linguistic capital (Bourdieu & Passeron, 1990) is useful in viewing institutional and professional currency as factors in language learning and use. In order to understand how other varieties of Chinese are maintained in relation to Mandarin, social and power relations must be considered. King (2001) writes, "For the more powerful, majority-language groups, [language maintenance] is often a non-issue, and something of which most speakers are not conscious" (p. 3). Conversely, she states, "For the less powerful, minority-language speakers... language maintenance tends to entail conscious effort and is often a collective goal in the face of adverse circumstances" (p. 3). Thus in the U.S. context, it is critical to recognize the dynamic tensions between so-called "minority" and "majority" speakers of a Chinese language, and, more importantly, under which contexts one becomes positioned as a minority and a majority speaker. For example, for those who are multilingual, it is equally possible to simultaneously be a minority and majority speaker. For many, when English is taken into consideration, speakers of all varieties of Chinese may become minority speakers. When it comes to intra-"Chinese" language relations, those who speak or are acquiring Mandarin undoubtedly view *Hoisan-wa* through a different lens than those of *Hoisan-wa* heritage do as they struggle to keep the variety seen and heard. Researchers have noted the value and ties between Mandarin Chinese and budding linguistic and economic markets (Curdt-

Christiansen, 2009) but few have considered intra-Chinese relations and how non-Mandarin Chinese languages like Cantonese and *Hoisan-wa* negotiate language choices and use.

The loss of languages is tantamount to an "intellectual catastrophe" (Zepeda & Hill, 1991, p. 135), and oftentimes, language users are not up in arms about language loss until their language truly becomes threatened. As Pyoli (1998) notes, "Paradoxically, some kind of ethnic awakening does not seem to arise among the minorities until the terminal state of a language, when statistics already reflect the decline of minority-language speakers" (p. 129). Speaking to the U.S. educational context, Wong Fillmore (2000) writes that "[t]he dilemma facing immigrant children, however, may be viewed as less a problem of learning English than of primary language loss. While virtually all children who attend American schools learn English, most of them are at risk of losing their primary languages as they do so" (p. 203). Wong Fillmore argues that this loss is not limited to the actual decline in language use but also affects the emotional and psychological well-being of HL speakers.

2.3 Reversing language shift (RLS)

To ward off shifts by minority languages to a more hegemonic language, a language group can make deliberate efforts in language maintenance. Fishman (1991) calls these efforts of reversing language shift (RLS), a process that "requires reversing the tenor, the focus, the qualitative emphases of daily informal life – always the most difficult arenas in which to intervene" (p. 8). As these efforts oftentimes run counter to popular ideologies and are undertaken by those in society that have less implementational power, RLSers face harsh criticisms of being "backward looking ('past-oriented'), conservative, change-resistant dinosaurs" (Fishman, 1991, p. 386). Fishman and others (Luo & Wiseman, 2000; Uchikoshi & Maniates, 2010, to name a few) note how crucial a unit the family is in helping a community maintain its HL and values and whose language attitudes are worth studying in full.

King (2001) notes that while the restoration of family language transmission is a large component of language revitalization, there are more aims to revitalization than that. As Hornberger and King (1996) eloquently state, language maintenance is not so much about "bringing a language back" as it is "bringing it forward" to new domains, users, and uses (p. 440). As a contemporary multilingual Chinese American of *Hoisan-wa* heritage, this means acknowledging that children of Hoisan heritage may not speak the same way, or perhaps reach the same fluency as their parents or grandparents; however, it is nonetheless hoped that these children can feel pride in being of Hoisan heritage and develop the language abilities in speaking multiple varieties of Cantonese in conjunction with English and even Mandarin into the future, reflective of the language situation of the times.

Many of the published endeavors of language reclamation and reversing language shift have come from Native American and indigenous communities,

including Miami (Leonard, 2007), Keres (Benjamin, Pecos, Romero, & Wong Fillmore, 1998), Maori (Benton, 1991), to name only a few. As Leonard (2007) notes, "Leaders of these and similar efforts often articulate the idea of an initial group of people learning the language so as to be able to raise children with it, hence re-establishing the historical pattern of intergenerational transmission" (p. 10). However, these efforts are often thwarted by certain prevailing sociohistorical conditions that led to the language's decline as well as the presence of a majority language, particularly English in the U.S. context.

With regards to minoritized languages, Blommaert (2010) notes that the processes of rescaling can reorder and functionally specialize language resources and their usages in different domains, which thereby removes traditional labels like "endangered languages". In doing this, Blommaert reconceptualizes language use by allowing for "a detailed and precise view in which shades of grey are allowed, and in which we can see that particular resources, even if they look obsolescent to the analyst, can have important functions for language users" (p. 134). One can thereby re-envision a situation of so-called "language loss" to one where "'languages' of the traditional vocabulary exist as 'registers' in a new and more productive vocabulary, and the real 'language' that the people possess is this patchwork of specialized multilingual resources" (p. 134). That is, a minoritized language can be seen as being part of a truncated repertoire that is far from "disappearing" into oblivion; rather, the language has become a specialized register with its own indexical values and functions. This is reminiscent of Ruiz's (2010) argument that a language-as-resource orientation to multilingualism views even the most marginalized languages as resources because their multifaceted values are not just defined solely along economic planes, but in terms of intellectual, aesthetic, cultural, and citizenship connections. Ruiz (2010) uses the example that many communities have used their languages for generations without so-called "instrumental" end goals to show that values are not entirely defined by outside communities. It is through these lenses above that I look to position my framework and view the data I present.

3 Methodology and data collection

Data from this research comes from a larger, interview-based qualitative study that investigated the linguistic elements of *Hoisan-wa* (e.g., lexicon, phonology) as well as the language ideologies and discourse around it (e.g., why *Hoisan-wa* was worth or not worth bringing forward). For the purposes of this paper, however, only the self-reported language proficiencies and domain analysis sections will be detailed.

Between January 2011 to January 2012, I interviewed 93 participants of Hoisan heritages, a sufficient number to run descriptive statistical analyses on the language proficiency and domain analysis sections, adjusting for measurement fallibility (Light, Singer, & Willett, 1990, p. 206). After collecting general age, gender, and education demographics, next section of the research protocol asked respondents to rate their own proficiencies in *Hoisan-wa*/Lliyip, Cantonese,

Mandarin and English using a seven-point scale. Rather than pass out a paper questionnaire, I opted to ask my participants verbally and record their responses on a blank copy of my questionnaire, which I held in front of me. Most of the time, I asked these questions in English, but for those participants who wanted to use *Hoisan-wa* or Cantonese, I asked them the same questions in the language of their choosing. The participants were asked to rate their own proficiencies in Cantonese, *Hoisan-wa*/Lliyip, Mandarin, English, any other languages they spoke, on a scale from 1-7, with 7 being the most proficient. The domain analysis section asked when participants used which languages (Cantonese, *Hoisan-wa*/Lliyip, Mandarin, English) across different domains (grandparents, parents, siblings, spouse/significant other, children, close friends, neighbors, strangers, teachers, classmates, colleagues, boss). These statistics were supplemented with sociolinguistic and semi-structured interview questions dealing with various issues of language maintenance.

In total there were 41 males and 52 females (n=93) who participated in the sociolinguistic interviews. The youngest participant was eight years old, and the oldest was 97. Some of the participants were different generations of the same family. The participants were later grouped into three main age groups: 1) "young people", who are aged 8 to 30 (n=22), 2) "middle aged people", who are aged 31 to 65 (n=35), and 3) "elders", who are aged 66 and above (n=36). To gather as complete a picture as possible of the diverse range of Hoisan-heritage people in the San Francisco Bay Area, the only two requisites to participate in my sociolinguistic interviews were that participants be of Hoisan heritage on either the maternal or paternal side (or both) and that they have lived in the Bay Area for a consecutive period of time. For the younger generation in particular, I made it clear that spoken knowledge of *Hoisan-wa* was not necessary. My decision to use this criterion is informed by research and by my own personal experiences as a Chinese American of partial Hoisan heritage. As Canagarajah (2008) notes, for some in the Tamil diaspora, "it is cultural practices that seem to define Tamil identity... not language" (p. 168). I realize that identities and communities are not fixed but rather dynamically adapt over time, nor do they revolve solely around language. Rather, it is possible for language to be "sacrificed to maintain culture" (Canagarajah, 2008, p. 169). Thus, having a language fluency criterion for eligibility to participate in my study, especially for the younger generation, did not seem well-informed.

4 Findings

Below I present the statistical results from the demographics, reported language fluency, and domain analysis questions that my participants answered. A full copy of this questionnaire can be found in Appendix A. The domain analysis instrument that I utilized is based closely on the one used by Yeh, Chan, and Cheng (2004) and is similar to the instruments used in the domain analysis research by Lin (2007) and Bartoo (2009). While I chose to use this instrument out of pragmatic comparability to existing research, I concede that there are

inadequacies to this instrument, which I will discuss later in this section.

4.1 Demographic information

Below are the basic demographic features of the participants.

Table 1. Demographic features of participants

Variables		n	%
Gender	Male	41	44.0%
	Female	52	56.0%
Age	Young	22	23.66%
	Middle	35	37.63%
	Elder	36	38.71%
Education	Literate, no formal education	7	7.53%
	Elementary	25	26.88%
	Secondary	14	15.05%
	College	27	29.03%
	Advanced degree	20	21.51%

I divided my participants into three main age groups: young, middle, and elder. These three groups were meant to roughly delineate the generational divides. Additional details of these three age groups are provided below.

Table 2. Age ranges and means of participants

Group	Range (years)	Mean (years)	n
Young	8-30	23.7	22
Middle	31-65	55.5	35
Elder	66-97	79.5	36

As evidenced by Table 2 above, the youngest respondent was 8 years old, and the oldest was 97 years old.

4.2 Reported language fluencies

Once the demographics were collected, the second section of the research protocol asked respondents to rate their own proficiencies in *Hoisan-wa*/Lliyip, Cantonese, Mandarin and English using a seven-point scale. The seven fluency options were as follows:

1: Can talk about any topic fluently
2: Can appreciate TV shows, movies, music
3: Can conduct casual speech
4: Can understand and speak simple sentences
5: Can understand a few sentences

6: Can understand a few words
7: Cannot understand at all

Choices 1-3 point to productive fluency, while choices 4-6 point to receptive fluency. I added "Lliyip" next to *Hoisan-wa* after my pilot research showed that some participants called their heritage language "Lliyip" instead of "*Hoisan-wa*". I fully recognize that *Hoisan-wa* is a term I have explicitly chosen to employ, and I wanted to recognize what others call their/our language, too.

Below, I will show my participants' reported fluencies for *Hoisan-wa*/Lliyip. Statistically-significant mean differences (at the $p<.05$ level) have been starred, and redundant mean differences have been excluded. The results were corrected for multiple comparisons with the Bonferroni correction.

Table 3. Comparison of reported fluencies of *Hoisan-wa*/Lliyip and Cantonese

	Hoisan-wa/Lliyip				Cantonese			
	Mean	SD	Mean difference		Mean	SD	Mean difference	
			Group	Difference (Age group - group)			Group	Difference (Age group - group)
Young	5.136	1.726	Middle	-2.451*	4.000	1.799	Middle	-1.286*
			Elder	-3.553*			Elder	-1.500*
Middle	2.686	2.026	Young		2.714	1.506	Young	
			Elder	-1.102*			Elder	-0.214
Elder	1.583	1.228	Young		2.500	1.464	Young	
			Middle				Middle	
Total	2.839	2.158			2.936	1.660		

As indicated from the mean fluencies by age group, the youngest generation had the lowest reported fluency (5.136 out of 7, hovering around "can understand and speak a few sentences"). The middle generation reported an average of 2.686 out of 7, and the oldest generation reported an average of 1.583, making them the most fluent group in *Hoisan-wa*/Lliyip. A one-way ANOVA indicates that the differences among the three groups' averages are significant. That is to say, there is a significant effect of age group on language fluency. Each generation has a statistically different degree of fluency in *Hoisan-wa*/Lliyip.

The average reported fluencies of *Hoisan-wa*/Lliyip and Cantonese were similar at 2.839 and 2.936, respectively. Taking a closer look at Cantonese, the youngest generation gave themselves a higher fluency score than they did for *Hoisan-wa*/Lliyip: 4 out of 7 ("can understand and speak simple sentences"). As age increased, so did the average fluency in Cantonese. The middle generation reported an average of 2.714 out of 7, nearly the same as their average for *Hoisan-wa*. The oldest generation reported an average of 2.5 out of 7. A one-

way ANOVA also shows that the differences when comparing the mean averages of the youngest to the middle and oldest generations are significant, indicating that age group has an effect on Cantonese language fluency.

As a point of comparison to *Hoisan-wa*/Lliyip and Cantonese, the respondents' scores for Mandarin and English are presented below in Table 4.

Table 4. Comparison of reported fluencies of Mandarin and English

	Mandarin				English			
	Mean	SD	Mean difference		Mean	SD	Mean difference	
			Group	Difference (Age group - group)			Group	Difference (Age group - group)
Young	5.136	1.670	Middle	0.0636	1.000	0	Middle	0.286
			Elder	1.207*			Elder	3.743*
Middle	5.200	1.605	Young		1.286	1.202	Young	
			Elder	1.1429*			Elder	3.457*
Elder	6.343	0.968	Young		4.743	2.105	Young	
			Middle				Middle	
Total	5.620	1.511			2.533	2.289		

One can see that the average reported fluency for Mandarin is 5.620 out of 7, with the oldest generation reporting the least fluency in Mandarin. The mean differences between the young (5.136 out of 7) and middle (5.200 out of 7) generations were not significant, which means that the two groups' reported fluencies were about the same. These findings are interesting considering the rhetoric behind the linguistic economical view of learning Mandarin because it is "useful" for the future.

It is probably not all too surprising considering the linguistic climate of the U.S. that the average reported fluency score for English was the highest of all four languages: 2.533 out of 7. All respondents in the youngest generation rated themselves as able to "talk about any topic fluently" in English. The middle generation also reported very similar results: 1.202 out of 7, a mean that was not statistically different than the youngest generation's mean. As respondents reached a higher age, their reported fluency in English decreased: their average mean was 4.743 out of 7 (between "can understand and speak simple sentences" and "can understand and speak a few sentences").

4.3 Language use and interlocutors

I will now report the statistical data from the domain analysis section. Following existing studies, I used 12 interlocutors (grandparents, parents, siblings, spouses/significant others, children, close friends, neighbors, strangers, teachers, classmates, colleagues, bosses) standing for the domains of family members/home, friends, acquaintances, strangers, school, and work. Participants

were asked to rate, on a three-point Likert scale, the frequency of their use of *Hoisan-wa*/Lliyip, Cantonese, Mandarin, and English with the 12 different interlocutors. Using this scale, respondents chose 3 if they "frequently use the language", 2 if they "sometimes use the language" and 1 if they "rarely or never use the language".

I will summarize the findings by interlocutor. Full tables of these analyses[2] can be found in Appendix B and C. As with the reported language fluency data, I will first discuss the *Hoisan-wa*/Lliyip and Cantonese numbers side by side before turning to Mandarin and English.

4.3.1 Self-reported Hoisan-wa/Lliyip and Cantonese use

The grandparents group was the highest scoring for use of *Hoisan-wa*/Lliyip for the youngest and middle age groups. The oldest generation reported a 2.800 out of 3 for frequency of use. The middle generation averaged a use of 2.429, and the youngest generation reported an average of 1.409. Put in practical terms, the grandparents of the elders, of those in the middle generation, as well as many of the grandparents of those in the youngest generation were/are all presumably monolingual *Hoisan-wa* speakers, so the participants did not have much of a choice but to use *Hoisan-wa* with them. These results seem to confirm what we already know about Hoisan heritage people and other first-generation immigrants.

Interestingly, for Cantonese use with grandparents, the youngest generation averaged 1.954, hovering around using it "sometimes". Out of the three generation groups, the youngest generation used Cantonese the most (perhaps as the "Chinese" of choice) with grandparents. The middle and oldest generations averaged 1.514 and 1.114, respectively.

The parents group was the highest-scoring interlocutor group for use of *Hoisan-wa*/Lliyip for the oldest age group: 2.829 out of 3. For the middle and youngest age groups, this was the group rated with the second-highest average frequency of use of *Hoisan-wa*/Lliyip, 2.343 and 1.272, respectively. These numbers also seem to confirm the research findings for this dissertation as well as common knowledge in the *Hoisan-wa*-speaking community that *Hoisan-wa* is used within the family, particularly parents and grandparents.

Along a similar vein to the Cantonese frequency of use with grandparents, the youngest generation also reported the highest average (1.682 out of 3) for using Cantonese with parents. The middle and oldest generations averaged 1.371 and 1.057, respectively.

For use of *Hoisan-wa*/Lliyip with siblings, the average scores for the younger and oldest generations were nearly the same as for parents: 1.227 and 2.657, respectively. The sharpest difference came from the reported frequency of use for the middle generation: 1.677 out of 3. It seems that within the home

[2] To correct for running multiple tests, the calculated p-values were multiplied by 12 (corresponding to the 12 interlocutor groups) and used those values as the benchmarks for establishing statistical significance at the $p>.05$ level

domain, while this generation used *Hoisan-wa* with their parents and their grandparents, they did not use it as much with their siblings.

For Cantonese, there were no statistical differences among age groups for the mean differences for use of Cantonese with siblings. The averages for all three groups were about the same: 1.273 for the youngest generation, 1.324 for the middle, and 1.200 for the oldest.

All of the respondents in the youngest generation responded that they "rarely or never" used *Hoisan-wa*/Lliyip with their spouses or significant others. Similarly, the middle generation reported an average of 1.519 out of 3 for *Hoisan-wa* use with this group of interlocutors. Only the oldest generation reported a high average of 2.688 out of 3 for using *Hoisan-wa*/Lliyip to speak with a spouse or significant other.

For Cantonese use, all of the respondents in the youngest generation responded that they "rarely or never" used Cantonese with their spouses or significant others. The middle generation averaged the same as their use of *Hoisan-wa*/Lliyip use (1.519), and the oldest generation averaged 1.219. There were no statistical differences among age groups for the mean differences for this interlocutor group.

All of the respondents in the youngest generation responded that they "rarely or never" used *Hoisan-wa*/Lliyip with their children (though not everyone in this age group had children). Both the middle and oldest generations reported using less *Hoisan-wa* with their children than for the first four interlocutor groups discussed, averaging 1.462 and 2.500, respectively. As later corroborated by conversation data, participants stated that even if parents spoke in *Hoisan-wa* to their children, the children would answer in English, forcing the parents to begin to use more English.

For Cantonese, none of the respondents in the youngest generation reported using Cantonese with their children. The middle generation reported an average of 1.269, and the oldest generation averaged 1.438. There were no statistical differences among age groups for the mean differences for this interlocutor group.

Hoisan-wa/Lliyip was not a frequent language used between close friends for the youngest and middle generations, averaging 1.045 and 1.371 out of 3 for these groups, respectively. The oldest generation averaged 2.411 out of 3.

The youngest generation averaged 1.591 for using Cantonese with close friends. The middle and older generations averaged 1.314 and 1.559, respectively. There were no statistical differences among age groups for the mean differences for this interlocutor group.

Hoisan-wa/Lliyip was also not frequently used with neighbors, averaging 1.000 for the youngest generation, 1.171 for the middle generation, and 2.176 for the oldest generation. This is not particularly surprising considering the diverse demographic make-up of the Bay Area.

For Cantonese use with neighbors, the youngest and middle generations averaged 1.047 and 1.176. The oldest generation averaged 1.647.

The youngest generation did not use *Hoisan-wa*/Lliyip to talk to strangers (averaging 1.000 out of 3), and the middle generation also averaged a similarly low frequency: 1.371. The oldest generation averaged 2.324.

For Cantonese use with strangers, the youngest generation averaged 1.409 out of 3, the middle averaged 1.714, and the oldest averaged 1.647. One can see that the youngest and middle generations had higher averages for using Cantonese in their interactions with strangers, but the averages for Cantonese use with strangers for the oldest generation were lower than that of use of *Hoisan-wa*/Lliyip. This seems to corroborate with the ideology articulated by many younger and middle generation respondents that *Hoisan-wa* is not a language used in public spheres, an ideology that is not shared by the older generation.

The youngest and middle generations rarely or never used *Hoisan-wa*/Lliyip with their teachers, averaging 1.000 and 1.114, respectively. This seems unsurprising, especially since *Hoisan-wa* is not taught in any schools. This group of interlocutors was also the lowest averaging for the oldest generation for frequency of use: 1.567 out of 3. This low average can be explained by the fact that many of the elders did not attend school, and even if they did, instruction was mostly in Cantonese and not *Hoisan-wa*.

Reported frequency of Cantonese use with teachers was higher than that of *Hoisan-wa*/Lliyip for all groups. The youngest generation averaged 1.333, the middle averaged 1.914, and the oldest generation averaged 2.300.

For *Hoisan-wa*/Lliyip use with classmates, the youngest and middle generations averaged 1.000 and 1.200, respectively. The low frequency of *Hoisan-wa* use can be explained by the diversity of the Bay Area. While the oldest generation did not use *Hoisan-wa* with their teachers, who had higher status and authority, they reported a higher frequency of use with classmates: 2.200 out of 3.

For the case of Cantonese use with classmates, both the youngest and middle generations reported higher averages than for *Hoisan-wa* use: 1.439 and 1.571, respectively. The oldest generation reported a lower average than for the use of *Hoisan-wa* with classmates: 1.567.

For *Hoisan-wa*/Lliyip use with colleagues, the youngest and middle generations averaged 1.000 and 1.200, respectively. The older generation averaged 2.147. It is likely that many of these elders worked jobs typical of many early Chinese American immigrants (e.g., seamstresses, line cooks) and had work colleagues that spoke *Hoisan-wa*, which helps to explain the higher average.

For the case of Cantonese use with colleagues, the youngest generation averaged 1.177. The middle generation averaged 1.457, and the oldest generation averaged 1.588, which was a lower frequency than their reported use of *Hoisan-wa* with colleagues.

For *Hoisan-wa*/Lliyip use with bosses, the youngest and middle generations averaged 1.000 and 1.143 for this category, and the oldest generation averaged 2.029.

For Cantonese use with bosses, the youngest and middle generations averaged 1.000 and 1.286. The oldest generation averaged 1.647.

4.3.1.1 Self-reported Hoisan-wa/Lliyip and Cantonese use summary

In short, arguably the most compelling findings from the *Hoisan-wa*/Lliyip and Cantonese frequency of use findings seem to be that the interlocutor groups of grandparents and parents are where *Hoisan-wa*/Lliyip were and are most used. For the youngest generation, while they still report to use *Hoisan-wa*/Lliyip with their grandparents and parents, the Chinese language of choice to be used with these two groups is actually Cantonese, which suggests a shift of "Chinese" language use across the generations. Respondents did not use *Hoisan-wa*/Lliyip or Cantonese with their siblings as frequently as they did with their parents and grandparents. Another telling statistical result is the reported frequency of use of *Hoisan-wa* with teachers as opposed to classmates for the middle and older generations, indicative of the status differential: the language of "educated-ness" was Cantonese, not *Hoisan-wa*. While the older generation tended to use the most *Hoisan-wa*/Llyip by nature of the fact that they were most likely mostly monolingual, the younger and middle generations tended to not use *Hoisan-wa*/Lliyip or Cantonese much with all other domains and interlocutor groups.

4.3.2 Self-reported Mandarin use

Looking at the results for Mandarin (Appendix C), one can immediately see an obvious trend: it is not used with much frequency at all. In fact, the highest average across all groups is 1.314 out of 3, which was the average for the youngest generation's use of Mandarin with teachers. Additionally, the low standard deviations as well as the lack of statistical significance between mean differences across groups show that this trend is stable for all three generations. This is also corroborated by one of my interview questions, which asked what my participants called their HL (or the language they used with their grandparents or parents that was not English). All of the participants referred to this language (be it *Hoisan-wa* or Cantonese) as "Chinese". The use of the word "Chinese" never referred to Mandarin. Thus, in efforts to avoid redundancy in reporting the Mandarin statistical data, I will opt not to describe each of the interlocutor groups but instead will save this result for the discussion section.

4.3.3 Self-reported English use

Having situated the findings for *Hoisan-wa*/Lliyip, Cantonese, and Mandarin, I now turn to my participants' reported frequency of use of English. Since use of English is such a pervasive factor in the U.S. context, I am operating under the assumption that participants will likely have differentiated frequencies of English language use depending on various interlocutors and domains. As such, I will discuss all the interlocutor groups in turn.

On average, the youngest generation reported using English to their grandparents more frequently (2.136 out of 3) than the middle and oldest

generations (1.343 and 1.086, respectively). Knowing what we know about language maintenance in the U.S., these results should roughly be inversely related to reported use of *Hoisan-wa* to grandparents. That is, the more frequently *Hoisan-wa* is reported to be used with grandparents, the less frequently English is used, and the less frequently *Hoisan-wa* is reported to be used with grandparents, the more frequently English is used. This is the case in these findings as well.

The youngest generation averaged 2.727 out of 3 for use of English with parents. The middle generation averaged 2.057, and the oldest averaged 1.143. With each generation averaging around the score for one of the three levels of frequency, it seems that the interlocutor group of parents experienced a shift in frequency of use across the generations.

For speaking to siblings in English, the youngest and middle generations averaged 2.955 and 2.794 out of 3. It was only the oldest generation that reported to "rarely or never" use English to speak with siblings, averaging 1.342 out of 3.

The youngest generation all responded that they used English frequently with their spouses or significant others. The middle generation averaged 2.519, and, as in the case of siblings, the oldest generation was the only group to "rarely or never" use English with this group of interlocutors, averaging 1.188.

As for the interlocutor group spouses and significant others, the youngest generation all responded that they used English frequently with their children. The middle generation averaged a high frequency of use of 2.808, and the oldest generation again was the only group to "rarely or never" use English with this group of interlocutors, averaging 1.250.

The averages for close friends are also very similar to that of children and spouses and significant others: 2.955 for the youngest generation, 2.889 for the middle generation, and 1.294 for the oldest generation.

The youngest generation all reported to use English with their neighbors. The middle generation also averaged a high frequency of 2.829, and the oldest generation averaged 1.382.

The youngest generation all reported to use English with their teachers. The middle generation also averaged a high frequency of 2.886, and the oldest generation averaged 1.567. Some of the elders mentioned going to citizenship classes, which was the only time they had gone to a classroom setting where English was used and spoken.

The youngest generation all reported to use English with their classmates. Like with the interlocutor group of teachers, the middle generation averaged 2.886. The oldest generation averaged 1.367.

The youngest generation all reported to use English with their colleagues. The middle generation averaged 2.886, and the oldest generation averaged 1.382.

Very similar to the use of English with colleagues, the youngest generation all reported to use English with their bosses. The middle generation averaged 2.829, and the oldest generation averaged 1.353.

4.3.3.1 Self-reported English use summary

As predicted, the use of English was differentiated across interlocutors. The youngest generation used the most English across all interlocutor groups, while the older and middle generations used the least English with grandparents and parents. For the youngest generation, the lowest reported frequency of using English with grandparents, though that result still hovered around "sometimes".

4.4 Limitations to the instrument

As with all instruments, there were limitations to this domain analysis. I could have, for example, added questions to the existing protocol that probed the attitudinal beliefs of my respondents and thereby could have run more robust correlational analyses. I could have developed a more complex protocol instead of following existing studies. It could have also been possible to expand the Likert scales for frequency of language use to better capture the degree of frequency. There was also the danger of my participants responding in a way that did not actually reflect their "true" language use and/or fluencies. However, since there is currently no existing numerical data for *Hoisan-wa*-speaking communities beyond discourse circulating within the community, or beyond data where all Chinese languages are lumped together, these numbers are a start in our better understanding the language situation of Hoisan heritage people in the U.S. The statistical methods employed in this chapter were sound, and I have not asked the data to tell us more than they can. I hope that the offering of these statistics can lead to other studies that draw from the trends I have outlined above.

5 Discussion and implications

Based on the findings from the domain analysis, we can use the statistics to confirm some of what we already know about *Hoisan-wa* language use as well as larger language maintenance trends in the U.S. Within the domain of the home was where *Hoisan-wa* was said to be used most frequently, especially frequently with grandparents and grandparents and, to a lesser degree, with siblings. For the oldest generation, *Hoisan-wa* was used most frequently across all contexts; the middle and youngest generations used English most frequently to talk with friends, acquaintances, strangers, school classmates, and work colleagues. The "Chinese" of choice for the youngest generation seems to be Cantonese and not *Hoisan-wa*, as evidenced from higher averages for Cantonese use than *Hoisan-wa* use with strangers and also with grandparents and parents. From the very similar averages across the reported frequency of language use of English across all domains except the home and family, we are also able to confirm the prevalence of English language use in various public spheres. In the U.S. sociolinguistic milieu this is not a particularly surprising finding, and at first blush it might be a fair assessment to say that language shift seems to be

occurring. However, as the qualitative data from my research show (Author, 2012c), at local, family levels, *Hoisan-wa* is still significant in ways that have diverged across generations, thus making it possible to find ideological and implementational spaces (cf. Hornberger, 2005) wherein Hoisan language and the unique Chinese American history associated with Hoisan heritage people can be shared and transmitted. Rather than conceptualizing the findings of the above domain analysis as strictly an example of language loss, in alignment with Blommaert (2010), one could also argue that *Hoisan-wa* has become functionally specialized along specific domains involving the family.

Additionally, across all age groups surveyed in this study, Mandarin is not used with frequency. This point runs contrary to broader discourses about the presumed utility of Mandarin Chinese; that is, from the domain analysis data presented above, not all Chinese American families find Mandarin centrally relevant to their lives. I argue that more school and community language programs need to be cognizant of this. I bring up this last point in efforts to draw attention to the linguistic realities of not only the participants in my study, but of what I would argue is a population of Chinese Americans that are often muted in wider academic and public "Mandarin-as-Chinese" discourses. A testament to this point, alluded to earlier, is my participants' use of the word "Chinese" to refer to either *Hoisan-wa* or Cantonese, but never to Mandarin. For those who only know or are aware of Chinese in the form of Mandarin, my participants' use of the word "Chinese" to refer to anything other than Mandarin might seem strange or even sacrilegious. Yet, this act of naming speaks to the very long history of *Hoisan-wa* and Cantonese speakers in the U.S., whose linguistic experiences and backgrounds should not be discounted. True, there were participants who mentioned that knowing Mandarin would be useful in the future, they often qualified that this would be for the benefit of their (future) children but not themselves. That is, the current push to acquire Mandarin is not something that is of immediate concern. Evidenced by the self-reported fluency data, on average, the range in participants' reporting of their proficiency in Mandarin averaged from 5.10 to 6.35 out of 7, at the least proficient end of the 1-7 scale, between the receptive levels of "understanding a few sentences" to "cannot understand at all". While some might interpret these figures to mean that these Hoisan heritage Chinese Americans have found themselves in the deficit position of having learned the "wrong Chinese", my conversations with my participants hardly contained these types of discourses. Rather, most of the regret that was expressed came in the form of lamenting that not enough *Hoisan-wa* or Cantonese was being acquired to communicate with older family members.

Thus, if we aim to promote equitable "Chinese" language maintenance opportunities for all Chinese Americans, we must not falsely assume that families of non-Mandarin Chinese backgrounds want to acquire Mandarin as their "surrogate" HL (Author, 2012a). Instead, we should strive to understand which Chinese language(s) are most relevant for these Chinese Americans, their families, their future trajectories, and why. Rather than viewing Chinese language acquisition as linear and limited to only one variety at a time, there needs to be

more inclusion of the diverse Chinese languages that are in the local communities, *Hoisan-wa* among them. This type of inclusion is integral to Chinese language learning because the local linguistic landscape of many Chinese diasporic communities includes prevalent coexistence among Chineses, their scripts, and their expressions (Author, 2012b).

In sum, this research has implications for non-Mandarin Chinese languages as well as other minoritized languages. Better understanding the local-level processes of how speakers of these languages reconcile and value the multiple languages in their lives will help bring minoritized languages forward into modern and relevant contexts.

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Appendix A: Research Protocol

Questionnaire: A Look at the Language Use of People of Toishan/Hoisan Heritage

1. BACKGROUND

Gender: ___Male ___Female Age: ___ years old

Highest education level completed:

___literate, but no formal education

___elementary school education

___secondary school education

___college education

Languages you interact with (can check more than 1):

___Cantonese (Hong Kong)

___Cantonese (Mainland)

___Lliyip/*Hoisan-wa*

___Samyap

___Mandarin (Taiwan)

___Mandarin (Mainland)

___other Chinese (list here: _____)

Note: Szeyap/Lli-yip (四邑) is a region of Southern China consisting of Toishan, Hoiping, Yanping, and Sunwui (台山, 開平, 恩平, 新會). Check this box if you interact in a language spoken by someone from these four regions. Samyap (三邑) is a neighboring region consisting of Punyu, Namhoi, and Shundak (番禺, 南海, 順德). The varieties spoken here resemble Standard Cantonese. Check this box if you interact in a language spoken by someone from these three regions.

Your Birthplace:_____

Place(s) where you grew up:_____

Length of residence in U.S.:_____

Your mother's ethnic identity:_____

Your father's ethnic identity:_____

Your spouse's ethnic identity:_____

Your mother tongue (1st language): ___Cantonese ___Lliyip ___Mandarin ___English

___other Chinese (list here: _____)

Language you most commonly use:___Cantonese ___ Lliyip ___Mandarin ___English

___other Chinese (list here: _____)

2. LANGUAGE PROFICIENCY: check the situations that best apply to your language proficiency

Proficiency / Languages	Can talk about any topic fluently	Can appreciate TV shows, movies, music	Can conduct casual speech	Can understand and speak simple sentences	Can understand a few sentences	Can understand a few words	Cannot understand at all
Cantonese							
Lliyip							
Mandarin							
English							
Other ___							

3. LANGUAGE USE: How often do you use your languages in the following situations? Circle a number to indicate frequency. If not applicable to you, ignore it. It is possible to use multiple languages in the same situation.

Frequency: 3=frequently 2=sometimes 1=rarely or never

Languages / Situation	Cantonese			Lliyip			Mandarin			English			Other Chinese ____		
1. When you talk to **your grandparents**	3	2	1	3	2	1	3	2	1	3	2	1	3	2	1
2. When you talk to **your parents**	3	2	1	3	2	1	3	2	1	3	2	1	3	2	1
3. When you talk to **your siblings**	3	2	1	3	2	1	3	2	1	3	2	1	3	2	1
4. When you talk to **your spouse or signifcant other**	3	2	1	3	2	1	3	2	1	3	2	1	3	2	1
5. When you talk to **your children**	3	2	1	3	2	1	3	2	1	3	2	1	3	2	1
6. When you talk to **close friends**	3	2	1	3	2	1	3	2	1	3	2	1	3	2	1
7. When you talk to **your neighbors**	3	2	1	3	2	1	3	2	1	3	2	1	3	2	1
8. When you talk to **strangers**	3	2	1	3	2	1	3	2	1	3	2	1	3	2	1
9. When you talk to **your teachers**	3	2	1	3	2	1	3	2	1	3	2	1	3	2	1
10. When you talk to **your classmates**	3	2	1	3	2	1	3	2	1	3	2	1	3	2	1

11. When you talk to **your colleagues**	3	2	1	3	2	1	3	2	1	3	2	1	3	2	1
12. When you talk to **your boss**	3	2	1	3	2	1	3	2	1	3	2	1	3	2	1

Appendix B: Domain Analysis Comparison across age groups for *Hoisan-wa*/Lliyip and Cantonese

Language		***Hoisan-wa*/Lliyip**				**Cantonese**			
Inter-locutors	**Age Group**	**Mean**	**SD**	**Mean difference**		**Mean**	**SD**	**Mean difference**	
				Group	Difference (Age Group-Group)			Group	Difference (Age Group-Group)
Grandparents	Young	1.409	0.734	Middle	1.025*	1.954	0.844	Middle	-0.440
				Old	1.391*			Old	-0.840*
	Middle	2.429	0.884	Young		1.514	0.853	Young	
				Old	0.372			Old	-0.400
	Old	2.800	0.584	Young		1.114	0.471	Young	
				Middle				Middle	
Parents	Young	1.273	0.703	Middle	1.070*	1.682	0.839	Middle	-0.310
				Old	1.556*			Old	-0.625*
	Middle	2.343	0.938	Young		1.371	0.690	Young	
				Old	0.486			Old	-0.314
	Old	2.829	0.568	Young		1.057	0.338	Young	
				Middle				Middle	
Siblings	Young	1.227	0.528	Middle	0.449	1.273	0.631	Middle	0.051
				Old	1.430*			Old	-0.073
	Middle	1.677	0.843	Young		1.324	0.684	Young	
				Old	0.981*			Old	-0.124
	Old	2.657	0.684	Young		1.200	0.531	Young	

Language		*Hoisan-wa*/Lliyip				Cantonese			
Inter-locutors	**Age Group**	**Mean**	**SD**	**Mean difference**		**Mean**	**SD**	**Mean difference**	
				Middle				Middle	
Spouses/SO	Young	1.000	0	Middle	0.519	1.000	0	Middle	0.519
				Old	1.688*			Old	0.219
	Middle	1.519	0.753	Young		1.519	0.700	Young	
				Old	1.169*			Old	-0.162
	Old	2.688	0.693	Young		1.219	0.553	Young	
				Middle				Middle	
Children	Young	1.000	0	Middle	0.462	1.000	0	Middle	0.269
				Old	1.500			Old	0.438
	Middle	1.462	0.811	Young		1.269	0.533	Young	
				Old	1.039*			Old	0.168
	Old	2.500	0.842	Young		1.438	0.759	Young	
				Middle				Middle	
Close friends	Young	1.045	0.213	Middle	0.326	1.591	0.796	Middle	-0.277
				Old	1.366*			Old	-0.0321
	Middle	1.371	0.731	Young		1.314	0.631	Young	
				Old	1.040*			Old	0.560
	Old	2.411	0.892	Young		1.559	0.860	Young	
				Middle				Middle	
Neighbors	Young	1.000	0	Middle	0.171	1.047	0.218	Middle	2.381
				Old	1.176*			Old	0.599*
	Middle	1.171	0.514	Young		1.286	0.622	Young	
				Old	1.005*			Old	0.361
	Old	2.176	0.936	Young		1.647	0.884	Young	
				Middle				Middle	

Language		*Hoisan-wa*/Lliyip				Cantonese			
Inter-locutors	**Age Group**	**Mean**	**SD**	**Mean difference**		**Mean**	**SD**	**Mean difference**	
Strangers	Young	1.000	0	Middle	0.371	1.409	0.590	Middle	0.305
				Old	1.324*			Old	0.238
	Middle	1.371	0.690	Young		1.714	0.667	Young	
				Old	.952*			Old	-0.0672
	Old	2.324	0.878	Young		1.647	0.849	Young	
				Middle				Middle	
Teachers	Young	1.000	0	Middle	0.114	1.333	0.577	Middle	0.581
				Old	.567*			Old	.967*
	Middle	1.114	0.404	Young		1.914	0.853	Young	
				Old	.452*			Old	0.386
	Old	1.567	0.898	Young		2.300	0.915	Young	
				Middle				Middle	
Classmates	Young	1.000	0	Middle	0.200	1.429	0.676	Middle	0.143
				Old	1.200*			Old	0.138
	Middle	1.200	0.584	Young		1.571	0.739	Young	
				Old	1.000*			Old	-0.005
	Old	2.200	0.925	Young		1.567	0.817	Young	
				Middle				Middle	
Colleagues	Young	1.000	0	Middle	0.200	1.177	0.393	Middle	0.281
				Old	1.147*			Old	0.412
	Middle	1.200	0.584	Young		1.457	0.780	Young	
				Old	.947*			Old	0.131
	Old	2.147	0.958	Young		1.588	0.857	Young	
				Middle				Middle	
Bosses	Young	1.000	0	Middle	0.143	1.000	0	Middle	0.286

Language		*Hoisan-wa*/Lliyip				Cantonese			
Inter-locutors	**Age Group**	**Mean**	**SD**	**Mean difference**		**Mean**	**SD**	**Mean difference**	
				Old	1.029*			Old	.647*
	Middle	1.143	0.494	Young		1.286	0.667	Young	
				Old	.887*			Old	0.361
	Old	2.029	1.000	Young		1.647	0.917	Young	
				Middle				Middle	

Appendix C: Domain Analysis Comparison across age groups for English and Mandarin

		English				Mandarin			
Inter-locutors	**Age Group**	**Mean**	**SD**	**Mean difference**		**Mean**	**SD**	**Mean difference**	
				Group	Difference (Age Group-Group)			Group	Difference (Age Group-Group)
Grandparents	Young	2.136	0.941	Middle	-0.794*	1.136	0.468	Middle	-0.136
				Old	-1.051*			Old	-0.136
	Middle	1.343	0.725	Young		1.000	0	Young	
				Old	-0.257			Old	0
	Old	1.086	0.373	Young		1.000	0	Young	
				Middle				Middle	
Parents	Young	2.727	0.631	Middle	-.670*	1.091	0.294	Middle	-0.091
				Old	-1.584*			Old	-0.091
	Middle	2.057	0.938	Young		1.000	0	Young	
				Old	-.914*			Old	0
	Old	1.143	0.494	Young		1.000	0	Young	
				Middle				Middle	

		English				Mandarin			
Inter-locutors	**Age Group**	**Mean**	**SD**	**Mean difference**		**Mean**	**SD**	**Mean difference**	
Siblings	Young	2.955	0.213	Middle	-0.160	1.000	0	Middle	0.0588
				Old	-1.612*			Old	0
	Middle	2.794	0.592	Young		1.059	0.343	Young	
				Old	-1.451*			Old	-0.0588
	Old	1.342	0.765	Young		1.000	0	Young	
				Middle				Middle	
Spouses/SO	Young	3.000	0	Middle	-0.481	1.000	0	Middle	0.741
				Old	-1.813*			Old	0
	Middle	2.519	0.802	Young		1.074	0.385	Young	
				Old	-1.331*			Old	-0.0741
	Old	1.188	0.592	Young		1.000	0	Young	
				Middle				Middle	
Children	Young	3.000	0	Middle	-0.192	1.000	0	Middle	0.0385
				Old	-1.75			Old	0
	Middle	2.808	0.567	Young		1.039	0.196	Young	
				Old	-1.558*			Old	-0.385
	Old	1.25	0.622	Young		1.000	0	Young	
				Middle				Middle	
Close friends	Young	2.955	0.213	Middle	-0.0689	1.046	0.213	Middle	0.0689
				Old	-1.660*			Old	-0.0455
	Middle	2.889	0.471	Young		1.114	0.404	Young	
				Old	-1.592*			Old	-0.114
	Old	1.294	0.719	Young		1.000	0	Young	
				Middle				Middle	
Neighbors	Young	3.000	0	Middle	-0.143	1.000	0	Middle	0.0286

		English				Mandarin			
Inter-locutors	**Age Group**	**Mean**	**SD**	**Mean difference**		**Mean**	**SD**	**Mean difference**	
				Old	-1.588*			Old	0
	Middle	2.857	0.494	Young		1.029	0.169	Young	-0.0286
				Old	-1.445*			Old	
	Old	1.412	0.783	Young		1.000	0	Young	
				Middle				Middle	
Strangers	Young	3.000	0	Middle	-0.171	1.136	0.468	Middle	-0.079
				Old	-1.618*			Old	-0.136
	Middle	2.829	0.514	Young		1.057	0.236	Young	
				Old	-1.446*			Old	-0.057
	Old	1.382	0.739	Young		1.000	0	Young	
				Middle				Middle	
Teachers	Young	3.000	0	Middle	-0.114	1.048	0.218	Middle	0.267
				Old	-1.433*			Old	0.019
	Middle	2.886	0.471	Young		1.314	0.676	Young	
				Old	-1.319*			Old	-0.248
	Old	1.567	0.858	Young		1.067	0.365	Young	
				Middle				Middle	
Classmates	Young	3.000	0	Middle	-0.114	1.095	0.301	Middle	0.133
				Old	-1.633*			Old	-0.095
	Middle	2.886	0.471	Young		1.229	0.646	Young	
				Old	-1.519*			Old	-0.229
	Old	1.367	0.765	Young		1.000	0	Young	
				Middle				Middle	
Colleagues	Young	3.000	0	Middle	-0.114	1.000	0	Middle	0.0857
				Old	-1.618*			Old	0

		English				Mandarin			
Inter-locutors	**Age Group**	**Mean**	**SD**	**Mean difference**		**Mean**	**SD**	**Mean difference**	
	Middle	2.886	0.471	Young		1.086	0.373	Young	
				Old	-1.504*			Old	-0.086
	Old	1.382	0.779	Young		1.000	0	Young	
				Middle				Middle	
Bosses	Young	3.000	0	Middle	-0.171	1.000	0	Middle	0.029
				Old	-1.645*			Old	0
	Middle	2.829	0.568	Young		1.029	0.169	Young	
				Old	-1.476*			Old	-0.0286
	Old	1.353	0.774	Young		1.000	0	Young	
				Middle				Middle	

Dutch Turkish diverging from Turkey-Turkish: A judgment task study on how Dutch Turkish employs subordination and word order

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Languages in contact often start resembling each other if a considerable number of speakers of one language have competence in the other, leading to what is called 'convergence' (Aikhenvald, 2010:1). Thus, while Turkish immigrants in the Netherlands adapt themselves to the Standard Turkish norms, their Turkish is being influenced by the Dutch they also speak. This study will investigate structural change, an outcome of language contact, particularly focusing on *subordination*, in immigrant Dutch Turkish, a minority language in the Netherlands. There is an agreement in the literature that 'analytic' (Dutch-like) constructions are favored over 'synthetic' (Turkish-like) constructions, so the former are easily copied. This study uses 'comprehension' and 'judgment data', containing Likert scale and forced-choice items, in order to get a more complete picture of language contact effects in the domain of *subordination* in Dutch Turkish. Three groups of participants took part in this study: bilinguals in bilingual mode, monolinguals in Turkey, and bilinguals in monolingual mode. The comprehension data are compared to another recent study (Onar Valk & Backus, forthc.) which looked at *subordination* but based on production data. The results show that change is occurring in Dutch Turkish. The data indicated that bilinguals rate the canonical TR-Turkish constructions as high as monolinguals do; they differ from monolinguals only in giving much more positive judgments for Dutch-like constructions in Turkish. Turkish constructions are still available in the linguistic competence of the speakers, but not used as frequently as the Dutch-like alternatives.
Keywords: *contact-induced change; subordinate clauses; reported speech; Turkish; experimental data; word order; judgment task*

1 Contact-induced language change and immigrant Turkish in the Netherlands

1.1 Why change?

When speakers of different languages come into contact, they unconsciously tend to arrive at a compromise between their forms of speech. During every day communication, speakers borrow linguistic properties of another language when they have some knowledge of that other language. These synchronic decisions, when repeated often enough, lead to diachronic, long-term effects on the language. Bilingualism, therefore, often results in a

compromise between the two languages. This compromise is usually unidirectional because of status differences of the languages involved (Winford, 2003:2). Thus, languages in contact often start resembling each other if a considerable number of speakers of one language have some competence in the other one as well, leading to 'convergence' (Aikhenvald, 2010:1).

Language contact may involve different types of linguistic outcomes, which can be referred to synchronically as codeswitching, loan-translation, lexical and structural borrowing, and diachronically as lexical and structural change (Winford, 2003:2).

This study focuses on structural change. Structural changes are classified based on their stability. Based on Aikhenvald (2010:5), I construct a continuum of three levels of change starting with 'momentary cases of interference', 'on-going (continuous) changes' and 'completed changes'. The first step, interference, encompasses momentary divergences and is characteristic of individuals. In the case of a 'completed' change, there is no longer synchronic variation (the inherited structure is no longer in use), whereas with an 'on-going' change, such variation is still visible.

Both language external (social) and language internal (linguistic) factors play a role in contact-induced language change. Language external/ social factors include the intensity of contact and interaction, prestige relationships, and attitudes toward the two languages, which largely determine the degree of influence those languages have on each other cross-linguistically (quantitative dimension). Language internal/linguistic factors concern the qualitative aspect of determining what changes occur (lexical content words, function words, or structures) given the intensity of contact and frequency of use of the two languages and specific forms (Doğruöz & Backus, 2007: 186). Some elements or structures are thought to be more 'attractive' than others, attractive structures are more easily borrowed (Johanson, 2002:41).

This study will investigate immigrant Turkish in the Netherlands (NL-Turkish). The Turkish-Dutch pair is a relatively young setting involving typologically different languages with a status asymmetry between them.

1.2 Immigrant Turkish and Turks in Western Europe

Turkic languages are spoken across a large area stretching from Bosnia to China and from southern Persia to the Arctic Ocean. Thanks to large-scale immigration, Western Europe also has been host to Turkish for decades (Johanson, 2002:3). The Turkish immigrant wave to Western Europe (mostly to Germany, but sizeable groups to other countries including the Netherlands as well) started in the 1960s in the form of labor migration. Initially, migrants intended to return to Turkey after a few years, however, many eventually settled down in Europe with their families. Presently, the Turkish migrant community is well into its third generation (Backus 2010).

The community has managed to have a high rate of Turkish language maintenance, due to a few factors. First, there has been a trend of marrying spouses from Turkey (although recently members of the community have started to marry among themselves as well). Another important factor is that

it has proved relatively easy to keep strong ties with Turkey and the Turkish language through frequent long holidays in Turkey and consuming Turkish media (TV, internet, etc.). Finally, it should be noted that the Turkish migrant community is very close knit, which enables the continuity of Turkish language transmission. On the other hand, a unidirectional contact influence is also inevitable as Dutch is the dominant language in society. Thus, while the Turkish immigrants in the Netherlands adapt themselves to the norms of Standard Turkish, their Turkish is also constantly being influenced by the Dutch they also speak. As a result of language contact, slowly but surely, the migrants' Turkish seems to be changing; on the one hand through the loss of features, and, on the other hand, through the influx of words and structures taken from Dutch. This study will show that bilingual Dutch/Turkish speakers rate Dutch-like structures in Turkish significantly better than monolingual Turkish speakers do, but that does not imply the loss of inherited Turkey-Turkish structures.

2 Subordination, word order and contact-induced change

Turkish clausal subordination is claimed to be unstable (Johanson 2002: 119). Both for production and for perception, it is also argued to be difficult and, thus, prone to influence in contact situations. There seems to be agreement in the literature that 'analytic' constructions are favored, and found more 'attractive' than 'synthetic' ones, so the former are easily copied. In contact settings with the right conditions, then, a language may replace a synthetic structure with an analytic structure borrowed from the other language (Johanson, 2002:44). In the domain of subordination, Dutch has a more syntactic (i.e. analytic) structure than Turkish which makes more use of morphological (i.e. synthetic) constructions.

This hypothesis was first explored in acquisition studies (Verhoeven & Boeschoten 1986; Schaufeli 1991). Bilingual children were shown to prefer analytical types of subordination (using finite subordinate clauses) and to make limited use of non-finite, synthetic, subordinate clauses compared to monolingual children in Turkey. In older bilingual children and adults, however, the fate of Turkish subordination has not been investigated yet in a systematic way, and this is what motivated the present study.

In addition to finiteness and the synthetic or analytic nature of subordination, Turkish and Dutch differ also in word order. In the Dutch immigration context, Turkish word order was investigated by Schaufeli (1991) and Doğruöz & Backus (2007), and briefly in an MA thesis by Sevinç (2012). The first two studies did not find any significant differences in terms of word order between TR- and NL-Turkish based on their frequency data. Sevinç, comparing three generations of bilinguals, attested some unconventional word order patterns in the Turkish of a third generation bilingual, suggesting there is ongoing change, but the low number of participants and lack of comparison between bilinguals and their monolingual peers from Turkey do not allow strong conclusions.

In a recent study, Onar Valk & Backus (forthc.) found statistically significant differences between Turkish monolinguals and Turkish-Dutch bilinguals in their use of subordinate structures, based on production data,

employing both spontaneous conversations and a controlled elicitation task in which participants had to repeat sequences of three or four sentences. The research question behind the current study is whether or not this pattern also occurs in 'comprehension' data. If so, this would constitute more robust evidence that contact-induced language change is taking place regarding subordination in Dutch (NL) Turkish. In comparison to production, comprehension data can also test whether what does not occur has been lost from linguistic competence.

Participants carried out a judgment task containing Likert-scale and forced-choice test items. First, sections 2.1 and 2.2 below will introduce the main characteristics of subordination and its most frequently used sub-type, reported speech, in Turkish and Dutch. Methods, results and conclusions will be discussed in Sections 3, 4, and 5 respectively. The two languages differ considerably from each other in this syntactic domain, which is useful for determining whether we are indeed dealing with contact-induced change when we find differences between NL- and TR-Turkish.

2.1 Subordinate clauses

Turkish and Dutch exhibit different characteristics in terms of subordination. More specifically, Turkish employs both finite and non-finite subordinate clauses while Dutch subordination only uses the finite option, at least for the specific corresponding structures under investigation here. A short overview of Turkish and Dutch subordination will be introduced in this section with a few examples from the data, but for a more detailed description on subordination.[1]

2.1.1 Subordination in Turkish

Although Turkish subordination is claimed to be mostly non-finite (Göksel & Kerslake 2005:135), the same meaning can often be conveyed with both finite and non-finite constructions.

Finite subordination means that the verb of the subordinate clause is inflected with tense, aspect and/or person markers, just like in a main clause. Finite subordinate clauses can be juxtaposed to the main clause, or linked to it, often with the use of a subordinator, such as *diye* and *ki* in the following examples (*diye* is originally a quotative, and *ki* is the closest equivalent in Turkish to the basic complementizer 'that'):

A **non-finite** subordinate clause contains a non-finite verbal predicate marked with one of the many subordination markers that form nominalizations or converbs. Turkish is generally presented as a language with non-finite subordination, despite the existence of the finite options. The non-finite structures are argued to be much more frequent.

Onar Valk & Backus (forthc.) have shown that bilingual participants prefer finite subordination and use it more frequently than Turkish

[1] See Onar Valk & Backus (forthc.), and for Turkish subordination only dip into descriptive grammar books, e.g. Göksel & Kerslake (2005).

monolinguals who show the opposite pattern. Thus, it seems that subordination is changing under Dutch influence.

(1) Bak-mış-lar administratie'de **[ne**
look-Past-3pl *administration-LOC* ***[how***
kadar **ver-ebil-ir-ler]**
much ***give-CANmodal-AOR-3pl***
'They looked in the register (to see) how much they can give'
(Finite)

Administratie'de **[ne** **kadar**
administration-LOC ***[how*** ***much***
ver-ebil-*ecek*-ler-i-ne] bak-mış-lar
give-CAN-CV-3pl-poss.-DAT] *look-Past-3pl*
(Non-finite)

(2) Ben zannet-ti-m **[yeni** **al-mış-sın]**
I *think-Past-1sg* ***just*** ***buy-Nar.Past-2sg***
"I thought you just bought it"
(Finite)

Ben **[yeni** **al-dığ-ı-nı]** zannet-ti-m
I ***[just*** ***buy-F.NMLZ-3sg-ACC]*** *think-Past-1sg*
(Non-Finite)

2.1.2 Subordination in Dutch

Dutch only uses finite subordination in the structures that correspond to Turkish complement, relative, and adverbial clauses. Dutch subordinate clauses are connected to the main clause with subordinators or conjunctions such as *dat* 'that', *omdat* 'because', etc. Some examples of finite subordinate clauses are given below (Onar Valk & Backus, forthc.). Example 4 shows that coordinated clauses are also finite.

(3) Ik denk [**dat** mijn moeder
I *think.1SG* *that* *my* *mother*
een lekker broodje **heeft** **gebakken**]
a *delicious* *roll* *have.PRS.3SG* *bake.PST.PTCP*
'I think that my mother baked delicious roll'
(Complement clause)

(4) **Gaan** jullie naar de bioscoop **of**
go-PRS.2PL *you.PL* *to* *the* *cinema* *or*
kijken jullie thuis naar een filmpje?
watch.PRS.2PL *you.PL* *at.home* *to* *a* *movie*
'Are you going to the cinema or are you watching a movie at home?'
(Conjuctions)

2.2 Reported Speech structures

Reported Speech (RS) is a subcategory of subordination. I paid special attention to it as it was observed to be extremely different from TR-Turkish in the data reported on by Onar Valk & Backus (forthc.). As a subcategory of subordination, RS constructions differ between Turkish and Dutch. More specifically, Turkish makes use of *finite* subordination for *direct RS* and non-finite subordination for *indirect RS* (Kornfilt, 1997:3). Dutch, once more, only has finite options for both types.

2.2.1 Reported Speech in Turkish

Like subordination in general, RS can be expressed through non-finite and finite constructions in Turkish. Indirect RS is constructed with non-finite subordination, but direct speech is expressed through finite subordinate clauses: the quoted speech is presented as a full clause, including a finite verb. Direct speech can additionally be marked with the subordinators *ki* and *diye* (recall that the latter is originally a quotative), and the matrix verb is generally **de**- 'say'. The following direct speech examples are taken from a corpus of production data that I created. The indirect speech versions were the TR-Turkish monolingual preferences. They were used significantly less frequently by bilinguals (Onar Valk & Backus, forthc.).

(5) Ban-a de-di hamile-yim[2]
I-DAT say-PAST.3sg pregnant-Pres.1sg
'She said to me "I am pregnant"'
(Direct RS-Finite)

Ban-a **[hamile ol-*duğ*-u-nu]** söyle-di.
I-DAT [pregnant be-FNom-3.sgPoss.-ACC]
(Ind.RS- Non-finite)

(6) Geçenlerde Semra'ya **sor-du-m** Manolya
lately Semra-DAT ask-Past-1sg Manolya
iş bul-du mu
work find-Past Quest.Part
'I asked Semra the other day: "Did Manolya find a job?"'
(Direct RS-Finite)

Geçenlerde Semra'ya [Manolya'nın iş
lately Semra-DAT [Manolya-GEN work
bul-up bul-ma-dığ-ı-nı] **sor-du-m**
find-CV find,NEG FNom-3.sgPoss.-ACC] ask-Past-1sg
'I asked Semra whether Manolya found a job or not'
(Ind.RS-Non-finite)

[2] Example 5 was used also in Onar Valk & Backus (forthc.)

As seen in these examples, the embedded clause expresses indirect speech. Its possessive agreement marker and accusative case marking show that the embedded clause is nominal. The embedded clause functions as the direct object of the main clause.

2.2.2 Reported Speech in Dutch

In Dutch, both direct and indirect reported speech are encoded through finite subordination, as in the following (self-constructed) examples:

(7) Hij zegt Ik slaap 8 uur per nacht
'He says "I sleep 8 hours per night"'
'He says "I sleep 8 hours per night"'
(Direct RS-finite)

(8) Hij zei **dat** hij 8 uur per nacht
He said that he 8 hours per night
heeft geslapen
have.PRS.3SG sleep
'He said that he slept 8 hours per night'
(Indirect RS-finite)

2.2.3 Reporting verb positioning in Dutch Turkish

Turkish is considered a verb-final language. Although it can be claimed to have a relatively free word order, it is canonically verb-final (SOV). Dutch, on the other hand, is a verb-medial language, more specifically verb-second, at least in main clauses (SVO). In reported speech contexts, the matrix verb, therefore, occurs before the reported speech. However, the direct speech constructions in examples 5 and 6 were typical for the Turkish-Dutch bilinguals. They are not sentences easily produced by Turkish, monolinguals, as they do not conform to the canonical Turkish word order. The reporting verb is placed before the (reported speech) subordination.

The message can be conveyed through direct speech in TR-Turkish as well, but the reporting verbs 'dedi' *say* (past) and 'sordum' *ask* (past), according to canonical word order, would be placed at the very end of the sentences, after the subordination.

(9) Ban-a hamile-yim de-di.
I-DAT pregnant-Pres.1sg say-PAST.3sg
(Direct RS-Finite)

Geçenlerde Semra'ya Manolya iş
lately Semra-DAT Manolya work
bul-du mu diye **sor-du-m**
find-Past Quest.Part that ask-Past-1sg
(Direct RS-Finite)

Contact-induced changes regarding reporting verb placement in reported speech constructions were attested in both spontaneous conversation and elicited production data of my corpus. The present study reports on a judgment task which was carried out to see whether we could reproduce these contact effects in comprehension data as well. If receptive and productive data converge, this would constitute more robust evidence that there is indeed ongoing language change. Specifically, my aim is to get a fuller answer to the question of whether Dutch Turkish has begun adopting Dutch verb-medial word order in addition to a preference for finite subordination.

3 Methodology

Most of the studies in contact linguistics so far have been based on spontaneous speech data. Although it is crucial to investigate language production, specifically everyday speech, such data cannot tell us everything. Everyday speech displays what occurs and what is possible in language use, but do not demonstrate what *does not* occur, and if what does not occur is impossible. Moreover, spontaneous data do not give much information on how entrenched and conventionalized the encountered constructions really are in speakers' linguistic competence. Thus, investigations on comprehension based on judgment tasks, for instance, should also be carried out.

This study used such 'comprehension' or 'judgment data', in order to get a more complete picture of language contact effects in the domain of 'subordination' or 'complex clause combinations' in the minority language Dutch Turkish, spoken in the Turkish immigrant community in the Netherlands.

3.1 Judgment task

The judgment task was constructed on a computer program called *LimeSurvey* and also had to be carried out on the computer. The bilingual participants in the Netherlands were gathered in the computer lab of Tilburg University, whereas the monolinguals in Turkey did the task anywhere where they had an individual computer at their disposal, e.g in class, at the university, at home, etc.

The judgment task contained a Likert scale and forced-choice test items. Most of the test items were taken from a previously recorded group of conversations which were conducted in a bilingual mode and contained many instances of codeswitching. Almost all the test items with a finite subordination structure came from 'real speech' data, but some types of non-finite test items (e.g. indirect reported speech) had to be constructed, since the speech data contained too few of them. The judgment task was prepared in two conditions: in a bilingual mode, and in a monolingual mode, using the same 'attested' data as a basis. For the monolingual mode, the codeswitched parts were translated into Turkish; the resulting task was carried out by monolinguals in Turkey and by a group of bilingual participants in the Netherlands that was composed of different people than the group that carried out the task in the bilingual mode. In the end, there were two different sets of

judgment task items: one for Turkish-Dutch bilinguals in bilingual mode, and one for monolinguals and bilinguals in monolingual mode.

In the bilingual mode, items included codeswitching. These were either taken verbatim from the recorded conversation or based on these 'attested' data. Therefore, they contained natural codeswitches. Two bilingual research assistants provided further input on naturalness and helped in creating natural 'codeswitched' parts, which was especially needed for some test items that included non-finite subordination.

One of the bilingual assistants led the bilingual mode sessions by welcoming, instructing and guiding the participants, using a bilingual mode of conversation, before they actually started doing the task. They were asked, in the written instruction and also orally, not to evaluate whether the mixing of languages sounds fine or whether a monolingual version would be preferred, but rather to focus on the language use. In that way, their attention was explicitly directed to the constructions. The instruction they were given for the Likert scale items was as follows (translated from Turkish):

> "Please read the sentences below and rate them between 1 and 7 based on the Turkish spoken in the NL among young Turkish-Dutch people around you. Treat codeswitching as 'natural'. Language mixing is accepted as 'normal' in bilingual communities, such as ours. While grading, ask yourself this question: "How often do I hear this type of sentence around me? " Focus on the language use and grammar, not on the meaning and vocabulary during the task. "1" means *never used this way* and "7" *always used by everybody this way*."

Participants read the instructions together with the investigator (the author) at the beginning of the session, to ensure that everything was clear to everyone, and otherwise they could ask questions. The bilingual research assistant answered any questions, and made these clarifications using codeswitching, so as to keep the participants in a bilingual mode.

Participants saw the stimulus sentences one after the other and were asked to judge them by selecting the appropriate number on the scale and clicking the 'next' button on the screen to proceed. They were not allowed to skip items. The same instruction was placed under each sentence, as a reminder about what they were supposed to be doing.

The monolingual mode task consisted of the same items except that the codeswitched parts were turned into Turkish. The author, who presented herself as a monolingual Turkish speaker, put monolingual particpants in the monolingual mode by using only Turkish from the moment they met. The procedure was the same as in the bilingual mode. The instruction was also the same except that the comment on codeswitching was left out.

The same monolingual mode test items were used for the monolingual control group in Turkey, with a slightly different instruction, to avoid the bilingual focus of the instruction given to the participants in The Netherlands:

> "Please read the sentences below and rate them between 1 and 7 based on the Turkish spoken around you. While grading, ask yourself this question: "How often do I hear this type of sentence around me?" Focus on the language use and grammar, not on the

> meaning and vocabulary during the task. "1" means *never used this way* and "7" *always used by everybody this way*."

The second part of the judgment task contained **forced-choice** items. The three groups of participants got the same instruction:

> "Which sentence type below do you hear more around you? Select the type you hear most."

As Turkish allows both finite and non-finite subordination, one message can very well be conveyed through either structure. Therefore, in this part of the task, two, three, or four different sentence structures were constructed to convey the same meaning (e.g., finite and verb final, finite and verb medial, use of complementizer *ki*, non-finite and verb final, etc.). They were presented to the bilinguals as multiple choice items. The participants had to choose the type they thought they heard most around them.

In total, the participants were given 30 sentences to judge on a Likert scale and 20 forced-choice test items, with varying numbers of alternatives to choose from. Around 25 fillers were also included and scattered randomly in the task. The whole judgment task lasted around 30-35 minutes in total.

The monolingual and bilingual mode tasks were carried out by 39 Turkish-Dutch participants each. Thus, 78 bilinguals completed the task. The control group in Turkey consisted of 54 monolinguals.

4 Results

The results of the judgment task (comprehension data) confirm findings from Onar Valk & Backus (forthc.) on production data to a great extent. First, the results for the Likert-scale items are reported.

4.1 Likert-scale

Table 1 displays the mean scores on the Likert scale items for the three groups: monolinguals, bilinguals in monolingual mode (MM), and bilinguals in bilingual mode (BM). The results are presented separately for items containing finite and non-finite subordination. The right-hand column indicates which differences were statistically significant. The three groups were significantly different from each other with finite stimuli, with a significant p value of .000 (as $p \geq 0.05$). BM bilinguals judged finite stimuli the highest whereas monolinguals had the lowest scores. MM bilinguals' judgments are closer to those of monolinguals. However, with non-finite stimuli, the differences among the three groups were not significant (p value= 0.083). Interestingly, bilingual speakers give the non-finite items equally high scores as monolingual speakers.

Table 1. Likert scale means with finite/non-finite stimuli

Oneway- ANOVA			
		Mean	**Sig.**
Finite stimuli	Turkish monolinguals	3.2475	**.000**
	MM Bilinguals	4.5897	
	BM Bilinguals	5.4006	
Non-finite stimuli	Turkish monolinguals	5.4566	**.083**
	MM Bilinguals	5.0403	
	BM Bilinguals	5.2601	

When each group was compared to every other one, by means of a one-way ANOVA Post Hoc test, the results show that the differences among all the groups were significant when the participants had to judge finite stimuli, while no significant differences among any groups were observed in judging the non-finite stimuli, as shown in table 2 below. The non-shaded, white, slices in the significance column display the non-significant results.

Table 2. Likert scale group comparisons with finite/non-finite stimuli

Post Hoc Tests- Multiple Comparisons (Tukey HSD)					
Dependent Variable	group variable	group variable	Mean Difference	Std. Error	**Sig.**
Finite stimuli	**Turkish monolinguals**	MM Bilinguals	-1.34219	.21447	**.000**
		BM Bilinguals	-2.15309	.21447	**.000**
	MM Bilinguals	Turkish monolinguals	1.34219	.21447	**.000**
		BM Bilinguals	-.81090	.22833	**.002**
	BM Bilinguals	Turkish monolinguals	2.15309	.21447	**.000**
		MM Bilinguals	.81090	.22833	**.002**
Non-finite stimuli	**Turkish monolinguals**	MM Bilinguals	.41629	.18490	**.067**
		BM Bilinguals	.19651	.18490	**.539**
	MM Bilinguals	Turkish monolinguals	-.41629	.18490	**.067**
		BM Bilinguals	-.21978	.19684	**.506**
	BM Bilinguals	Turkish monolinguals	-.19651	.18490	**.539**
		MM Bilinguals	.21978	.19684	**.506**

We now turn to the items that contained **Reported Speech**. Recall that the participants saw instances of direct and of indirect RS. Table 3 shows the results of an ANOVA analysis. All differences between all groups were significant for direct speech stimuli. That is, monolinguals differed

significantly from bilinguals in both modes, and the bilinguals in the two conditions differed significantly from each other as well, as indicated by the p-values (p=.000 ≥0.05). In the case of indirect speech stimuli, however, no differences were significant, and the mean judgment scores from the groups were similar.

Table 3. Likert scale mean with direct/indirect RS stimuli

One-way ANOVA				
		N	Mean	**Sig.**
Direct speech stimuli	Turkish monolinguals	51	2.9982	**.000**
	MM Bilinguals	39	4.7040	
	BM Bilinguals	39	5.3590	
Indirect speech stimuli	Turkish monolinguals	51	5.4549	**.591**
	MM Bilinguals	39	5.2256	
	BM Bilinguals	39	5.2769	

The Post Hoc test that compared all the groups to each other, summarized in Table 4, reflects the ANOVA in Table 3, but shows the comparisons in a more detailed way. Thus, on direct speech test items, in addition to monolinguals' significantly being different from both bilingual groups, BM and MM bilinguals were also seen to be significantly different from each other, while the indirect speech test items did not yield any significant differences among any groups under investigation.

Table 4. Likert scale group comparisons with direct/indirect RS stimuli

Post Hoc Test- Multiple Comparisons (Tukey HSD)					
Dependent Variable	group variable	group variable	Mean Difference	Std. Error	**Sig.**
Direct speech stimuli	**Turkish monolinguals**	MM Bilinguals	-1.70575	.24284	**.000**
	MM Bilinguals	Turkish monolinguals	1.70575	.24284	**.000**
		BM Bilinguals	-.65501	.25853	**.033**
	BM Bilinguals	Turkish monolinguals	2.36076	.24284	**.000**
Indirect speech stimuli	**Turkish monolinguals**	MM Bilinguals	.22926	.23886	**.604**
		BM Bilinguals	.17798	.23886	**.737**
	MM Bilinguals	Turkish monolinguals	-.22926	.23886	**.604**
		BM Bilinguals	-.05128	.25428	**.978**
	BM Bilinguals	Turkish monolinguals	-.17798	.23886	**.737**
		MM Bilinguals	.05128	.25428	**.978**

Finally, the data also allow us to look at the position of the reporting verb in reported speech constructions. Table 5 summarizes some remarkable tendencies. There were significant differences among the three groups of participants when they were given verb-medial RS test items. Monolinguals rated these items much lower than *both* bilingual groups. In comparison with the BM group, however, MM bilinguals were closer to monolinguals in the *mean* scores. For verb-final items, on the other hand, no differences were significant and all three *mean* scores were quite close to each other.

Table 5. Likert scale mean with RS V_initial/V_final stimuli

Oneway-ANOVA				
		N	Mean	**Sig.**
RS Verb medial	Turkish monolinguals	51	2.9982	**.000**
	MM Bilinguals	39	4.704	
	BM Bilinguals	39	5.359	
RS Verb final	Turkish monolinguals	51	5.4549	**.591**
	MM Bilinguals	39	5.2256	
	BM Bilinguals	39	5.2769	

If we zoom in on the groups and compare them with a Post Hoc test, we end up with the data in Table 6, yielding a familiar picture. Again, there are significant differences (all shaded in the table) among all three groups for the non-canonical verb-medial type of RS items, while with verb-final RS test items the analysis revealed the opposite: no significant differences between any of the groups. This is not surprising as Table 5 already showed that the mean scores of the three groups for verb-final judgments were very similar.

Table 6. Likert scale group comparisons with RS V_medial/ V_final stimuli

Post Hoc Test- Multiple Comparisons (Tukey HSD)					
Dependent Variable	group variable	group variable	Mean Difference	Std. Error	**Sig.**
RS Verb medial	Turkish monolinguals	MM Bilinguals	-1.70575	.24284	**.000**
		BM Bilinguals	-2.36076	.24284	**.000**
	MM Bilinguals	Turkish monolinguals	1.70575	.24284	**.000**
		BM Bilinguals	-.65501	.25853	**.033**
	BM Bilinguals	Turkish monolinguals	2.36076	.24284	**.000**
		MM Bilinguals	.65501	.25853	**.033**
RS Verb final	Turkish monolinguals	MM Bilinguals	.22926	.23886	**.604**
		BM Bilinguals	.17798	.23886	**.737**
	MM Bilinguals	Turkish monolinguals	-.22926	.23886	**.604**
		BM Bilinguals	-.05128	.25428	**.978**
	BM Bilinguals	Turkish monolinguals	-.17798	.23886	**.737**
		MM Bilinguals	.05128	.25428	**.978**

To sum up, the differences turned out to be significant between bilinguals and monolinguals and within the bilingual group between the two modes as long as it concerned stimuli which contained finite subordination, direct speech or verb-medial structures. The groups scored similarly to each other for stimuli with non-finite subordination, indirect speech and verb-final constructions, which are claimed to be canonical in TR-Turkish. Furthermore, bilinguals rated these canonical structures as high as the monolinguals, while monolinguals rated the verb-medial, direct speech and finite (i.e. the non-canonical and more Dutch-like) structures significanly lower than bilinguals. Lastly, the *mean* scores of bilingual participants in the monolingual mode were closer to those of monolinguals than those of bilingual participants in the bilingual mode for these Dutch-like stimuli.

4.2 Forced-choice test

Some test items forced the participants to choose the most conventional option from a set of alternatives. Table 7 shows the preferences of the three groups. The Turkish monolingual group confirms that TR-Turkish prefers non-finite subordination (66.2%), whereas bilinguals (in both modes)

preferred the non-finite option in slightly less than 50% of the cases. Thus, bilinguals demonstrated preference for finite options.

Table 7. Forced-choice group comparisons with non-finite choices

Non-finite choices %		
BM	MM	Turkish monolinguals
Non-finite	Non-finite	Non-finite
46.4	**46.3**	**66.2**

Direct Speech is one type of finite subordination, and in the majority of cases (almost 60%), BM and MM bilinguals preferred direct speech to indirect speech (which makes use of non-finite constructions). Turkish monolinguals displayed the reverse pattern, with only 29% direct speech preferences, as Table 8 shows.

Table 8. Forced-choice group comparisons with direct RS choices

Direct RS choices %		
BM	MM	Turkish monolinguals
Direct Speech	Direct Speech	Direct Speech
59.8	**59.5**	**29.2**

Finally, Table 9 shows the preferences for the position of the verb in RS structures. Only 7% of the monolinguals preferred the verb-medial option, while BM and MM participants preferred it in 26 and 28% of the cases, respectively.

Table 9. Forced-choice group comparisons with RS V_medial choices

V-medial RS choices %		
BM	MM	Turkish monolinguals
V_medial	V_medial	V_medial
26.4	**28.2**	**7.3**

To summarize, just like with the Likert-scale judgments, clear preference differences were observed between monolinguals and bilinguals for *finite vs non-finite constructiond*, *direct vs indirect RS constructions*, and *verb-medial vs verb-final constrctions*. The scores, though, do not give us reason to claim there are differences between the monolingual and bilingual modes. Apparently, the mode was not a determining factor in selecting one option in the forced-choice condition.

5 Discussion and conclusions

The results show compelling evidence that change is occurring in Dutch Turkish. At the very least, this is a change in preferences; whether or not this is interpreted as a change in the syntax of Turkish is a matter of how syntactic change is defined. In any case, subordination in NL-Turkish is different from subordination in TR-Turkish.

Turkish monolinguals and Turkish-Dutch bilinguals differ from each other in how they employ subordination, both in production (Onar-Valk &

Backus, forthc.) and, as shown in the present article, in judgment tasks. Given these similarities, we may conclude that the evidence for production and comprehension converges. The judgment data also contain another type of converging evidence since two methods, Likert-scale and forced-choice judgments, yield results in the same direction.

However, not all evidence converges. The data indicated that bilinguals rate the canonical TR-Turkish constructions (non-finite subordination, indirect reported speech, verb-final constructions) the same way as monolinguals do. They differ from monolinguals in their much more positive judgments of Dutch-like constructions in Turkish (finite subordination, direct reported speech, and verb-medial constructions). Thus, the judgment data present results of 'normal' rating of canonical structures by bilingual participants who tend to avoid those constructions in actual speech.

While Onar Valk & Backus (forthc.) show that, in actual use, bilingual speakers of Dutch and Turkish prefer to use the Dutch-like constructions, their positive judgments of Turkish-like constructions shows that they have not lost them. They are still available in their linguistic competence, but not used as frequently as the Dutch-like alternatives.

It is unknown for how long these structures have already been a prominent part of the immigrant variety since few studies have focused on complex clauses. However, in an early study of the acquisition of Turkish by monolingual and bilingual children, Schaufeli (1991) showed that Turkish-Dutch bilingual children seemed to prefer analytical subordination (i.e., Dutch-like, finite constructions) to the synthetic subordinate structures, in which they differed from a monolingual control group (p:155). This suggests that the data reported on in the present study reflect synchronic changes that began decades ago and find their origin in bilingual acquisition. It is not possible to say whether the change has progressed much since Schaufeli's study, but the data do suggest that the Dutch-like alternatives have stabilized and the results could be interpreted as straightforward Dutch influence.

Although there are few differences between the judgments made in the bilingual and monolingual modes in the forced-choice task, there is a clear mode effect for the Likert-scale test. It makes sense to think that MM mode performance of bilinguals would be closer to that of monolinguals as the BM mode activates both languages, and thus increases the chance of interference. The results exhibit a picture that could be expected for the Dutch-like structures (the less frequent ones in TR-Turkish), but there were no significant differences between the modes for the default TR-Turkish structures. Whatever the mode, it seems, bilinguals can recognize canonical TR-Turkish patterns as readily as monolinguals do. On the other hand, when the bilingual speakers had to rate Dutch-like structures, their performance in monolingual mode is closer to that of monolinguals and also differs significantly from their performance in bilingual mode. All this suggests that bilingual speakers suppress the Dutch-like structures more when they are in MM, and perhaps activate them more when in BM, but that they have no similar differential activation for TR-Turkish structures.

So far, I have focused on demonstrating that the immigrant variety has conventionalized some Dutch-like structures, but little has been said about

how those differences between TR-Turkish and Dutch Turkish emerged and how the change has propagated.

A first suggestion has to do with register variation. Subordination may be more typical of academic registers, and Turkish-Dutch bilinguals do not normally acquire this register in Turkish, as they go to school in the Netherlands, where the entire curriculum is in Dutch. However, given the scarcity of sociolinguistic register studies on Turkish, this suggestion will not be further developed here.

Whether or not register affiliation of subordinate structures plays a role, a likely scenario for the change is suggested by usage-based linguistics (cf. Bybee's (2006) 'exemplar representation'). In this perspective, 'language change' is characterized as changes in the entrenchment levels of a particular structure. Dutch usage and exposure starts especially after the age of four for Turkish-Dutch bilinguals when they start school, assuming they mostly speak Turkish at home. Thus, they receive Dutch subordination input after the age of four, and perhaps very little Turkish subordination. The frequency of Dutch use and exposure only increases with time, and the entrenchment of Dutch subordination structures will go up accordingly. The separately stored Dutch and Turkish subordinate constructions start competing in the mental representation of the bilingual as matched meaning activates both. Once the entrenchment of the Dutch subordination is higher than the Turkish one, it starts to impose itself in Turkish discourse, which surfaces as 'cross-linguistic influence' or 'interference'. This raises the entrenchment of Dutch schema even further, but also causes further 'disuse' of Turkish subordination, which ultimately leads to decreased entrenchment of the canonical Turkish schema. That is, the entrenchment of the earlier inherited variant (non-finite subordination in this case) goes down and that of a new variant (a borrowed Dutch preference for the finite option) goes up. However, the judgment data suggest that decreased frequency doesn't necessarily lead to decreased entrenchment, at least not very quickly, since the canonical Turkish structures were judged equally high by the bilingual participants as by the monolingual ones.

The results of this paper are also compatible with the idea that analytic structures ('Dutch-like', here) are favoured and more 'attractive' in contact situations (Johanson, 2002:44).

But can we call this difference in preferences and judgments an instance of 'language change'? If change is defined as the introduction of a completely new structure into a language, then the answer is clearly 'no'. None of the Dutch-like structures are ungrammatical in TR-Turkish. However, if mere changes in preference or in frequency are 'counted' (as Johanson 2002 and Heine & Kuteva 2005 do), then, clearly, Dutch Turkish is undergoing change.

Heine (2006) lists various aspects of change, and the more of them apply, the more pervasive is the change: a) narrowing of options, b) shift from one construction to another, c) pragmatic unmarking and d) extension and frequency. The data presented in this study show that there is definitely increased extension and frequency of Dutch-like structures, but there may also be evidence of pragmatic unmarking. Many of the verb-medial sentences would be pragmatically marked in TR-Turkish, but there is no evidence that

they are interpreted as special in any way by the bilingual participants. However, this needs more investigation, which is beyond the scope of this study.

This paper has argued that there is evidence for an 'on-going structural change' or 'structural change in progress' in Dutch Turkish. I conclude that this change is more 'a change in preference' and nowhere near completion. It will be interesting to see how Dutch Turkish subordination patterns will develop in the years to come, as contact with Dutch is likely to continue and perhaps increase in intensity with further integration of the immigrant community into Dutch society.

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