Between Attrition and Acquisition: the Dynamics between Two Languages in Adult Migrants

by

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A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy
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Doctor of Philosophy, 2011
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Abstract

In the context of language use of Romanian migrants living in Canada, this thesis examines the linguistic changes and the contributing social, personal, and affective factors involved in the maintenance of a migrant’s first language (L1) as she or he simultaneously acquires a second language (L2) in an L2-dominant environment. Specifically, it investigates the incidence of L1 attrition in the bilingual group, the existence of a possible systematic relationship between the levels of L1 and L2 proficiency, and the influence of sociolinguistic and cognitive factors on L1 attrition and L2 acquisition in bilingual contexts. L1 attrition is defined here as both the reduction of L1 language skills and the restructuring of the L1 according to L2 patterns to the point where communication in the L1 is impaired. The present study involves extensive elicitation of written and oral data in both Romanian and English. First, an assessment of the participants’ history of language acquisition, their attitudes, their patterns of language use, and the nature of their social networks was conducted via sociolinguistic questionnaires and individual interviews. The language aptitude tests used in this project examined phonetic memory, vocabulary learning, and grammatical inferencing abilities. As an indicator of overall language proficiency, formal tests (a C-test and a verbal fluency task) and samples of spontaneous speech in the form of film commenting tasks were analyzed for fluency and grammatical complexity. The results showed that L1 attrition is a possible, but not obligatory, outcome in the first generation of migrants. With the exception of two participants, the majority of the bilinguals in this study, while not perfect matches for the L1 monolinguals, remained
within the L1 native range even after a long residence in the L2 country. While proficiency trade-off patterns are not observable at the group level, they were evidenced in the cases of the two attriters identified in this study. With respect to cognitive predictor variables, L1 maintenance does not appear to be a direct function of linguistic aptitude. At the same time, levels of L1 attrition and L2 achievement are dependent on a combination of attitudinal and personal background variables.
Acknowledgments

There are many people who made this research possible and to whom I would like to express my gratitude. I am especially indebted to my Ph.D. supervisor, Prof. Parth Bhatt, whose guidance and continuous support have enabled me to complete the thesis. My appreciation for Prof. Bhatt’s teaching goes back to the early years of my undergraduate studies, as it was the knowledge and the insight gained during his course on the psychology of language that first sparked my interest in the study of bilingualism. Throughout the thesis-writing period, I have benefitted greatly from his deep knowledge of the field, his inspiring ideas, his way of explaining things clearly, logically, and simply. Prof. Bhatt’s sound advice, mentorship, patience, and motivation have inspired me in many ways that go beyond the thesis, and for which I could not be more grateful.

I would also like to thank the other members of my supervisory committee: Prof. Nina Spada, Prof. Mihaela Pirvulescu, and Prof. Jeffrey Steele. I have benefited greatly from Prof. Spada’s expertise in bilingualism, language acquisition, and her vast knowledge of experimental design. Her advice, kind and rigorous at the same time, has been a constant source of support throughout my Ph.D. years. I am equally grateful to Prof. Pirvulescu for her expertise in Romanian linguistics and her assistance with the Romanian data. It was the effective and to-the–point feedback of Prof. Steele that helped clarify my ideas and arrive at the final version of the thesis. I warmly thank you all for your time, very useful feedback, patience, and support.

In addition to the professors in my committee, special thanks go to Prof. Schmid and the members of the First Language Attrition Graduate Research Network. The attrition research manual put together by Prof. Schmid, as well as her prompt and relevant answers to all my enquiries were instrumental in setting up the experimental design, in making sense of the data collected, and in interpreting the results. I am very grateful to her for her time and for her invaluable assistance with my data analysis. I can truthfully say that this thesis would not have been possible without her input. I would also like to thank the other members of the L1 attrition network, especially Conny Opitz, Esther de Leeuw, Susan Dostert, and Dorota Lubinska for creating such a welcoming and supporting group, in which expertise is gladly shared and great ideas are exchanged. Your presence and your work have been a constant source of encouragement and inspiration for me.

I would also like to acknowledge the other friends and colleagues I have made throughout these past five years. Antonia Ciolac, your thorough knowledge of Romanian
linguistics and your unwavering support have helped me both practically and emotionally throughout the last three years. Alex Cohal, your enthusiasm was often contagious and helped me on several occasions get through the times when things looked difficult to handle. I greatly appreciated your helpful comments along the way, your reading suggestions, and your sincere involvement. Antonia and Alex, I hope soon to be able to return the favour. And speaking of great friends, Kristýna, Geneviève, and Ruth-Ellen deserve a special acknowledgment for being the best group of friends I could ever ask for. Thank you for enriching my journey in more ways than you imagine.

My sincere thanks go to all the participants in this study, who were kind enough to take the time to fill out the questionnaires, complete the numerous tests, and talk to me candidly about their experiences. Thank you for your trust and for your openness. Without you, this entire project would not have been feasible.

I gratefully acknowledge the funding sources that made my Ph.D. work possible. This research was partially funded by a SSHRC doctoral research grant and an OGS graduate scholarship. I am also grateful to the Department of French for the financial support in the form of various teaching appointments, as well as to the School of Graduate Studies for their support in the form of research grants for data collection travels to Romania. I would also like to take this opportunity and thank Monique Lecerf and the staff at the French Department for their kind assistance with the practical and bureaucratic matters of the graduate program.

Finally, I would like to express my gratitude towards my parents, my sister, and my extended family for their love and encouragement. And most of all towards my patient and supportive husband Mircea, whose care and understanding during the final stages of this Ph.D. are very much appreciated. Thank you.
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Chapter 1
Introduction

1.1 Introduction

The present study is an overview of the processes involved in first language (L1) attrition and second language (L2) acquisition in long-term Romanian migrant bilinguals living in English-speaking Canada. It aims to investigate the following: a) the incidence of L1 attrition in the bilingual subjects; b) the existence of a systematic correlation between a speaker’s level of L1 proficiency and his/her level of proficiency in the L2; c) the impact of a speaker’s background (age at immigration, length of residence in the L2 country, and educational profile), sociolinguistic factors (attitude towards the L1 and the L2, language choice and use), and cognitive factors (linguistic aptitude) on L1 attrition and L2 acquisition in migrant language contact. The thesis investigates the first language of twenty adult Romanian migrants who moved to Canada after the age of seventeen – an age that is considered to guarantee the completion of the L1 acquisition process – and had lived in the L2 country for at least ten years – a length of residence that is believed to ensure a certain level of L2 achievement (Köpke & Schmid, 2004:9-12).

Language attrition is defined here as both the modification and the restructuring of the L1 according to L2 patterns under the psycholinguistic pressures of bilingualism (Gross, 2004a, b) to the point where communication in the L1 is impaired. In the present study, the incidence of L1 attrition is investigated through a combination of formal tests and spontaneous speech data.

According to Seliger and Vago (1991), languages exist in a state of competition for a finite amount of memory and processing space, a result of which being that the L1 might
atrophy as a function of L2 improvement. In the context of this line of research, the present study seeks to establish whether there is any systematic relationship between the levels of proficiency in the languages of an adult bilingual.

Studies of L1 attrition suggest a range of background, attitudinal, and cognitive factors that all contribute to the possibility of language loss. Personal background factors explored in this study include age at time of emigration, education, and length of time elapsed since emigration. In contrast with second language acquisition research, where numerous studies have investigated and compared success in L2 acquisition and processing across various ages (see Birdsong, 2006 for an overview), there is a dearth of studies which compare the impact of age in both pre- and post-puberty attriters (see Schmid, in press) or across various post-puberty age intervals. With several exceptions (Jaspaert & Kroon, 1989; Yağmur, 1997), education is another factor that has not been systematically investigated as a possible predictor of language loss in attrition research. With respect to education, one factor that might contribute to differences in patterns of L1 maintenance is whether any part of a speaker’s education took place in the L2 country. Concerning the third personal background factor investigated, namely time lapsed since emigration, the available evidence in attrition research remains inconclusive (Köpke & Schmid, 2004:12), despite the general underlying assumption of a positive correlation between levels of attrition and the length of time the bilingual speaker has spent living in the L2 country.

In terms of attitudinal factors, a speaker’s attitude towards language learning and his/her desire to integrate into the host community are among the strongest predictors of language loss (Schmid, 2004a, 2004b). The attitudes towards one’s first language and culture are considered to be tightly related to frequency of language choice and use, and, therefore, strongly influence the development of L1 attrition.
Another topic explored in this thesis is the influence of aptitude (a psycholinguistic factor) on L1 attrition and L2 acquisition. While the role of language aptitude has been investigated extensively in second language acquisition research (DeKeyser, 2000; Abrahamsson & Hyltenstam, 2008), its effects have not been explored in the case of language attrition. Recent hypotheses (Köpke, 2007) and studies (Bylund, Abrahamsson, and Hyltenstam, 2010) propose that greater language aptitude can help a speaker retain higher levels of L1 proficiency despite reduced L1 use.

In general, the present study supports the tenets put forward by Dynamic Systems Theory (de Bot, Lowie, & Verspoor, 2007; de Bot, 2007; Herdina & Jessner, 2002; Jessner, 2003) and considers attrition to be dependent on a dynamic balance between an individual’s psycholinguistic system and the environment. Language attrition is viewed as the result of a series of internal changes in the L1, as well as a consequence of the increasing level of L2 acquisition. As a result, studying both languages of the bilingual is instrumental in order to arrive at a realistic portrait of the bilinguals’ proficiency and to enable us to make predictions concerning future language development patterns in migrant contexts.

The importance of understanding the process of language attrition is manifold, since even the language skills of proficient bilinguals can become susceptible to loss once regular use of that language is discontinued. Therefore, studying language attrition becomes as important as studying language acquisition. Exploring the processes involved in attrition can help us test the validation of linguistic hypotheses and psycholinguistic models that attempt to capture the processing of two languages in one memory system. From a sociolinguistic perspective, a more profound understanding of the processes involved in attrition can assist today’s educational systems to become better adapted to an increasingly bilingual population. Furthermore, those responsible for language policies can profit from studies coming from the field of both language acquisition and attrition in order to advance a long-lasting multilingualism. For example, the
ability to chart the attrition process, with all of the linguistic and extralinguistic aspects involved, could be useful for understanding the dynamic interactions between languages and ultimately for finding ways to prevent undesired language loss.

1.2 Outline of the Thesis

The present dissertation is structured as follows. Chapter 2 presents previous studies on bilingualism and language attrition. It establishes the definition of first language attrition to be used as a guiding point throughout the thesis. This chapter also discusses manifestations of language attrition in adult bilinguals, predictor variables for L1 attrition, and theoretical models attempting to chart the processes involved in L1 attrition.

Chapter 3 introduces the questions and specific hypothesis of the current study and then describes the methodology adopted to address the questions raised. It explains the criteria used to select the participants in the bilingual and monolingual groups. The testing battery is also described including formal tests and spontaneous speech elicitation tasks, as well as a sociolinguistic questionnaire, a language aptitude test, and an interview.

Chapter 4 presents the results obtained on all tests and Chapter 5 provides a discussion of these results in light of the questions and hypotheses of the study. The overall results of this research show that L1 attrition, as defined above, affects only a small percentage of the participants in the bilingual group and that the majority of participants remain within the range of native-like L1 proficiency. Attrition appears to be the result of both the lack of L1 input as well as the increasing influence of the dominant L2. With respect to contributing factors, it is shown that attitudinal factors may outweigh others such as age, length of residence, L1 choice and use, or language aptitude. As for the dynamics of the relationship that holds between L1 and
L2 proficiency, it is concluded that a trade-off pattern is only observable in those individuals where L1 attrition is present.

Chapter 6 provides the conclusions, outlines the strengths and limitations of the study, and suggests future lines of research. Given the multifaceted aspects of the attrition process, a variety of data collection methods and different analytical perspectives are necessary to arrive at a clearer understanding of the processes involved in L1 attrition. In the conclusion, it is argued that the study of L1 attrition remains relevant for understanding the significant language changes that occur as demographic trends indicate constant growth in the world’s bilingual population.

1.3 Terminology

Due to the use of similar terminology to refer to different linguistic phenomena in general, we introduce in this section the definitions of the terms relevant to our research as they are used in the present study. Some of these terms, such as, for example, “language attrition” or “bilingual”, will be revisited and explained more extensively in other sections of the thesis. They are presented here, however, for ease of reference. For certain entries, the list below also includes the alternative terms used to describe the same term or phenomenon.

**L1 attrition** refers to the structural and functional reduction in ability to use the L1. Throughout this thesis other terms, such as “loss”, “deterioration”, or “disintegration”, are used to refer to attrition. While these terms are generally viewed as carrying a negative connotation, in this thesis, these terms are used only to indicate the direction of the change. Moreover, considering that attrition is in certain cases perceived as gain, either in the form of multicompetence
development (Cook, 2003) or as the desired result of immigration (de Leeuw, 2009), no negative judgment is intended.

**Bilingual group** refers to the group of bilingual migrants who have emigrated after the age of seventeen years old and have resided in the new host country for at least ten years. Considering that these participants provide the research data, they are alternately referred to as the target group or the focus group.

**Control group** refers to the L1 and the L2 monolingual participants that provided the baseline data for the research. In the present study, this refers to native monolingual Romanian (L1) and English (L1) speakers.

Let us now turn to the terms used to identify the different types of cross-linguistic influence indentified in our data. The classification is partly based on the taxonomy provided by Hutz (2004) and Pavlenko (2004).

**Language mixing** refers to instances when a bilingual participant starts a sentence in one language and, after a few words, switches to the other language as in the Romanian excerpt below:

(1) tipu’ care era, mă rog, following behind
   ‘The guy who was, whatever, following behind’

**Code-switching** refers to instances when a bilingual participant uses, in the middle of a sentence produced in one language, a word from the other language.
We open a brief parenthesis here to distinguish between code-switches and deliberate lexical borrowings. While code-switches are considered to reflect some form of L1 loss, deliberate borrowings are considered to “make up for a deficiency in the L1 and provide lexical and semantic enrichment” (Ben-Rafael, 2004: 169). According to Ben-Rafael, such deliberate borrowings usually fulfill pragmatic roles and include nouns related to the public sphere of the L2 country, e.g., immigration, education, work, economy, health, religion, or the army.

In the case of code-switching, lexical items from the L2 are used in the L1 despite the fact that there is a corresponding L1 item. On one hand, code-switching can be used as a lexical communication tool in multilingual speech (Odlin, 1989; Myers-Scotton, 1993) that in time can convey the new identity of the migrant speaker. On the other hand, strictly related to loss in the mental lexicon, the bilingual may also use the L2 item either because he cannot access the L1 item in time (Example 2) or because of structural or phonological similarities (Example 3), as with cognates (Hutz, 2004: 196). Consider example (2) below in which the speaker cannot retrieve the L1 word for ‘ship’ in time and uses the L2 word followed by the L1 word:

(2) a scufundat un, ‘un ship’, un vapor.
  ‘he sank a, ‘a ship’, a ship’

In example (3), the speaker confuses the L1 word ‘cofetărie’ (cake shop) with the L2 ‘cafeteria’ based on phonological similarities.

(3) iar el intră într-o ‘cofetărie’
  ‘and he enters in a cafeteria’

In the next chapter we present a review of relevant previous studies on bilingualism and language attrition.
Chapter 2
Review of Previous Studies on Bilingualism and Language Attrition

This section aims to highlight some of the most relevant aspects of attrition in the broader context of bilingualism and to pave the way for the research questions raised in the present study. The first part of this section deals with issues related to bilingualism in general and situates L1 attrition in the context of other phenomena of bilingualism stemming from language contact. In the second part of this section, a definition is proposed of the particular type of attrition that is the focus of the present thesis. The following two sections review the properties of L1 attrition and the various factors that seem to accelerate or slow down the process of L1 loss. The next section explores the theoretical models that attempt to explain the processes implicated in non-pathological bilingual language deterioration, providing also relevant background information from the neighbouring fields of psychology and neurology. The last section summarizes the attrition literature previously presented in the chapter.

2.1 Bilingualism, L2 Acquisition, and L1 Attrition

The concept of bilingualism has been defined in numerous ways; the definitions used ranging widely from very restrictive to very broad. For example, Bloomfield (1933) characterized the bilingual as a speaker who is able to use two languages with equal or nearly equal fluency. According to Bloomfield, bilingualism is restricted to “native-like control of the two languages”, but this definition has proven to be too narrow (Grosjean, 1989; 1994) and does not encompass the behavior and proficiency of the majority of bilingual speakers. At the other end of the spectrum, Macnamara (1966) redefines bilingualism in a less restrictive sense and refers
to a bilingual as a speaker who possesses minimal knowledge in at least one of the four skills in a language other than his or her native tongue. As will become clear later, both definitions are in fact accurate because they capture different points along the bilingual continuum. While these definitions focus on the language competency of a speaker, Grosjean (1998; 2001) proposes a functional definition. According to this author, the term ‘bilingualism’ is used to describe the use of two or more languages in one’s everyday life as opposed to the equal and optimal knowledge of two or more languages. Moreover, the needs and uses of two languages are usually different. The bilingual uses two languages – separately or together – for different purposes, in different domains of life, with different people. Given this functional distribution of language use, the bilingual is rarely equally and completely fluent in both languages.

One aspect that follows from the bilinguals’ different levels of language proficiency is that speakers find themselves on a language continuum, oscillating from states in which the bilingual is ‘dominant’ in one of the languages to states of more or less ‘balanced’ bilingualism. Therefore, the various stages experienced by the bilingual (as detailed in Figure 2.1) in the process of language acquisition and attrition are considered to be part of the continuum, rather than discrete and unique states of development (Schmid, in press). This idea fits with Grosjean’s (1989) view that bilinguals should not be defined as two complete or incomplete monolinguals, but rather as a “competent but specific speaker-hearer […] who has a unique and specific linguistic configuration” (1989: 6). Moreover, it has been shown that all of a bilingual’s linguistic systems remain, to some degree, active and available in his/her mind at all times (Grosjean, 2001; Kaushanskaya & Marian, 2007), regardless of the intention or requirement to use one language alone. This set of facts is also captured by the term “multi competence”, proposed by Cook (1991). The term ‘multi competence’ was defined as the “compound state of a mind with two grammars” (Cook, 1991: 103) and was introduced as a reaction to the view that
multilingual speakers tend to be less skilful in one language or both when compared to their monolingual counterparts.

Another aspect related to the notion of language continuum is that language learning in bilinguals continues across the lifespan in ways that modify both the L1 and the L2. Grosjean (2001) points out that research on bilingualism needs to take into account whether or not the person is in a stage of language restructuring (i.e., actively acquiring a new language or in the process of losing the first one) or whether the person has attained a more or less stable level of bilingualism, where lexical and other linguistic knowledge continues to change, but at a much slower rate. Furthermore, a speaker can shift in and out of bilingualism – “in the sense of acquiring one language and forgetting the other totally” (Grosjean, 1989: 9). At the same time, Grosjean asserts that the speaker always maintains a necessary level of communicative competence as dictated by the environment. We add that the level of language maintenance can also be shaped according to the communicative needs as they are perceived by the individual speaker. The speaker is able to adjust his or her level of communicative competence as the circumstances change and new environments, new interlocutors, new situations require new communicative needs. The idea that the speaker would always maintain the necessary level of language proficiency according to the real and perceived communicative needs is relevant in the context of L1 attrition. The implication is that the L1 cannot be lost as long as there is a minimal need for communication in that language.

In addition to the competence level continuum, Grosjean (1989) mentions the situational continuum. This distinction is important, as particular speech modes are induced by the different points on the situational continuum at which a bilingual finds him/herself. For example, if the bilingual is interacting with a monolingual of either language, he/she is restricted to performing in just one language, i.e. to performing in a monolingual speech mode. Interactions with bilingual speakers, however, often give way to language mixing. In bilingual contexts, being in
one speech mode or the other is often a matter of personal choice. For example, speakers who strive to maintain their L1 or who want to be completely immersed in the L2 would rarely allow themselves to use the two languages in a bilingual mode. Other speakers, on the contrary, are almost always in a bilingual mode. From a psycholinguistic perspective, the first type of speaker tries to deactivate as much as possible the other language. As repeatedly shown in previous studies (e.g., Kaushanskaya & Marian, 2007; Cook, 1991; Kroll, 2007), deactivation of one or the other of the bilingual speaker’s languages is never total. Involuntary interferences can occur at all levels of language (phonological, lexical, syntactic, semantic). Grosjean (1989: 9) distinguishes between static interferences – referring to more or less systematic, permanent traces from one language to the other, such as foreign accent – and more or less random, dynamic interferences, in the form of accidental intrusions, such as momentarily using the stress pattern or the word order from the other language.

The distinction between the use of language in monolingual or bilingual speech modes is pertinent to the context of L1 attrition for a number of reasons. First, cross-linguistic interference, either in the form of extensive code-switching or language mixing, can lead to a reduced awareness of the choice of languages (de Bot & Hulsen, 2002). Such instances have been previously illustrated in attrition research (Ammerlaan, 1991; Pelc, 2001; de Leeuw, 2009, among others). Second, long-term language usage in the bilingual mode can be conducive to the creation of a new language variety (Cook, 1991). This implies that L1 attrition can be thus viewed as the acquisition of a new, restructured L1 variety that can be highly idiosyncratic (Grosjean & Py, 1991). This view has important ramifications for the study of attrition, as it can account for certain manifestations of the impact of language use patterns on L1 disintegration. Köpke (2001), for example, showed a more pronounced incidence of L1 attrition in those participants who, by virtue of being active in a tight-knit L1 community in the L2 country, were using the L1 in a bilingual mode as opposed to a monolingual mode. This case was contrasted
with the surprisingly well preserved L1 of a speaker who had used the L2 exclusively for a very long period of time.

The view of bilingualism presented above is pertinent in the context of the present study, as it helps to determine the characteristics of the bilingual participants involved. Given the varied language use profiles of the participants in our study and the fact that they had all lived in Canada (the L2 country) for at least ten years, we consider some of them to be stable bilinguals and others to be bilinguals at the L1 attrition stage of language restructuring. In terms of language use modes, we view the participants as constantly moving between various points on the language mode continuum, depending on the nature of the interaction and the language profile of the interlocutor.

It is widely accepted that languages are never lost in isolation (de Bot & Hulsen, 2002) and that “L1 attrition typically comes as a by-product of language contact, particularly in migrant settings” (de Bot & Hulsen, 2002: 262). Moreover, as underlined by Schmid and Köpke (2007), the bidirectional transfers and interferences taking place between the languages in contact make L1 attrition a natural outcome. While all bilinguals experience transfer to some degree, Schmid and Köpke (2007: 3) point to several conditions necessary for L1 attrition to occur: emigration, extensive use of the L2, extremely reduced use of the L1, plus a time span decades long. In such settings, migrants appear to go through similar stages, from L1 monolingualism, through bilingualism with an increasing role of the host language, to monolingualism in that language (Paulston, 1994).

Based on the research outlined above, we propose Figure 2.1 to illustrate the five phases a speaker potentially goes through in the process of L1 attrition as he/she moves from a monolingual state in the L1 through various degrees of bilingualism and theoretically to a monolingual state in the L2.
In what follows, we explain the five stages of the integrated view of L2 acquisition, bilingualism, and L1 attrition illustrated in Figure 2.1.
Stage I
Stage I depicts the L1 monolingual speaker. In the context of our study, this stage represents the adult speaker for whom L1 acquisition is complete (presumably before any L2 acquisition) and who has been mostly monolingual until adolescence or early adulthood. This stage represents the adult speaker before or right at the time of immigration.

Stage II
Stage II corresponds to the earliest stages of bilingualism, when the first contact with the L2 is made. At this stage, the speaker experiences crosslinguistic transfer coming predominantly from the L1 towards the L2. As more and more evidence has accumulated that even incipient knowledge of an L2 can have an impact on the L1 (Herdina & Jessner, 2002; Cook, 2003), stage II illustrates that interlinguistic “traffic” (Schmid & Köpke, 2007) is present to some extent from the L2 towards the L1 as well. In the context of attrition, this stage represents a speaker who either started acquiring the L2 in preparation for emigration or who has recently emigrated.

Stage III
Stage III depicts the linguistic knowledge of the balanced bilingual, where equal and bidirectional traffic between the two languages is established.

Stage IV
As language proficiency in the L2 increases, the speaker experiences more and more L2 interference on the L1 (Stage IV) and less and less L1 interference on the L2. This stage corresponds to the bilingual who goes through a process of language restructuring, in that there
appears to be significant activation of the L2 when speaking the L1 and minimal activation of the L1 when speaking the L2.

**Stage V**
The last stage (Stage V) represents the end point of the attrition process and the existence of complete L2 dominance. It is important to mention that no research to my knowledge has presented a case where the L1 of a first generation adult migrant was completely lost. Therefore, this stage remains a theoretical possibility and is used to illustrate the potential, albeit unlikely, outcome of the attrition process.

At all stages of bilingualism, the languages are considered to be in a state of competition for limited cognitive resources (Seliger, 1991). A series of studies on verbal fluency and language activation in bilinguals (Kroll, 2007) points out that there is significant activation of the L1 when speaking the L2, an activation which produces a state of cross-language competition that requires *modulation* of the unused language. With respect to attrition, where language dominance is considered to be reversed, Schmid (2007) suggests that L1 attrition may result from the growing inability of the attriter to inhibit the L2 when using the L1. As also pointed out by Opitz (2005), the competitive demands on memory and processing result eventually in a language trade-off, where improvements in one language are accompanied by deterioration in the other.

In conclusion, bilinguals generally cannot be considered to be perfect matches for monolinguals in either the L1 or the L2. While changes in the L1 can be partly ascribed to the growing presence of the L2, loss of the L1 in adult speakers is hardly an automatic consequence of L2 acquisition or bilingualism. At the same time, identifying which linguistic phenomena in the speech of a migrant bilingual are the result of normal L2 influence on the L1 and which are the results of actual L1 forgetting remains a problematic issue for attrition research. Schmid and
Beers Fägersten (2010) mention that this distinction is “not only impossible to draw, but also unhelpful”. Judging by previous research, it can be hypothesized that L1 attrition for the adult migrant is more a question of the L2 encroaching on the L1 rather than a matter of the actual forgetting of the language. As a consequence, the L1 becomes less and less accessible to the adult speaker, although never to the point of complete inaccessibility (Grosjean, 2001). Therefore, I propose that what differentiates bilingualism from attrition is that the cross-linguistic influence in the latter greatly surpasses the cross-linguistic traffic normally experienced by bilingual speakers.

### 2.1.1 Defining L1 Attrition

In order to arrive at a workable definition for first language attrition, we situate attrition in the context of other bilingual phenomena stemming from language contact situations. First, the literature has differentiated between the existing definitions of “language loss”, “language attrition”, and “language shift” (Dorian, 1982; Lambert, 1989). Research on language loss distinguishes between pathological and non-pathological instances. Pathological language loss is due to neurological impairment, such as aphasia or cognitive-communication deficits (Ferguson, 1991). Non-pathological language loss refers to both language shift and language attrition, in which a gradual reduction is implied. The first definition of non-pathological language attrition appeared in Lambert and Freed (1982:1):

> Broadly defined, language attrition may refer to loss of any language or portion of a language by an individual or a speech community. It may refer to the declining use of mother tongue skills by those in bilingual situations or among ethnic minorities in (some) language contact situations where one language, for political or social reasons, comes to replace another.
De Bot & Weltens (1985) (as cited in van Els 1986:4) suggest a taxonomy that distinguishes between four types of loss, taking into account which language is affected (L1 or L2) and in which environment the change occurs. The four types are:

1. loss of a L1 in an L1 environment (e.g., dialect loss)
2. loss of a L1 in an L2 environment (e.g., loss of a native language by migrants)
3. loss of a L2 in an L1 environment (e.g., loss of a foreign language)
4. loss of a L2 in an L2 environment (e.g., loss of a second language by aging migrants)

Stevens (1982:1) provides the first definition to underline that language shift encompasses inter-generational aspects, while language attrition is intra-generational in nature.

Intergenerational language loss (or “mother tongue shift”) is defined as occurring when children at risk of inheriting a non-English mother tongue acquire only English. Intragenerational language loss is defined as the outcome of the process of the increasing displacement of minority language usage by English usage.

Hansen (2001:61) makes a further distinction between attrition and shift stating that:

*Language attrition* (…) refers to the gradual forgetting of a language by individual attritors, persons who are experiencing attrition. This is distinguished from the longstanding sociolinguistic tradition of research of language shift, where the focus is on groups of speakers.

Clyne (1986: 488) provides a definition that makes the distinction between “loss” and “attrition”.

It may be useful to differentiate between “language loss” as a total phenomenon and “language attrition” for the partial loss of skills. […] studies of language loss/attrition deal with attrition, or rather “deterioration” of language skills.

As the field developed, the term ‘attrition’ has been used to refer to a change in the native language of the bilingual who is acquiring and using an L2 and living in an L2 environment. Olshtain (1989:151) states that attrition is the result of an individual’s reduced use of the attrited language due to a change in the linguistic environment and the increasing dominance of another language. Other definitions targeting the linguistic outcome of attrition include Ammerlaan’s (1991:21) who notes that attrition generally indicates “the perception of a decline in linguistic
knowledge, or control over that knowledge, based on a comparison of a situation in the past and in the present.”

Yet another type of definition refers to attrition as a consequence of the developing L2 system. Pauwles (1986:14) and Gross (2004b:3) offer definitions of L1 attrition of this type, stating that:

[...] the process in which L1 is (gradually) replaced by L2 in all spheres of usage (domains and language levels) (Pauwles 1986:14)

First language attrition is the restructuring of the L1 linguistic system according to patterns established by the second language (L2) (Gross, 2004b:3)

Gross (2004b) argues that, even if certain deviant structures produced by bilinguals cannot be traced back to either the bilingual’s L1 or L2, their occurrence can be nevertheless ascribed to the “psycholinguistic stress imposed upon the individual’s L1 grammar system from the development of a bilingual lexicon” (Gross, 2004b: 2). Validation of this idea comes from studies showing that the occurrence of attrition is visible even in situations when the L1 is a prestigious language and where native-speaker input continues to be available to the speaker (Major, 1992).

We conclude this section with definitions of L1 attrition that take into account the linguistic manifestations that result from L1 reduction. Andersen (1982: 85), in one of the earliest theoretical contributions to the subject, distinguishes dysfunctional attrition from cosmetic attrition. The former refers to loss of linguistic competence that impedes communication and transfer of information, and which triggers negative attitudes and alienation from the competent speakers of the language community. Cosmetic attrition, in contrast, refers to a measurable loss of features that neither hinders communication nor triggers negative socio-affective reactions from the competent speech community. From an empirical point of view, the determination of which linguistic features are dysfunctional and which are cosmetic remains
difficult to determine and is probably language specific. In the same vein, Yukawa (1997: 6) also defines attrition as a:

[...] permanent or temporary regression from a subject’s previous linguistic performance or competence at any linguistic level (phonology, morphology, syntax, and pragmatics) in exerting any linguistic skill (speaking, listening, reading, writing and metalinguistic judgment).

Seliger (1996: 605) defines L1 attrition as a:

[...] temporary or permanent loss of language ability as reflected in a speaker’s performance or in his or her inability to make grammaticality judgments that would be consistent with native speaker monolinguals at the same age and stage of language development.

In summary, language attrition involves the first generation of migrants only and appears to be a natural, non-pathological phenomenon, prevalent in language contact situations where the L2 is the dominant language. It manifests itself as a selective, permanent or temporary gradual reduction of L1 skills.

Defining L1 attrition

In view of the perspectives presented above, we propose the following definition of L1 attrition that will be used throughout this research:

Non-pathological L1 attrition in an adult speaker living in an L2-dominant environment is considered to be a matter of both L1 reduced accessibility to linguistic knowledge and L1 restructuring according to L2 patterns, which can occur at any linguistic level in using any linguistic skill to the extent that communication in the L1 is impaired. Attrition is not age related and assumes previous complete acquisition of the L1.

We emphasize that attrition is a question of degree. Therefore, we expect all speakers living in bilingual contexts to experience some degree of deterioration in the L1, a phenomenon triggered by restricted L1 input, by the existence of a dominant L2 in the linguistic environment, and by the psycholinguistic pressures of bilingualism. However, according to our definition of L1 attrition, we consider L1 attriters to be only those participants who experience L1 deterioration to such an extent that major communication problems arise and intelligibility in the L1 is
affected. Given that the procedures needed for production (such as retrieval of words and larger units with meanings appropriate to the speaker’s intention) are considered more complex than the procedures needed for comprehension (such as combination of words and larger units so as to express the desired meaning) (Clark & Clark 1997, cited in Clark & Hecht, 1983: 343), communication impediments are expected to be present especially at the level of production and to a lesser extent at the level of comprehension.

2.2 Manifestations of L1 Attrition

As stated above, attrition has been defined as a gradual decline in L1 proficiency experienced by long term migrants living in a linguistic environment where the L2 is the dominant language. The ways in which this decline manifests itself is still an open question and depends largely on the type of tests being used to detect attrition. In the first part of this section, we review some of the general linguistic manifestations of attrition. In the second part, we review studies that are directly relevant to the research at hand, that is to say, which provide evidence of global attrition obtained by using the same formal tests and spontaneous data collection instruments as those used in the present study.

Seliger and Vago (1991) point out that there are two driving forces for language change: an external force and an internal force. The external force is the equivalent of what Sharwood Smith (1983a, 1983b, 1989) labels “cross-linguistic effects” from the L2, which include interference/transfer, borrowings, convergence, and avoidance. The internal force refers to the inherent tendencies languages display when in the process of regression: increased internal simplicity, increased regularity, and increased efficiency for meeting immediate communicative needs (Yukawa 1997:9). The features are all typically the outcome of reduced L1 exposure and input.
In the process of L1 attrition, the L1 is generally replaced by another language, which is assumed to influence the rate of replacement. Sharwood Smith’s (1983a) cross-linguistic hypothesis states that the reorganization of the L1 system under the influence of the L2 seems to be the most likely candidate for explaining the phenomena of loss. In most studies that do find evidence for attrition in adult bilinguals, the authors attribute attrition effects to interference from the L2. For example, Grosjean & Py (1991), Hutz (2004), Altenberg (1991), Köpke (1999), Pelc (2001), Seliger (1991), Yağmur (1997), Skaaden (2005), Schmid (2004a), Gürel (2004), and Dostert (2009) among others, all report on syntactic calques and lexical/semantic overextensions as a result of the influence of the L2 on the L1. Given the greater flexibility and size of the mental lexicon, it is not surprising that the linguistic domain in which the greatest degree of L2 influence has been reported is the lexico-semantic domain. As far as syntax and morphology are concerned, it has been proposed by Andersen (1982) that, over time, L2 rules replace more complex L1 rules if they serve the same syntactic function. Moreover, speakers exhibit a narrower repertoire of distinctions and categories than “fully competent” native L1 speakers, and, most importantly, show increasing variation in their L1 output of the categories/distinctions exhibited (Andersen, 1982). Other manifestations of attrition include the speakers’ reduced ability to alternate between the different registers or styles of linguistic repertoire (Andersen, 1982).

In one of the few longitudinal studies in the attrition literature, where the written correspondence of a long-time German migrant in the US was analyzed, Hutz (2004) concludes that attrition in morphology and syntax proved to be a very slow and gradual process, whereas the lexical domain underwent a more accelerated change. In fact, the degree of morpho-syntactical stability after 57 years of residence in the L2-dominant environment found was remarkable. Attrition of the lexical domain was mainly characterized by the presence of code-switching and semantic transfers. The data suggested that, compared to other linguistic
subsystems, semantic transfers were especially susceptible to language attrition. Hutz (2004) explains that the constant increase of these transfers can be interpreted “as a speaker’s gradual process of adaptation of conceptual systems to that of the L2 speakers around him” (Hutz, 2004: 193), especially as such transfers are accelerated by phonological or semantic similarities between the words in the L1 and the L2. Instances of strategic borrowing and necessary loanwords were not considered attrition. In fact they were considered a form of language gain and a new communication strategy. In the morphological domain, the areas affected by reduction – largely due to the influence of the L2 – were case marking, plural marking, and gender assignment. Syntactic changes, such as the overproduction of L2 English SVO structures in German L1, a trend equally found by Schmid (2002), were also the result of continuous and massive exposure to the L2, although these changes were much slower and less visible. Such changes can also be interpreted as a consequence of the overall similarity between German and English; one might expect different results if the speaker had moved to, for example, Japan or Korea.

In a study involving L1 Serbian and Croatian speakers with Norwegian L2, Skaaden (2005) argued that manifestations of L1 attrition can be considered a special case of cross-linguistic creativity. These included the use of L1 units in contexts or environments where L1 conventions do not expect them, semantic extensions approximating the L2, semantic copying, and use of unusual word order. Equally important in terms of manifestations of attrition is the observation that while instantiations of this kind appear recurrently, they are not consistently present in the speech of the sampled migrants. Moreover, the nonconventional solutions appear alongside “correct” or conventional usages (Skaaden, 2005: 445).

According to Grosjean and Py (1991), using the L1 in a mixed mode within the migrant community constituted the main trigger of L1 attrition in Spanish migrants living in Switzerland (Grosjean & Py, 1991). Grammatical acceptability tests clearly showed that new hybrid Spanish
structures, resulting from the close contact between the L1 and the L2, were progressively integrated into the migrants’ speech. This situation paves the way for individual L1 restructuring, akin to the process of acquiring a new language variety.

At the same time, manifestations of L1 attrition cannot be ascribed to L2 influence alone. Cook, Iarossi, Nektarios, and Yuki (2003) observed that some of the changes present in the L1, such as word order in Japanese, are more influenced by animacy and plural cues than English word order and cannot always be accounted for by appealing to the L2. They conclude that it is the presence and constant learning of the L2 that is sometimes responsible for changes, rather than the specific aspects of the L2. Maher (1991) reached similar conclusions in a detailed study of various enclave speech communities. Maher points out that the dominant language is not the only factor responsible for the restructuring of enclave languages. Restructuring of these languages occurs due to inadequate exposure to L1, to L2 language acquisition, and the pressures of bilingualism.

In order to understand the type of results to be expected from the current project, we now turn our attention to the manifestations of attrition from three recent studies that included in their testing battery the same formal and spontaneous speech instruments used in the present project: the C-test, the verbal fluency test (VF), native speaker judgments, measurements of lexical diversity (D) and frequency, as well as syntactic distribution of hesitation markers such as pauses, repetitions, and retracings.

Schmid and Dusseldorp (2010), in a study exploring the L1 attrition of German bilinguals in Canada and the Netherlands, assessed German language proficiency by means of a C-test, two semantic verbal fluency (VF) tasks, a grammaticality judgment task, and a film retelling task. The results indicated a difference between the bilingual groups and the control groups on all language proficiency variables except the grammaticality judgment task, which was subsequently eliminated from the rest of the analysis. For the C-test, the VF and the spontaneous
measurements, the contrast tests showed that the reference group outperformed the bilingual groups, except for the D measure, where the difference between the Canadian Germans and the reference group was not significant, while the difference between the Dutch Germans and the reference group was. In a subsequent study using the same set of data, Schmid and Beers Fägersten (2010) investigated disfluency patterns in L1 attrition. The findings show that the attriting group tended to use more empty pauses, repetitions, and retractions than the control group. The higher incidence of these phenomena was interpreted to indicate slower activation of (predominantly) lexical information. Investigations of the lexical distribution of disfluency markers revealed that these markers were usually used before verbs and nouns, thus providing further indication of difficulties in the context of lexical retrieval, including both lexical forms and specific grammatical information such as the gender of nouns.

Dostert’s (2009) study on the L1 attrition of native English speakers living in Germany also used the formal C-test and the VF tests in L1 and L2 as well as spontaneous speech measures such as lexical diversity (D) and disfluency markers. For the verbal fluency task, participants were asked to name as many animals as possible in 60 seconds. The results are rather surprising in that the bilingual group obtained higher means in both L1 and L2 than the control group. In terms of group homogeneity, the control group was more homogenous than the attriter group. As for the L1 C-test, the results indicate almost identical values for both the attrition and the control groups. For the L2 C-test, the difference between the attriter and the control groups was much greater, with the latter clearly outperforming the former. The results of the D value show again an unexpected pattern: the attrition group outperformed the control group. Dostert concludes that the individuals in the attriter group cannot be clearly distinguished from the control participants, especially on the basis of the formal test scores. As for the disfluency markers, the results are largely as predicted. In all cases – with the exception of reformulations –
the attriters have a higher percentage than the L1 controls. These results are interpreted to indicate a higher rate of hesitation during the oral task.

Similar discrepancies between untimed tests and other measures of language proficiency such as spontaneous speech and subjects’ self rating of L1 proficiency were observed in Waas (1996) and Weltens (1989). For example, French migrants in the Netherlands believed that their proficiency in French had deteriorated dramatically while their performance on formal tests showed hardly any signs of attrition (Weltens, 1989). De Bot and Weltens (1995) observed that the higher incidence of hesitation markers in spontaneous speech was due to the fact that attriters needed to use different compensatory strategies in order to access words with decreased accessibility due to non-use. This interpretation is in keeping with the psychological literature in assuming that words are not lost (see 2.4.2), but rather that attriters experience an increase in the length of time needed for their retrieval. This can also explain attriters’ perceived feelings of L1 inadequacy:

Language attriters know that their retrieval is slowed down when they are forced to come up with the right word in time, and so they (rightly) say that they have experienced language attrition. (De Bot & Weltens, 1995:157).

In a study involving German migrants in the Netherlands and English-speaking Canada, de Leeuw (2009) used a foreign accent assessment to determine whether native speakers of German living abroad are perceived to have a global foreign accent. The foreign accent rating was calculated from an operative six-point Likert scale, where a rating of 6 was indicative of “certain of non-native speaker status” and a rating of 1 on the scale represented “certain of native speaker status”. Of the 57 bilingual speakers rated, 20 were clearly rated as native speakers, 23 had an unclear rating, and 14 were clearly rated to be non-native speakers. The second aim of de Leeuw’s study was to determine whether Dutch L2 speakers displayed more first language attrition than English L2 speakers. The results indicated no significant difference between the two groups. The third aim of the study was to determine the influence of various
predictor variables in the German listeners’ evaluations of the bilingual migrants. The results showed an inverse correlation between age of arrival in the L2 country and foreign accent rating: the earlier the German speakers had moved to Canada, the more they were perceived to be non-native speakers. For the L2 Dutch group, the results showed an inverse correlation between foreign accent rating scores and the amount of contact with the L1: the less contact the migrants had with their L1, the more likely they were perceived as non-native speakers.

In conclusion, the results reviewed above indicate that the L1 used by adult migrants undergoes changes that are most pronounced at the lexical level, while at the morpho-syntactic level, changes are more difficult to perceive and take longer to establish. These manifestations can be ascribed to the influence of the dominant L2 as well as to reduced exposure to the L1. In general, monolinguals in the control groups outperform bilinguals. However, such a difference in performance is rarely observed in spontaneous speech (Dostert, 2009). Furthermore, there is greater variation and inconsistency in the migrant speakers’ speech (Skaaden, 2005). These two features of migrant speech explain why attrition is generally difficult to measure: on the surface, overall proficiency in adult migrant speakers remains within native-like range (Köpke, 2007: 30).

2.3 Predictor Variables for L1 Attrition

With respect to factors influencing language attrition, a large body of attrition research has clearly shown that language attrition cannot be the consequence of the lack of L1 use alone, as conceivable in the hypothetical scenario of the desert island mentioned by Sharwood Smith and Van Buren (1991:22). While lack of L1 use (either complete or through diminished exposure) is indeed the trigger of attrition, the rate of language attrition is determined by a multitude of factors that may be linguistic, sociolinguistic, cognitive, and biological in nature. This section
discusses a number of factors that have been reported in the literature and which are expected to either amplify or decrease the effect of L1 attrition.

### 2.3.1 Age

The *age* factor plays an important role, especially in distinguishing adult attrition from child L1 attrition or adult attrition and L1 deterioration in the elderly. For example, in young children, it has been shown that when a language ceases to be used, it may become completely obsolete. Ventureyra and Pallier (2004), in a study involving Korean adoptees who had been immersed in an L2 French environment at an early age, conclude that due to increased brain plasticity, the participants quickly acquired the L2, but showed no explicit access to knowledge of Korean lexical items. As for L1 attrition in older subjects, studies have reported deficits in lexical production and, to a lesser extent, comprehension (Kenny, 1996; Schmid, 2002). Dostert (2009) showed that a more advanced age of emigration had a negative effect on both of the languages for the English native speakers living in Germany, on the one hand correlating with an increased frequency in reformulations with the L1 Picture description task, and on the other with a poorer performance on the L2 C-test.

### 2.3.2 Education

Education is a factor that is important for two reasons. The first is related to literacy and, again, it applies more to the study of attrition in children. The assumption is that “less attrition is to be expected in subjects who have had the opportunity to become literate in the L1, especially if they frequently use that skill” (Köpke, 2007:21). More relevant to the study of L1 attrition in adults is the level of education and its possible impact on attrition. Herdina and Jessner (2002:
104) indicate that the “erosion of the system underlying language competence is more likely to affect less well-educated and/or less communicatively oriented speakers”. The reasons for which higher levels of education appear to be beneficial for the avoidance or delay of L1 attrition include the fact that higher education is linked to a larger vocabulary and greater variety of structures, to more openness to reading in L1, and even greater possibilities for contacting and visiting family in the L1 country, therefore increasing L1 input (see also Dostert, 2009). The education factor, therefore, appears to have an indirect influence on L1 attrition in adult speakers, rather than a direct one. Another way in which this factor indirectly impacts the manifestations of L1 attrition is via its influence on test performance, since level of education and familiarity with testing can play an important role in the success for certain tests. For example, this is especially important in the case of written tests such as the C-test. Therefore, it appears that, for informants who are less educated or less familiar with formal testing procedures, the results of such tests should be interpreted with caution in the context of language attrition. At the same time, education may not play any discernible role in unmonitored speech (Köpke, 1999; Köpke & Schmid, 2004). Another distinction that seems to be important in the context of adult L1 attrition, but has not to my knowledge been addressed so far, is whether parts of the education were completed in the L1 or in the L2 country. In cases where high school, graduate, or postgraduate education were completed in the L2 country, we expect the L1 to show more influence from the L2.

Empirical studies, however, remain inconclusive with regard to the impact of education on L1 attrition. In a study of Turkish attrition in bilinguals living in Germany, Yağmur (1997) was one of the few researchers to use education as a control variable for all aspects measured. The participants in this study and the informants in the reference group were divided into two groups based on their level of education. The results revealed that the mean score of the less educated reference group were significantly higher than that of the better educated bilingual
group. Therefore, it was concluded that education received in the L1 appears unable to account for the inter-group differences observed.

2.3.3 Length of Residence in the L2 Country

At first glance, it seems almost common sense to assume a link between the time that an individual has been exposed to a foreign language and the degree of L1 attrition. However, the more or less linear process of attrition is long and gradual, taking place over decades. This makes charting its stages very difficult, a situation that translates into a large body of confusing and oftentimes contradictory research evidence. Some studies in the context of emigration have shown that the time elapsed since emigration can have a strong influence on language competence (e.g. Laufer, 2003; Waas, 1996) while others have indicated that this factor may only have a limited effect (e.g. de Bot & Clyne, 1994; de Bot, Gommans, & Rossing, 1991)

Laufer (2003) tested retention of L1 Russian collocational knowledge of Hebrew/Russian bilinguals via grammaticality judgment tests and showed that the length of residence in the L2 country had the strongest effect, stronger than amount of L1 use and age of arrival in L2 country. A further test was performed taking into consideration two subgroups of bilinguals created on the basis of their length of residence in the host country. One group included those who had lived there for a period between 2-6 years, the others for a period between 17-40 years. The statistical analysis revealed that most of the attrition in collocational knowledge occurred after a long period of residence in a non-L1-speaking environment and that age and amount of L1 use played only a moderately significant role. Furthermore, the standard deviations indicated that, the longer the residence in the L2 country, the less uniform people were with respect to their L1 knowledge. Moreover, Laufer (2003) concludes that these results
also signify that the rate of decline of collocational knowledge was low at the beginning of contact with L2, and accelerated later on.

A subsequent study (also reported in Laufer, 2003), which examined the attrition of lexical diversity as reflected in written compositions, revealed that the percentage of infrequent words decreased as the length of residence increased, as did the number of words per essay. The statistical tests showed that significant differences were found only between newcomers and the oldest bilinguals. This can be interpreted to mean that L1 lexical diversity did not decline immediately, but reached a plateau initially and started decreasing after prolonged contact with the L2. The same pattern of change was observed in the number of words used, a number that did not decline in the group that had lived for a shorter time in the USA, but that did in the group of older bilinguals.

In their longitudinal study of language attrition with Dutch migrants in Australia, de Bot and Clyne (1994) tested the migrants twice: the first data collection took place in 1970 and then the same participants were retested in 1987. The second testing revealed no clear evidence of additional attrition over the 17-year period. The migrants still had a very good command of Dutch even after 15 to 20 years of living in Australia, leading to the conclusion that language skills may deteriorate in the first decade, but then remain fairly stable after this period.

Other studies indicate that the onset of L1 attrition can occur immediately after emigration. For example, Beganović (2006, cited in Schmid, in press), in a study of Serbian and Croatian migrants in the Netherlands, found a stronger L2 effect in the speech of migrants who had been living in the host country for less than five years than for those who had been there for twelve years or more.

In conclusion, the conflicting results in the investigation of length of residence seem to be related to several factors including the great variation in the time elapsed since emigration and the amount and patterns of L1 use, as well as to age-related factors. De Bot, Gommans, and
Rossing (1991) point out that the factor *length of residence* becomes less relevant when there is a high degree of contact with the L1, but that there is a linear relation between time and attrition when there is low contact with the L1 (de Bot, Gommans, & Rossing, 1991:94). Furthermore, length of residence invariably correlates with age. These findings are in line with Köpke’s (2007) view that factors are interrelated and that no one individual factor is able to account for attrition on its own.

In the current research, we expect that length of residence in the L2 country will have a significant impact on attrition especially in those situations where much effort has gone into the acquisition and development of the L2. In other words, a greater degree of attrition is expected in those participants who report having had a strong desire to immerse themselves in the L2 culture and who have made significant efforts to acquire the L2.

### 2.3.4 Language Contact and Choice

When investigating the relationship between L1 use and L1 attrition, two aspects have been found to be important: amount of L1 use (i.e., how often the first language is used) and type of L1 use (i.e., in what context the L1 is used: work, family, etc.).

Intuitively, the amount of L1 use is expected to correlate negatively with the amount of L1 attrition. Therefore, a widely held view is that lack of L1 use leads to attrition whereas using the L1 prevents loss (e.g., Paradis, 2007). However, there is little clear empirical evidence that the extent to which a language will attrite depends on the extent to which the language is used. In the previous discussion on the impact of length of residence on attrition, we reported that those speakers who use their L1 very infrequently showed more attrition over time (de Bot, Gommans, & Rossing, 1999).
Many more studies, however, show that infrequent use of L1 is not in and of itself the only source of language attrition, and conversely that frequent language usage of L1 does not guarantee L1 preservation. In a study of German bilinguals living in Canada, Köpke (2001) showed that type and quality of L1 use can be conducive to attrition as much as – if not more than – lack of use. In this particular study, the two bilinguals who used their L1 frequently experienced difficulties at all linguistic levels and the migrant who used his L1 the least showed difficulties only with the lexicon. Grosjean & Py (1991), in a study of Spanish attrition among migrants in Switzerland, also found ample evidence of L1 competence restructuring in spite of constant L1 use inside the migrant community. Other studies also observed modifications in the L1 performance of speakers who continued to use the L1 on a daily basis (Major, 1992; Altenberg, 1991; Olshtain & Barzilay, 1991).

It is therefore reasonable to postulate that belonging to a migrant community might encourage instead of prevent L1 restructuring. Köpke (2001) proposes therefore a distinction between two types of attrition: one that is favoured by the changes conveyed within the migrant community and one that is the result of absence of contact with the L1 and which manifests itself mainly through access difficulties. Equally, it appears that language use in a bilingual mode, characterized by frequent code switches, is an important precursor to attrition. This can be explained by the fact that frequent simultaneous activation of both languages reduces the bilingual’s ability to inhibit the activation of the L2 when using the L1 which can, with time, lead to the restructuring of the L1.

Schmid’s (2007), in a study of German migrants investigating the role of L1 use for L1 attrition, also proposes the possibility that L1 attrition is the result of extensive L1 inhibition coupled with an increasing lack of ‘practice’ inhibiting the L2. One of the conclusions of the study is that L1 professionals and people who use the L1 for work purposes show less attrition, as they have more practice inhibiting the L2 when using the L1, while ‘regular’ migrant
speakers have more practice inhibiting the L1 when using the L2. It is furthermore suggested that frequency and recency of activation impact L1 attrition to a lesser extent than they do in other bilingual or multilingual contexts. Schmid proposes that, due to the possible attainment of knowledge stabilization through the massive rehearsal characteristic for L1 acquisition, frequent activation of L1 structures is no longer necessary to maintain accessibility (Schmid, 2007:150). This finding supports the idea that the use of either language in the monolingual mode constitutes practice in activating one language while inhibiting the other and opens up the possibility that both the capacity for L1 inhibition and the quality of contact (in monolingual mode rather than bilingual mode) are more relevant for attrition than quantity of L1 activation.

2.3.5 Attitudinal Factors

Research on language attrition has clearly shown that highly comparable speakers, who emigrated at approximately the same age, who have resided in the L2 country for roughly the same period of time, and who have been exposed to equal opportunities to use their L1, can vary dramatically with respect to the maintenance of skills in their first language (e.g., Schmid, 2002). Schmid (2008) explains that the reasons behind this variation may be due to subjective and emotional factors rather than to background factors such as age, sex, education, and length of residence in the L2 country. Schmid remarks that whatever the reasons that caused an individual to leave his or her country of origin, emigration is a “disruptive event with far-reaching implications” (Schmid, 2008:12). Although moving to a new country is an opportunity to start afresh and redefine oneself, one drawback that all migrants experience, especially in the initial stages post-emigration, is the feeling of being an outsider, the degree of such feelings depending on the type of new-comer integration policies adopted by the country to which they immigrated. Therefore, Schmid states that individuals have two options: a) they may choose to
embrace the new dominant culture and language and try to acculturate as quickly as possible or b) they may accept the feeling of being different and make an effort to maintain their L1. The ways in which an individual reacts to this predicament have been shown to play a large role in predicting the degree of L2 acquisition, and conceivably that of L1 attrition. The assumption is that those migrants who are motivated to integrate themselves in the L2 culture and society are expected to show more L1 attrition than those who are more comfortable with remaining closer to the culture of their country of origin.

The strong impact of feelings of cultural identification on the intensity of L1 attrition are illustrated by Major’s (1993) study of L1 American English in combination with L2 Brazilian Portuguese. He looked at the influence of Brazilian Portuguese on English as measured through voice onset time and found out that the English voiceless stops had changed in the direction of the L2, this change being more present in the subjects who identified most with the L2 and its culture.

One of the most relevant studies illustrating the strong impact of attitudinal and motivational factors on L1 attrition is Schmid’s (2002) research on L1 attrition in German Jews living in America. Participants in this study were divided into three groups, according to the time at which they emigrated: EMIGRA 1 emigrated between Jan. 1933 – Sept. 1935, EMIGRA 2 between Oct. 1935 and Oct. 1938, and EMIGRA 3 between the pogrom (the “Reichkristallnacht” on November 9th, 1938) and the beginning of World War II. It was hypothesized that exposure to more severe degrees of persecution might subsequently have led to the wish for distance from the speakers’ German background and identity accompanied by a desire to acculturate to the L2 society. Schmid (2002) looked not only at speech errors, but also at the lexical and morphosyntactic complexity of the speech production. The results showed that indeed the group EMIGRA 1, after more than 60 years of living in an English-speaking country, was able to preserve their L1 to a high degree of proficiency, while EMIGRA 3, in spite of a
shorter emigration period, experienced significant loss, mainly evident through a striking reduction of vocabulary and a marked preference for the use of simple clauses as opposed to complex sentences involving embedded clauses. Schmid (2002) established that none of the other extralinguistic and background factors which were examined, including age at emigration, length of emigration period and patterns of L1 use, were able to account for the considerable loss of L1 in EMIGRA 3. It was assumed therefore that L1 loss was connected with the degree of traumatization and the resulting desire for distance from the L1. In other words, a negative attitude associated with the L1 use and culture constituted the main cause for L1 retention/loss.

Two other studies that have attempted to contribute further evidence for the role of attitude in language maintenance are Yağmur’s (1997) study of L1 attrition and shift among Turkish bilinguals in Australia and Hulsen’s (2000) study of the attrition of Dutch among Dutch bilinguals in New Zealand. These two studies were based on Ethnolinguistic Vitality (EV) Theory and its accompanying instrument, the ‘Subjective Ethnolinguistic Vitality Questionnaire’. The assumption behind this approach is that groups with low ethnolinguistic vitality tend to blend quickly into the host society, giving up their L1, whereas groups with high vitality show a higher degree of L1 maintenance. The results of these studies, however, indicated no significant impact of the predictor variables on attrition. Schmid (in press) argues that such frameworks, which rely on subjects’ self reports of their use of and attitudes towards L1, are not a reliable tool for predicting links between attrition and identity. According to Schmid, this is attributable to the fact that concepts such as identity and affiliation, among others, change constantly across the lifespan and EV cannot determine language maintenance and attrition at the group level. This raises an important point, namely that attempting to establish links between attitudinal factors and attrition becomes problematic when applied to a group of bilinguals, especially if the group does not have a stable set of unified factors. For groups where perceptions of various attitudinal factors vary individually, analyses have to take
this individuality into account in order to arrive at an accurate assessment of their role in attrition.

In an attempt to shed more light on the impact of motivation on attrition, Ben-Rafael and Schmid (2007) contrasted two bilingual populations for whom the context of migration can be clearly differentiated based on the different prevailing language policies and ideologies at time of immigration for each group. The two groups consisted of 15 French and 15 Russian bilinguals in Israel. The French migrant group moved to Israel in the 1950s and 1960s at a time when the country’s language policy was overtly monolingual and the use of Hebrew was strongly encouraged in all spheres of life. Their migration was primarily ideologically motivated. The Russian group, on the other hand, moved to Israel in the 1980s and 1990s and their move was motivated to a large extent by practical and pragmatic considerations. The prevailing monolingual language policy was much more tolerant than in the past and, therefore, Russian migrants in this group were keen to maintain Russian as a family language to be transmitted to their children. Data was collected by means of semi-structured interviews and the questions referred to motives for immigration, linguistic problems encountered both in the L1 and the L2, and current attitudes towards the L1 and the L2. In order to assess language proficiency, all instances of borrowing and code switching were analyzed and classified. The results showed that the French group had significantly more instances of crosslinguistic interference in their L1 than the Russian group, which indicated that, for the French participants, the two linguistic systems were integrated to a higher degree than for the Russian participants. Ben-Rafael and Schmid conclude that these findings clearly point to a strong link between language attitudes and language attrition.

All the studies presented above considered the link between attitude and attrition as it is reflected in a group of speakers as a whole. The last study to be discussed in the present review (Prescher, 2007) reports data from a study of attrition in German migrants in the Netherlands,
with a focus on individuals’ own perception concerning bilingualism and bicultural identity and its relation to L1 attrition. In this study, Prescher referred to Yoshizawa Meaders’ (1997) theory of identity formation in migrants, which we will present in more detail in section 2.4.3. This particular theory identifies three phases during the process of acculturation: the immersion phase during which losses are acutely felt; the bicultural identity phase; and thirdly, the transcultural phase during which the migrant has developed his/her own bicultural identity. In addition, three types of migrants can be distinguished: those who go through a quick, albeit fragile, adjustment and total immersion; those who, on the contrary, are unwilling to make the necessary changes and remain closed to the new environment; and finally those who take the middle course, by both retaining their cultural identity and making themselves open to the new environment.

Returning to Prescher’s study, data were elicited via semi-structured, in-depth interviews in the L1. First, concerning the perception of L1 attrition, the narratives indicated that each participant reported a decline in his/her L1. Furthermore, after observing signs of attrition, some participants made a conscious effort to retain apparently forgotten words, phrases, and language rules by speaking more German to their children, visiting Germany, and exposing themselves to German media. Regarding reflections of identity, the participants referred to their linguistic and cultural position as “in-between”, “living in no-man’s-land” (Prescher, 2007:198). When asked where they considered their “home” to be now, the majority indicated that they no longer felt at home in Germany. On the other hand, Prescher observed that most participants showed an obvious desire to integrate both languages and cultures, “i.e. the life before and the life after emigration” (Prescher, 2007:199). Another interesting aspect evident from the migrants’ narratives is the extent of individual variation: the changes observed in identity perception across the lifespan are personal, non-linear, and highly unpredictable, as they depend on differing conditions during the process of acculturation. According to Prescher, the accounts of German migrants in the Netherlands seem to also follow the hypotheses put forward by
Yoshizawa Meaders (1997) in that the migrants experienced a period of quick assimilation after emigration, followed by the bicultural phase characterized by an inner struggle with language and identity, and finally – after a longer immigration period – the development of a new identity. In the case of German migrants, the tendency was to return to the L1 and preserve it as an essential part of their identity. This was the case with both migrants who initially experienced a need for quick assimilation as well as with those migrants who experienced a more gradual adaptation. Prescher reports that over time long-term migrants in both groups became “more confident about their origin, culture and mother tongue and [were] more critical about the culture, language and mentality of the guest country” (Prescher, 2007:201).

In conclusion, we remain of the opinion that attitudinal factors have a demonstrable impact on the degree of language maintenance and attrition, an impact that may override any other personal or background factor. At the same time, it is important to take into account that attitudes change across the lifespan and evolve in combination with other factors, usually in ways that are impossible to predict. Moreover, Prescher’s (2007) study raises another crucial point: the impact of attitudinal factors may be greatest in the first years following emigration. Therefore, given the unpredictable development of these variables, analyses that take into account either individual migrants (Prescher, 2007) or very homogenous migrant groups (Schmid, 2002; Ben-Rafael & Schmid, 2007) are best suited for establishing a reliable correlation between attitudinal factors and the level of L1 attrition/retention.

2.3.6 Language Aptitude

Language aptitude has been predominantly investigated within research on L2 acquisition. In this context, aptitude is defined as the potential for learning foreign languages. Language aptitude is considered to remain relatively stable over time, to be independent of other cognitive
factors such as intelligence, to be unrelated to previous learning experiences, and to vary considerably between individuals (Skehan, 1991). Carroll (1965) proposed a four-factor theory of aptitude consisting of phonemic coding ability, associative memory, grammatical sensitivity, and inductive language learning ability. These variables have been found to correlate with success in language learning. In this context, Abrahamsson and Hyltenstam (2005, as cited in Köpke, 2007) investigated, via a study involving adult native-like L2 Spanish speakers of Swedish, whether language aptitude could account for exceptional L2 achievement in late learners by correlating it with grammaticality judgment scores. They concluded that a high level of language aptitude appeared to be a necessary condition for near-native L2 attainment in adulthood. This finding also suggests that maturational constraints can be overcome by learners with exceptional language learning abilities.

To date, very few studies have tried to relate first language development to foreign language aptitude and foreign language achievement. Skehan (1986, 1988, as cited in Skehan, 1991) investigated whether connections could be made between the rate of first language development (data obtained when the children were 3 to 5 years old) and scores on foreign language aptitude tests (obtained when the same children were 13). The results confirmed that significant correlations (as high as 0.50) could be found between these two sets of measures. The highest correlations were established between L1 measures of auxiliary and pronominal development and analytic aspects of foreign language aptitude. Other linguistic features, such as the development of the modal system, or Mean Morpheme Length of Utterance, did not correlate as highly with aptitude. These findings corroborate the notion that aptitude for foreign language is, to some extent, a residue of first language learning ability (Carroll, 1973).

In spite of these findings, very little empirical evidence specifically demonstrating the impact of aptitude on L1 attrition has been put forward in the context of attrition research. The only study that we know of that investigates the role of language aptitude in L1 attrition is the
research of Bylund, Abrahamsson, and Hyltenstam (2010). In a study involving L1 Spanish-L2 Swedish bilinguals who moved to Sweden prior to puberty, the researchers concluded that the bilinguals with above average aptitude were more likely to score within the native range on the grammaticality judgment tests administered than those with below-average aptitude. Köpke and Schmid (2004:10-12) point out that the concept of language aptitude is promising for adult attrition research and might be more suited to capture speaker-to-speaker variation than other factors such as, for example, education. Therefore, our prediction, with respect to attrition, is that greater language aptitude should not only lead to higher L2 proficiency, but also prevent L1 attrition. This prediction, however, is in contradiction with the proficiency trade-off hypothesis (Opitz, 2005) which predicts a greater degree of attrition in highly proficient L2 speakers (see also Köpke, 2007).

In conclusion, it is rather difficult to single out a factor that can account for the deterioration or maintenance of the L1 linguistic system. In both attrition and acquisition, all factors interact with each other in ways that are complex, individual, and, most of the times, impossible to foresee. In the next section, we turn to several theoretical models that aim to explain the incidence of L1 attrition and attempt to predict its development over the lifespan.

2.4 Models of Attrition

Given that attrition is the result of the coexistence of two languages, models of first language attrition are intrinsically related to models of forgetting, of acquiring a second language, and of interlinguistic interference. Therefore, the present section discusses first language attrition in light of all the processes and factors involved in its onset and development.

According to Ecke (2004), forgetting is linked to the failure of at least one of the three basic components of remembering: encoding (the capture and acquisition of novel information),
storage (the integration and permanent representation of information), and retrieval (the access to information when it is needed by the speaker). Furthermore, two types of memory – short and long term – have been argued to be closely related to these cognitive functions. The role of short term memory is the storage of temporal information and, although this memory component has a limited information storage capacity, it is frequently involved in temporary higher-order activities such as mental calculations or language comprehension. In order to become a stable body of knowledge, information from short term memory must go through a rehearsal process so that it can be forwarded to long term memory storage (Yoshimura, 2001). In studies of language attrition, it is usually assumed that L1 acquisition is complete before the onset of forgetting and, therefore, the encoding component is intact. We remark, however, that this assumption is probably less valid in the case of the lexicon, mainly because the lexicon is considered to be an ‘open-class’ system. Lexical development takes place across the lifespan in both bilingual and monolingual environments where new items are relatively easy to add (Schmid, in press). This also explains the increased vulnerability of the lexicon in attrition contexts. However, for all other language components, the basic problem of forgetting resides in either the storage or the retrieval of information.

L1 attrition is a process governed by two factors: the presence and development of the L2 system on the one hand, and diminished exposure to and use of the L1 on the other (Schmid & Köpke, 2007). In light of the three basic components of remembering discussed above, the manifestations of L2 influence on L1 attrition are proposed to be linked to failure of the storage component and the theoretical models used to explain this process are cross-linguistic interference theory and the proficiency trade-off model (2.5.1). Diminished L1 exposure leads to manifestations in the L1 that are captured by the failure of the retrieval component. The theoretical approach used to formalize this aspect is the Activation Threshold Theory (Paradis, 2007). In addition, related concepts such as linguistic decay and retrieval slowdown and failure
(Ecke, 2004) are also explored (2.5.2). In order to explain the role of the various factors that influence the development of L1 attrition, the Transcultural Identity Building Theory (Yoshizawa Meaders, 1997) as well as the concepts of repression and cue dependency (Ecke, 2004) are presented (2.5.3). Section 2.5.4 discusses the Dynamic Systems Theory (de Bot, 2007; Jessner, 2003; Herdina & Jessner, 2002), a framework that views language development holistically as the interplay of environmental, cognitive, social-affective, and linguistic variables (Ecke, 2004).

2.4.1 Models of Cross-linguistic Interference

It has been proposed that language restructuring is an essential process in L2 learning (McLaughlin, 1990) and multilingual development, including attrition (Herdina & Jessner, 2002). In the context of L1 attrition, it is conceivable that speakers who chose to suppress their L1, who are immersed in the environment of a different language, or who are no longer exposed to the L1, start speaking the L1 with an L2 accent (Major, 1993) or modify the syntax of the L1 according to the L2 (Skaaden, 2005). Another example of language distortion is the blurring or fusion of two initially different linguistic systems, this being primarily a result of cross-linguistic influence, and to a lesser extent of reduced language input and diminished opportunity to learn new structures. (Ecke, 2004: 329). This view of language development, often called convergence (Clyne, 1987), is also underlined by Seliger (1989:176) who points out that “the bilingual may lose a sense of what is grammatical for one or both of the languages and not be able to control the mixing of the two.” Language distortion or convergence has been widely exhibited in many studies across a wide range of bilinguals including Skaaden (2005), Grosjean & Py (1991), Schmid & Ben Rafael (2007), Waas (1996), Köpke (1999), and Schmitt (2004), to name but a few.
Schmitt (2004) points out that convergence and code-switching, as opposed to language reduction and simplification, may be the mechanisms that explain language attrition. In a longitudinal study using data collected from five Russian boys whose families immigrated to the US when the boys were between the ages 3;8 of 4;2, Schmitt discusses the convergence of the Russian case system in contact with English. For example, she shows that while Russian morphological case markers did not erode significantly, English projected the slots for the case markers. She points out that the convergence framework was able to capture that, in the case of the Russian case system, reduction appears to be caused by the lack of clear contextual cues indicating where certain cases are required, and not by loss of the morphological markers themselves.

Equally relevant for L1 attrition is the implication that cross-linguistic interference can eventually lead to a reversal of language dominance patterns, akin to the one discussed in 2.1. Optiz (2005) suggests that high L2 proficiency may result in trade-offs for the L1. The proficiency trade-off is viewed as a result of the concessions a bilingual needs to make given the competitive demands on memory resources and processing capacity created by the use of two languages. As Seliger (1991: 4) points out: “[t]he languages spoken by the bilingual may be said, metaphorically, to coexist in a state of competition for a finite amount of memory and processing space in the mind of the speaker.” Evidence supporting the proficiency trade-off view is relatively sparse. This is mostly due to the fact that the focal point of language attrition studies has typically been the fate of the L1, and, as result, very few studies have taken into consideration the impact of L2 proficiency. Yağmur (1997), in a study of Turkish attrition, remarks that L1 attrition was observable regardless of the L2 proficiency of her participants; however, no precise measurements of L2 proficiency were undertaken. Coming from a language learning perspective, Segalowitz (1991), for example, investigates whether high levels of skill in one’s L2 leads to loss of performance in one’s L1. The data reviewed indicated that a high level
of reading skills in the L2 was indeed associated with slower reading in the L1. However, the data also indicated that the reduction in L1 reading speed did not reflect a loss of automatic processing in L1 word recognition. It was also shown that the highly skilled bilinguals were slower at controlled (strategic) processing in their L1. Segalowitz concludes that level of L2 skill did not affect automatic L1 word recognition, but did have an impact on L1 controlled processing of words.

Returning to the initial representation of the L1 attrition process (Figure 2:1), we propose that proficiency trade-off patterns are only apparent in very advanced L2 speakers, who are at the same time experiencing L1 attrition (stage IV). Linguistic interference at this stage is almost uniquely unidirectional from the L2 and is expected to result in L1 deterioration.

2.4.2 Models of Forgetting

At the heart of any attrition study is the idea that linguistic structures that are infrequently used or not used at all over extensive periods of time are forgotten or that access to these items is impaired. It follows that frequency and recency of use of a linguistic structure are crucial for the maintenance and access of information in memory. At the same time, continuous lack of use results in the dissipation of the “trace” and the impossibility of using that piece of information.

While language decay to the extent of total loss has been found to occur in children (Venturyera and Pallier, 2004; Pallier, 2007), in adults, the linguistic equivalent of the decay approach is the reduction/simplification framework. Previous studies on language loss in adults seem to concur that language attrition is characterized by reduction and simplification of the available L1 lexicon, morphology, and syntax. For example, studies of adult and elderly bilinguals point out that extended periods of no or reduced language use result in decreased
retrieval speed and an increase in retrieval failure rates in lexical production (Ammerlaan, 1996; Schmid, 2002). However, Schmitt (2004:300) remarks that discussing attrition data only from a linguistic reduction perspective does not provide any insights into the nature of interaction between the attriting language, the L1, and the dominant L2. While investigations of language decay are important as they relate to the nature of forgetting, they can only identify the surface manifestations of language attrition but not insight into the mechanisms involved in the process of attrition (Schmitt, 2004). It follows that attrition is perhaps less a process of language reduction and more a process of replacement (or convergence) of one or more levels of abstract lexical structures of the L1 with the abstract lexical structures of the L2.

Concurrently, if language attrition does not have to involve the complete loss of information from memory, its main manifestation may be the lack of access of the desired information in the L1 (Ecke, 2004) and an increase in retrieval time as a result. The most well-known theorization of language accessibility in bilinguals is the Activation Threshold Hypothesis (ATH) proposed by Paradis (1985; 1993). Initially, it was aimed at clarifying the mechanisms of differential inhibition in polyglot patients recovering from aphasia. Only recently has the theory been applied to the study of language attrition (Köpke, 2002). The basic assumption of the ATH is that each linguistic subsystem and item has an activation threshold, which reflects the amount of stimulation necessary for the subsystem or the item to be activated. The activation threshold is subject to permanent fluctuation depending on two main factors: recency and frequency of activation. For example, each time an item is activated, its threshold

1 The Abstract Level model (Myers Scotton & Jake, 2000) identifies three levels of abstract lexical structure: lexical conceptual, predicate-argument structure, and morphological realisation patterns. The three levels, present in both monolinguals and bilinguals, can be devided and recombined depending on the accessibility of information from the matrix language (the L1) and the embedded language (the L2). This process, referred to as convergence, is defined by Myers Scotton (1998: 290) as “the use of morphemes from a single linguistic variety, but with parts of their lexical structure coming from another source”. 
is lowered, after which it starts slowly rising again until its next activation. This implies that items that are more frequently activated have a lower activation threshold and are easier and faster to access than items that are less frequently activated and, as a result, have higher thresholds.

Paradis (2007) outlines the constructs of the ATH that have implications for attrition and explores the ensuing predictions (Paradis, 2007: 121):

(1) the ATH predicts that, all other factors being equal:
   - language disuse leads to gradual loss
   - the most frequent elements of L2 will replace their (less used) L1 counterparts
   - comprehension of forms will be retained longer than the ability to produce them
(2) elements sustained by declarative memory (e.g., vocabulary) are more vulnerable to attrition than those sustained by procedural memory (i.e., phonology, morphosyntax, lexicon)
(3) declarative items are more susceptible to interference (and hence to attrition by substitution) than implicit items
(4) pragmatics and conceptual items are also modified by attrition
(5) motivation impacts the rate of attrition

Given the basic assumption of the ATH – that infrequent use of one language entails the raising of the activation threshold for elements of that language and, as a result, makes these elements less accessible for linguistic processing – the framework appears to be a promising tool for explaining the nature of L1 attrition. A direct consequence of this is the attriter’s increased access to the more frequently used L2 items with lower activation thresholds at the expense of L1 items with higher activation thresholds. As such, L2 structures should not only be easier to access over time, but also more likely to interfere with L1 items, thus causing errors and/or lack of fluency (Köpke, 2002).

A number of phenomena reported in attrition studies can be accounted for in terms of the ATH. For example, the ATH can account for the fact that, in general, productive skills in
bilingual migrants are more affected than receptive skills. For recall, a high level of activation is needed. For recognition, a lower level is sufficient. Waas (1996), for example, showed that the speech production problems in the German L1 migrants in her study, especially lexical retrieval failures, were more pronounced compared to failures of receptive skills. This tendency is documented in the form of hesitation phenomena in attriter speech such as pausing, hesitation, reformulation, repetitions, amount of talk (verboseness), and rate of speech (Ammeralaan, 1996; Kenny, 1996; Pavlenko, 2003; Waas, 1996; Yukawa, 1998) and lexical retrieval failures, often with extensive search and non-target retrieval until the speaker manages to produce the intended structure (Olshtain & Barzilay, 1991).

Köpke (2002) tested directly the predictions of the ATH using data from German L1 migrants that was collected through a combination of instruments: a picture description task, a sentence generation task, and a grammaticality judgment task. The study concluded that the results were partially congruous with the predictions of the ATH. For example, in the lexical domain, Köpke was able to detect four types of errors that can be explained through erroneous activations at different processing levels. These are:

- code-switches -> due to the inability to inhibit lexicophono-logical form in L2
- word-finding difficulties -> due to controlled activation of the item in L2
- lexical errors and errors of language use -> due to activation of an erroneous lexicophone-logical form in L1 from a translation equivalent in L2
- phonetic switch -> due to the activation of a lexicophono-logical form in L1 pronounced with phonetic features of L2

In summary, the ATH proves to be an effective model for explaining cross-language lexical errors. However, it fails to account for within-language errors, for which Köpke resorts to the concept of inhibition (Green, 1986; Paradis, 1993). According to this approach, within-language errors in the L1 are due to the attrited bilingual’s increased difficulty in inhibiting
frequently used L2 items, which, in turn, reduces L1 processing ability. As for attrition at the level of grammatical processing, Köpke’s findings indicate that, in spontaneous speech, lexical errors clearly outnumber errors linked to grammatical aspects. From a neurolinguistic viewpoint, this can be attributed to the fact that elements sustained by procedural memory, such as morphosyntax, are more robust in an attrition situation than elements subserved by declarative memory (e.g., vocabulary; Paradis, 2007). With respect to the ATH, the fact that L1 grammar is found to be less sensitive to attrition than the L1 lexicon suggests that frequency and recency of activation do not play the same role for grammatical information as they do for lexical retrieval.

2.4.3 Sociolinguistic Models

As seen in section 2.3.5 where we discussed the influence of attitude on L1 attrition, the desire for a quick integration in the host country or, on the contrary, the attempt to resist acculturation can greatly impact the fate of the L1. Therefore, L1 attrition can appear as the result of a conscious individual choice to suppress or encourage the use of a language for socio-psychological reasons (Pavlenko & Lantolf, 2000) and in order to gain access to economic, professional, and social benefits. Ecke (2004) explains that the theory of repression originated in the area of psychoanalysis and that according to Freud (1899, cited by Ecke, 2004) unpleasant or traumatic memories are deliberately repressed and removed from consciousness by the individual who refuses to recall displeasing experiences. For attrition, it appears that repression can be an intentional mechanism to help the bilingual in the integrational process. Cases that seem consistent with language repression include the stories of successful adult bilingual writers who attempted to become native speakers of the L2 (Pavlenko & Lantolf, 2000). At the other
end of the attitudinal spectrum, Schmid’s (2002) findings (see 2.3.5) showing that the rate of L1 attrition in migrant Jews was mostly linked to the degree of persecution and to the speaker’s attitude towards the native language and community, can be taken as another example of language repression. Along the same lines, Footnick (2007) proposes a ‘conflict’ hypothesis as a possible explanation of the attrition process in her case study participant. Footnick proposed that after the participant acquired the L1, the speaker had a conflict with regard to producing it, and this conflict resulted in the language becoming inaccessible to him (Footnick, 2007: 171). In other words, the conflict caused linguistic information to become inaccessible in a manner that was not ‘normal’ forgetting. The experiment used hypnosis in order to decrease conflict and it was concluded that indeed a decrease in conflict can allow blocked information to be re-accessed.

Another study that concluded that language repression can be reversed was conducted by de Bot and Clyne (1994). They investigated the language attrition patterns of a group of Australian Dutch-English bilinguals 16 years after the same group was studied by Clyne. The results of this study did not reveal a deepening of L1 attrition, but rather a revitalization of the L1. The reversion back to the L1 was reflected in the bilinguals’ better recall in the L1, preferred use of the L1, a decrease in L2 fluency, and an increased L1 accent in the L2. These findings are linked to the dynamics of language growth and decline, the temporal nature of language suppression, the limits of individuals’ attempts to assimilate to another culture, and the likelihood of ultimate reversion to the L1 (cf. Ecke, 2004).

These findings are especially relevant as they echo a problem with which attrition research has often wrestled, namely the possibility that a fully acquired L1 cannot be completely erased from memory, but rather only becomes less and less accessible to the migrant speaker. This idea is corroborated by the fact that the only studies that were able to show complete loss of the L1 involved children. For example, the paradigm used by Pallier (2007) in a study
involving Korean adoptees in France was unable to detect any traces of the children’s early exposure to L1. As for adults, several studies, along with many anecdotal reports of an increase in ease of language use after spending extended periods of time in the L1 environment, suggest that migrants can indeed relearn an apparently attrited language. Major (1993), in one of the few studies to my knowledge looking at L1 re-learning, reported on the native accent recovery of an English native speaker upon moving back to the U.S. after long periods of residence in Brazil and loss of English native accent. Yağmur (1997) reported that the Australian-Turkish migrants of this study commented on a marked decrease of L1 skills in Australia, but little or no difficulty in speaking Turkish when visiting the L1 country every four to six years. The results of these studies reinforce the idea that temporarily inaccessible structures may be recovered provided the right cues become available (Ecke, 2004).

A unifying account of transcultural identity formation in immigrants is offered by Yoshizawa Meaders (1997). As mentioned above (2.3.5), this approach was first used by Prescher (2007) in her study of L1 attrition among German migrants in the Netherlands. Based on the personal narratives of the bilingual clients that Yoshizawa Meaders worked with as a psychiatrist, she observed that most migrants followed similar patterns in their process of acculturation and identity formation. According to Yoshizawa Meaders, transcultural identity formation occurs in three phases during the process of emigration: survival of self in the immersion phase, bicultural identity, and transcultural identity.

The first phase, the survival of identity, usually takes place immediately after immigration and appears to be experienced as the most difficult and challenging phase. During this period, migrants are deprived of their familiar environment, culture and native language, and must quickly reorient themselves for the purpose of survival. This is a complex and often overwhelming adaptation process in which the migrant needs to learn about the new environment, new codes of behaviour, new cultural expectations, among other aspects.
language barrier is one of the most difficult obstacles to be confronted, especially because of the impossibility of expressing one’s opinions, thoughts, and feelings. Moreover, the sense of loss, frustration, and helplessness is also accompanied by a period of enormous learning and growth, making the immersion phase one of the “most dynamic and fluid” periods, where the “struggle is between stress-induced regressive impulses and the developmental demands for adjustment in novel ways” (Yoshizawa Meaders, 1997:50). During this period of internal turmoil, Yoshizawa Meaders observes that successful negotiation for the survival of the self depends on a number of factors. The first factor is the reasons behind and the context supporting the idea to emigrate. Yoshizawa Meaders observes that, by and large, that adjustment is easier for those who made the decision to emigrate themselves than it is for those who had less control over the decision. Moreover, the subsequent issues in adjustment are influenced by the context – political and economical – fuelling the decision to immigrate.

Three groups of migrants can be distinguished according to their adjustment mode. First are the migrants who appear to make a quick adjustment to the new environment and culture. They tend to deny their identification with their own culture and start “imitating normative behaviors in the new environment and assuming new roles and identities which seem to fit the host culture” (Yoshizawa Meaders, 1997:52). Although this comes across as a “painless transition” to the new culture, this is a fragile adjustment, whose problematic undercurrents eventually give in to the various obstacles in the adjustment process and to the disappointments with the often idealized new culture. Later in life, the initially repressed anger and insecurity can lead to depression and even disintegration of the self. Next, there are migrants who adopt the opposite adjustment mode: they remain in complete isolation within their L1 cultural group and withdraw into themselves. They hold tightly to their original culture and are unable to be open to and explore the differences in the receiving culture. As a consequence, these migrants may preserve their previous identity to a large extent, but remain blocked from the new environment,
thus unduly prolonging their adjustment period. With time this can lead to minimum adjustment and continuous isolation. Finally, some migrants adopt a middle route and, despite inevitable initial disorientation, make an effort to express their own cultural identity while making themselves receptive and open to the new environment. By avoiding the extremes of the other two modes, they make room for new input while relying on their own identity for basic orientation and, therefore, achieve the most lasting and flexible adaptation.

Returning to the three phases experienced during the process of emigration, the second phase is bicultural identity and it involves “conscious recognition of the aspects of the identity now rooted in both the original and the adopted culture” (Yoshizawa Meaders, 1997: 53). The migrants make peace with what has been gained and changed as a result of immigration and what has been preserved and maintained from the old culture. Often, the positive aspects of the original culture are idealized and maintained in the form of longing, while inner conflicts are discarded gradually. Ideally, these transformations contribute to new models of identification and become more and more a part of the individual, of the new expanded identity. However, if this fails, bilingual identity can remain anchored in a state of continuous negotiation, in which the migrant feels like s/he belongs to neither the original nor the present culture.

The third phase of psychological adjustment in the process of immigration involves transcultural identity. This phase represents the result of the “healing effects of a successful analysis” (Yoshizawa Meaders, 1997:57). When the migrant reaches this phase, s/he accepts the new culture as an integral part of identity and, at the same time, the original culture is reclaimed as “an enduring basis of the expanded self” (Yoshizawa Meaders, 1997: 58). At this stage, the migrant feels like s/he belongs to both cultures and biculturalism is no longer experienced as conflictual.

With respect to the late bilinguals and migrants in our study, we expect to see instances of these transition phases in their narratives. It is also interesting to examine the extent to which
language loss is correlated with type of adjustment mode. In other words, would the migrants who are more prone to adopt the apparently quick acculturation route experience long lasting L1 attrition, more so than those for whom the adjustments to the new culture is more gradual?

2.4.4 Dynamic Systems Theory (DST)

One theory that appears to capture all the characteristics and manifestations of the attrition process – cue dependency, lack of homogeneity among bilingual attriters, and oscillation between different stages on the bilingual continuum – is Dynamic Systems Theory (de Bot, 2007). This theory, which is based on the Dynamic Model of Multilingualism (Herdina and Jessner, 2002), represents an attempt to relate linguistic, sociolinguistic and psycholinguistic variables and linguistic phenomena, such as language acquisition, language maintenance, language loss, and transfer/interference. According to Herdina and Jessner (2002:89), the characteristics of a dynamic multilingual system are non-linearity, reversibility, interdependence, complexity, and change of quality. In this view, language attrition is considered to be a consequence of developmental change in the multilingual’s language proficiency. Learning an additional language is achieved in competition with the already existing system and at the cost of limited resources (Seliger, 1991) already used for the maintenance of the existing linguistic system(s). According to the model, the acquisition of a new language negatively affects the previously learned language systems over time resulting in attrition. Only the speakers’ metalinguistic awareness and/or language aptitude counteract the decline of resources, use, and competence to meet the necessary communicative demands. The difference between DST and more static approaches (that use terms such as ‘fossilization’ and ‘final state’) is that the effect of variables affecting development are studied in their interaction
over time (de Bot et al., 2007). For example, different variables such as motivation to learn a language and attitude interact with success in learning a language. Not only do variables interact, but this interaction changes over time, often in unpredictable ways.

The rest of this section follows de Bot’s (2007) discussion of the main characteristics of the dynamic systems-based approach as they relate to L1 attrition in adult bilinguals.

*Sensitive dependence on initial conditions:*

This notion refers to the fact that small differences in initial conditions may have a large impact in the long run. With respect to bilinguals, small differences between language learners may have a large impact on the outcome of proficiency attainment, in spite of the learners going through the same learning process. The same may be true for language attrition: small differences at the beginning of the immigration period may result in big differences over time (de Bot, 2007: 59). For example, the majority of language attrition investigations report significant variation in L1 proficiency among long-term migrants (de Bot & Clyne, 1994; Laufer, 2003; Schmid, 2004a; among others).

*Complete interconnectedness and temporality:*

Dynamic systems are formed of subsystems that in turn consist of sub-systems and so on. Where language development is concerned, different cognitive systems such as memory, aptitude, attention, and perception contribute to the acquisition process together with other sub-systems such as motivation and language aptitude. As a result of this interconnectedness, change in one system leads to change in other systems or subsystems as well. The consequence with respect to language attrition is that factors, or indeed different systems, cannot be studied in isolation. For example, in de Bot and Welten’s (1991) study, the interaction between ‘time since emigration’ and ‘amount of contact with the L1’ was more relevant to L1 attrition prediction than the study
of each factor alone. Language is also considered a self-reorganizing system with attractor states. Received input will impact the system in at least three ways: (i) the system adopts the element without reorganization; (ii) the system adapts itself to the new element; or (iii) internal forces lead to reorganization. Accordingly, language attrition does not simply entail the loss of single elements, but also reorganization in order to find a new attractor state.

The systems and subsystems are in constant reorganization and the ways in which the system reorganizes itself cannot be predicted because it is impossible to calculate the total number of forces and variables contributing to the reorganization. Systems move from one attractor state (stable states in which the systems prefers to settle) to the next. In language learning, de Bot offers language fossilization or complete acquisition of a structure as examples of ‘attractors’. As research on L1 attrition has shown, complete mastery of a language is not an end-state either, as elements can be subject to loss or change.

Dependency on internal and external resources:

As stated above, two types of resources play a role in human learning: internal resources (which include motivation to learn, previous knowledge, and aptitude) and external resources (which include opportunities to learn, material conditions, etc.) (de Bot, 2007). The number and allocation of resources greatly influence the carrying capacity of a system. For language attrition, this means that the speaker must allocate at least a minimum of resources, such as time or amount of contact, in order to maintain the language. Jessner (2003) observes that language maintenance efforts have a key role in the stability of language systems.

Development is conceived as an iterative process:

The present level of development depends on the previous level of development. Language acquisition evolves gradually and every use of the language represents an iterative step in its
development. Language attrition also proceeds in steps and the present state of the system depends on the previous one and so on. Language systems grow and decline depending on the resources allocated and the interaction between input and internal forces. This entails that acquisition and attrition are both governed by the same principles. Language users constantly go through language growth and decline, depending on internal organization and external input.

Another issue that ensues from the interconnectedness of the system is that neither language acquisition nor attrition can really be modeled perfectly. While individual factors impacting language development are known, the ways in which the interaction among them changes cannot be predicted. De Bot concludes that “isolating single variables as explanatory may be unproductive because the impact of that variable on all the other variables is not taken into account” (de Bot, 2007: 62). The interconnectedness between systems could help to explain the difficulty encountered by previous studies in establishing clear correlations between individual factors and language proficiency.

2.5 Concluding Remarks

The review presented in this chapter focused on the four topics relevant to the present research. The first part was devoted to situating the concept of language attrition within the larger area of bilingualism. Language attrition is recognized as a normal part of the changes occurring in bilingual language proficiency over time. In view of these observations, the specific definition of language attrition adopted in this thesis (namely, the non-pathological, non-age-related structural loss of a first language to the extent that L1 production becomes impaired) was provided.

The second section of this chapter examined the linguistic features associated with L1 attrition in adults. Restriction of vocabulary appears to be more pronounced than restriction of
morphosyntax. Changes are primarily related to the influence of the dominant L2, and, to a lesser extent, to the lack of L1 input. Overall, however, L1 proficiency may remain within native-like ranges, even in long-term migrant speakers.

The next section of this chapter showed that while L1 and L2 convergence is to some extent an automatic consequence of L1 immersion in an L2-dominant environment, the extent to which convergence occurs and the rate of this development are highly dependent on background and sociolinguistic factors. Personal background factors (age, education, length of residence in the L2-country), sociolinguistic factors (attitude), as well as cognitive factors (language aptitude) were discussed. Although the factors which influence attrition were discussed in isolation, a clear conclusion was reached: there is no one individual factor that can be considered as dominant in attrition. New theoretical approaches, especially Dynamic Systems Theory, bring forward the idea that the interconnectedness between the sub-systems and the various factors affecting attrition and their unpredictable impact on language development account for the difficulty in establishing concrete links between proficiency growth/decline and single influencing variables. It follows that each factor contributes to shaping attrition with its specific weight arising from the individual situation. In general, however, the idea that attitude is an overpowering force behind adult L1 attrition fits well with the sociolinguistic theories explored here.

The last section was devoted to theoretical approaches to L1 attrition. Investigations of cross-linguistic interference in attrition revealed that, while there is some forgetting in adult attrition, it is the influence of the L2 that shapes the L1. Theories of forgetting examined from a psycholinguistic perspective whether attrition is mainly a problem of language forgetting (i.e., elimination/loss of structures from memory) or a problem of language access. Evidence from returning emigrants, language relearning, and hesitation phenomena in lexical retrieval were brought to support the idea that L1 knowledge in adult speakers is rarely lost and that attrition is
primarily a problem of reduced access. Moreover, access seems to be facilitated and regained if the right cues are available to the speaker. Access is dependent largely on frequency and recency of activation (Activation Threshold Hypothesis) and the more available L2 is considered to generally inhibit the less accessed L1. This implies that, in terms of proficiency levels, an increase in L2 strength will often be correlated with a decrease in L1 proficiency (Ecke, 2004:341).

Having reviewed the factors that contribute to language attrition and the models conceptualizing language loss, in the following chapter we present the questions, the hypotheses, and the methodology of the present study.
Chapter 3
Research Questions and Experimental Design

This chapter presents the questions and the hypotheses guiding our research, and describes the participants and types of tasks included in the testing battery.

3.1 Research Questions and Hypothesis

The present study aims to investigate the following research questions:

i) Can L1 attrition, as measured by a variety of instruments, be identified in the participants of the present study?

ii) Is there a systematic relationship between the level of L1 attrition and the level of L2 proficiency?

iii) What factors shape the possible correlations between the levels of proficiency in the L1 and the L2?

In light of the previous research and theories reviewed in Chapter 2, the hypotheses generated from these research questions are as follows:

**Hypothesis I: reduced overall general language proficiency**

The bilingual group is expected to obtain lower scores on both formal and spontaneous speech measurements than the control group. Moreover, we expect to observe more variation among the participants in the bilingual group than among the participants in the reference group. At the same time, we expect to find L1 attrition, as defined in the present study, in a small number of individual bilingual migrants.
**Hypothesis II: trade-off between the levels of L1 and L2 proficiency**

Due to the multicompetence view, we expect a negative correlation between the levels of L1 and L2 proficiency. In other words, high levels of proficiency in one language are expected to correspond to lower levels of proficiency in the other.

**Hypothesis III: attitude expected to have the strongest impact on attrition**

We expect to see a significant correlation between a speaker’s attitude towards his/her L1 and the degree of L1 attrition. In other words, more attrition is expected in those participants who report to have had a strong desire to immerse themselves in the L2 culture and who have made significant efforts to acquire the L2. Regarding age at emigration, level of education, patterns of language use, and language aptitude, we expect positive correlations between these factors and L1 maintenance. In other words, a more advanced age at emigration implies more education in the L1 and, in turn, can positively impact the level of L1 proficiency after emigration. In the same vein, more frequent use of the L1 post-emigration – preferably in the monolingual mode – is considered to be beneficial for L1 maintenance. A higher language aptitude can also encourage not only L1 maintenance, but also L2 achievement. As for length of emigration period, a longer period of residence in the L2 country is expected to correlate negatively with L1 maintenance, especially since such a bilingual would most likely have left the L1 country at a younger age and, consequently, would have been exposed to less education in the L1. In general, the impact of attitude is expected to be stronger than of all other factors, including age at emigration, level of education, length of emigration, patterns of language use, and language aptitude. This is mainly due to the fact that a positive attitude towards the L1 is expected to encourage maintenance efforts, which have a key role in the stability of the linguistic system (Jessner, 2003).
3.2 Design of the study

The purpose of the current research is to ascertain: i) the incidence of L1 attrition in the participating group of twenty Romanian-English bilingual adults; ii) the existence of a systematic relationship between the level of L1 attrition and L2 proficiency; and iii) the type of factors affecting possible correlations between L1 and L2 proficiency.

In the following sections, we will briefly explain how the tests and other data collection instruments allowed us to investigate the research questions detailed above. In order to examine the first question, which targets the incidence of L1 attrition, we opted for tests that allowed for an assessment of the general language proficiency of the bilingual speaker. Accordingly, two types of formal tests – a C-test and a verbal fluency test (henceforth VF) – and a spontaneous speech production task – in the form of a film commenting task – were used to obtain an overall picture of L1 and L2 proficiency. Briefly, the C-test (see section 3.4.4 for more details on this test) is a test of general language proficiency and the VF (see section 3.4.5 for more details) establishes lexical access in the L1. The film commenting task (see section 3.4.6 for more details) was used in order to assess the spontaneous dimension of language proficiency with respect to grammatical complexity and frequency of disfluency phenomena. In order to answer to the second question, which refers to the possible correlations between the levels of L1 and L2 proficiency, data in both L1 (Romanian) and L2 (English) were collected from the bilingual speakers using the tests and measurements stated above. In order to explore the influence of various factors on attrition, three data collection instruments were used: a sociolinguistic questionnaire (see 3.4.1), a semi-structured interview (see 3.4.2), and a language aptitude test (see 3.4.3). The sociolinguistic questionnaire was distributed in Romanian to all bilingual participants to assess their attitudes towards language choice and use. The aptitude test (Meara, 2005) comprises a vocabulary test, a sound recognition task, and a grammatical inferencing test.
It was used to measure various aspects of language aptitude in the bilingual participants including the ability to memorize vocabulary, to recognize stretches of spoken language, and to deduce grammatical rules. Finally, in order to determine how the speech of native speakers of Romanian living in Canada was perceived by English and Romanian monolinguals, short speech samples from the commenting task were submitted in a post-hoc task to native speakers of Romanian and English for a global proficiency assessment (see 3.4.7).

All the data were collected through a “one-shot” design, in which the researcher usually meets with each participant one single time and runs all the tests in one session. Jaspaert, Kroon and Van Hout (1986) emphasize that such a design is a defensible approach in the study of L1 attrition (see also Skaaden, 2005), provided a reliable point of reference is established. In order to establish a baseline comparison for the bilingual migrant speakers’ performance in our study (see section 3.3 for a description of the bilingual group), the C-test, the VF task, and the film commenting task were also carried out with two comparable groups: first, a group of fifteen adult unilingual native speakers of English and second, a group of fifteen adult, unilingual native speakers of Romanian. Both groups were composed of non-migrants.

To summarize, the C-test, the VF, and the film commenting task were taken by the bilinguals in both Romanian and English. These tasks were also performed by the monolingual participants in each of the control groups. Furthermore, each bilingual participant completed a sociolinguistic questionnaire, participated in an individual interview, and completed a language-neutral aptitude test. The sociolinguistic questionnaire and the interview were conducted in Romanian only. The sociolinguistic questionnaire and the C-test were presented in written form. The VF, the commenting tasks, and the interviews were done orally and later digitally recorded. Each testing session was, on average, two hours long. In order to minimize the incidence of language mixing prone to occur in this type of research design, the language-neutral aptitude
test was distributed between the testing session conducted in the L1 and the testing session conducted in the L2.

The elicitation tools used in the present project were adapted from an existing battery of tests developed by Schmid (2005) as part of the *The Language Attrition Test Battery*. The idea behind this undertaking is that collection of more data coming from various pairs of languages on specific tasks is needed in order to build a solid base from which to draw conclusions and arrive at a better understanding of the kind of instruments most apt to capture the subtle phenomenon involved in L1 attrition in adult bilinguals. The test battery includes at present seven instruments currently available for various dialects of English, German, and Dutch. In the interest of adding more languages to the existing database, the present study evaluates several of the instruments proposed in the language attrition test battery as applied to Romanian attrition in Anglophone environments. The instruments from the *Language Attrition Test Battery* most relevant to the research questions presented above include: the sociolinguistic and personal background questionnaire; the film commenting task; the VF task, and the C-test.

The general goal of the current research design was to capture snap-shots of the migrants’ performance in their L1 and L2 and to establish language competence profiles for the bilingual participants. The rest of this chapter presents a detailed description of the participants and the tests used in the present study.

### 3.3 Participants

Data for the study were collected from 50 informants, divided into three groups: (i) the bilingual\(^2\) group \((n=20)\) was comprised of Romanian speakers residing in Ontario, Canada (see

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\(^2\) The term ‘bilingual’ was chosen to designate the group of L1 speakers living in the L2 environment, since we consider it reflects more accurately the type of language user investigated in this study. It was preferred over other
Appendix K); (ii) the Romanian reference group \((n=15)\) was comprised of Romanian native speakers residing in Romania (see Appendix M); and (iii) the English reference group \((n=15)\) was comprised of English native speakers residing in Ontario, Canada (see Appendix L). All participants read and signed a consent form before the completion of the tasks.

The selection of informants for the target group was done on the basis of the factors that have been reported to be significant in the language attrition literature. The following selection criteria were chosen:

- length of residence in the host country had to be at least 10 years in order to ensure L2 acquisition as well as allow for potential changes in the L1 (Waas, 1996; Soesman, 1997)
- age at emigration must be at least 17 years in order to ensure full stabilization of the L1 in the brain (Köpke & Schmid, 2004)

A “snowball method” was used to recruit the participants in the bilingual target group from the available Romanian speakers living in the Toronto metropolitan area. Contact with the participants was initially made through advertisements in both Romanian and English (Appendix A) distributed in the community and then through further contacts suggested by the participants themselves. All of the subjects in the bilingual group were adult speakers who had lived in an English-speaking environment for at least 10 years and who had left Romania after the age of 17. The first selection criterion ensures at least a functional level of L2 proficiency.

More widely used terms in the attrition literature such as ‘attriter group’ or ‘migrant group’. ‘Attriter group’ was not used since the term implies that all participants in this group had undergone attrition. The term ‘migrant group’ was judged irrelevant for the purpose of this study because it made no allusion to the linguistic status of the participants. At the same time, our use of the term ‘bilingual’ stands for ‘migrant bilingual’, the difference between the current sense of the word and ‘migrant bilingual’ consisting in the possibility of the latter to undergo L1 attrition due to lack of L1 input and increasing L2 influence. In the present study, ‘bilinguals’ are speakers who find themselves either at the middle point of the bilingualism continuum or speakers who are undergoing language restructuring.
The second selection criterion was established based on the consideration that L1 acquisition is complete by the age of 17 both through formal and informal input (De Bot, Gommans, & Rossing, 1991:88). Table 3.1 below provides descriptive group statistics for the factors ‘age’ and ‘length of emigration period’ for the bilingual and the two monolingual groups. Appendix K provides the complete profiles of the bilingual participants, including their language learning history and education level. Seventeen of the twenty bilinguals came from Romanian monolingual families and eighteen bilinguals spoke only Romanian while growing up. Eight participants took L2 lessons, either in the school system during early childhood or as adults before emigrating. Their first significant contact with English, however, came after their arrival in Canada.

Table 3.1

<table>
<thead>
<tr>
<th>The factors ‘age’ and ‘length of emigration period’ across groups</th>
<th>BIL (n=20)</th>
<th>CR (n=15)</th>
<th>CE (n=15)</th>
<th>Total (n=50)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean</td>
<td>stdev</td>
<td>mean</td>
<td>stdev</td>
</tr>
<tr>
<td>Age</td>
<td>42.95</td>
<td>7.07</td>
<td>38.13</td>
<td>9.72</td>
</tr>
<tr>
<td>Age at emigration</td>
<td>29.05</td>
<td>6.77</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Emigration length</td>
<td>13.25</td>
<td>2.53</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. BIL = Romanian/English bilingual group, CR = control group of Romanian monolingual speakers in Romania, CE = control group of English monolingual speakers in Canada

Since we are reporting performance on formal tests, which has been found to be dependent on level of education (Yağmur, 1997), efforts were made to ensure that all participants selected possessed either a college or university degree (see Appendix K for the background and educational profile of the bilingual participants).

The participants in the monolingual control groups were mostly solicited through personal connections. As far as possible, the monolingual groups and the bilingual group were matched according to area of former residence in Romania and place of present residence in Canada and education. For example, considering that all bilingual participants had previously resided in urban areas and were university graduates, the controls were chosen from
approximately the same urban centres and level of education was matched across groups. The majority of the informants in the Romanian control group came from Bucharest, followed by urban centers such as Timisoara and Cluj. The English monolingual group comprised exclusively monolinguals residing in the Toronto area.

3.4 Data Collection Instruments

Let us now turn to the description of the tests used in the present research.

3.4.1 Sociolinguistic and Personal Background Questionnaire

Information on personal background, language use, and language attitudes was elicited through a written sociolinguistic and personal background questionnaire (Appendix B). The questionnaire was adapted from an existing version developed by Schmid (2005) as part of the research manual *The Language Attrition Test Battery*. Several additional questions were added from previous studies on L1 attrition (Yağmur, 1997; Waas, 1996) as well as studies on L2 acquisition and bilingualism (Pavlenko, 2005).

The questionnaire was translated into Romanian and contained a total of 65 questions with a number of binary yes/no variables (such as sex); a set of ordinal variables (such as education level); a number of 3-to-4 or 3-to-5-point rating scales on factors such as L1 use in daily life, cultural affiliation, language preference, and language proficiency; and a number of interval variables such as age and length of residence in the country of emigration.

The personal background section of the questionnaire included questions on:

- Age (Question 1)
- Sex (Question 2)
- Place of birth (Question 3)
- Nationality (Question 4)
- Standard Romanian dialect spoken/language history (Question 5, 10)
- Education and employment/profession (Questions 6, 7 & 15, 16)
- Emigration length (Questions 8, 9)

The rest of the questionnaire pertained to the three factors considered to be relevant in language attrition: language choice, language contact, and attitude. All data were organized in Excel tables and the scores on the rating scales were coded in the following way: 0=only L2; 1= sometimes/both L1 and L2; 2= frequently/mainly L1, and 3= very frequently/always L1. Subsequently, three indices (i.e. choice, contact, attitude) were calculated for each participant.

**Language Choice**

- language of church service (Question 20)
- use of L1 with partner (Question 36)
- use of L1 with children (Questions 39, 40, 42)
- membership in L1 clubs (Question 50)
- use of L1 media (Questions 54, 55, 56, 57)
- network questions (Questions 48, 49)
- language when alone or upset (Questions 51, 53)
- mental calculation (Question 25)
- language preferred (Question 31)

**Language Contact**

- frequency and reasons of visits to L1 country (Questions 17, 18)
- frequency of L1 use (Questions 23, 59)
- native language of partner (and where applicable former partner; Question 33)
- native language of friends (Questions 46, 28)
- amount of contact with friends/family in country of origin (Question 44)
- language with family in country of origin (Question 46)
**Attitude**

- opinions on importance of maintaining L1 (Question 24)
- importance that children acquire and maintain L1 (Question 26, 41, 43)
- cultural preference (Question 30)
- language preference (Question 31)
- importance of L1 as medium of contact with friends/family in country of origin (Question 47)
- feelings of homesickness (Question 52)
- bothered when hearing L1 accent in L2 (Question 64)
- intention to return (Question 65)

In order to study the use of the two languages in the social networks of the informants, participants were invited, as part of the sociolinguistic questionnaire, to fill in three tables: in the first one, informants listed the people who are important to them in different areas of their life (family, friends, colleagues, schoolmates, and organizations) and indicated if these contacts live in Canada or Romania and which language they use with them; in the second and third tables, informants indicated in what circumstance (work, shopping, church, etc.) and how frequently they would use either English or Romanian.

The participants in the English and Romanian monolingual groups also received a shorter sociolinguistic questionnaire (Appendix C) that contained personal background items and some questions on language acquisition history and attitudes.

### 3.4.2 The Interviews

The interview was based on a series of questions related to autobiographical topics (Appendix D). Several of these questions come from the original version of the sociolinguistic and personal background questionnaire and were adapted for oral interviews. The rest of the questions were
created based on the particular language and emigrational profile of the Romanian/English bilingual living in Canada. The informants were invited to elaborate on their life in Romania before emigration, their life in Canada, their language use in different domains, and the changes perceived in their L1 proficiency, as well as difficulties encountered while acquiring the L2. The length of the interview ranged between 10 and 30 minutes. The interviews took place either in the participants’ or the researcher’s home, or, occasionally, in a quiet public space. Participants were addressed only in Romanian, thereby encouraging them to remain in a monolingual mode. All the speakers’ responses were digitally recorded and later selectively transcribed to provide data for the qualitative sociolinguistic analysis.

3.4.3 The Language Aptitude Test

The aptitude test, developed by Meara (2005), is composed of three parts: a vocabulary learning test, a sound recognition task, and a grammatical inferencing task. Each test has a specific role: to measure the ability to memorize vocabulary, to recognize stretches of spoken language, and to deduce grammatical rules respectively. All tests work with an artificial language and have a preparatory phase followed by a testing phase. The purpose of the language aptitude test was to explore the extent to which the level of L1 attrition is affected by overall linguistic aptitude.

The vocabulary test measures a participant’s ability to learn relatively large amounts of vocabulary in a short period of time. In the preparatory phase, the participant has 120 seconds at her disposal to learn a total of 20 words that are arbitrarily assigned to target images. During the trial phase, the participant has to associate a given word with the corresponding image.

The sound recognition task is designed to test the participant’s ability to recognize short stretches of spoken language that she has been previously exposed to for a short period of time.

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3 See http://www.lognostics.co.uk/tools/llama/index.htm for complete information on task description, task administration, and examples.
It has been shown (Speciale, Ellis, & Bywater, 2004, as cited in Meara, 2005) that the ability to recognize patterns in spoken language represents a key skill in language acquisition. This phonetic facility assists the learner in identifying patterns heard for a second time, which in turn leads to faster vocabulary acquisition. Equally, this ability helps the learner detect the small morphological variations appearing in word endings that many languages use to signal grammatical features. During the preparatory phase, the examinee is invited to listen carefully to a string of recorded phonetic sequences in an unfamiliar language. Throughout the test phase of the program, the participant hears these words alongside other words that have not been heard before. Points are obtained for correctly indicating which words were present in the preparatory phase and which words had not been heard before.

In the grammatical inferencing task, the participant has to work out the grammatical rules of an unknown language. The preparatory condition is 300-seconds long and the participant is invited to use the available time to learn as much as possible about a new language by clicking on small buttons that reveal a picture and a sentence describing the image. Participants are allowed to take written notes during the preparatory step of this task. During the test phase, the program displays a picture and two sentences. One sentence is grammatically correct, while the other contains a grammar error. The task of the participant is to choose the correct grammatical structure that corresponds to the image displayed.

The points obtained from the three parts of the test were added up and the sum represented the final aptitude score.

3.4.4 The C-test

The C-test is an integrative written test of general language proficiency based on the concept of reduced redundancy (Raatz & Klein-Braley, 2002). It consists of five short texts in which,
starting with the second sentence, the second half of every second word is deleted. Numbers and proper names are left unchanged, but otherwise the deletion is entirely mechanical. The deletion process is continued until 20 gaps per text are obtained (see Appendices E and F for the Romanian and English versions of the test). The participant’s task is to complete the missing parts in a maximum of 5 minutes per text, which amounts to a maximal total time of 25 minutes per testing session. Participants were instructed that if they completed a text in under 5 minutes, they could move on to the next text but could not revisit previous texts.

The empirical validity of the C-test as a measure of general proficiency in a language has been thoroughly demonstrated in the context of a variety of languages (Raatz & Klein-Braley, 2002; Eckes & Grotjahn, 2006). It has been shown that C-tests have high correlations with a variety of other tests measuring participants’ general proficiency. For example, a detailed examination of the C-test against the standard TestDaF (Test of German as a Foreign Language) conducted by Eckes and Grotjahn provided evidence that the C-test was a “highly reliable, unidimensional instrument, which measured the same general dimension as the four TestDaF sections: reading, listening, writing and speaking” (2006:290). In addition to the immediately appealing features of the C-test including ease of administration and objective scoring, this instrument proves to be particularly suitable for a rich inflectional language. In Romanian, for example, the fact that much grammatical information, including case and subject-verb agreement, is encoded at the end of the words allows for direct testing of these aspects of the language.

As was the case with the other formal tasks, the C-test was conducted in Romanian and English. The North-American English version of the C-test used in the present study was developed by Schmid (2005) as part of The Language Attrition Test Battery. The Romanian version of the C-test, however, had to be created from scratch. First, a pilot study was carried out in Romania during the summer of 2004. In keeping with the guidelines for C-test
construction (Raatz & Klein-Braley, 2002: 84, Grotjahn, Klein-Braley, & Raatz, 2002), eleven texts were selected based on topic and difficulty level. These texts were piloted on a group of twenty-one randomly chosen Romanian monolinguals living in Romania. The texts that obtained a score higher than 90% (Raatz & Klein-Braley, 2002: 84, Grotjahn, Klein-Braley & Raatz, 2002) and that presented the least number of possible variants were selected for inclusion in the final version of the Romanian C-test. A subsequent reliability check using a Cronbach’s Alpha indicated a level of reliability at 0.84. Although this score is not higher than 0.90, the reliability mark recommended by Grotjahn, Klein-Braley and Raatz (2002), it is typical of scores obtained for C-tests in other languages (Grotjahn, 1994, as cited in Grotjahn, Klein-Braley & Raatz, 2002).

Each test was assigned a maximum score of 100 and scores were calculated based on how many of the blanks were correctly filled in. Different points were given according to which aspect of the word was incorrect. The following classification based on Schmid (2005) was used:

0 = empty
1 = incorrect lexical stem and incorrect word class
2 = incorrect lexical stem but correct word class
3 = correct lexical stem but incorrect word class
4 = correct lexical stem, correct word class, agreement error
5 = all of the above correct, but still slightly wrong
6 = acceptable variant with spelling error
7 = correct word with spelling error
8 = acceptable variant
9 = correct word

The final score was calculated by summing up the scores for each individual text. The assumption behind this test is that “the better learners are at a language, the better they will be
able to make use of their pragmatic expectancy grammar and the natural redundancy of a text” (Grotjahn, Klein-Braley, & Raatz, 2002: 94).

3.4.5 The Verbal Fluency Task

Lexical access is examined by means of oral tasks that measure verbal fluency. Verbal fluency (VF) tasks (also known as frequency in controlled association - FiCA) were developed by Goodglass and Kaplan (1983) and were first included in larger test batteries investigating pathological language loss. In a verbal fluency test, the participant is asked to produce as many items as possible pertaining to a particular category in a given time period, which ranges from 60 to 120 seconds. The most common categories are semantic, such as animals, or formal, such as words that begin with the letter “p”. In line with previous attrition studies using verbal fluency tests (Yağmur, 1997; Schmid, 2007), two semantic stimuli were used in the present study: animals on the one hand, and fruit and vegetables on the other, with a 60-second production period for both. These two categories are appropriate for the purpose of our study, since they are as culturally neutral as possible and allow the subjects to produce a larger number of lexical items.

The two tests were carried out in both languages. Since it was the purpose of this task to establish lexical access in the L1 and the L2, all items which were correct terms in the language investigated were counted, while items belonging to the other language and repetitions were omitted from the count. General categories such as bird and fish were not considered during scoring. A digital recorder was used during the task and subsequently a transcription of the uttered words belonging to both semantic categories was made.

The VF results were interpreted quantitatively. The scores of the two categories were added and the sum represented the VF score. The assumption behind VF is that a higher number
of items named in a limited period of time is indicative of the subject’s better lexical access and therefore his or her higher linguistic proficiency (Schmid, 2007).

### 3.4.6 The Film Commenting Task

For the film commenting task (Skaaden, 2002), participants first watched a 10-minute segment of the Charlie Chaplin silent movie *Modern Times*. This particular part of the movie (minute 33:20 to minute 43:10) starts off with Charlie Chaplin being freed from prison and, armed with a reference letter from the prison’s director, setting out to look for work. The segment finishes with Charlie Chaplin and the beggar girl being sent away by a policeman from the front yard where they were resting and dreaming about their ideal home. The participants were first introduced to the movie and told briefly what had happened before the onset of the scene they were to watch. All the informants watched each excerpt twice. During the first viewing, participants made no comments. During the second viewing, they were instructed to make continuous comments while the film was playing.

The Charlie Chaplin task has been widely used in L2 acquisition experiments (see Perdue, 1993). It has been recently incorporated in first language attrition research (Schmid, 2007) and is part of *The Language Attrition Testing Battery* (Schmid, 2005). The purpose of a commenting task, as in an elicited narration task, is to obtain relatively free speech from a uniform prompt. These tasks are used to tap into implicit knowledge via spontaneous language production under time constraints. Under the time pressure inherent to a commenting task, participants are confronted with the challenge of finding appropriate words and of using suitable grammatical structures in a short amount of time. This condition is intended to diminish the occurrence of paraphrasing and the usage of avoidance strategies, which, according to Andersen (1982), are prevalent in attriters’ speech.
The participants in the control groups commented on the segments in either the L1 or the L2. The bilingual informants narrated the excerpt in both the L1 and the L2. In order to obtain equal samples of data in both of the bilingual participants’ languages, the ten-minute scene was divided in two parts: part I (minute 33:20 to minute 38:08) and part II (minute 38:08 to minute 43:10). Ten bilingual participants described the first part of the movie in Romanian and the second part in English, while the other ten bilingual participants described the first part of the movie in English and the second part in Romanian. This resulted in twenty recordings for the L1 and twenty recordings for the L2. As for the control groups, ten participants in each of the monolingual groups viewed and commented on the entire 10-minute episode in English or Romanian respectively, which in turn yielded twenty 5-minute commentaries for the L1 and twenty for the L2. In other words, due to the counterbalancing of the test, we compared, for this task only, twenty recordings from the bilingual participants with twenty recordings from the monolingual subjects.

Each speech sample was transcribed and coded by the researcher in the CHAT format and subsequently analyzed with the help of the CLAN tools (for more information on CHAT and CLAN see MacWhinney, 2000). In line with previous research, the following measures were established for each speech sample:

a) The lexical diversity measure D. This measure is based on type-token frequency but, unlike type-token ratios, D is not sensitive to text length. The origin of the measure and its calculation are described in the CLAN manual (http://childes/psy.cmu.edu/manuals/clan.pdf).

The formula for calculating D is based on random sampling of repeated stretches of text and was developed by Malvern & Richards (2002). D is based on recurrent sampling of different stretches of 50 items each from the text in question (Schmid, in press).

b) The frequency of empty pauses (P). Given that empty pauses, as opposed to filled pauses, are considered indicative of language erosion (Schmid & Beers Fägersten, 2010), only a count of empty pauses was included in the analysis.
c) The frequency of repetitions (R)

d) Frequency of retracings (or self corrections) (RE)

The transcription and coding were carried out in three stages. The first stage involved listening to each recording and transcribing the text including the codes for filled and empty pauses, repetitions, and retracings (see Appendix H for a list of the CHAT symbols used). For a relatively short silent pause, the symbol # was used. If the pause was longer, the symbols ## and ### were included. Consider, for example the excerpts from the transcription of one of the participants in the bilingual group.

(1) they do not have a # home, or house [* missing article] to live.
(2) the girl looks very upset about her ## situation.
(3) they wake up first and they are trying to ### escape.

For one-word and multiple-word repetitions, the symbol [x2] was used if the sequence was repeated twice and the symbol [x3] if the repetition occurred three times.

(4) the girl kind of is looking [x2] at him not knowing what to believe.
(5) he throws away the [x3] orange.

For retracings, the symbol [/] was used if the self correction was partial versus the symbol [/////] if the whole group of words was entirely reformulated, as per the examples provided below:

(6) the cow is giving them milk, < at the door > [///] delivered at the door fresh.
(7) he shows him < the pattern of the wedge > [///] the shape of the wedge.
(8) he < founds > one [/////] he finds one.

At the second stage, all the transcriptions were verified again by the researcher and any inconsistencies corrected. After completing the verification of all the transcriptions, the frequency of empty pauses, repetitions, and retracings was calculated using the CLAN command frequency (freq). All transcriptions were checked a third time, before the results were analyzed.
3.4.7 The Native Speaker Evaluation

The native speaker evaluation was a post hoc task, carried out to examine perceptions of nativeness in the spontaneous speech of the bilingual participants. It was not part of the original design of the study and thus not included in the testing battery. However, it was subsequently added to serve two main purposes: (1) to provide an assessment of the bilinguals’ oral proficiency and thus determine to what extent native speakers of Romanian living in English-speaking Canada are perceived as L1 or L2 native speakers; and (2) to investigate whether global fluency ratings correlate with the results from the formal and spontaneous tests previously measured. In spite of the methodological shortcomings accompanying the introduction of a post hoc test (which will be addressed in Chapters 4 and 5), we include a discussion of the native speaker evaluation results because they shed light on the participants’ overall level of language proficiency and test performance. Nonetheless, these results remain preliminary in nature and require further research and verification.

Two native speaker judgment tasks were completed, one in each language. A panel of ten Romanian monolingual judges and another panel of ten English monolingual judges were invited to listen to a one-minute excerpt from the bilinguals’ speech production based on the movie *Modern Times* by Charlie Chaplin.

All of the judges listened to the same excerpt, namely the first minute of each recording. Some of the judges met with the researcher, while others performed the task via the Internet. To this end, the one-minute long recordings were uploaded on line and the link emailed to those raters who could not meet with the researcher in person. Each judge listened to one recording at a time and was invited to assess the speech using a four-point Likert scale. The categories for the English and Romanian raters were established differently in order to reflect the different environments the raters came from and the somewhat different scopes of the two sets of
evaluations. The questions used for the English raters referred directly to the perception of native speech, since perception of L2 nativeness was the scope of this evaluation. The Romanian speech ratings, on the other hand, were intended to obtain judgments about subtle changes in the speaker’s L1 output. Moreover, given that Romanian is traditionally less frequently acquired as a second language than English, the categories for the Romanian raters tested perception via labels that referred to whether the speaker resided in Romania or not. In this context, this kind of categorizing was considered more appropriate for an additional reason: it could be envisaged that the raters’ expectations regarding the proficiency of possible Romanian L2 speakers would generally be lower than the level of L1 proficiency spoken by the majority of the participants in our bilingual group and therefore be conducive to a completely different level of proficiency evaluation. Therefore, using different sets of categories for the Romanian and English raters was considered conducive to a more accurate evaluation of the bilinguals’ speech.

Accordingly, each judge evaluated the degree to which the speaker sounded like a native (in the case of English) or non-immigrant (in the case of Romanian) speaker of the language by assigning a score from 1 (indicating clear non-native/ immigrant speaker status) to 4 (indicating clear native/ non-immigrant speaker status) for each of the twenty participants and, in addition, provided comments that explained their choice of rating (see Appendices I and J).

None of the raters received any information regarding the linguistic background of the speakers and were not aware of the goals of the study. The two requirements in the rater selection were that they be native speakers and university educated. Two of the Romanian raters and one English rater had formal training in language teaching. None of the monolingual judges was part of either monolingual control groups.

In the following chapter, we discuss the results of these tasks.
Chapter 4
Results

In this chapter, the results are reported for all three groups of participants. The chapter is divided into two main parts and structured as follows. The first part (4.1) focuses on the predictor variables and reports the results obtained via the following data collection instruments: the Sociolinguistic and Personal Background Questionnaire, the interviews, and the language aptitude test. The second part (4.2) reports the results for the dependent variables, including those from the formal tests (the C-test and the verbal fluency test, the VF). This section also includes the results obtained from the spontaneous speech measurements, including lexical diversity, number of pauses, number of repetitions, and number of retracings. The section ends with the review of the results obtained from the language proficiency assessment provided by L1 and L2 monolingual raters. A summary of the predictor variables and the tests results concludes the chapter and sets the stage for the discussion provided in Chapter 5.

4.1 The Predictor Variables

Based on the information given in the Sociolinguistic and Personal Background Questionnaire, a number of predictor (or independent) variables were identified for the 20 subjects in the bilingual group. This section reports on the following predictor variables: personal background variables (age, length of emigration period, education), language contact, language choice, language attitude, and linguistic aptitude. In this section, we will report only on the results for the bilingual participants, as the monolingual participants completed only a short background questionnaire. Section 4.1.1 begins with the personal background variables, followed by the
sociolinguistic variables. In section 4.1.2, we discuss the interviews and in section 4.1.3 we report the results from the language aptitude test.

4.1.1 Personal Background and Sociolinguistic Factors

As described in the previous chapter, the Sociolinguistic and Personal Background Questionnaire (Appendix B) contained 67 questions and was based on the version made available in the *The language attrition test battery. A research manual* (Schmid, 2005). Briefly, the questionnaire provided personal background information such as age at immigration, length of residence, and education. Age at immigration and length of residence in the L2 country were the two criteria on which the selection for the bilingual group was based: age at time of immigration was set at seventeen years or older and length of residence in Canada was set at a minimum of 10 years. Given that level of education can have a strong impact on the performance on formal tests, a third selection criterion for all the participants in our study was the completion of either college or university-level studies. While education can be viewed as a factor influencing language proficiency in general, we consider the amount of education completed in the L1 country (Romania) versus the L2 country (Canada) to be especially pertinent for the development of L1 attrition. Education completed in the L2 country, regardless of age at emigration and length of residence, involves more exposure to the L2 and active involvement in L2 learning. For example, the participants who completed degrees in Canada may have been exposed to and acquired L2 terms that have not been previously acquired in the L1. In fact, studies on code-switching and language mixing have shown an increase in such types of production, especially in language used to describe work or school-related situations (Ben-Rafael, 2007). Furthermore, we consider that those participants who took high school in
Canada may have felt the need to assimilate to the dominant culture even more acutely, given the type of relationship dynamics characteristic to that particular age group.

With these considerations in mind, let us turn to Table 4.1 below which provides the pertinent background and education information for the present discussion (the complete participant profiles are available in Appendix K). Although this information is descriptive in nature and has already been partly presented in the general description of the participants (see 3.3), it is reported on in greater detail in this chapter, mainly because these data represent the basis on which the relevant background variables are determined and later discussed in Chapter 5. In what follows we first comment on the general trends as presented in Table 4.1 below and then we report on how these variables are pertinent to the hypotheses detailed in 3.1.

Table 4.1

<table>
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<tr>
<th>Part #</th>
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</tbody>
</table>
As for age at emigration, we note that out of the twenty bilingual subjects, three participants emigrated at the age of 18, eight between the ages of 20 and 29, eight between the ages of 31 and 39, and one participant moved to Canada after the age of 40. As to the length of residence in the L2 country, fourteen bilinguals had lived in Canada between 10 to 14 years and six bilinguals for a period between 15 to 20 years. Participant #6 has the longest length of residence in Canada, namely 19 years. With respect to education, two bilinguals had completed their high school degree in Canada and four bilinguals had attended a university or a college in Canada only. Furthermore, two participants continued, in addition to their Romanian university education, undergraduate studies in Canada. And finally, five participants had completed postgraduate degrees in Canada.

According to our hypotheses (see 3.1), those participants who emigrated at an older age and had resided for a shorter period of time in Canada are expected to show less L1 attrition than those subjects who emigrated at a younger age and had lived in Canada for a longer period of time. As a result, we expect the L1 of Participants #9, #10, #13, and #20 to show the least amount of attrition, since they emigrated at an older age compared to the rest of the bilinguals and had resided in Canada for a shorter period of time. In line with the findings of de Bot, Gommans, and Rossing (1991), age at emigration is expected to have a stronger impact on L1 attrition than length of residence in the L2 country, and as such, we expect that the L1 of Participant #1 would show more attrition than the L1 of Participant #13 (both participants had the same length of residence in Canada, but participant #1 emigrated at the aged of 18, whereas Participant #13 at the age of 36). Similarly, those participants who shared the same age at emigration and length of emigration period, as well as comparable educational profiles, are expected to have similar levels of L1 proficiency. For example, such consistency would be expected from Participants #1, #2, and #19 who all immigrated to Canada at the age of 18, studied at Canadian colleges and universities, and had resided in Canada for approximately 11
to 12 years. Similarly, we expect a higher level of L2 proficiency for those participants who had completed part of their education in Canada, namely Participants #1, #2, #4, #8, #9, #12, #13, #19, and #20.

In addition to the background variables presented above, the following individual indices were calculated for each participant based on the formulas available in the *The language attrition test battery. A research manual* (Schmid, 2005): the sociolinguistic questionnaire contact index (henceforth SQ Contact), the sociolinguistic questionnaire language choice index (henceforth SQ Choice), and the sociolinguistic questionnaire attitude index (henceforth SQ Attitude). Table 4.2 provides a summary of the scores obtained by the bilingual participants on the sociolinguistic questionnaire.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Max</th>
<th>Min</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQContact</td>
<td>20</td>
<td>4</td>
<td>1.83</td>
<td>3.31</td>
<td>.55</td>
<td>.12</td>
</tr>
<tr>
<td>SQChoice</td>
<td>20</td>
<td>4.92</td>
<td>1.60</td>
<td>3.86</td>
<td>.87</td>
<td>.19</td>
</tr>
<tr>
<td>SAAttitude</td>
<td>20</td>
<td>4.04</td>
<td>1</td>
<td>2.74</td>
<td>.84</td>
<td>.18</td>
</tr>
</tbody>
</table>

*Note. SQContact = contact index calculated based on sociolinguistic questionnaire data; SQChoice = choice index calculated based on sociolinguistic questionnaire data; SAAttitude = attitude index calculated based on sociolinguistic questionnaire data*

Figure 4.1 provides the individual values for the three indices (separate figures for the three variables are listed in Appendix N). The index values are presented in increasing order of the bilinguals’ scores on the variable *attitude.*
Figure 4.1. Individual indices for the variables attitude, contact, choice calculated based on the Sociolinguistic and Personal Background Questionnaire

We comment first on the overall group results for the three indices and then identify those participants who obtained the maximal and minimal indices on each of the three measures. Obtaining a high index value is taken to indicate that the migrant has more contact with the L1, chooses to use the L1 more often, and possesses a strong attachment to the L1 language and culture. For the variables contact and attitude, the range of values is between 1.8 to 4, and 1 to 4 respectively. For the variable choice, the index values range from 1.6 to 4.9 (see also Appendix N, where the index scores are illustrated in separate figures for each of the three variables). The relatively similar range of values across the three indices, as well as the relatively small standard deviations (see Table 4.2), indicate that, for the most part, the participants in the bilingual group are comparable with respect to the amount of language contact with the L1, the frequency of L1 language choice, and their attitudes towards the L1. Another noticeable pattern is the fact that, on the whole, the bilinguals score the lowest on the variable attitude \((M = 2.74)\) and the highest on the variable choice \((M = 3.86)\). With the exception of Participants #1, #5, and #15, where the attitude index slightly surpasses the other two index values (see Figure 4.1), all the other
bilingual participants obtained higher results on the variables *choice* and *contact*. These scores indicate that while the bilinguals’ attitude index is generally low, they continue to have contact with the L1 and choose to use it relatively frequently. These tendencies are examined more at length in Chapter 5.

We now turn to the individual participants. Participant #1 obtained the lowest SQContact and SQChoice index values and a relatively low score on the attitude variable. Given that reduced frequency of L1 use has been shown to correlate with decreased L1 proficiency, we expect a lower test performance from this participant. With respect to the *attitude* index, Participant #14 obtained the lowest score. His scores on the variables *contact* and *choice*, however, are higher than those of Participant #1. A possible explanation for Participant #14’s low *attitude* index and his higher indices for the variables *contact* and *choice*, lies in this subject’s social network. While Participant #14 is married to another L1 speaker and their circle of friends is composed of mostly Romanian speakers, Participant #1 is married to an L2 speaker and the majority of her friends are L2 speakers. Moving to the other end of the spectrum, Participant #8 obtained the highest SQContact and SQChoice scores. Therefore, a positive correlation between these scores and her L1 test performance is expected. Participant #19 obtained the highest SQAttitude score, which again is expected to correlate positively with the level of L1 proficiency. Again, more extensive explanations will be provided when we discuss these results in Chapter 5.

We now turn to the presentation of the interview data.

### 4.1.2 The Interviews

Each bilingual informant participated in an interview session that was digitally recorded. The length of the interviews ranged from 10 to 30 minutes. Given that language attrition is
considered to be a product of pre-immigration and post-immigration experiences, the interview questions addressed aspects of the participants’ life in Romania before immigration, their life in Canada, their language use in different domains, the changes perceived in their L1 proficiency, and the type of difficulties encountered while acquiring the L2 (see Appendix D). All interviews were conducted in Romanian. The comments presented below are a small sample of the overall recordings and have been chosen based on their pertinence to the question and general discussion.

In the following paragraphs, I present an overview of the tendencies observed for all of the participants in the bilingual group, taking into consideration their perception of L1 attrition, language choice, importance of L1 maintenance, and feelings of belonging upon return to the country of origin. These factors have been shown to be of significant importance for tracing the profile of the bilingual speaker living in the L2 country. In Chapter 5, I provide more detailed comments on the responses of those bilingual migrants who in particular appear to be L1 attriters.

**Self-perception of L1 attrition**

Almost all bilinguals reported to have perceived some type of negative change or reduction in their L1. In line with findings from previous studies (Hutz, 2004; Köpke, 1999; Schmid, 2007; De Bot & Clyne, 2004), the change is perceived to involve mostly vocabulary. Only a few participants (Participants #1 and #2) reported changes observed at the syntactic level as well. For example, participants commented on the loss of L1 fluency, reduction of vocabulary, language mixing habits, and perceived changes in the non-migrant variety of the L1.
Loss of fluency

Participants #7 and #14, for example, referred to loss of fluency by equating the manifestations of these changes to a ‘handicap’ or ‘tragedy’. Loss was not perceived only in terms of lexical poverty, but equally at the level of ideas. At the same time, language attrition was considered a temporary predicament and a proficiency reversal was expected upon re-immersion in the L1-dominant environment.

(9) Aceste schimbări, le simt aproape ca pe un handicap. Simt că din punct de vedere lingvistic nu mă mai pot exprima în nici o limbă ca lumea. La nivelul vocabularului, la nivelul ideilor chiar...Simt clar că nu mai sînt o persoană care putea să scrie în română așa de cursiv și de interesant.

“These changes are almost like a handicap. I can’t really express myself in any language anymore. There is poverty in vocabulary, but also at the level of ideas… I feel like I’m not that person who could write fluently and interestingly in Romanian anymore.”

(Participant #7)

(10) Pentru mine este o adevarată tragedie! Alătăieri a trebuit să scriu un email în română și mi-a fost foarte greu. Nu mai eram sigur de nici un cuvânt, de ortografie, nu-mi mai veneau unele cuvinte... E un handicap. Desi dacă ar fi să mă mut înapoi în România sînt convins că într-un interval scurt voi reînvăță... e pe undeva pe-acolo, prin creier.

“For me it’s a complete tragedy! The other day I had to write an email in Romanian and it was very hard. I had doubts about every word, about the orthography, some words I could not find… It feels like a handicap. However, I am convinced that if I had to move back to Romania, it would take me only a short time interval to get my language back – it is still there, somewhere in my brain.”

(Participant #14)

Using L2 words in L1 utterances was also deemed as a practical, strategic practice, especially since, often, the L2 words were better suited at describing the intended message.


“Well, first off, I can’t find my words when I need them. Sometimes even if you find them, the English words come easier. Plus, they seem to work better.”

(Participant #20)
Reduction of vocabulary

One participant commented on the loss of variety of vocabulary and even loss of a more acute sense of humour.

(12) *Limba nu mai este atât de bogată precum era înainte, am pierdut din cursivitate, cuvintele din engleză se amestecă cu cele din română. Limbajul s-a simplificat și acum caut cuvinte cât mai practice iar adjectivele și metaforele sunt folosite tot mai rar. Desemenea, simt că am pierdut umorul din limbă, acele mici delicii s-au dus… Frazele sunt mai scurte și mai concise, poate că și pentru că engleza este o limbă care invită la a fi concis.*

“My language is not that rich anymore, there is a loss of fluency, words from English get mixed up with Romanian. Language became simpler and I look for practical words and adjectives and metaphors are used rarely. Also I feel humour was lost – the funny, interesting parts of language are lost. Sentences are shorter and more concise, probably because English is such a concise language as well.”

(Participant #4)

Morphosyntactic changes

While most bilinguals were aware of both decrease in vocabulary size and changes at the morphosyntactic level in their L1, they were able to provide examples of the former, but not of the latter⁴. Participant #2 was the only one to observe that she frequently caught herself translating idioms and word orders from English into Romanian. According to this participant, such calques occurred in spite of self-admitted imperfect knowledge of the L2. Her comments suggest that language mixing was mainly a consequence of frequent use of those expressions and words (which were mostly work-related) in the L2.

⁴ In spite of the participants’ reduced awareness of morphosyntactic changes in the L1, this is a topic that remains important and to which we intend to return in a future study, especially since Romanian is a highly inflected language.
Code switching and language mixing

All participants admitted to resorting to code switching and language mixing when using the L1. The frequency of such communication strategies depended mainly on the topic of discussion – it became more intense when the topic of the discussion was work-related – and on the interlocutor – their frequency raised when conversing with other Romanian migrants living in Canada. Some participants mentioned that code switching and language mixing often happened subconsciously, in spite of attempts to control it. For example, when asked if they resorted to the L2 when speaking in Romanian, Participants #5 and #1 responded:

(13) Da, ști și nu mi place de loc. În special când vorbesc cu un “newcomer” sau cineva care vorbește română frumos. In plus ești văzut ca și cum vrei să te dai mare și nu este cazul pentru că eu nu mai vorbesc nici engleza și nici româna corect. Eu nu vorbesc engleza așa cum mi-ar plăcea mie, dar o vorbesc la servici și atunci îmi vine mai repede.

“Yes, I do it and I don’t like it. Especially when I speak with a newcomer or someone who speaks Romanian beautifully. Plus, you are perceived the wrong way, as if you want to impress or something – and it’s not the case because I don’t speak either English or Romanian well. I don’t speak English at the level I would like to, it’s just that I speak it at work and so it comes easier to me.”

(Participant #5)

(14) De câte ori vorbesc cu familia mea, încep în română dar apoi continui în engleză – chiar și cu bunica mea, deși ea nu vorbește engleză.

“Every time I speak to my family, I start the conversation in Romanian but then I switch to English – even with my grandmother, though she doesn’t speak English.”

(Participant #1)

Participant # 20 mentioned that one reason for resorting to code switching and language mixing or even for not using the L1 at all was the fact that the children were no longer able to use and understand the L1. Along the same lines, an additional motive behind language mixing and code switching was the speaker’s strive for increased efficiency and speed in communication, even to the detriment of correctness of form.
Perceived changes in the L1 as it is spoken in the country of origin

When asked about changes in the L1, two participants first commented on changes observed in the non-bilingual variety of Romanian before talking about their personal experience. For example, Participant #19 mentioned a perceived process of “vulgarization” that the non-immigrant L1 variety seemed to have undergone, while Participant #9 noticed the extraordinary influx of English words and phrases in contemporary Romanian. Participant #3 brought in a different perspective and observed that the changes taking place in the L1 mirrored the ways the speakers’ life in the country has changed in general. In other words, it was the way of living that changed first and language simply reflected these changes.

(16)  

“I would not say the language in Romania worsened, but that the street language is more widely used than we were accustomed to hearing it before. This is also in response to a change in life as a whole. Life became harder, tougher and this is reflected in the language as well.”

(Participant #3)
Language choice

Participants were asked to comment on language choice habits by indicating their preferred language of use either in personal journal entries or in general conversations. With respect to language choice in journal entries, the participants’ answers were divided as follows:

- Romanian: because of superior L1 mastery and identity issues (Participants #2, #3, #8, #9, #10, #16, #17, #19)

(17) În română cel mai probabil. Mi-e mai ușor să scriu în română decât în engleză. În engleză ar trebui tot timpul să mă gândesc, să verific gramatica. Mă descurc mai bine în română.

“In Romanian most likely. Writing comes easier in Romanian than in English. In English I would always have to think and check grammar. I think I have a higher mastery of Romanian.”

(Participant #2)

For Participant #3, writing a journal in Romanian was both a question of higher proficiency in the L1 as well of identification with the language.

(18) În nici un caz nu l-aș scrie în engleză. Nu văd de ce. Sunt mult mai natural, mai «eu» - când gândesc în românește; dar asta nu înseamnă că din când în când nu voi folosi un cuvânt în engleză, [...] dar gândurile mele sunt în proporție de 90% în română; număr și fac calcule în română; încerc să-mi explic lucruri și să le înțeleg în română.

“I would under no circumstance write it in English; I don’t see why I would write it in English. I feel more natural, more me – thinking in Romanian; but that does not mean that occasionally I wouldn’t use an English word, [...] but my personal thoughts are 90% of the time in Romanian; I count, I do math in Romanian; I try to explain things to myself and understand them in Romanian”

(Participant #3)

In fact, most of the informants in this category observed that, while they would write most of the journal in Romanian, occasional interventions in English remained unavoidable.

For Participant #16, the choice of language depended on the intended audience.
(19) Dacă aş vrea să nu fie înţeles, l-aş scrie în română. Dacă nu mi-ar păsa de asta, l-aş scrie în engleză.

“If I didn’t want my journal to be understood, it would be in Romanian; otherwise I would write it in English.”

(Participant #16)

-English, because of superior L2 mastery (Participants #1, #5, #11, #14, #18)

Participant #1 stated that she resorted to English all the time. She spoke – in English – about how she struggled to acquire the L2 in order to “catch up those 18 years of not speaking English” and, as a result, how she was not “giving [her]self the opportunity to express [her]self in Romanian”. As for the journal entries, she would write them in English, with the exception of those entries that she wanted to keep secret.

Participants #5 opted for English and also motivated her choice based on perceived superior mastery of the language.


“I think in English. Probably in Romanian if I wanted to keep something secret. I feel like I find my words easier in English.”

(Participant #5)

Participant #11 painted the portrait of the speaker who used his/her languages in a bilingual mode, where passage from one language to the other was done seamlessly.

(21) L-aş scrie în engleză. Mă trezesc vorbind în gând în engleză; uneori trec la română. Nici nu-mi dau seama...

“I would write it in English: I find myself speaking English to myself; sometimes Romanian. I switch without realizing.”

(Participant #11)
Contrary to Participant #11, Participant #18 viewed switching from one language to the other as a slowdown in speech fluency. Therefore, choosing to communicate in English only was considered a way to increase communicative efficiency.

(22) *L-aș scrie în engleză. Nu pot să spun de ce. Toate notițele mele sunt în engleză. Simt că așa mă mișc cel mai bine. Cred că atunci când trecem de la o limbă la alta, totul este încetinit și scopul nostru este să fim cât mai eficienți; astfel trăiesc în mediu anglofon și toate deciziile sunt făcute în engleză. Vreau să fiu tot timpul gata să acționez cât se poate de repede. Este o decizie practică.*

“It would be in English. I can’t say why exactly. Well, all my notes are done in English; I think that I feel this is the way I need to “move”. I think that when switching from one language to the other; the thinking process is slowed down and we want to have the greatest efficiency; so if I live in an English environment, and all the decisions are made in English; I want to be ready to act as quickly as possible. It’s a practical decision.”

(Participant #18)

-Romanian and English mixed because it is a better reflection of the world they live in

(Participants #4, #6, #7, #12, #13, #15, #20)

Some participants (such as Participant #4) who have kept travel journals, for example, did not even remember the language they used. This reinforces the disappearance of boundaries between languages, a tendency previously observed in other attrition studies (such as Ammerlaan, 1996).

For Participants #6 and #7, the choice of language depended on the nature of the intended information to be expressed, and for Participant #20 on the particular frame of mind or disposition.

(23) *În ambele limbi, în funcție de ce se întâmplă în jur, de oamenii din jur, și așa mai departe. Un jurnal oglinda ceea ce gândesti pe moment și astfel îmi vine să mă exprim în engleză sau în română.*

“Both languages, depending on the environment, the people around, etc. A journal reflects your thoughts at a particular moment, so they can be written in English or Romanian.”

(Participant #6)
(24) *Dacă scriu ceva de suflet, atunci aș scrie în română; dacă scriu ceva despre servicii, atunci l-aș scrie în engleză pentru că îmi este mai uşor cu termenii tehnici.*

“If it’s for my soul, it would be in Romanian; if I write about work, I would write in English because technical terms come easier to me in English.”

(Participant #7)

(25) *L-aș scrie în același amestec de română și engleză. Un jurnal este ca o oglindă a gândurilor pe care acum mi le formez în ambele limbi.*

“In the same Romanian/English mix. A journal is a mirror of my thoughts, which I now communicate to myself in both languages.”

(Participant #20)

**Importance of L1 maintenance**

Overall, the reaction of the bilingual group vis-à-vis the importance of L1 maintenance efforts was generally positive, but for different reasons. Six participants considered that efforts were especially necessary in order to pass the language on to their children. Moreover, both Participant #1 and Participant #2, who in the period immediately following their move to the L2 country voluntarily neglected the L1 and focused on the acquisition of the L2, commented on experiencing an attitude change. In both cases, such attitude shift seemed to have been strongly motivated by their desire to pass on the language to their children.

Participant #2 talked about the relearning process of the L1

(26) *Cred din ce în ce mai mult că e important să o mențin. La început am încercat să învăț cât mai mult engleza dar acum încerc să vorbesc română cât mai mult (chiar și cu soțul meu canadian), pentru că îmi dau seama că este important, în special dacă vom avea copii. Aș vrea ca ei să vorbească română.*

“It’s important to maintain it. I believe in this more and more. In the beginning, I tried to learn as much English as possible, but now I try to speak Romanian more (even with my Canadian husband), because I realize this is important. Especially if I have kids, I would like them to speak Romanian.”

(Participant #2)
Along the same lines, Participant #8 emphasized that the ability to communicate in Romanian with her child was crucial in allowing her to establish a deeper connection and had her child not been able to communicate in Romanian, she would feel almost estranged from her.

Two participants equated the L1 with aspects of their identity and revealed that forgetting the language would be perceived as an irreparable loss. When asked how he would feel if he forgot his L1, Participant #19 answered:

(27) *Ciudat. Simt că limba română mă definește ca persoană, și dacă ar fi să o uit complet, mi-aș pierde o parte din identitate.*

“Weird, I feel like the Romanian language defines me as a person, so if I lost it, I would lose part of my identity.”

(Participant #19)

Five participants mentioned considerations linked to identity issues, but also to the benefits of bilingualism. Participant #4 commented that the maintenance of the L1 in his case was motivated by the benefits of bilingualism, as well as by the need to define his identity.

(28) *Eu cred că este important să ne vorbim limba maternă, ne diferențiază – dar într-un mod pozitiv. De asemenea, a vorbi două limbi este benefic pentru memorie – de exemplu împotriva bolii Alzheimer. Deci da, din punctual meu de vedere, este important să vorbim românește.*

“I think it’s important to speak your native language, it makes us feel different – in a good way. Also speaking more languages is good for your memory – for example it helps fight Alzheimers. So, yeah, from my point of view, it is important to speak Romanian.”

(Participant #4)

In the opposite direction, three participants were of the opinion that language was not related to identity. For example, Participant #14 observes:

(29) *Nu. Nu mă simt mai înrădăcinat sau dezrădăcinat prin limba pe care o folosesc.*

“No. I don’t feel more rooted or unrooted by using one language or the other.”

(Participant #14)
Four participants observed that L1 maintenance efforts were not really necessary. Their attitude, however, was not related in any way to feelings of identity, as they considered that their L1 could not even be forgotten. For Participants #9, #10, #13, and #18, for instance, the fact that most of their education was completed in their L1 and that they had lived in Romania until adulthood made the L1 so entrenched in their brains that it would be impossible to forget it. With respect to the importance of L1 maintenance efforts by future generations, Participant #9 comments that loss is in such cases inevitable:

(30)  \[N\text{-}are \text{ rost să depunem neaparat un effort. Limba se va pierde oricum. Dacă prima generație uită limba în proporție de 10\%-15\%, a doua o uită în proporție de 80\%. Uitați-vă la franceză, se fac atâtea eforturi, si tot degeaba.}\]

“Making an effort is useless. The language will get lost regardless. While the first generation forgets about 10%-15%, the second will forget 80%. Look at French, so many efforts are being made, and nothing much is gained.”

(Participant #9)

Feelings of belonging upon return to the country of origin
Here, too, the participants’ experiences and opinions were divided. First, five subjects (#11, #13, #12, #14, and #16) could not respond to the question, as they either had not returned to Romania in a very long time or at all since emigration (#13, #14). For example, Participant #14 answered that he did not intend to ever visit the L1 country again. Then there were those participants (#2, #3, #4, #8) who did not experience a feeling of estrangement when visiting Romania in the beginning, but who started to feel more and more like foreigners as the years passed. Participant #8 remarks:

(31)  \[Înstrăinarea nu e din partea mea, ci ei o iau pe o altă direcție decât cea cu care sînt eu obișnuită.\]

“The estrangement does not come from me; it is they who take a different direction, one I am not used to.”

(Participant #8)
Eight participants indicated that they definitely felt like strangers upon visiting the L1 country. Participant #11 remarked that she did not know the “rules of the game anymore”. For Participant #10, the feeling of estrangement was not caused by language, but more by the people’s mentality. On the other hand, Participant #7 commented on the rapid changes that take place in the language, changes in vocabulary, and tone. This participant metaphorically resumes these transformations by observing that the L1 “evolved from the wooden to the metal language”. Participant #6 insisted that he did not feel like a foreigner, but not at home either. Finally, Participant #18 said that during his last visit to Romania, he felt like a foreigner shortly after arrival, but that it did not take him long to feel at home again.

Other informants declared that they felt at home in both Canada and Romania. Participant #20, for example, expressed her feelings by comparing going to Romania with going to one’s grandparents’ house: there is a certain familiarity and you still consider it home, but not your permanent home.

We turn now to the last predictor variable in our study: linguistic aptitude as measured via the language aptitude test.

### 4.1.3 The Language Aptitude Test

Recall that the language aptitude test used in the present study was adapted from a set of tests developed by Meara (2005). It consists of three language-neutral tasks: a vocabulary test, a sound recognition task, and a grammatical inferencing test. As we are only interested in the impact of linguistic aptitude on attrition, only the bilingual subjects were tested for this task. The scores obtained on all three parts of the test were added and the sum value was considered the aptitude score. The sum of the maximum scores possible is 300 points.
The mean score obtained on the aptitude test was $M = 122.75$ with a standard deviation of $SD = 41.27$. The standard deviation for this measurement appears to be relatively large, especially when compared to the standard deviations obtained on the sociolinguistic variables (see Table 4.2). Nevertheless, this result is not completely surprising. Since the aptitude tests used in this study were designed to test language learning capacity of an L2 and since the level of L2 proficiency is usually more variable across attriters than the level of proficiency in the L1, the increased variability in the aptitude scores is not surprising.

Figure 4.2 illustrates the individual scores on the language aptitude test. The scores are displayed in increasing order.

*Figure 4.2. Individual scores on the language aptitude test for the bilingual group*
Participants #4 and #14 obtained the highest scores (190 points and 195 respectively), while Participant #10 had the lowest score (40 points) out of a maximum possible score of 300 points. In accordance with our hypothesis that language aptitude encourages both L2 acquisition and L1 maintenance, our expectation is that Participants #4 and #14 should not only be proficient L2 speakers, but should also succeed in averting L1 attrition.

In the first part of this chapter, we presented the results for the predictor variables: age, length of residence in the L2 country, education, language contact, language choice, attitude, and linguistic aptitude. In the second part of the chapter, we will review the results obtained on the instruments used to measure language proficiency: the C-test, the verbal fluency task, and the spontaneous speech data.

4.2 The Dependent Variables

The presentation of the results for each measurement begins with a short review of the task. This is followed by the presentation of the results for each measurement in Romanian (L1) and English (L2) by group and by individual participant. Along with these results and the results already provided in 4.1, this section includes preliminary observations with respect to the bilingual migrants who emerge as possible attriters. Group statistics are presented wherever applicable. More extensive discussion of the occurrence of L1 attrition, the relationship between L1 and L2 proficiency, as well the factors which tend to shape attrition, is provided in Chapter 5. Throughout this section, the following abbreviations are used: BIL = Romanian/English migrant bilingual group; CR= Romanian control group; and CE = English control group.
4.2.1 The C-test

The purpose of this written task was to assess general language proficiency. Since obtaining a high score on the C-test indicates a higher level of language proficiency (Schmid, 2007), it was expected that the migrant bilingual group would score lower on both the Romanian and the English versions of the C-test as compared to the Romanian and English monolingual control groups. Recall that the maximum score achievable is 100 points.

Table 4.3 below reports the C-test results in Romanian and English for the bilingual group, the Romanian control group, and the English control group.

Table 4.3
Summary of scores on the C-test for all three groups

<table>
<thead>
<tr>
<th></th>
<th>B/M</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 BIL</td>
<td>B</td>
<td>20</td>
<td>62</td>
<td>91</td>
<td>81.85</td>
<td>8.11</td>
<td>1.81</td>
</tr>
<tr>
<td>L1 CR</td>
<td>M</td>
<td>15</td>
<td>78</td>
<td>95</td>
<td>85.73</td>
<td>4.78</td>
<td>1.23</td>
</tr>
<tr>
<td>L2 BIL</td>
<td>B</td>
<td>20</td>
<td>53</td>
<td>89</td>
<td>71.8</td>
<td>11.12</td>
<td>2.43</td>
</tr>
<tr>
<td>L2 CE</td>
<td>M</td>
<td>15</td>
<td>72</td>
<td>94</td>
<td>84.6</td>
<td>7.51</td>
<td>1.97</td>
</tr>
</tbody>
</table>

Note. L1 = Romanian, L2 = English; BIL = bilingual group; CR = Romanian control group; CE = English control group

The summary statistics above show that the mean obtained by the bilingual group ($M = 81.85$) is slightly lower than the mean obtained by the Romanian control group on the C-test ($M = 85.73$). The English C-test reveals a similar pattern: the bilingual group ($M = 71.8$) is outperformed by the L2 control group ($M = 84.6$).

The individual total scores from which the group means were calculated presented in Table 4.3 are reproduced in the form of a graph in Figure 4.3 (individual figures with the C-test scores obtained by each participant are available in Appendix O). Given that the main purpose of the graph is to illustrate how the groups perform as a whole, the results are arranged in ascending order for all three groups: the bilinguals’ performance in L1 and L2, the English
control group, and the Romanian control group. In Figure 4.3 below we can see that the lowest scores are for the bilinguals’ performance on the English C-test, the gap between these scores and the controls’ results being the widest. In comparison, the bilinguals’ performance on the Romanian version of the test was relatively closer to the performance of the Romanian control group.

*Figure 4.3. C-test results for the three groups*

![C-test results for the three groups](image)

*Note. L1 = Romanian, L2= English; BIL = bilingual group; CR = Romanian control group; CE = English control group*

Tests for normality of distribution were conducted on all dependant variables. For the data that were normally distributed, parametric statistical measures of significance were used\(^5\). For the data that were not normally distributed, parametric and non-parametric tests were conducted. In those cases where the two types of analyses yielded dissimilar results, the results of non-parametric tests are reported; otherwise only the results of parametric tests were considered. An independent-samples *t* test was conducted to determine whether the three groups

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\(^5\) As is common practice in linguistics, any results with a *p* (= probability) level equal to or smaller than .05 were considered significant; i.e. the effect is not due to chance and therefore evidence against the null hypothesis (which generally states that there is no treatment effect) is supplied.
were statistically different with respect to the C-test results. The results of the comparison between the bilingual group and the Romanian control group were not statistically significant, \( t(33) = -0.6, p = .10 \). This finding is counter to our research hypothesis, suggesting no attrition at the group level. In contrast, the difference between the Romanian-English bilinguals and the English monolinguals was significant \( (t(33) = -3.8, p = .00) \), suggesting that, while the bilinguals’ scores are within native range for the Romanian test, they remain significantly different from the ones obtained by the English controls.

To address the proficiency trade-off issue, i.e. whether there is a statistically significant correlation between the bilinguals’ levels of proficiency in the L1 and the L2, correlation coefficients were computed for the two variables. Here and elsewhere, this was done by applying a Bonferroni correction to control for Type I error, a \( p \) value of less than .005 is required for significance. The results of the correlational analysis indicate only a moderate strength, the value of the coefficient for individual participants lying between .30 and .60 and the correlation is nonsignificant \( (r = .376, p > 0.05) \). This result indicates no within-group relationship between the performance of the bilinguals on the Romanian and the English C-test.

In Table 4.3 above, we also notice that the standard deviation of the C-test results obtained by the bilingual migrant group \( (SD = 8.11) \) is higher than the standard deviation of the Romanian monolingual group \( (SD = 4.78) \). The English C-test results reveal similar tendencies. The performance of the English controls is also more homogeneous \( (SD = 7.51) \) than the performance of the bilinguals \( (SD = 11.12) \). The greater standard deviation observed in the bilingual group suggests that, as a whole, the bilingual group is less consistent in its performance on the C-test as compared to the monolingual control groups. The tendency for greater variability observed in the bilingual group is an important finding, as it could indicate a possible manifestation of L1 attrition at the group level. However, at this stage, it is a preliminary observation, since measuring inter-speaker variability requires more sophisticated
statistical tools than standard deviations. This point is further discussed in the summary section as well as in Chapter 5.

We now turn to the presentation of the individual results. Individual results obtained on the Romanian and English C-test by the bilingual participants are presented in Figure 4.4 below. The bilinguals’ results on the Romanian C-test are displayed in ascending order.

*Figure 4.4. Individual scores on the Romanian C-test (C-test L1) and on the English C-test (C-test L2) for the Bilingual Group (BIL)*

In order to determine which test scores might be associated with the profile of an L1 attriter, here and elsewhere, a proficiency threshold was established as follows: two standard deviations were subtracted from the control group mean. This formula is based on the postulation that for a normally distributed variable, 95% of all values fall within +/- 2 standard
deviations of the mean (Kirk, 1990). Thus, any value falling within +/- 2 standard deviations from the control group means is considered within the range of 'normal' values.

The proficiency threshold for the Romanian C-test was calculated at 76.17 (85.73 – (4.78 x 2) = 76.17). This value is less than the lowest Romanian control group score (i.e. 78%) and thus sets the upper threshold for non-native-like performance. Consequently, Participants #1 (66%), #5 (69%), #15 (69%), and #12 (75%) (see Figure 4.4) are outside the range of the native speaker monolingual scores with respect to the results of this task. We infer that these participants may be possible attriters.

Regarding the performance on the English C-test, a lower proficiency threshold of 69.58% was established by, again, subtracting two standard deviations from the L2 controls’ average. As per Figure 4.4, eleven bilinguals obtained C-test L2 scores that were above the established proficiency threshold. These participants are: #1 (76%), #2 (76%), #3 (72 %), #4 (83%), #7 (87%), #8 (78%), #10 (72%), #11 (88%), #14 (89%), #17 (74%), and #19 (85%). For this test only, these particular subjects are considered to fall within the range of the English native speakers. Furthermore, given their greater L2 proficiency, they should also be those speakers for whom L1 attrition is more likely. According to the multicompetence trade-off hypothesis — at least at the individual level of analysis — lower L1 proficiency is expected in those bilinguals who are highly proficient in the L2. For example, a proficiency trade-off pattern is reflected in the scores obtained by Participant #1, who obtained the lowest score on the L1 C-test (62%) and a higher score on the L2 C-test (76%), and Participant #14 who obtained 77% on C-test L1 and 89% on C-test L2.

However, as indicated in Figure 4.4, the overall picture is more complicated. More examples of this complexity can be seen in other pairs of scores for individual participants. As already noted, the majority of the bilinguals obtained higher scores on the Romanian C-test than on the English C-test, and those participants for whom the score difference was more substantial
were Participants #13 and #20. For Participants #5 and #15, however, a different pattern emerged: they obtained lower scores on the Romanian C-test (66% and 69%) but also very low scores on the English C-test (53% and 57%, respectively). Participants #19, #7, and #11, on the other hand, obtained the highest scores on the L2 C-test (85%; 87%; 88%), and equally high scores on the L1 C-test (90%; 89%; 86%). Likewise, the performance of Participant #8 was relatively high (78%) on C-test L2 and the highest on C-test L1 (91%). The implications of these results for our hypotheses will be further examined in Chapter 5.

4.2.2 The Verbal Fluency Task

The objective of the verbal fluency test was to examine lexical access and vocabulary size. The subjects were invited to participate in two tasks and produce in 60 seconds as many items as possible that belonged to the semantic fields of “animals” and “fruits and vegetables”. Since both tests tap the same vocabulary related measurement (Schmid, 2007), performance on the two verbal fluency tasks was summed to one variable (VF). A high score on the VF task reflects a high ability to access vocabulary items and, as such, a high level of verbal proficiency. Table 4.4 illustrates the descriptive statistics for the VF task for the bilingual migrant group, the Romanian control group, and the English control group.

Table 4.4

<table>
<thead>
<tr>
<th>B/M</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 BIL</td>
<td>B</td>
<td>20</td>
<td>27</td>
<td>58</td>
<td>42.00</td>
<td>9.85</td>
</tr>
<tr>
<td>L1 CR</td>
<td>M</td>
<td>15</td>
<td>37</td>
<td>65</td>
<td>50.40</td>
<td>8.67</td>
</tr>
<tr>
<td>L2 BIL</td>
<td>B</td>
<td>20</td>
<td>22</td>
<td>61</td>
<td>36.75</td>
<td>10.78</td>
</tr>
<tr>
<td>L2 CE</td>
<td>M</td>
<td>15</td>
<td>46</td>
<td>75</td>
<td>55.46</td>
<td>7.55</td>
</tr>
</tbody>
</table>

Note. L1 = Romanian; L2 = English; BIL = bilingual migrant group; CR = Romanian control group; CE = English control group
The mean scores in the descriptive statistics table above show that the Romanian control group ($M = 50.40$) surpasses the bilingual group ($M = 42$). As in the case of the previous measure, the English monolingual group ($M = 55.46$) also outperforms the bilingual group ($M = 36.75$).

Figure 4.5 below presents the individual scores in the form of a graph. In order to display general group tendencies, all the results are arranged in ascending order (charts with individual results for each participant in all three groups are included in Appendix O). As with the C-test, the bilingual group is outperformed by the English and the Romanian control groups. Moreover, the graph also indicates that the gap between the bilinguals’ performance and the Romanian controls’ performance on the L1 VF is considerably smaller than the difference between the L2 VF scores and the English controls’ scores, suggesting that the bilinguals’ performance in the L1 is closer to the Romanian native standards than the bilinguals’ performance in the L2 to the native English ones.

Figure 4.5. VF results for the three groups

An independent-samples $t$ test was performed to establish whether the difference between the mean of the Romanian and English monolingual control groups and the mean of the
bilingual experimental group is statistically significant. The results reveal an inter-group difference that is statistically significant for Romanian, \( t (33) = -2.62, p = .013 \), and English, \( t (33) = -5.73, p = .00 \). In both cases, the statistically significant \( t \) test results suggest that lexical access is weakened in the bilingual group as compared to the control monolingual groups, a tendency which can be considered a sign of L1 attrition at the group level.

As with the C-test, we are also interested in the potential correlations between the performance of the bilingual informants on the Romanian and English VF tasks. On a multicompetence view, we expect a negative correlation between the levels of proficiency in the L1 and the L2. Correlation coefficients were computed for VF L1 and VF L2. The results show a statistically significant positive correlation (\( r = .469, p < 0.05 \)). Despite the significant correlation, these results are counter to the research hypothesis, as they suggest that there is no “trade-off” between proficiencies, but rather that those participants who produce a high (or low) number of items in one language are likely to also produce a high (or low) number of items in the other.

We now turn to the issue of increased variability previously observed in the context of the bilinguals’ C-test performance. The results presented in Table 4.4 above indicate that the bilingual group (\( SD = 9.85 \)) and the Romanian control group (\( SD = 8.67 \)) are more homogeneous with regard to the VF L1 than with regard to the C-test L1 (BIL \( SD= 8.11 \) and CR \( SD=4.78 \)). On the other hand, there is more variation in the bilinguals’ performance (\( SD = 10.78 \)) on the VF L2 as compared to the English monolingual (\( SD = 7.55 \)) performance.

To address the individual results, Figure 4.6 below shows the VF L1 and VF L2 scores of the VF for the bilingual group. The results are arranged in ascending order of the VF L1 scores.
Once again, using the performance of the Romanian control group as the cut-off criterion, it was established that those bilinguals who produced fewer than 33.06 lexical items could be viewed as potential attriters. This value is below the lowest score of any of the Romanian control participants (Min = 37). The performance of Participants #1 (27), #5 and #11 (29), #9 and #10 (31), and #12 (32) is more than two standard deviations below the Romanian control mean. To the extent to which vocabulary size is an indicator of language proficiency, the informants who obtained low scores on the VF task are considered potential L1 attriters. Regarding the English VF test, a proficiency threshold of 40.36 was established by subtracting two standard deviations from the L2 controls’ average. The results presented in Figure 4.6 indicate that six bilinguals obtained VF L2 scores that were above the established threshold: #20 (45), #19 (46), #4 (48), #7 (52), #14 (54), and finally #2 (61). As for comparisons between the Romanian and the English VF scores, Figure 4.6 shows that Participants #1, #2, #11, and #14 obtained significantly higher scores on the VF L2 as compared to the VF L1.
4.2.3 Results of Spontaneous Speech Measurements

Spontaneous speech samples in the L1 and the L2 were collected based on narratives of a ten-minute episode from the silent movie *Modern Times* (3.4.6). Participants were asked to first watch the film episodes and then, during the second viewing, to comment on what they were seeing. All recordings were transcribed using the CHAT program. Four measurements were defined and measured using CLAN for the spontaneous speech sample: one global measure of lexical diversity (D); and three fluency measures: the number of pauses (P), the number of repetitions (R), and the number of retracings (RE). As with the previous tests, group and individual tendencies are presented for each language.

4.2.3.1 Lexical Diversity (D)

The first measure used as a possible indicator of language attrition in spontaneous speech is the lexical diversity measure (D). The value of D has been established using the command `vocd` from the language analysis program CLAN (MacWhinney, 2000). A high D-score reflects a high level of language proficiency (Schmid, 2007), and therefore we expect a lower D value for the attriter group as compared to both the L1 and the L2 reference groups. D scores are language dependent and, therefore, no absolute values of the score can be provided.

Table 4.5 below reports the results of the Romanian D value for the bilingual group, for the Romanian control group, and for the English control group.
Table 4.5

Summary of scores on the D measurement for all three groups

<table>
<thead>
<tr>
<th></th>
<th>B/M</th>
<th>N</th>
<th>Max</th>
<th>Min</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 BIL</td>
<td>B</td>
<td>20</td>
<td>118.30</td>
<td>49.20</td>
<td>93.21</td>
<td>16.14</td>
<td>3.61</td>
</tr>
<tr>
<td>L1 CR</td>
<td>M</td>
<td>20</td>
<td>151.18</td>
<td>84.13</td>
<td>103.95</td>
<td>17.54</td>
<td>3.92</td>
</tr>
<tr>
<td>L2 BIL</td>
<td>B</td>
<td>20</td>
<td>83.51</td>
<td>44.35</td>
<td>60.77</td>
<td>8.38</td>
<td>1.87</td>
</tr>
<tr>
<td>L2 CE</td>
<td>M</td>
<td>20</td>
<td>91.92</td>
<td>54.24</td>
<td>66.77</td>
<td>9.38</td>
<td>2.09</td>
</tr>
</tbody>
</table>

Note: L1 = Romanian, L2 = English; BIL = bilingual group; CR = Romanian control group; CE = English control group

The mean of the D values obtained by the Romanian control group (\(M = 103.95\)) is higher than the mean of the L1 D values obtained by the bilingual group (\(M = 93.21\)). Contrary to the tendencies previously observed in the C-test and VF results, the standard deviations of the bilingual group for the L1 task (\(SD = 16.14\)) and the L2 task (\(SD = 8.38\)) is comparable to the standard deviation of the Romanian control group (\(SD = 17.54\)) and of the English control group (\(SD = 9.38\)), suggesting that, for the D value, there is homogeneity in both groups, i.e., a similar degree of variability.

In order to evaluate the hypothesis that bilinguals would obtain a significantly lower D score than the L1 monolinguals, a Mann-Whitney U test was conducted. The results showed no significant difference between the bilingual and the Romanian control group with respect to D value, \(z = -1.78, p > .05\). Concerning the difference between the bilingual group and the English controls on the D L2 measure, the Mann-Whitney U test revealed a significant difference, \(z = -2.08, p < .05\).

We now turn to the calculation of a possible relation between the L1 and L2 values in the bilingual group. In the case of the D scores, we note that the English monolingual control group scores (\(M = 66.77\)) were considerably lower than the scores obtained by the Romanian monolingual control group (\(M = 103.95\)). This substantial difference between the languages calls into question the validity of any intra-group comparisons of the scores in the L1 and the L2 for...
the bilingual participants. For this reason, we did not compare the two sets of values and did not consider the measurement of lexical diversity (D) as a potential indicator of within group correlations.

As for the individual results (for a separate figure with the individual scores per language and group see Appendix O), the proficiency threshold for the D value was calculated by subtracting two standard deviations from the average of the control group. For the L1 measurement the threshold was established at 68.87. According to Figure 4.7, the only participant who obtained a D value below the cut-off point is Participant #1 (D= 49.2). Participant #1 appears to be the attriter as reflected by this task, while the rest of the bilinguals’ D scores resemble those of the monolinguals. The highest D values were obtained by Participants #15 (118) and #18 (124).

*Figure 4.7. Individual values for Romanian lexical diversity measurement (D L1) for the Bilingual Group (BIL)*

![Figure 4.7](image)

Figure 4.8 displays the L2 D values obtained by the bilingual participants. The threshold for the English D was established at 48.01 and only Participant #17 obtained a score (44.4) that
was below the limit calculated with reference to the monolingual control performance. Participant #18 obtained the highest L2 D value (83.5)

*Figure 4.8. Individual values for English lexical diversity measurement (D L2) for the Bilingual Group (BIL)*

![Graph showing individual values for English lexical diversity measurement (D L2) for the Bilingual Group (BIL)](image)

To conclude, we note that the patterns established by the C-test and the VF scores continue to hold true for the D measurement as well. The values obtained by the bilingual group are generally below the results obtained by the monolingual Romanian control group (see Figure 4.9). As for English, the control group also outperformed the bilingual group, but the difference between the two sets of scores is slightly greater (see Figure 4.10).
Figure 4.9. Romanian D (D L1) values for the Bilingual Group (BIL) and for the Romanian Control Group (CR)

![Graph showing Romanian D (D L1) values]

Figure 4.10. English D (D L2) values for the Bilingual Group (BIL) and for the English Control Group (CE)

![Graph showing English D (D L2) values]
The rest of this section is dedicated to the presentation of the fluency measures, which include pauses, repetitions, and retracings.

### 4.2.3.2 Fluency Measures (Pauses, Repetitions, Retracings)

In addition to the D value, a number of fluency measures were calculated with respect to the spoken data. Consistent with previous practice in the attrition literature (Schmid, in press), the three following phenomena were examined: empty pauses (P), repetitions (R), and retracings (RE) (3.4.6).

Table 4.6 displays the descriptive statistics for all of the disfluency markers produced by the bilingual speakers and the Romanian and English control groups.

#### Table 4.6

*Summary of scores on the fluency measures for all three groups*

<table>
<thead>
<tr>
<th></th>
<th>B/M</th>
<th>N</th>
<th>Max</th>
<th>Min</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pauses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1 BIL</td>
<td>B</td>
<td>20</td>
<td>21</td>
<td>3</td>
<td>12.05</td>
<td>5.05</td>
<td>1.12</td>
</tr>
<tr>
<td>L1 CR</td>
<td>M</td>
<td>20</td>
<td>17</td>
<td>0</td>
<td>7.35</td>
<td>5.03</td>
<td>1.12</td>
</tr>
<tr>
<td>L2 BIL</td>
<td>B</td>
<td>20</td>
<td>20</td>
<td>6</td>
<td>10.8</td>
<td>4.64</td>
<td>1.03</td>
</tr>
<tr>
<td>L2 CE</td>
<td>M</td>
<td>20</td>
<td>10</td>
<td>0</td>
<td>2.75</td>
<td>2.68</td>
<td>0.50</td>
</tr>
<tr>
<td><strong>Repetitions</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1 BIL</td>
<td>B</td>
<td>20</td>
<td>21</td>
<td>0</td>
<td>4.1</td>
<td>4.97</td>
<td>1.10</td>
</tr>
<tr>
<td>L1 CR</td>
<td>M</td>
<td>20</td>
<td>11</td>
<td>0</td>
<td>1.4</td>
<td>2.50</td>
<td>0.55</td>
</tr>
<tr>
<td>L2 BIL</td>
<td>B</td>
<td>20</td>
<td>15</td>
<td>0</td>
<td>4.2</td>
<td>4.52</td>
<td>1.01</td>
</tr>
<tr>
<td>L2 CE</td>
<td>M</td>
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<td>9</td>
<td>0</td>
<td>1.5</td>
<td>2.41</td>
<td>0.54</td>
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<tr>
<td><strong>Retracing</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1 BIL</td>
<td>B</td>
<td>20</td>
<td>18</td>
<td>1</td>
<td>8.35</td>
<td>3.54</td>
<td>0.79</td>
</tr>
<tr>
<td>L1 CR</td>
<td>M</td>
<td>20</td>
<td>11</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>0.67</td>
</tr>
<tr>
<td>L2 BIL</td>
<td>B</td>
<td>20</td>
<td>15</td>
<td>1</td>
<td>6.15</td>
<td>4.04</td>
<td>0.90</td>
</tr>
<tr>
<td>L2 CE</td>
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<td>4</td>
<td>0</td>
<td>2.05</td>
<td>1.23</td>
<td>0.27</td>
</tr>
</tbody>
</table>

*Note.* L1 = Romanian, L2 = English; BIL = bilingual group; CR = Romanian control group; CE = English control group; P = pauses, R = repetitions, RE = retracings

The results presented above reveal that, on average, the participants in the bilingual group produced more pauses, repetitions, and retracings in the L1 and the L2 than the monolingual Romanian and English control groups. As was the case with our previous
measurements, the gap between the bilinguals’ and monolinguals’ performance is generally more significant between the bilinguals and the English controls than between the bilinguals and the Romanian controls. The smaller gap in the frequency of disfluency markers used between the bilinguals and the Romanian controls indicates not only superior control over the L1 on the part of the bilinguals, but also that the two groups produce comparable spontaneous speech, which — in the case of certain bilinguals — is indistinguishable from non-migrant production (as also indicated by the L1 native speakers’ ratings presented in 4.3). With respect to the proficiency dynamics between the L1 and the L2 of the bilingual participants, Table 4.6 indicates that the frequency of pauses is comparable across the L1 and the L2 in bilinguals, but that, surprisingly, the speakers tend to produce slightly more pauses in the L1 ($M=12.05$) than in the L2 ($M=10.8$). Similar patterns are observed in relation to the frequency of retracing, the use of these hesitations markers being more intensified in the L1 ($M=8.35$) than in the L2 ($M=6.15$). As for the repetitions, the bilinguals tend to use them with the same frequency in the L1 ($M=4.1$) and in the L2 ($M=4.2$). Also linked to the issue of intra-group variation, the standard deviations for this task suggest that the speech production of both the bilingual and monolingual groups shows less variability with respect to hesitation markers. This tendency is contrary to the trends observed in the previous tests, where the bilingual group generally showed a greater degree of variability than the control groups.

To evaluate the statistical significance of inter-group difference, an independent-samples $t$ test was performed. The $t$ test was significant for all three measures in both Romanian (see Table 4.7) and English (see Table 4.8).
Table 4.7

*Comparison of the number of fluency markers between the Bilingual and the Romanian Control Group*

<table>
<thead>
<tr>
<th>Fluency Marker</th>
<th>$t$ (38)</th>
<th>$p$</th>
<th>Range of 95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pauses</td>
<td>2.94</td>
<td>.00</td>
<td>1.46 to 7.93</td>
</tr>
<tr>
<td>Repetitions</td>
<td>2.18</td>
<td>.03</td>
<td>.19 to 5.20</td>
</tr>
<tr>
<td>Retracing</td>
<td>4.18</td>
<td>.00</td>
<td>2.24 to 6.45</td>
</tr>
</tbody>
</table>

Table 4.8

*Comparison of the number of fluency markers between the Bilingual and the English Control Group*

<table>
<thead>
<tr>
<th>Fluency Marker</th>
<th>$t$ (38)</th>
<th>$p$</th>
<th>Range of 95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pauses</td>
<td>6.97</td>
<td>.00</td>
<td>5.71 to 10.38</td>
</tr>
<tr>
<td>Repetitions</td>
<td>2.35</td>
<td>.02</td>
<td>.37 to 5.02</td>
</tr>
<tr>
<td>Retracing</td>
<td>4.33</td>
<td>.00</td>
<td>2.18 to 6.01</td>
</tr>
</tbody>
</table>

The validation of a possible positive correlation between the use of all three hesitation markers in the L1 and the L2 within the bilingual group was calculated, indicating the following results:

- *pauses* - a moderate correlation between $P_{L1}$ and $P_{L2}$ ($r = .470$, $p < 0.05$)
- *repetitions* - a moderate correlation between $R_{L1}$ and $R_{L2}$ ($r = .529$, $p < 0.05$)
- *retracing* - no significant correlation between $RE$ in $L1$ and $L2$ ($r = .364$, $p > 0.05$)

These results suggest that a high (or low) frequency of pauses and repetitions in one language is likely to be paired to a high (or low) frequency in the other language. In other words, a speaker is fluent (or non-fluent) regardless of the language spoken. This, however, is not the case for retracings, since no statistically significant correlation was obtained.

Let us now turn to the presentation of the individual results. Figures 4.11, 4.12, and 4.13 display the number of pauses, repetitions, and retracings produced by the bilingual group in the Romanian and English film commenting tasks. Individual figures for all of the results by group and language are included in Appendix O. Given the similarities between the three measures, we
first provide the graphs for each one of the three fluency markers examined and then provide the presentation of the findings grouped together. In each one of the three figures below, the results are displayed in ascending order of the Romanian scores, together with the corresponding English scores.

Figure 4.11. Number of pauses in Romanian (P L1) and English (P L2) for the bilingual group (BIL)

Figure 4.12. Number of repetitions in Romanian (R L1) and English (R L2) for the bilingual group (BIL)
The last figure below illustrates the number of retracing produced. Retracings, in addition to empty pauses and repetitions, are another indicator of aspects of the planning process in speech (MacWhinney, 2010:16). They refer to instances where the informant begins to say something, stops, and then repeats the earlier material with or without change (see 3.4.6 for examples).

*Figure 4.13. Number of retracings in Romanian (RE L1) and English (RE L2) for the bilingual group (BIL)*

![Graph showing number of retracings for RE L1 and RE L2 participants]

Given the high standard deviation of the control group and the low means, the potential attriters for these measurements cannot be established based on the formula used with our previous measurements. Consequently, the attriters were identified by considering the highest number of pauses, repetitions, and retracings produced by the control groups as the reference score.

With respect to the L1, the following participants indicated a tendency to use more pauses, repetitions, and retracings than the Romanian monolingual controls in their production:

- **pauses**: Participants #4 and #13 (18 pauses), #6 and #10 (21 pauses)
- **repetitions**: Participants #3 (21 repetitions) and #20 (12 repetitions)
- **retracings**: Participants #2 (18 retracings) and #14 (12 retracings)

As for the frequency of hesitation phenomena in the L2, the production of the following participants contained the highest number of hesitation markers:
- **pauses**: Participants #2 and #19 (20 pauses)
- **repetitions**: Participants #14 (13 repetitions) and #15 (15 repetitions)
- **retracings**: Participants #15 (14 retracings) and #3 (14 retracings)

As a preliminary observation, we note that the participants who used a higher number of disfluency markers were not necessarily the same participants who scored poorly on the rest of the tests. For example, Participant #19, who obtained high scores on the C-test and the VF used the highest number of pauses in the spontaneous speech task. The implications of these results in light of the previous tendencies observed are considered in the summary section of this chapter, as well as in Chapter 5.

### 4.3 The Native Speaker Evaluations

The last set of results presented is based on the native speaker evaluations. The main purpose of this task was to examine whether the long-time migrant bilingual speakers in our study are perceived as migrant/non-migrant speakers in Romanian or native/non-native in English by Romanian non-migrant and English native speakers respectively. This type of task is different in nature from the rest of the data examined in several ways. Firstly, these evaluations were intended to provide a global assessment of the bilingual participants’ L1 and L2 proficiency. Therefore, one difference is between the specific, targeted aspects of some of the formal tasks (e.g., vocabulary size) and the overall evaluation undertaken here. Secondly, the evaluation measures represent native speakers’ judgments of the bilinguals’ performance, rather than results on written and oral output, and as such, provide a useful perceptual corroboration of the linguistic portrait of the migrant bilinguals in our study.

As previously stated, the native speaker evaluations constituted a pilot study, which was conducted on a post-hoc basis and did not include a randomized order of participants, nor the inclusion of native speakers in the pool of bilinguals rated (which is considered less problematic
in the context of the Romanian speech evaluation, see 6.1). Nonetheless, the native speaker evaluations confirm the tendencies observed in the other tasks, especially the C-test and the VF results. This being said, these results are preliminary in nature and require further research and verification.

Ten Romanian and ten English monolinguals were asked to listen to one-minute excerpts from the bilingual participants’ commentaries of the movie *Modern Times* by Charlie Chaplin and assess their oral proficiency (see 3.4.7). As previously described, the rating was calculated from the four-point Likert scale, assessing perception of native or non-native speaker status. For example, if a participant obtained a rating of 1 on the four-point Likert scale, this was interpreted to indicate the lowest perceived language proficiency, while a rating of 4 indicated native language status. The raters were asked to assign a score for each of the twenty participants that ranged from 1 (indicating lowest perceived language proficiency) to 4 (indicating highest perceived language proficiency) (see Appendices I and J).

Table 4.9 presents the summary of the native speaker ratings for the L1 and the L2. One interesting result is the slightly higher mean of the L2 ratings as compared to the L1 ratings.

<table>
<thead>
<tr>
<th></th>
<th>Judges</th>
<th>Bilinguales</th>
<th>Max</th>
<th>Min</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>L1 ratings</strong></td>
<td>10</td>
<td>20</td>
<td>35</td>
<td>17</td>
<td>23.65</td>
<td>5.55</td>
</tr>
<tr>
<td><strong>L2 ratings</strong></td>
<td>10</td>
<td>20</td>
<td>35</td>
<td>12</td>
<td>24.15</td>
<td>6.73</td>
</tr>
</tbody>
</table>

*Note.* L1 = Romanian, L2 = English

Figure 4.14 illustrates the individual averaged scores of all of the ratings each bilingual has received in both Romanian and English. The scores reflect the raters’ perception of the nativeness in the L1 or the L2 of the bilingual participants.
The analysis of the ratings reveals a noteworthy pattern. Participants #1, #5, #14, and #19 received the highest ratings from the L2 judges, this ranking being interpreted to signify that these bilinguals are perceived to be closer to English near-native speakers than the rest of the participants in the group. In Romanian, however, Participants #1, #5, and #14 obtained low scores, a ranking that suggests that the L1 spontaneous speech production of these bilinguals is perceived to sound foreign. Participant #19, on the other hand, obtains again a very high score in Romanian. Consequently, Participants #1, #5, and #14 are perceived, on one hand, as L2 near-native speakers by the English raters and, on the other hand, as L1 attriters by the Romanian judges. Ratings for Participant #19, however, suggest that he is perceived to be both an L2 near native speaker, as well as an L1 speaker residing in Romania (i.e. a highly proficient L1 speaker). Based on the previous test scores, these findings correspond to a large extent with the results obtained from the C-test (see 4.2.1) and the VF (see 4.2.2). In conclusion, the native speakers’ ratings point to Participants #1 and #5 as possible L1 attriters, while on the other hand, they show Participant #19 as having native-like proficiency in both the L1 and the L2.

Figure 4.14. Romanian native speakers’ (L1 NS) and English native speakers’ (L2 NS) ratings of bilingual spontaneous speech
Furthermore, the test results and raters’ scores for Participant #14 place him close to the native-like limit in the L2 and close to the attrition limit in the L1.

4.4 Summary

In the first part of this chapter, we presented the results from three instruments: the Sociolinguistic and Personal Background Questionnaire, the interviews, and the language aptitude test. First, we presented the personal background data, namely the participants’ age at emigration, their length of residence in the L2 country, and their education profiles (see Table 4.1).

Reviewing the accounts of Romanian long-term migrants, three main groups can be distinguished: one group of migrants who wanted to assimilate into the L2 culture and language as quickly as possible in the beginning and now, after many years, are re-evaluating their attachment to their L1 culture and language (for example, Participant #2 and, to some extent, Participant #1); a second group who wanted to assimilate to the L2 culture and continued to ignore their L1 identity (Participants #13 and #14); and the third and largest group who wanted to maintain their language and culture of origin but, at the same time, were open to the Canadian environment (the rest of the participants). More in-depth information on the participants in each section will be presented and discussed in Chapter 5.

With the exception of a few participants (#1, #5), the prevalent view expressed in the interviews is that the L1 is generally not, and more importantly, cannot be lost. All participants were aware of the strong influence of the dominant L2 and, in certain cases, a deceleration of speech fluency, as well as a certain lag vis-à-vis the evolution of the non-bilingual L1 variety, but, overall, the participants felt that their L1 was still “somewhere in the brain” (Participant #14) and that it could be relatively quickly retrieved if re-immersed in the L1 environment. This
type of observation appears to reinforce the idea that language attrition could be linked to a larger extent to access problems rather than to forgetting per se.

In terms of sociolinguistic factors that have an impact on L1 attrition, it seems that a negative attitude towards the L1 and a desire to assimilate rapidly into the dominant society are the most important initiators of the attrition process. For example, as we shall see in the following chapter, those migrants who felt strongly about immediate acculturation in the L2 environment post immigration are those for whom the decline of the L1 was most visible. As seen in the case of Participant #2, language attrition is not a final state. Certain life events and changing aspirations can lead to changes in attitude towards the L1 and, as a result, motivate new L1 maintenance efforts and possibly slow down or even reverse the attrition process.

In conclusion, the qualitative analysis of the interviews revealed a complicated picture that does not lend itself to generalizations (see also Prescher, 2007). There is an obvious consensus among the informants on certain aspects related to L1 attrition and to the processes of acculturation, but ultimately each informant has her/his own personal experience, which, in turn, can influence the migrant bilingual’s linguistic profile in rather unpredictable ways across the lifespan.

Section 4.1 concluded with the presentation of the results from the language aptitude tests. For this test, Participants #4 and #14 obtained the highest scores, while Participant #10 had the lowest. According to our hypothesis, high language aptitude was expected to positively impact not only the level of L2 attainment, but equally to prevent L1 attrition. The results presented above, however, suggest that other factors seem to play a more important role in language attrition. The ways in which language aptitude and other factors interact at the individual level will be explored in Chapter 5.

Sections 4.2.1 and 4.2.2 were devoted to the presentation of the results obtained by the bilingual group on the Romanian and English C-test and VF tasks. Given that the C-test is a
measure of general language proficiency and that the VF reflects lexical access, these results showed, to some extent, how the bilingual group performs in comparison with the monolingual control groups and whether or not L1 attrition could be established.

As per our hypotheses, we expected to find significantly lower scores in the bilingual group as compared to the Romanian and English control groups. Indeed, the control groups outperformed the bilingual group, as both the Romanian and the English monolingual groups obtained higher means on the C-test and the VF as compared to the participants in the bilingual group. Moreover, the bilinguals tended to perform better on the Romanian C-test and VF than on the English C-test and VF. We also observed that the gap between the bilinguals’ performance on the L1 C-test and the L1 VF and the Romanian controls was considerably smaller than the difference between the L2 C-test and the L2 VF scores and the English control scores, suggesting that the bilinguals’ performance in L1 is closer to Romanian native standards than the bilinguals’ performance in L2 to the native English ones. To conclude, the independent t test results suggested no statistically significant group level difference for the Romanian C-test, but significant difference for the English C-test. The independent samples t test showed statistically significant group differences for the VF task in both Romanian and English.

The C-test and VF results point to another noteworthy tendency. The standard deviations in both tests were greater in the bilingual group than in the monolingual group. The higher standard deviations suggest that the bilinguals are less homogeneous as a group as they showed more variability in their test performance across formal tests than the monolinguals, a tendency which could be an indicator of group level attrition. At the same time, the task of measuring and explaining the variability we have observed is a complex operation that requires more sophisticated statistical tools than standard deviations. At this point, the greater variability found in the bilingual group remains a hypothesis rather than a clear finding.
At the individual level, the results from the Romanian C-test and VF provide an initial indication as to which participants in the bilingual group appear to fit the profile of L1 attriters. The results of both the C-test L1 and the VF L1 tests indicate that Participants #1, #5, and #12 obtained scores below the L1 limit and they appear, thus far, to be the L1 attriters in the group. Out of these three bilinguals, only Participant #1 obtained a score above the threshold on the L2 C-test. Participants #5 and #12, however, failed to obtain results above the threshold in either test or either language.

The following section (4.2.3) presented the results obtained in the spontaneous speech production task: the lexical diversity (D value) and the fluency measures. With respect to the D value, the pattern established in the case of the C-test and the VF scores continues to hold true for this measurement as well. The monolinguals generally outperformed the bilinguals. We note that only Participant #1 obtained a D score that was below the Romanian control group cut-off point, and therefore can be considered an attriter based on this measure. These results will be discussed in conjunction with the other test results in Chapter 5, as we describe the linguistic profiles of the L1 attriters in our group.

At the group level, the statistical calculations of the D scores revealed no significant difference between the bilingual group and the Romanian control group, but there was a significant difference between the bilingual group and the English control group. These tendencies are similar to the patterns observed in the C-test results. As previously stated, no intra-group correlation was calculated for possible trade-off patterns, since the considerable difference between the means obtained by the English and the Romanian control groups indicated that comparisons between the scores in the L1 and the L2 of the bilinguals would be invalid.

Section 4.2.3 ended with the presentation of results obtained for the fluency measures. Statistically significant inter-group differences were established for all three disfluency markers,
suggesting greater frequency of hesitation phenomena in the bilinguals’ speech than in the monolinguals’ spontaneous productions. On the other hand, the positive inter-language correlations with respect to pauses and repetition are contrary to our hypothesis and suggest that bilinguals who are likely to use these two disfluency markers in one language are also likely to use them in the other. However, this tendency was not present in the occurrence of retracings, where the correlation was not statistically significant.

As for the individual trends, contrary to our expectation, no direct relationship could be found between the results from the previous tests and the fluency measures. None of the speakers singled out by the fluency measure were the same possible L1 attriters as suggested by the results from the previous tests. Moreover, none of the fluency measures showed a bilingual participant consistently using more than one type of hesitation marker above the monolingual limit. In short, when fluency is examined using these measures, no evidence of possible L1 attrition was found. A case in point is Participant #1. Although the results from the L1 C-test and the L1 VF, as well the L1 D values singled out Participant #1 as being the attriter in the group, the low frequency of disfluency markers in her speech could suggest that her performance in L1 spontaneous speech is high.

Let us now briefly summarize the frequency of hesitation markers used in the English spontaneous productions. Contrary to the patterns observed with the L1 fluency markers, the results for the L2 fluency markers were closer to the expected tendencies for certain participants. Participant #1, for example, who obtained high results on the English C-test and VF, produced a low number of disfluency markers, which could be indicative of a higher fluency in the L2. Participant #19, however, tended to use a high number of pauses and repetitions, in spite of high performance on the C-test and the VF. Nevertheless, as we saw in the following section, the native speaker raters perceived Participant #19 as a near native L1
speaker. The importance of these results for the hypothesis in this study will be discussed in Chapter 5.

The final measurement in this study was the native speakers’ evaluation, the results of which were presented in section 4.3. The primary aim of this post hoc task was to determine whether native speakers of Romanian living in Canada are perceived as non-native speakers. Two main findings were obtained from this task: 1) certain bilinguals were no longer perceived as native Romanian speakers and 2) these particular bilinguals were also the ones that obtained the lowest L1 C-test and VF scores.

A final observation in light of all the results reviewed above pertains to the possible connections between the levels of L1 and L2 proficiency. Our results suggest that a very high level of proficiency in one language is necessary before strong effects on the other language can be observed. In other words, a negative correlation between proficiencies does not hold for low L2 proficiency speakers, or even mid-range ones. The majority of the participants in our group seem to be neither near-native speakers nor L1 attriters.

We now turn to Chapter 5, where the results detailed above are discussed in light of the hypotheses presented in 3.1.
Chapter 5
Discussion

The scope of this research was to ascertain: (1) whether there is evidence of L1 attrition in Romanian/English bilinguals; (2) the extent to which L1 proficiency correlates with L2 proficiency; and (3) what factors play a role in L1 attrition. The objective of this chapter is to bring together the results presented in Chapter 4 and discuss them in relation to the specific hypotheses put forth in 3.1. A general overview of the findings from each task is reported and the sociolinguistic and theoretical consequences of the research are outlined. Each of the sections below is organized as follows: where applicable, group results are briefly summarized and discussed first, followed by a discussion of individual scores for the outlier participants. Our objective is to draw the portrait of the L1 attriter and define the factors which trigger attrition.

5.1 Incidence of L1 attrition

Section 5.1.1 discusses the group level results and establishes the occurrence of L1 attrition at the individual level. In section 5.1.2, individual results are discussed for those participants who are identified as L1 attriters. According to the particular hypotheses outlined in 3.1, we expect to find certain indicators of L1 restructuring both at the group level and at the individual level. At the group level, the bilingual group was expected to obtain lower averages than the L1 control group and also be characterized by a greater degree of intra-group variation. At the individual level, the results of certain bilinguals were expected to deviate significantly from the native-range established by the L1 controls, i.e. to be worse. In section 5.1.1, the incidence of attrition
is established at the group level and in section 5.1.2 the linguistic portrait of each attriter is discussed.

5.1.1 Incidence of L1 Attrition at the Group Level

Incidence of L1 attrition was established via formal tests (i.e., the C-test and the VF), measurements of spontaneous speech production (i.e., lexical diversity and hesitation phenomena), and finally, the post hoc assessment of native speech. In this section, the results of each test are discussed with reference to the results of the other tests in the study at hand, as well with reference to those of previous attrition studies.

First, for the L1 C-test, the $t$ test calculation revealed no significant difference between the two groups. This could suggest three things: 1) global language proficiency has not deteriorated in the bilingual group; 2) the group of bilinguals is exceptional, in which case attrition is still expected in other, larger bilingual groups; and 3) the control group’s performance was exceptionally bad. Judging by the high mean obtained by the Romanian control group ($M=85.73$), the third possibility is eliminated. Given that significant between-group differences were established with respect to other measurements such as the VF task, we eliminate the second possibility as well. Therefore, we propose the first possibility as an explanation for the lack of significant between-group differences in C-test performance. The type of C-test used in the present study was designed to test general language proficiency. Given that all of the bilingual participants moved to Canada as adults when L1 acquisition was complete, it can be inferred that their global language proficiency has remained within a native range. This finding is consistent with the results of previous research on language attrition. For example, in a similar study design involving long-term British and Irish speakers of English living in Germany, Dostert (2009) found no significant difference between the L1 control and
the attriter group on the C-test. Furthermore, measurements of the time required to complete the task in L1 indicated that the attriters were slightly faster on average than the L1 controls, showing that the L1 did not prove a more considerable obstacle for the attrition group than it did for the control group.

As for the VF task, the $t$ test revealed a statistically significant inter-group difference. These results suggest that, lexical access, as measured through the VF task, appears to be more problematic in the bilingual group. As indicated in Chapter 2, lexical access is one of the most commonly affected areas in L1 attrition (Andersen, 1982; Ammerlaan, 1996; Schmid & Köpke, 2009). Vocabulary reduction manifests itself in a number of ways, such as decline in the number and variety of lexical items (Andersen, 1982), simplification of the available lexicon (Hutz, 2004), and lexical substitutions and code-switching (Skaaden, 2005). The VF task in our study was used to gauge the bilinguals’ size of and access to L1 vocabulary. The results revealed that the bilinguals obtained lower scores in the two semantic fields included in the task; these results are in line with our prediction that bilinguals who are long-term migrants are expected to produce shorter item lists in the L1 as compared to the L1 control groups in the same time interval. The reduced item lists for the VF task could also be interpreted as indicative of slower response times in bilinguals. In a study exploring the role of L1 use in attrition, Schmid (2007) also found significant differences between the VF performances of the L1 German group and the English control group. Dostert (2009), however, found no significant difference in the number of lexical items produced by the L1 control and the attriter groups. Nonetheless, in an additional semantic analysis (not carried out in the present study), she was able to find minimal variation in the semantic distribution of items and the type of elements attriters and controls included in their lexical production; specifically, attriters produced more basic level, non-specific lexemes when compared to the controls.
Our next focus is the group effect for the spontaneous speech measures. The scores on the Mann-Whitney U test for the L1 lexical diversity measure (D) did not produce the expected result, as they showed no significant difference between the bilingual and the L1 control group with respect to lexical diversity. In comparison, while the between-group analyses in Dostert’s study were also not significant, the results indicated that the attrition group had in fact a higher D value than the L1 control group, thus suggesting that the language used by the attriters exhibits more lexical diversity, rather than less as hypothesized. However, Dostert (2009: 146) points out the fact that a blind, quantitative analysis of lexical diversity can hide real differences between the two groups, such as the increased use of hedges (verbal strategies intended to weaken the message, for example ‘I am kind of worried’) and still pauses by the participants in the attriting group. These hesitation phenomena are interpreted as indicative of the speakers’ access problems and insecurity related to the choice of words and their appropriateness for the specific situation.

Continuing with the measurements of disfluency phenomena in spontaneous speech in the present study, statistically significant results were obtained for all phenomena analysed: number of pauses, repetitions, and retracings in the L1. In general, the attriters had comparatively less fluent speech than the monolinguals, with frequent pauses and retracing patterns (see 4.6). The higher frequency of pauses could be due to the bilinguals requiring more time for memory searches before producing a particular lexeme. In the same vein, the higher number of retracings could be indicative of the bilinguals’ increased insecurity with certain grammatical constructions. According to Schmid and Beers Fägersten (2010), the location of the hesitation marker is indicative of the type of linguistic limitation that the speaker may be encountering at that point in time. For example, empty pauses, especially within a constituent and before an open class lexical item, can help indicate the type of linguistic knowledge that may have become problematic during the language attrition process. We return to the
importance of the location of empty pauses in the diagnostic of attrition in 5.1.2, where the discussion focuses on individual production.

Table 5.1 below summarizes the occurrence of group level L1 attrition for each test and measurement, as revealed by the $t$ test and the Mann-Whitney $U$ test procedures.

<table>
<thead>
<tr>
<th>Task/Measurement</th>
<th>Significant result</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 C-test (Romanian C-test scores)</td>
<td>-</td>
</tr>
<tr>
<td>L1 VF (Romanian verbal fluency scores)</td>
<td>✓</td>
</tr>
<tr>
<td>L1 D (lexical diversity values in Romanian)</td>
<td>-</td>
</tr>
<tr>
<td>L1 hesitation phenomena (frequency of pauses, repetitions, and retracings in Romanian)</td>
<td>✓</td>
</tr>
</tbody>
</table>

In general, the results revealed that the L1 performance of the bilingual group differed from that of the L1 control group, namely, it was worse. Therefore, the results of the present research seem to be in line with those of studies which confirm the expectation that long-term residence in an L2 environment and reduction in L1 input entail certain detrimental consequences for the L1 such as reduced vocabulary, lexical retrieval difficulties (Waas, 1996; Schmid, 2007; Köpke, 2001; Dostert, 2009) and increased frequency of disfluency phenomena (Schmid & Beers Fägersten, 2010).

At the same time, however, according to the C-test and the D value results, the bilingual participants remain within native-range regarding global L1 proficiency. In this respect, our results are not consistent with previous studies on L1 attrition which conclude that first language decline in bilingual contexts emerges as a “robust phenomenon” and that “the process of erosion is evident both in performance on formal tasks and in naturalistic performance” (Schmid & Dusseldorp, 2010:23). According to our group level results, L1 attrition cannot be generalized across all tests and, as such, cannot be considered a “robust phenomenon” for this group of bilinguals. Furthermore, the results for the hesitation phenomena, while showing statistically significant inter-group differences, failed to single out speakers who consistently produced more
disfluency markers of all three types (4.2) and therefore the predictive power of this measurement with respect to group attrition is not given full credit. Finally, the results and the comments of the native speech assessment task pointed out that certain bilinguals were perceived as non-immigrant native speakers of L1.

The test results reported in this research show that migrant bilinguals were indeed different from the L1 control group, but only on certain tests – namely those that tap the access to L1 vocabulary as well as, to a lesser extent, those that indicate hesitation phenomena. These are the only statistically significant differences that establish a clear between-group distinction. One might even suggest that this is as far as group attrition can go within one generation. With respect to general language proficiency, the bilingual group remains indistinguishable from the control group.

Our results also suggest non-linearity of the manifestations of attrition across tests and individuals, a tendency similar to such empirical studies as the research on Dutch and German in Australia (de Bot & Clyne, 1994; Waas, 1996), which show considerable variation between bilinguals in similar attrition settings. For example, De Bot and Clyne (1994) indicate that while some bilinguals experience significant L1 attrition after a few years in the L2 environment, others show no evidence of attrition and a remarkable maintenance of language skills after a 26-year long emigration period. Similar to De Bot and Clyne’s conclusion, the bilinguals in the present study also ranged from speakers who remained very proficient in the L1 (e.g., Participant #19) to speakers who lost production abilities in their L1 almost completely (e.g., Participant #1), in spite of a comparable length of emigration period. While the quantitative statistics discussed above illustrate how the bilingual group performed as a whole, the following section establishes qualitative proficiency profiles of those bilinguals who surfaced as potential L1 attriters.
5.1.2  L1 Attrition at the Individual Level

Based on the results detailed in Chapter 4, the indicators used to establish the incidence of L1 attrition among the bilingual participants are as follows: low performance on the Romanian C-test and VF, low L1 lexical diversity measure, and negative L1 native speaker ratings. Note that hesitation markers are not considered among the attriter speaker indicators due to the inconsistencies between patterns established by previous test results and the tendencies suggested by the use of disfluency markers (4.2.3.2); they will however be mentioned in the discussion as an element completing the attriter’s linguistic portrait.

Performance on the C-test and VF indicated that Participants #1, #5, and #12 were situated below the proficiency threshold established by the monolingual control data (see Figures 4.3 and 4.5). The results for lexical diversity (D value) showed Participant #1 to be the only potential attriter (see Figure 4.9). Finally, according to the native speaker ratings, Participants #1, #5, and #8 were perceived as non-native L1 speakers (See Figure 4.14). Hence, the two speakers who consistently underperform in L1 are Participant #1 (who underperforms on all three measurements) and Participant #5 (who underperforms on two measures). These two informants are therefore considered to be the L1 attriters in the bilingual group investigated here. The ensuing discussion focuses on the linguistic behaviour of these two participants.

Participant # 1

Formal and spontaneous speech data

Participant # 1 obtained the lowest scores from the L1 raters (Figure 4.14) as well as the lowest scores on both the L1 C-test (Figure 4.4) and the L1 VF task (Figure 4.6). With respect to verbal fluency measurements, Participant # 1 obtained the lowest D value (Figure 4.9), but at the same time, she used a very low number of pauses (Figure 4.11), repetitions (Figure 4.12) and
retracings (Figure 4.13) in the L1. A summary of Participant #1’s results is provided in Table 5.2 below.

Table 5.2
Summary of results for Participant #1

<table>
<thead>
<tr>
<th>Task/Measurement</th>
<th>Individual score</th>
<th>BIL mean</th>
<th>CR mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 C-test (scores obtained on Romanian C-test)</td>
<td>62</td>
<td>81.85</td>
<td>85.73</td>
</tr>
<tr>
<td>L1 VF (scores obtained on Romanian VF task)</td>
<td>27</td>
<td>42.00</td>
<td>50.40</td>
</tr>
<tr>
<td>L1 D (lexical diversity values in Romanian)</td>
<td>49.2</td>
<td>93.21</td>
<td>103.95</td>
</tr>
<tr>
<td>L1 P (number of pauses in Romanian)</td>
<td>3</td>
<td>12.05</td>
<td>7.35</td>
</tr>
<tr>
<td>L1 R (number of repetition in Romanian)</td>
<td>1</td>
<td>4.1</td>
<td>1.4</td>
</tr>
<tr>
<td>L1 RE (number of retracings in Romanian)</td>
<td>6</td>
<td>8.35</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Note: BIL mean = mean obtained by the bilingual group; CR mean = mean obtained by the Romanian control group

In what follows, we explain why a low number of pauses, repetitions and retracings is not automatically indicative of a lack of L1 attrition. In addition to frequency of disfluency markers, the type and syntactic distribution of these phenomena are particularly informative. With respect to type of disfluency markers, Clark & Fox Tree (2002, as cited in Schmid & Beers Fägersten, 2010) distinguish between semantic disfluency markers (i.e., filled pauses) and cognitive disfluency markers (i.e., empty pauses, self-corrections, and repetitions). Semantic disfluency markers are perceived to be a normal part of natural language that do not impede communication. Moreover, they are employed by the speakers to lend emphasis and structure their speech. On the other hand, cognitive disfluency markers are considered to be symptomatic of lexical or information retrieval difficulties, which are known to increase in bilinguals and are more strongly perceptible in the weaker language (de Leeuw, 2007). As for syntactic distribution, Schmid and Beers Fägersten (2010) show in their analysis of the word class element immediately following empty pauses that the participants in the German attriting group with English as L2 used empty pauses disproportionately before nouns and verbs. They further remark that this type of hesitation signals problems of lexical access in that it appears
particularly in cases where the speaker fails to locate a specific word, and the pause is then followed by a generic term.

Returning to Participant #1, a closer investigation of the participant’s performance on the Charlie Chaplin recording reveals that the majority of disfluency markers present in her spontaneous production were unfilled pauses and self-corrections (i.e., cognitive disfluency markers). Consider the examples below, where the speaker uses: i) complete reformulations signalled by the symbol [///] in example (32); ii) retracing with correction signalled by [//] in examples (33), (34), and (36); iii) pauses signalled by # in examples (34), (35); and iv) repetitions signalled by [x3] in example (35).

(32)  ah deci < îi dă de lucru totuși > [///] îl pune la lucru.
     oh! so < to him gives work regardless> [///] him puts to work
     
     oh! so he gives him work regardless, he puts him to work
     (Participant #1)

(33)  îi spune ca să găsească un triunghi de lemn ca şi < ca şi ce are > [//] ca şi
     to him tells that to find a triangle wood that like <that what he has> [/] that
     *ceea ce i-a arătat lui.
     which to him shown him
     
     he tells him to find a wooden wedge like the one he has shown him
     (Participant #1)

(34)  şi ### < tot fură > [//] tot vrea să fure ca să meargă înapoi la închisoare +.
     and steal still want steal that to go back to prison
     
     and he keeps stealing to go back to prison
     (Participant #1)

(35)  şi o [x3] doamnă o vede c-o furat pâinea si ### şi vine acuma şerifu şi +.
     and a lady her see that it steal bread and come now sheriff
     
     and a lady sees that she stole the bread and now comes the sheriff
     (Participant #1)
Equally significant is the fact that the pauses produced by Participant #1 are placed before lexical items such as verbs (examples 3 and 4). As previously mentioned, Schmid and Beers Fägersten (2010: 30) showed that this syntactic distribution was especially prevalent in the speech productions of the attriter groups whose L2 was English. Self-corrections are also positioned either before a verbal group (examples 1 and 5) or before a relative pronominal cluster (example 2). This observation is in line with Good and Butterworth’s (1980) finding that pauses occurring within a constituent rather than at grammatical junctions are especially indicative of planning difficulties. We note that this tendency is also consistent with constraints on code-switching in bilinguals: inter-constituent switches are preferred over intra- constituent ones (Poplack, 2004).

In order to illustrate some of the qualitative differences between the potential attriters and the other bilinguals, we compare Participant #1’s spontaneous speech data with several examples from non-attrited bilinguals. Take into consideration the sentences below:

(36) iți zice la șerif să meargă înapoi < și să > [/] și s-o aresteze pe ea.
    to him say to sheriff to go back and to and to her arrest her

    she tells the sheriff to go back and arrest her

(Participant #1)

First of all, many of the pauses in the non-attriters’ speech were filled pauses (marked with #um#). In example (37), the position of the pause before an adjective suggests that the hesitation is a semantic marker, in that the speaker used the hesitation to place emphasis on the word
chosen to describe Charlie Chaplin’s state of mind. In example (38), the filled pause and the reformulation are not used for self-correction purposes, but to add to the meaning conveyed by inserting an adverb in the structure. The empty pause in example (39) below serves the same purpose: it is used before an adverb to add to the meaning of the utterance.

(39)  șî mașina s-a oprit să mai ia pe cineva
and car stop to more someone else

*and the car stopped to take another passenger*

(Participant #19)

Finally, in example (40) below, the hesitation marker is placed between constituents, thus indicating its semantic, as opposed to cognitive, function.

(40)  omul a găsit [0word: ‘o’] și ascultător #um# chiar a dat-o la o parte
the man find and obedient even remove it

*the man found [it] and #um# obediently even removed it*

(Participant #3)

We now return to the hesitation markers in Participant’s #1 data and provide an explanation of the types of language shortcoming they signal. The hesitation phenomena presented in examples (32) to (36) suggest difficulty with idiomatic expressions as well as pronoun use and form. In example (32), the retracing is used to reformulate the idiomatic expression “a da cuiva de lucru” (*to give work to someone*) into “a pune pe cineva la lucru” (*to put someone to work*). Both expressions exist in the L1 but they have different meanings. While “a da cuiva de lucru” means literally to “to give someone a task to do”, the expression “a pune pe cineva la lucru” implies “to give a task to someone who has been idling for some time”. Given that the episode commented on by the participant provides support for using the expression “a da cuiva de lucru”, the reformulation indicates that the participant lost the meaning distinction in the L1 and corrected herself to approximate the L2 idiom. As for general
difficulties with pronoun use, in example (33), the participant used partial retracing in an attempt to find the correct form of the demonstrative pronoun. In spite of the retracing, the informant used the correct pronoun but the incorrect gender and case marking (instead of “*ceea ce i-a arătat lui”, the correct form would have been “ca și pe acela pe care i l-a arătat lui”, where the feminine form “ceea” becomes the masculine “acela” and is preceded by the accusative marker “pe”; equally, the accusative relative pronoun should be used). On the contrary, in example (36), the partial retracing is used to correctly introduce the accusative clitic “-o”.

Ratings from L1 monolingual judges:

Table 5.3 below summarizes the Romanian monolingual raters’ comments for Participant #1.

Table 5.3
L1 raters’ comments on Participant #1’s spontaneous production

<table>
<thead>
<tr>
<th>Language area</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pronunciation</td>
<td>- has an accent/ strange accent/ different accent/ foreign accent</td>
</tr>
<tr>
<td></td>
<td>- pronounces /r/ and /l/ differently</td>
</tr>
<tr>
<td></td>
<td>- typical Romanian pronunciation; synchronic and modern</td>
</tr>
<tr>
<td>Fluency</td>
<td>- reduplication of the exclamation (o!o) and its intonation</td>
</tr>
<tr>
<td></td>
<td>- the speaker speaks slowly and has difficulty finding her words</td>
</tr>
<tr>
<td></td>
<td>- she leaves long pauses between words/ hesitations</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>- difficulty in finding her words</td>
</tr>
<tr>
<td></td>
<td>- struggles with vocabulary</td>
</tr>
<tr>
<td></td>
<td>- speaker uses very simplistic words/ expressions</td>
</tr>
<tr>
<td></td>
<td>- she must think in a different language because when she does not remember a word she uses a word from a different language</td>
</tr>
<tr>
<td></td>
<td>- searches for words similarly to a person who speaks a second language</td>
</tr>
<tr>
<td></td>
<td>- fails to use appropriate words and paraphrases (triunghi de lemn = “wooden triangle” instead of pană=“wedge”)</td>
</tr>
<tr>
<td></td>
<td>- uses “ok” at the beginning of the utterance</td>
</tr>
<tr>
<td>Grammar Errors:</td>
<td>- the participant uses the indicative form of the first verb “ca să începe să strângă” instead of the correct subjunctive form &quot;ca să înceapă să strângă&quot; (English = to start gathering);</td>
</tr>
<tr>
<td></td>
<td>- the participant does not use the proper form of the relative accusative form &quot;ca și ceea ce i-a arătat&quot; vs. &quot;ca și aceea pe care i-a arătat-o&quot; (English = like the one he was shown)</td>
</tr>
<tr>
<td></td>
<td>- difficulties using the relative pronoun (&quot;ceea ce&quot;; &quot;cel ce&quot;)</td>
</tr>
<tr>
<td></td>
<td>- using the demonstrative pronoun in non-standard form (participant used the informal form &quot;âla&quot; instead of the standard &quot;acela&quot;)</td>
</tr>
</tbody>
</table>
|               | - agreement difficulties ("ce-au vrut âla" instead of "ce-a vrut el"; in this
instance the participant uses the singular form ăla with a verb in the plural)
- use of short sentences – similar to English
- the way she enunciates her phrase
- fails to add the proper article (she says baston instead of bastonul in the context îşi ia pălăria şi *baston- “he takes his hat and his cane”)
- wrong word order

General
- seems like speaker has a different native language than Romanian
- the speaker comes from Banat⁶ (...recunosc stilul de-a vorvi; știu din experiență -“I recognize the speech style; I know from experience”)

As can be seen from the table above, the majority of the raters’ comments underlined Participant #1’s shortcomings with respect to L1 performance. However, in what follows, we discuss the comments of two raters who expressed mixed opinions. For example, one rater provided a positive comment indicating that Participant #1 has “typical Romanian pronunciation” with an accent that is “synchronic and modern”. At a different point in the comment, the same rater expressed a more nuanced impression about Participant #1’s overall speech and observed that the speaker sounded like “a person from the rural milieu (an impression given by repetition of the conjunction ‘ca să’) or lower, less prestigious urban milieu”. This particular rater ended her commentary by pointing out that the “the mix of very synchronic pronunciation and rural like vocabulary sounds odd” and that she was “not sure whether this person lives in Romania or not”. Therefore, the unexpected clash between this participant’s high level of education (note that the raters were told, before listening to the recordings, that all informants were university/college graduates) and the inclusion of informal structural elements in formal speech, prompted the rater to conclude that Participant #1 “probably lives abroad”.

On the other hand, a different rater suggested that the speaker could come from the western area of Romania, an area known for its multilingualism due to proximity with bordering

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⁶ Banat is a region that lies in the western part of Romania, close to the border with Serbia and Hungary. It is populated by various ethnicities and many of the speakers are bilingual or multilingual.
countries. Moreover, the same rater commented that in present-day Romanian the insertion of English words in one’s speech has become a widespread linguistic practice and that using English words does not automatically imply that the speaker lives abroad. This final remark is especially noteworthy as it alludes to an important issue in attrition research: the interplay between diachronic changes in the non-migrant L1 variety and L1 attrition. More explicitly, the rapid changes taking place in the non-migrant variant of Romanian under the pressure of English interfere with what should be perceived as a clear indication of L2 influence on the L1. Moreover, such new aggregate usages are slowly becoming a widespread language practice and are beginning to be accepted by native speakers as part of the language. Similar issues were previously noted in the study of Dutch attrition (Jaspaert & Kroon, 1992) in migrant contexts. Moreover, the fact that English is the common influencing language in both migrant and non-migrant contexts makes it even more difficult to differentiate between normal L2 influence in the new context of non-migrant language development and abnormal L2 influence, indicative of L1 disintegration.

**Interview data**
The final source of information on L1 performance is the interview data. In general, Participant #1 had difficulty maintaining the use of L1 Romanian in conversational interaction. During the entire duration of the interview, she kept switching to English and was unable to converse in the L1 for long stretches of speech. The interviewer had to keep reminding the participant to speak in the L1. While there were difficulties in L1 production, Participant #1 did not appear to experience any difficulty in the comprehension of the questions and her overall grasp of meaning seemed unimpaired. In this section, we will consider the answers to questions bearing on perceived changes in the L1 as well as language and code-switching.
Language mixing and code-switching

Participant #1 admitted to using language mixing extensively when speaking Romanian.

(41) De câte ori vorbesc cu ai mei, încep în românește și apoi vorbesc engleză [...] chiar și cu bunica și ea nu vorbește engleză

"Every time I speak to my family, I start the conversation in Romanian but then I switch to English; I do it even when I talk to my grandmother though she doesn’t speak any English"

(Participant #1)

These comments bring support to the fact that extensive language-mixing/code-switching leads to a reduction of the boundary between L1 and L2. These tendencies can also be associated with the bilingual stages (see 2.1) in which the attriter moves from a state of L1 monolingualism to bilingualism and possibly, in the long term, to L2 monolingualism. As discussed by de Bot & Hulsen (2002), extensive code switching can be considered one of the main precursors of L1 attrition, since its overuse can blur the linguistic borders between the L1 and the L2. Seliger (1996) argues even that “code-mixing is a precursor stage for primary language attrition and for eventual death of the L1 within the bilingual continuum.” (Seliger, 1996: 612).

In summary, the discussion above indicates that the linguistic characteristics that render Participant #1’s speech attritive include the following: low general L1 proficiency (as measured through the C-test), reduced vocabulary size and variety (as measured through the VF and D value), and the prevalence of empty pauses and retracing markers positioned before open class lexical items and within constituent boundaries. Furthermore, Participant #1’s L1 attrition is also indicated by her inability to keep the conversation in the L1 and the extensive use of language mixing. Finally, the L1 production of Participant #1 received a low overall perceived nativeness score, including the interesting contradictory comments provided by two raters.
**Participant #5**

The second individual identified as an L1 attriter is Participant #5. As with the previous speaker, we trace the informant’s linguistic performance in the L1 through data from formal and spontaneous tasks, L1 raters’ comments, and interview data.

**Formal and spontaneous speech data**

Participant #5 obtained the second lowest score on the L1 C-test (Figure 4.4) and the second lowest score on the L1 VF (Figure 4.6). As for performance on the spontaneous speech measures, the D value obtained by Participant #5 is above the bilingual mean and below the control group mean (see Figure 4.7).

**Table 5.4**

*Summary of results for Participant #5*

<table>
<thead>
<tr>
<th>Task/Measurement</th>
<th>Individual score</th>
<th>BIL mean</th>
<th>CR mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>L1 C-test</strong> (scores obtained on Romanian C-test)</td>
<td>66</td>
<td>81.85</td>
<td>85.73</td>
</tr>
<tr>
<td><strong>L1 VF</strong> (scores obtained on Romanian verbal fluency task)</td>
<td>29</td>
<td>42.00</td>
<td>50.40</td>
</tr>
<tr>
<td><strong>L1 D</strong> (lexical diversity values in Romanian)</td>
<td>95</td>
<td>93.21</td>
<td>103.95</td>
</tr>
<tr>
<td><strong>L1 P</strong> (number of pauses in Romanian)</td>
<td>12</td>
<td>12.05</td>
<td>7.35</td>
</tr>
<tr>
<td><strong>L1 R</strong> (number of repetition in Romanian)</td>
<td>2</td>
<td>4.1</td>
<td>1.4</td>
</tr>
<tr>
<td><strong>L1 RE</strong> (number of retracings in Romanian)</td>
<td>7</td>
<td>8.35</td>
<td>4</td>
</tr>
</tbody>
</table>

*Note: BIL mean = mean obtained by the bilingual group; CR mean = mean obtained by the Romanian control group*

Although Participant #5 used a slightly higher number of hesitation markers than Participant #1, their frequency is still below the bilingual group average (see Table 5.4). Similar to Participant #1, the speech of Participant #5 contains mainly empty pauses (marked in the transcription with the symbol # for a short pause and ##, ### for longer pauses). In terms of placement, pauses are used before verbs (examples (42), (46)), nouns (examples (42), (44)), and adjectives (example (43)). Other disfluency phenomena include repetitions (indicated by [x2]) in
example (44); retracing with no correction (indicated by [/]) in example (48); retracing with partial correction (indicated by [///]) in examples (47), (48), (49); and retracing with reformulations (indicated by [///]) in examples (44) and (50)).

(42) stă de vorbă cu cineva care-i cere să se pregătească să-nceapă munca
he talks to someone who tells him to get ready to start work

(43) tânăra rămâne confuză
the young lady is left confused

(44) o găsește, e greu să o scoată dar cu ajutorul unui baros o scoate
he finds it, it's hard to take it out, but with the help of a hammer he takes it out

(45) a scufundat un ship un vapor
he has sunken a ship

(46) tânăra este cu poliția
the young lady stays with the police

(47) în momentul în care fugea cu pâinea furată, s-a împiedicat și a căzut
while she was running with the stolen bread, she stumbled and fell down

(48) s-a întors poliția din nou la tânăra care a furat
the police came back to the young lady who stole
(Participant #5)

(49) apare poliția și ia țigara înapoi+. 
the police comes along and takes the cigarette from him

(50) < pe un ashtray@s > pe un [gender] scrumieră. 
on a on a ashtray

Hesitation phenomena signal difficulties with:

i) finding the appropriate word:
In example (46), the pause preceding the generic verb “este” (is) could be symptomatic of failed attempts at finding a more suitable verb for the context, such as “rămâne” (stays/remains). In example (44), the repetition of the accusative pronoun “o” (it) could indicate an attempt – albeit failed – to avoid the repetition of the verb “scoate” (take out).

ii) avoiding code-switching:
In example (50), the complete reformulation is used to avoid a code-switch. Note that, although the speaker was able to find the Romanian equivalent, she used the wrong gender. This could suggest that hesitation markers are not only indicative of difficulties retrieving a lexical item, but equally of using the correct grammatical features of the word. The pause in example (45) is also an attempt to avoid a code-switch and the subsequent reformulation to correct it.

iii) verbal structures with pronouns:
Examples (47), (48) and (49) all contain partial reformulations used by the participant to introduce the reflexive pronoun ((47), (48)), and the dative pronoun (49).
The nature of the hesitation phenomena described above indicates that the hesitation markers used above are cognitive markers used by the participant to “buy” the time needed to either retrieve L1 lexical items or self-correct grammatical and idiomatic structures. To this end, it was also suggested that it is not only the pure lexical form which may be affected in the process of language attrition, but also lemma-specific grammatical information such as the gender of nouns (see also Schmid & Beers Fägersten, 2010). After discussing the linguistic production tendencies, we now turn to the native speaker perception.

Ratings from L1 monolingual judges:

Participant #5’s L1 speech ratings indicate that the majority of judges considered the participant to be living abroad (Figure 4.5). Table 5.5 below summarizes the Romanian monolingual raters’ comments for this attriter. We categorized the comments according to four speech areas: pronunciation, fluency, vocabulary, grammar. In general, according to the qualitative comments, the speech of Participant #5, while perceived to be slightly better that that of Participant #1, is still largely distinguished as non-native. The raters commented on the foreign intonation, the decreased overall fluency, the high frequency of vague lexical items, and on certain phrase construction errors.

<table>
<thead>
<tr>
<th>Language</th>
<th>Comment</th>
</tr>
</thead>
</table>
| **Pronunciation** | - has foreign pronunciation and accent/ foreign accent/ has an accent/ her accent is slightly modified  
- foreign phrase intonation  
- rolls certain sounds because of the influence of another language (for example the word *asemănătoare* = “similar”)  
- sounds like she comes from Moldova but clearly does not live there anymore. |
| **Fluency** | - hesitation before coming up with the term *vapor*; using English “ship” before that  
- speaker has a hard time finding her words  
- she speaks very slowly, with pauses to give herself time to search for words |
### Vocabulary
- familiar use of language with passe-partout terms: *ceva bucăți* (“some pieces”), *stă de vorbă cu cineva* (“talks to someone”), *o bucată asemănătoare* (“a similar piece”)
- use of archaic words: *baros* (“hammer”)
- use of older words: *franzelă* (“bread loaf”)
- some code-switches and lexical calques (*ceva bucăți*; English = “some pieces”)

### Grammar
- struggles with phrasal structures
- awkwardness expressing herself: *prin urmăre a faptului că* = “following that” (this is a case of ‘invented syntax’ where two expressions *prin urmăre* = “in conclusion” and *din cauza faptului că* = “because of/ due to” were combined into one)

### General
- accent is foreign but speech organization is slightly better than recording #1

## Interview data

When questioned about perceived changes in the L1, Participant #5 expressed a sense of real language loss:

(51) țın-un fel percep că s-a schimbat în râu. Adică am pierdut din cuvinte. Uit cuvinte pe care le-am folosit mult mai des și mai…Am avut un vocabular mult mai bogat înainte.

“I perceive negative changes in a way… I lost words. I forget words that I used to use often and more… I used to have a very rich vocabulary.”

(Participant #5)

When asked about the frequency of language mixing patterns in her speech, the participant admitted to resorting to code-switching on a regular basis, especially when talking to her children. She expressed feelings of frustration about her inability to control the number of code-switches, especially when conversing with new-comers or people who spoke ‘beautiful’ Romanian. The participant also added that code-switching was often – unfairly – perceived to be an elitist practice, an attempt to impress with your level of English. She concluded by remarking that this was especially not the case for her, as she did not consider herself highly proficient in either Romanian or English.
5.1.3 Discussion

The present section brought together all of the results from the tests and measurements used to establish the extent to which the performance of the migrant bilingual speakers in this study can be categorized as attritive. First, we established the incidence of L1 attrition in the bilingual group (5.1.1) and second, we provided the performance overview of those bilinguals who appear to be L1 attriters (5.1.2).

Group level attrition, was attested in the lexical domain (i.e., reduced verbal fluency), as well as in spontaneous speech (i.e., increased frequency of hesitation phenomena). It has been suggested that the greater number of disfluency markers present in the spontaneous speech output of bilinguals can be symptomatic of longer time intervals needed for lexical retrieval (Schmid & Beers Fägersten, 2010). At the same time, our results clearly indicated that L1 attrition at the group level is not a phenomenon that is prevalent across all tests. For example, while general language proficiency, as measured through the C-test and the general lexical diversity value, remains within the L1 native-range, the quantitative analysis suggests that lexical retrieval is significantly more impaired.

The increased vulnerability of the mental lexicon is not surprising. Schmid and Köpke (2009) list some of the aspects that cause vocabulary knowledge to be an especially ‘sensitive’ part of the linguistic system in the context of loss. First, the lexicon is numerically larger than all the other areas of language knowledge. Unlike the grammatical and phonological systems, the vocabulary is an “open class” system. Lexical development takes place across the lifespan in both bilingual and monolingual environments where new items are relatively easy to add (see also Schmid, in press). The lexicon’s greater flexibility implies that the items in the lexicon are less densely connected than the items in the inventories of other domains of language knowledge, which, in turn allows for greater tolerance of the lexicon in the face of changes or
loss. In other words, Schmid (in press) explains, if relatively minor changes in the phonological and morphological systems can have far-reaching implications, the lexicon can adapt more easily and incorporate these changes without the restructuring of the whole system. Meara (2004), in an innovative approach involving computer simulations of lexical loss, shows how the loss of a certain amount of lexical knowledge could take place without dramatic consequences for the whole system.

Moreover, among all the linguistic domains, the lexicon was the one where attrition was most perceived by the bilinguals themselves in our study. In her work on language death, Dorian (1973:414) has also noted that lexical loss in Scottish Gaelic was the one aspect most acutely experienced by the participants in her study: “Explicit comment on the decline in the quality of their Gaelic focuses almost entirely on the lexicon.” Dorian (1978:590-91) also notes that in other studies of language death, the linguistic area most reduced and impoverished is the lexicon.

We turn now to the individual performance portraits of the L1 attriters. Taking into consideration the most salient characteristics of the two participants identified as attriters, we state in what follows the particular linguistic aspects that appear to be shaping the language of the L1 attriter in the present study:

- scores below the threshold limit established by the L1 control group on VF and the C-test
- spontaneous speech containing empty pauses, repetitions, and self corrections placed before nouns or verbs
- extensive use of language-mixing
- speech perceived by non-bilingual speakers as having foreign accent and intonation; reduced vocabulary or as displaying inappropriate use of certain lexical items; difficulty with phrase structure; and reduced fluency and ease
- inability to maintain the expected level of formality for the situation; one attriter especially displayed the tendency to mix formal language with informal registers in the same speech sequence
While the language characteristics outlined above are all test dependent, there is an additional trait in the attriter’s speech that became apparent to the researcher. During the interviews, it became clear that L1 attrition is also characterized by a participant’s inability to maintain longer stretches of conversation in the L1. Participant #1, in particular, constantly resorted to language mixing or to using the L2 exclusively in spite of repeated reminders that the interview was to be held in Romanian. At the same time, as with all other aspects related to L1 attrition, the difference between attriters and non-attriters concerning the amount of language mixing and code-switching used is a matter of degree. Put simply, the L1 remained the main language of communication (as opposed to the L2), even where the non-attriter participants also used code-switches and – to some extent – language mixing. Moreover, all of the discourse strategies used by the non-attriters, which included intentional and non-intentional code-switching, occasional language mixing, pauses, repetitions, and reformulations, seemed to serve a different purpose: they were used as a means to continue the conversation in the L1 for as long as possible, rather than immediately introduce L2 structures. In fact, the frequency of disfluency phenomena and error repairs directed at L2 elements seems to indicate that the non-attriters often monitored for L2 interferences to a larger extent than the attriters during the recording (see also Skaaden, 2005 who noticed a similar pattern in her Serbo-Croatian attriter group). To briefly illustrate, consider the three examples below:

(52) dar vaporul [x2] a plecat spre stupefacția tuturor [x2] ownerilor@s
    but ship leave bewilderment all owners

    *the ship left while all the owners were watching it in bewilderment*

(Participant #3)
(53) soţul < foarte pre > [//] < nu preppy@s > foarte #um# mândru
husband very not preppy very proud

the husband… very prep…not preppy…. very proud

(Participant #14)

(54) tipu’ care era following@s behind@s
guy who was following behind

the guy who was following behind

(Participant #1)

In the first two examples above, the repetition of the word before the code-switch (example 52) or the reformulation and filled pause (example 53) appear to indicate that the speakers were using these strategies to delay or avoid code-switching as much as possible. In contrast, the speaker in example (54) finishes the sentence originally started in the L1 by switching to the L2 and, more importantly, the switch is carried out in the absence of any avoidance strategies prior to the language mix.

In conclusion, L1 attrition in the adult bilingual in the present study remains a possible, but by no means necessary outcome for the first generation of migrants. Manifestations of L2 induced changes on the L1 as well as indicators of lack of L1 input are, however, present to some extent in the L1 linguistic use of all the bilingual participants. Therefore, the difference between the two participants identified as L1 attriters and the rest of the bilinguals in the migrant group is a question of degree, a variation mainly in the ability to control the influence coming from the L2 and to maintain the L1 in spite of infrequent usage and reduced input. As a result, true language attrition, in the context of the bilingual language continuum (see Figure 2.1), is the most clearly pronounced end of the entire spectrum.

5.2 Dynamics between L1 and L2 Proficiency

Subsequent to establishing the incidence of attrition at the group and individual level, the second aim of the present study is to explore the relationship between the levels of L1 and L2
proficiency and attrition in the bilingual speakers. As previously stated (see Chapter 2), the attrition of a language is normally related to the gradual acquisition and increasing strength of the other competing language (Ecke, 2004; Seliger, 1991). In this context, we expect the nature of the interaction between L1 and L2 proficiency in migrant contexts to involve a trade-off pattern, in which, at its extreme phase, attrition in the first language will be accompanied by a near-native level of proficiency in the second language.

This subsection is organized as follows. In section 5.2.1 group findings are discussed and in section 5.2.2 individual profiles are described.

5.2.1 Group Level Proficiency Dynamics

In order to examine the possibility of a systematic relationship between the levels of proficiency in the L1 and the L2, we review the results obtained for the inter-language correlations. Table 5.6 summarizes the correlations established between the L1 and the L2 formal test results. Table 5.7 illustrates the results from the spontaneous speech measurements. Note that, given the large differences in the Romanian and English control group performance, the lexical diversity measure (D) was considered unsuitable for L1 and L2 proficiency comparisons (see 4.2.3.1) and, consequently, it is not included in this discussion.

First, statistically significant positive correlations were obtained between performance on the Romanian and English VF tasks, but not between the Romanian and English C-tests (Table 5.6). As for disfluency markers, positive correlations were again obtained for the number of pauses (P) and for the number of repetitions (R) in Romanian and English spontaneous speech data.
Table 5.6  
Summary of correlations between scores on the L1 and the L2 for the C-test and VF  

<table>
<thead>
<tr>
<th>Correlation</th>
</tr>
</thead>
</table>
| L1 L2 C-test (correlation between Romanian and English C-test) | X  
| L1 L2 VF (correlation between Romanian and English verbal fluency task) | ✓ +.46*  

Table 5.7  
Summary of correlations between scores on the L1 and the L2 for the disfluency measures  

<table>
<thead>
<tr>
<th>Correlation</th>
</tr>
</thead>
</table>
| L1 L2 P (correlation between number of pauses in Romanian and English) | ✓ +.47*  
| L1 L2 R (correlation between number of repetitions in Romanian and English) | ✓ +.52*  
| L1 L2 RE (correlation between number of retracings in Romanian and English) | X  

These results are inconsistent with our expectations. On one hand, the positive correlation suggests that the bilinguals who make richer lexical choices in one language tend to do the same in the L2. Similarly, those bilinguals who use more pauses and repetitions in the L1 would also have a tendency to use more such hesitation markers in the L2. Additionally, the correlations were not significant across all tests, and, as such, no systematic relation between L1 and L2 proficiency can be established at the group level. The fact that the results on the C-test, the task designed to measure global language proficiency, did not show any correlation is probably the strongest argument that the majority of the bilinguals in our group are in a transitional state with respect to their L1 and L2 proficiency. We suggest that this transition involves simultaneously occurring processes of both L1 restructuring and L2 acquisition, as per Stage III in the integrated view of bilingualism (Figure 2.1). This goes back to the tenets of DST (de Bot et al., 2007; Jessner, 2003) and multicompetence theories which view bilingual language development as a string of generally continuous and unpredictable changes involving both internal processes and L2 influence.

Before tackling the individual level results, the fact that we have collected data in both the L1 and L2 allows us to examine another noteworthy issue: language dominance at the group level. As a group, are the bilinguals in our study still dominant in the L1 or are there indicators
that a shift towards the L2 is taking place? To answer this question, we refer back to comparisons of the bilinguals’ scores on the Romanian and English versions of the tests. Table 5.8 illustrates the group means for the C-test, the VF, and the hesitations phenomena (once again, the D value results are not included due to the large differences in the Romanian and English control group performance, see 4.2.3.1).

Table 5.8
*Group means for the C-test, VF, and the disfluency measures in L1 and L2 for the Bilingual Group (BIL)*

<table>
<thead>
<tr>
<th>Test</th>
<th>Group</th>
<th>L1</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-test</td>
<td>BIL</td>
<td>81.85</td>
<td>72.8</td>
</tr>
<tr>
<td>Verbal Fluency (VF)</td>
<td>BIL</td>
<td>42</td>
<td>36.75</td>
</tr>
<tr>
<td>Pauses (P)</td>
<td>BIL</td>
<td>12.05</td>
<td>10.8</td>
</tr>
<tr>
<td>Repetitions (R)</td>
<td>BIL</td>
<td>4.1</td>
<td>4.2</td>
</tr>
<tr>
<td>Retracings (RE)</td>
<td>BIL</td>
<td>8.35</td>
<td>6.15</td>
</tr>
</tbody>
</table>

The comparisons between the group means for the C-test and the VF reveal that the bilingual participants consistently obtained higher means on the Romanian version of the tests than on the English one, suggesting that the bilinguals remain stronger in their L1. As for the disfluency markers, the bilinguals, surprisingly, used marginally more empty pauses and retracings in their L1 and comparable numbers of repetitions in the L1 and the L2. If we consider formal tests to be an indicator of language competence and the spontaneous speech data to be an indicator of language performance, it can be concluded that the bilinguals’ L1 is stronger in terms of language competence than the L2, but that in terms of language performance, the level of proficiency in the two languages comes across as comparable.

At the same time, the line graphs in Chapter 4 and the independent *t* tests suggest that the bilinguals emerge as a distinct group that is different from the Romanian reference group, and, to an even larger extent, from the English control group. Recall that the *t* tests indicated
statistically significant differences between the bilingual and the English control groups across all the L2 proficiency indicators measurements included in the test battery, whereas t tests between the bilingual and the Romanian reference group revealed no significant differences for the C-test. These results are interpreted as evidence that, while there are incipient signs of differences between the bilinguals and the Romanian monolinguals, there remains a clear distinction between the bilingual group and the English monolingual group. In other words, with respect to group level generalizations, the bilinguals' English proficiency is not at near-native levels, but their Romanian language proficiency appears to be within native-range (at least at the time of testing). The fact that migrant bilinguals are distinct to a certain extent from both reference groups is in line with the conclusions put forward by the majority of previous attrition studies (e.g. Schmid, 2002; Yağmur, 1997, 2004; Dostert, 2009; de Leeuw, 2009). By investigating L1 proficiency alongside L2 proficiency in bilinguals, the present study provides empirical evidence about the nature of this difference.

5.2.2 Individual Level Proficiency Dynamics

Our next aim is to explore the extent to which the prediction of proficiency trade-off patterns may exist at the individual level. Based on the results discussed in Chapter 4, we were able to identify three types of bilinguals in the migrant group. The three types outlined below take into consideration the levels of proficiency in both the L1 and the L2.

- Type I: L1 attriters / L2 near-native speakers (Participants #1, #5)
- Type II: highly proficient speakers in L1 / L2 near-native speakers (Participant #19)
- Type III: proficient L1 speakers / true L2 speakers (all other participants)

The ensuing parts of this subsection outline and discuss the quantitative measures associated with these labels. Before moving to the discussion, it is important to note that the
three types outlined above correspond to the five stages schematized in Figure 2.1. For example, Type I broadly corresponds to Stage V, which designates a bilingual who is stronger in the L2 than in the L1. Type II matches Stage III and is taken to indicate that the bilingual has similar levels of proficiency in both the L1 and the L2. Finally, Type III bilinguals situate themselves somewhere between Stage II and Stage III and, possibly, Stage IV.

The profiles of each particular bilingual type are presented and discussed below.

**Type I: L1 attriters / L2 near-native speakers**

Let us return to Participants #1 and #5 and, this time, present the L1 data in parallel with the L2 data.

**Participant #1**

Table 5.9 illustrates the scores obtained by Participant #1 on all measures (formal tests and fluency phenomena). Scores are presented along with averages obtained by the bilingual group in Romanian and English and the L1 and L2 monolingual control groups.

<table>
<thead>
<tr>
<th>Test</th>
<th>Romanian (L1)</th>
<th>English (L2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L1</td>
<td>Average BIL</td>
</tr>
<tr>
<td>C-test (maximum score 100)</td>
<td>62</td>
<td>81.85</td>
</tr>
<tr>
<td>VF (verbal fluency test)</td>
<td>27</td>
<td>42.00</td>
</tr>
<tr>
<td>P (number of pauses)</td>
<td>3</td>
<td>12.05</td>
</tr>
<tr>
<td>R (number of repetitions)</td>
<td>1</td>
<td>4.1</td>
</tr>
<tr>
<td>RE (number of retracings)</td>
<td>6</td>
<td>8.35</td>
</tr>
<tr>
<td>Native Ratings</td>
<td>17</td>
<td>23.66</td>
</tr>
</tbody>
</table>

*Note. L1 = Romanian, L2 = English; Average BIL = average obtained by the Bilingual Group; Average CR = average obtained by the Romanian Control Group; Average CE = average obtained by the English Control Group*
Overall, Participant #1’s performance in the L2 is superior to that in the L1. For example, the scores obtained on the L2 C-test (76) and the VF (35) are higher than the scores obtained on the L1 C-test (62) and the L1 VF (27). Similarly, her scores in L1 are below the bilingual group average and the L1 control group average. The frequency of disfluency markers is similar across languages. As for the native speakers’ ratings, Participant #1’s sum of ratings is below the bilingual group average in the L1, but above the average in the L2. These results indicate that, as a speaker, she was perceived to sound less Romanian and more English.

In Participant #1’s case, the proficiency trade-off appears to be reflected in her score results: she obtained low results on L1 measures and high results on L2 measures. At the same time, however, her test performance is generally below the English control group average, suggesting that her general proficiency remains different from the L2 native norm.

In addition to the objective measures of linguistic proficiency detailed above, there is also evidence of the participant’s self perception of language ambivalence, as apparent from the personal interview data. When asked whether she considered herself a true bilingual or dominant in either the L1 or the L2, the following answers were provided in English:

(55)  “I don’t know if I’m a true bilingual or not. Sometimes when I’m tired I can’t speak neither. Total mental block. It’s like I need a third language.”
   (Participant #1)

(56)  “I am more comfortable in English than in Romanian; but even in English there are words I’ve always struggled with; words that I’m told sound different. Like if I don’t know a word I’ll go crazy till I find it. Plus, I’m told I have a touch of an accent.”
   (Participant #1)

These paragraphs are noteworthy, as they shed an interesting perspective on the complex picture of the migrant bilingual’s relationship with the languages spoken, especially with respect to language competence expectations and bilingualism. The answers in excerpts (55) and (56) reveal the linguistic insecurities that generally appear to differentiate bilinguals from either group of monolinguals. The “in-betweeness” (Walter, 2003), both with respect to language and
identity, has been affirmed in previous attrition studies, such as Yağmur (1997), where attrition of Turkish was perceived by the participants regardless of the L2 proficiency level, or Prescher (2007), where the German migrants in the Netherlands express their bi-cultural identity.

Participant #5

Table 5.10 summarizes the results obtained by Participant #5 on all the tests, along with averages from the bilingual and control groups.

Table 5.10
Summary of scores in L1 and L2 for Participant #5

<table>
<thead>
<tr>
<th>Test</th>
<th>Romanian (L1)</th>
<th>English (L2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>BIL</td>
<td>CR</td>
</tr>
<tr>
<td>C-test</td>
<td>66</td>
<td>81.85</td>
</tr>
<tr>
<td>VF</td>
<td>29</td>
<td>42.00</td>
</tr>
<tr>
<td>P</td>
<td>12</td>
<td>7.35</td>
</tr>
<tr>
<td>R</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>RE</td>
<td>7</td>
<td>8.35</td>
</tr>
<tr>
<td>Native Ratings</td>
<td>17</td>
<td>23.66</td>
</tr>
</tbody>
</table>

Note. L1 = Romanian, L2 = English; Average BIL = average obtained by the Bilingual Group; Average CR = average obtained by the Romanian Control Group; Average CE = average obtained by the English Control Group

On the whole, the results indicate superior L2 proficiency, however, to a lesser extent than in Participant #1’s case. For example, the C-test scores are higher in the L1 (66) than in the L2 (53) and only the VF results are higher in the L2 (31) than in the L1 (29). Moreover, the C-test and the VF scores are below the bilingual and control averages for both the L1 and the L2. In contrast to Participant #1, the frequency of pauses and repetitions is higher in the L2 (17; 4) than in the L1(12; 2). As for the native speaker speech assessment, the sum of the native ratings is below the bilingual group average in the L1 and considerably above the bilingual group average in the L2, which suggests that, similar to Participant #1, her speech was perceived to sound more English and less Romanian in comparison with the rest of the bilinguals. In conclusion, the
overall results indicate that Participant #5 possesses a slightly higher level of proficiency in the L2 than in the L1, although the superior L2 proficiency is not as clearly determined as in the case of Participant #1.

The rather inconsistent results obtained by Participant #5 seem to only partially support the proficiency trade-off hypothesis. In other words, a proficiency trade-off pattern, while still present, is less clearly reflected in the results obtained, mainly because, in comparison to Participant #1, Participant #5 appears to have a higher level of L1 proficiency and a lower level of L2 proficiency. At the same time, in comparison to the rest of the bilinguals, Participant #5 is considered an L1 attriter (see 5.1.2) and her level of L2 proficiency remains higher than that of the other bilinguals. The various factors accounting for the difference between Participant #5 and Participant #1, such as age at arrival in the L2 country and a more positive attitude towards the L1, are discussed in section 5.3.

Much like Participant #1, Participant #5 also expressed feelings of ambiguity regarding language dominance:

(57) \[\ldots\] nu vorbesc foarte bine nici româna nici engleza acuma. Nu vorbesc la nivelul la care aș vrea în engleză, doar că vorbesc pentru că îmi e mai ușor. Vorbesc la serviciu și m-am obișnuit să vorbesc în engleză mai mult.

“Nowadays, I don’t speak either Romanian or English well anymore. I don’t speak English as well as I would like to, I just speak it because it comes easier. I speak it at work and I got used to using English more.”

(Participant #5)

The discussion above raises an interesting issue. We have seen two different bilinguals who appear to be L1 attriters. However, their linguistic profiles are not identical. While in the case of Participant #1 it was possible to establish a clear pattern of L2 dominance and L1 attrition, the results for Participant #5 reveal a more complicated picture, where the L2, although used more extensively, does not appear to be dominant in all areas of use. The differences between the linguistic portraits of these two participants suggest that the label attrition is in the
end an umbrella term that encompasses different types of attriters. As we will see in section 5.3, where the impact of sociolinguistic and cognitive factors are discussed, these differences can be attributable – at least in part – to motivational factors related to L1 maintenance. For example, while Participant #1 uses her L1 minimally and makes no effort to maintain it, Participant #5 continues to view the L1 as part of her identity and continues to use it. Therefore, the attrition in Participant’s #1 case can be attributed to lack of L1 use/input, while in Participant #5’s case, it is due to the increasing influence of and traffic from the L2. Köpke (2001) arrives at a similar conclusion in her study involving German native speakers living in Canada. On one hand, there was the L1 attrition attributable to the extensive use of the L1 within the German community. This type of attrition manifested itself through errors in the L1, frequent code-switching, as well as poor performance on the grammaticality judgment and phrase generation tests. On the other hand, another type of attrition seemed to be caused by a complete lack of L1 contact and manifested itself mainly through L1 access difficulties in spontaneous speech. In contrast, these bilinguals performed better on the grammaticality judgment and phrase generation tests than the other group of bilinguals. In this context, Participant #1 appears to fit the profile of the attriter whose language loss is attributable to lack of L1 use and Participant #5 appears to fit the profile of the attriter whose language disintegration is caused by extensive traffic from the L2. These factors and their impact are discussed in section 5.3. We now turn to the second type of bilinguals identified in our study, namely, those who not only have acquired a high level of proficiency in the L2, but have also successfully maintained a high level of proficiency in the L1.

**Type II: High proficiency in L1/ L2 near-native speaker**

Participant #19 stands out from the rest of the bilinguals, as he is the only one to obtain high scores across all tests and measurements in both the L1 and the L2.
Participant #19

Table 5.11 below displays all the scores obtained by this participant.

Table 5.11  
*Summary of scores in L1 and L2 for Participant #19*

<table>
<thead>
<tr>
<th>Test</th>
<th>Romanian (L1)</th>
<th>English (L2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average BIL</td>
<td>Average CR</td>
</tr>
<tr>
<td>C-test</td>
<td>90</td>
<td>81.85</td>
</tr>
<tr>
<td>VF</td>
<td>46</td>
<td>42.00</td>
</tr>
<tr>
<td>P</td>
<td>17</td>
<td>12.05</td>
</tr>
<tr>
<td>R</td>
<td>0</td>
<td>4.1</td>
</tr>
<tr>
<td>RE</td>
<td>10</td>
<td>8.35</td>
</tr>
<tr>
<td>Native Ratings</td>
<td>35</td>
<td>23.66</td>
</tr>
</tbody>
</table>

*Note. L1 = Romanian, L2 = English; Average BIL = average obtained by the Bilingual Group; Average CR = average obtained by the Romanian Control Group; Average CE = average obtained by the English Control Group*

By and large, Participant #19’s results indicate that he is highly proficient in both the L1 and the L2. His C-test and VF scores are consistently high in both the L1 (C-test=90; VF=46) and the L2 (C-test=90; VF=42) and are above the bilingual average in both languages. We also note that while this participant's VF scores are above the bilingual average, they are below the control average in Romanian and English. The sum of native ratings is high in both the L1 (35) and the L2 (34). In contrast to Participants #1 and #5, Participant #19 appears to be a balanced bilingual. Furthermore, he is the only bilingual perceived to be a near-native L2 speaker by the English monolingual judges and an L1 native speaker by the Romanian judges. As far as proficiency trade-off patterns go, Participant #19’s performance suggests that higher scores in one language do not trigger lower scores in the other and, thus supports the idea that at a more general level, higher L2 proficiency does not necessarily lead to L1 attrition.
Type III: proficient L1 speakers and true (as opposed to near-native) L2 speakers

The review of the results in Chapter 4 suggests that the majority of the participants in the migrant bilingual group are not L1 attriters. The level of proficiency in the L1 as measured through general proficiency tests remained largely within the native-speaker range. At the same time, while L2 influence on the L1 was unanimously acknowledged, none of the participants in this group appeared to be near-natives in the L2. According to the English raters, all these participants displayed a distinguishable accent in the L2, while according to the Romanian raters, they also displayed a slight accent in the L1. In other words, these participants did not sound completely native in either Romanian or English. (We make a parenthesis here and remark that, although the native speaker evaluation task was not aimed at assessing pronunciation directly, the raters often commented on phonetic and phonological proficiency in their judgment of the degree of language ‘nativeness’). An additional characteristic of this group is the discrepancy between the test results and the raters’ evaluations. In the case of several participants, the test performance was not in line with the general speech evaluations. For example, Participant #8 obtained the highest score on the Romanian C-test and an average score on the English C-test, but, at the same time, was perceived as a very poor L1 and L2 speaker. Participant #14, on the other hand, obtained the highest score on the English C-test – a score that was above the English control average – but obtained lower ratings from the L2 monolingual judges than Participants #1 or #5. Even if it could be argued that this discrepancy indicates that the formal tests do not represent a complete measure of ‘nativeness’ per se, but rather a measure of explicit knowledge of various aspects of English or Romanian, it still points to the fact that the bilinguals are not ‘well-rounded’ speakers in every aspect of language use. Another common group characteristic is variation. While the participants in the other two groups are considered to represent more or less the extremes of the bilingual continuum, certain participants in this sub-
group are closer to being “L1 speakers” than “L2 speakers” (Participants #6, #9, #3, etc), or vice-versa (Participant #14).

In conclusion, all the tendencies stated above imply that the main characteristic of this group is the in-between position with respect to these participants’ English and Romanian proficiency.

5.2.3 Discussion

According to the trade-off hypothesis, in the context of attrition, an increase in L2 proficiency is expected to correlate with a decrease in L1 proficiency. This hypothesis is based on the DST argument that both languages of a bilingual are part of an evolving, dynamic system in which language attrition is a function of language acquisition (Jessner, 2003). Before moving to the summary of the results in this section, the following distinction should be made: while the concept of proficiency trade-off refers to long term development, the results in this study are limited to reflecting only a static snap-shot of the migrants’ current proficiency. Therefore, we further hypothesize that even if trade-off patterns are not readily measurable based on the present results, such changes in the relationship of L1 and L2 proficiency are expected to take place eventually. Overall, the results of this study indicate the following: one case of clear proficiency trade-off (Participant #1) and nineteen cases where the results suggest a more complex picture and point to a wide variety of possible inter-language interactions.

Before turning to the factors impacting L1 attrition, we explore in more detail the long-term validity of the trade-off hypothesis. According to DST, first language attrition in migrant contexts – viewed as the result of increasing L2 influence and decreasing L1 maintenance efforts – emerges as inevitable in time. Therefore, while the linguistic profile of Participant #1 appears to represent an accelerated version of the development of these tendencies, the other bilinguals’ levels of L1 and L2 proficiencies are likely to also display a trade-off relationship in time. Such an outcome the results of the present study reveal indicators of this possible
outcome. For one, all the bilinguals in this study acknowledged the strong influence of the dominant L2 on the L1 and the noticeable depreciation of the latter as a result. Secondly, the lack of consistent L1 use and exposure is also perceived by the bilinguals as having a negative effect on L1 proficiency. It can thus be hypothesized that a proficiency trade-off pattern can eventually become more and more measurable with time (see also Dostert, 2009). At the same time, such radical shifts in language proficiency are more likely to take place across two or more generations, and therefore L1 attrition is not always the necessary outcome for the first generation of migrants, in spite of high levels of L2 proficiency. As seen in the present study, Participant #19 seems to have attained near-nativeness in the L2, while still maintaining a native level in the L1 (although he also admits to increasing L2 influence).

The results examined in this section can be interpreted in two ways: from a synchronic perspective and from a more long-term/developmental perspective. The synchronic interpretation suggests that while proficiency trade-offs are not necessarily a group characteristic, this type of language dynamic can be observed in those individual participants whose L1 appears to have undergone attrition. From a long-term, developmental perspective, proficiency trade-offs are expected to be the consequence of growing L2 influence, lack of L1 input and exposure, as well as lack of L1 maintenance efforts, and possibly affect the speech of all migrant bilinguals.

5.3 Factors impacting L1 attrition

The third question of the present study aims to identify the variables that are primarily responsible for the individual variation in the performance of the migrant bilinguals. In light of the studies outlined in 2.3, the following hypothesis was put forward: in adult attrition, attitudinal factors outweigh even variables such as age at emigration and length of residence in
the L2 country. It was shown that motivational factors play a central role in adult attrition, a role recognized by theoretical approaches such as DST (de Bot et al., 2007; Jessner, 2003) and the ATH (Paradis, 2007). According to the ATH, the role of individual motivation is central to the development of attrition since the adult bilingual has a high degree of control over the use or disuse of a particular language, which in turn influences the activation thresholds and overall accessibility of the language. As for DST, the amount of motivation to learn and maintain the L1 and the L2 and the attitude of the bilingual towards the languages and their cultures are viewed as crucial variables in linguistic development.

5.3.1 Impact of Factors at the Individual and Group Level

The extralinguistic factors taken into consideration in the present section include: background factors (age at emigration, education, length of residence in the L2 country), sociolinguistic factors (L1 contact, language choice, attitude), and cognitive factors (language aptitude). This section explores which background, sociolinguistic, and cognitive factors best account for the three types of bilinguals identified in section 5.2. Data from both sociolinguistic questionnaires and interviews are reviewed and the ensuing discussion is structured around the three types of bilinguals identified above. General background data, including age at emigration, length of residence and education, is provided for each participant in Table 4.1.

Type I: L1 attriters / L2 near-native speakers

In this subsection, I return to the two L1 attriters identified in the bilingual group — Participants #1 and #5 — and examine the extent to which the various factors considered here have an impact on their linguistic performance.

Participant #1

Sociolinguistic questionnaire data and language aptitude test
Participant #1 was 18 years old when she immigrated to Canada and, at the time of testing, had been residing in Canada for 12 years. She completed her high school education in Romania and attended an additional year of high school in Canada. She then completed a college degree in Ontario.

Table 5.12 summarizes Participant #1’s index values calculated on the basis of her answers on the sociolinguistic questionnaire.

Table 5.12
Summary of sociolinguistic and cognitive variables for Participant #1

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>Individual score</th>
<th>BIL mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ Contact (contact index calculated based on sociolinguistic questionnaire data)</td>
<td>2</td>
<td>3.31</td>
</tr>
<tr>
<td>SQ Choice (choice index calculated based on sociolinguistic questionnaire data)</td>
<td>2</td>
<td>3.86</td>
</tr>
<tr>
<td>SQ Attitude (attitude index calculated based on sociolinguistic questionnaire data)</td>
<td>2</td>
<td>2.74</td>
</tr>
<tr>
<td>Aptitude (score obtained on the language aptitude test)</td>
<td>160</td>
<td>122.75</td>
</tr>
</tbody>
</table>

Note. BIL mean = the mean obtained by the Bilingual Group

According to the participant’s contact index (index value = 2), she appears to use her L1 less frequently than the other bilinguals in the experimental group ($M = 3.31$). She is married to an English speaker and the majority of her friends are English speakers. Similarly, the index value for her attitude (index value = 2) towards her L1 is lower than the bilingual group’s average ($M = 2.74$). Although the participant’s attitude score seems to suggest a general weak attachment to the L1, she indicated that speaking the L1 was still important, making a point that she did not want to forget the language completely. Moreover, in response to the question regarding her children’s knowledge of L1, she answered that it was very important to her that her children speak and understand Romanian. Finally, the scores on the last variable indicate that Participant #1 had superior language aptitude in comparison to the rest of the participants in the bilingual group. The above-average aptitude score is interpreted as being related to the participant’s superior L2 proficiency. However, with respect to language attrition, the results
point against the prediction that superior language aptitude could also discourage L1 attrition. In the case of Participant #1, these tendencies can be taken to point to the greater importance of attitude and motivation in the development of L1 attrition.

Interview data

The part of the interview devoted to the factors influencing attrition was structured around the following topics: the use of the L1 (‘When do you speak Romanian?’; ‘If you were to write a journal, what language would you use?’), perceptions about bilingualism in general (‘Do you consider yourself stronger in one language or the other? Or equally proficient in both?’), and present attitudes towards the L1 and the L2 (‘Do you feel attached to Romanian, as a language? Do you feel it represents part of your identity?’).

As for the use of the L1, Participant #1 reported that she used the L1 rarely. Immediately after emigration, she used Romanian extensively with her family, as well as in her circle of friends while attending a high school with a preponderance of Romanian students. Starting with college though, all of her friends were mostly English speakers. Participant #1 commented on her perceived need to adapt fast and “catch up” on the 18 years of not speaking the L2. She made any effort deemed necessary to integrate herself in the new L2 group. This perceived need for integration prompted her to concentrate on thinking only in the L2 and ignoring her L1 to the point where she did not give herself the opportunity to use the L1 anymore. She adds that deep down she knew that there was no danger of ever forgetting her L1. She said:

(58)  
A trebuit ca să mă concentrez pe ce "mattered to me at the time" ca să mă integrez în cultura canadiană. Și atunci - I detached myself completely from Romanian and started "eating and dreaming" in English.

"I needed to concentrate on what mattered to me at the time: integrating myself into Canadian culture. That’s when I detached myself completely from Romanian and started “eating and dreaming” in English."

(Participant #1)
This type of attitude is also shared by the participants of other studies that investigate the type of attitudes strongly connected with L1 attrition. One of the German/Dutch bilinguals in Prescher (2007) commented on the struggle to adjust quickly to the new environment, the initial rejection of the L1, and ultimately the experiencing of a kind of “personal loss” (Prescher, 2007: 196).

When asked about language choice during conversations with her children, Participant #1 answered that she intended to use mostly the L2 with them mainly due to convenience and easier access to the L2 on her part. However, she added that she would still like her children to speak the L1, but given her low L1 proficiency, she expressed the necessity of relying more on the grandparents for the task of teaching the children Romanian. When asked about the language in which she would write her personal journal, the participant stated that she would write mostly in English, unless she intended to hide certain information, at which point she would switch to L1. Participant #1 considers L1 maintenance to be important (however, no particular efforts are made in that direction) especially due to the perceived benefits of bilingualism.

As stated above, Participant #1 seemed to have the hardest time out of all the bilinguals keeping the conversation in L1 during the interview. She kept switching to the L2 and was unable to converse in the L1 for long stretches of speech.

Another notable aspect of Participant #1’s linguistic profile is the difference in the type of attitude that emerged from the sociolinguistic questionnaire versus the interview data. While the questionnaire data revealed a generally positive attitude towards the L1, the interview data conveyed a more complex relationship. During the interview, Participant #1 traced the development of her attitude toward the two languages. Immediately after emigration, Participant #1 reflected on her feelings of strong attachment towards the L1. With time, these initial feelings evolved in the opposite direction and the participant reflected on the strong desire to immerse herself in the L2 culture and the resulting neglect of the L1. At the time of the
interview, however, a new type of attitude emerged, a sort of neutrality where the participant continued to identify herself more with the L2 culture, but, at the same time, felt attached to her L1 roots as well.

The type of shifting attitudes illustrated above are in line with the predictions put forward by DST (Herdina & Jessner, 2002; Jessner, 2003; de Bot et al., 2007) where attitudes are not constant and changes develop in unpredictable directions over the lifespan. Similar shifts in attitude were also reported during the interviews with Participants #2 and #4, who immediately after immigration perceived the urgency to integrate themselves into the dominant L2 culture and, as a result, focused their linguistic efforts solely on L2 acquisition and improvement. Both participants talked about a type of revisiting of the L1 after a number of years of L2 immersion. Prescher (2007), in her study of German migrants in the Netherlands, reports a similar tendency among her subjects, for whom “the longer the duration of immigration, the stronger the attempt to return to the original identity and language” (Prescher, 2007:201). What remains distinct for Participant #1, however, is that her initial attachment to the L1 did not result in greater L1 maintenance, a tendency often reported in attrition research (de Bot, 2007).

Participant #5

Sociolinguistic questionnaire data and language aptitude test

As indicated in Table 5.13, Participant #5 obtains higher index values on the variables contact, choice, and attitude than Participant #1. Particularly interesting, given that Participant #5 is an L1 attriter, is the fact that this informant’s attitude index (index value = 3) exceeds the group average ($M = 2.74$). This result appears to be inconsistent with the hypothesis according to which a positive attitude toward the L1 is conducive to higher L1 maintenance and less L1
attrition. Moreover, this result suggests that, in the case of this participant, other variables took precedence in shaping the bilingual’s linguistic profile.

Table 5.13  
*Summary of sociolinguistic and cognitive variables for Participant #5*

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>Individual score</th>
<th>BIL mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ Contact (contact index calculated based on sociolinguistic questionnaire data)</td>
<td>3</td>
<td>3.31</td>
</tr>
<tr>
<td>SQ Choice (choice index calculated based on sociolinguistic questionnaire data)</td>
<td>3</td>
<td>3.86</td>
</tr>
<tr>
<td>SQ Attitude (attitude index calculated based on sociolinguistic questionnaire data)</td>
<td>3</td>
<td>2.74</td>
</tr>
<tr>
<td>Aptitude (score obtained on the language aptitude test)</td>
<td>75</td>
<td>122.75</td>
</tr>
</tbody>
</table>

*Note. BIL mean = the mean obtained by the Bilingual Group*

**Interview data:**

Unlike the discrepancy between the questionnaire and the interview data observed in the case of Participant #1, the data in Participant #5’s sociolinguistic questionnaire and interview appear to be more consistent. Overall, Participant #5’s attitude towards Romanian is positive and, in her case, low L1 proficiency does not seem to be attributable to a conscious decision to distance herself from the L1. On the contrary, she mentions that she tries to use Romanian on a regular basis, but most of the time she ends up using English with her children and a mix between the two languages with family and friends. The choice of language was motivated mostly by convenience, and since the L2 was used more frequently, it came easier and has become the handier language to use. We interpret these answers to indicate that the recorded L1 attrition is due mostly to lack of L1 use or the use of the language in a mixed mode (Grosjean, 1989). For example, Participant #5 indicated English as the language of choice for her journal entries. She further observed how she used more and more English in her daily life and how deterioration of Romanian was perceived as a result. When asked about how she felt when visiting Romania, this participant indicated that she felt like a stranger and that she considered Canada her “home”. Similar to Participant #1, she considered efforts to maintain the L1 especially beneficial for
maintaining a state of desirable general bilingualism. In addition, for this participant, L1 maintenance efforts were also important due to the sentimental and identity significance attached to the L1.

In conclusion, the data obtained from Participants #1 and #5 suggest that there is no single unified profile of the L1 attriter. In this section, we observed that there are different sets of factors that seem to lead to L1 attrition in each case. In Participant’s #1 case, it was the conscious and emotional decision to distance herself from the L1 in order to embrace the L2 that led to severely deteriorated L1 proficiency. For Participant #5, it was reduced exposure to the L1 and growing use of and exposure to the L2 – mainly due to practicalities of daily life in an L2 environment, as opposed to a conscious decision – that resulted in L1 attrition. As already mentioned in the conclusion of section 5.2.2, the linguistic behaviour of Participants #1 and #5, as well as the resulting attrition patterns, closely mirror the two types of attrition discussed by Köpke (2001) in her study of German migrants living in Canada. On one hand, L1 attrition is caused by the use of the L1 in a mixed mode within the L1 community. On the other hand, attrition can also be the result of a complete lack of L1 use. With respect to the attitude towards the L2, if we recall the three types of bilinguals distinguished by Yoshizawa Meaders (1997; see 2.3) – namely: (1) those willing to immerse themselves in the L2 culture; (2) those refusing any identification with the L2 culture; and (3) those open to both the L1 and the L2 cultures – we can classify Participant #1 in category (1) and Participant #5 in category (3).

Type II: High proficiency in L1/L2 near-native speaker

Participant #19

At the opposite end of the bilingual continuum from Participants #1 and #5 is Participant #19 (see 5.1.2). His proficiency is both that of an L2 near-native speaker, as well as – in spite of
uninterrupted residence in the L2 country for over ten years – that of an extremely proficient L1 speaker, who is undistinguishable from Romanian speakers living in Romania. The rest of this section is devoted to the examination of those factors.

Sociolinguistic questionnaire and language aptitude test:

The first noteworthy point is the fact that Participant #19 obtained the highest attitude index of all the participants in the bilingual group (see Table 5.14). For example, one telling questionnaire item in relation to L1 attitude concerned the desire to return to Romania. Participant #19 was one of the few participants who considered a possible return to his country of origin. His language choice index is also very high, meaning that he uses the L1 as often as possible. Participant #19’s aptitude index is considerably lower than the bilingual group average, which is surprising given the high scores obtained on the language tests, as well as the high ratings he received from both the L1 and the L2 monolingual judges.

Table 5.14
Summary of sociolinguistic and cognitive variables for Participant #19

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>Individual score</th>
<th>BIL mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ Contact (contact index calculated based on the sociolinguistic questionnaire data)</td>
<td>3.16</td>
<td>3.31</td>
</tr>
<tr>
<td>SQ Choice (choice index calculated based on the sociolinguistic questionnaire data)</td>
<td>4.38</td>
<td>3.86</td>
</tr>
<tr>
<td>SQ attitude (attitude index calculated based on the sociolinguistic questionnaire data)</td>
<td>4.04 -highest in the group</td>
<td>2.74</td>
</tr>
<tr>
<td>Aptitude (score obtained on the language aptitude test)</td>
<td>80</td>
<td>122.75</td>
</tr>
</tbody>
</table>

*Note: BIL mean = the mean obtained by the Bilingual Group*

Interview data:

Participant #19’s positive attitude toward the L1 also emerges from the interview data. For example, Participant #19 declares that the language of choice for a personal journal would be Romanian, with possibly the exception of work-related entries which would be in English. One
interesting aspect about the language choice patterns adopted by Participant #19 was his conscious attempt to avoid language mixing. While he admitted during the interview that occasional use of certain code-switches was unavoidable, he made efforts to minimize the number of non-utilitarian/non-functional ones. The efforts invested in language mixing and code-switching avoidance make Participant #19 stand out from the rest of the bilinguals. He admitted that, whenever he found himself translating expressions from the L2 into the L1, he immediately resorted to reformulations or other strategies in order to monitor his speech. In contrast, the majority of the bilinguals interviewed were well aware of the encroachment of the L2 on the L1, but seemed resigned to sacrificing the purity of the L1 for the sake of facilitating faster and more efficient communication in a mix of the L1 and the L2. In spite of his efforts, Participant #19 was also aware of the consequences that the lack of input and restricted use of the L1 will have on his proficiency. For example, he admitted to reading fewer books in the L1 than he used to and stated that he rarely participated in sophisticated conversations in Romanian. The presence of language decline was mostly felt in the form of a more limited L1 vocabulary as well as contexts of use.

Referring back to the three types of bilinguals indentified by Yoshizawa Meaders (1997; see 2.3), Participant #19 appears to belong to the third group, because for him the L1 and the L2 are not mutually exclusive; on the contrary, a fusion of the two defines more accurately the person he became post-emigration. In his answers to the questions pertaining to the importance of efforts to maintain the L1, he also mentioned the various benefits of bilingualism. He also added that, when speaking Romanian, not only was he more at ease with certain topics, but it also helped him honour a certain connection with the L1. When asked how he would feel if he found himself incapable of speaking Romanian, he answered:
we end the discussion concerning Participant #19’s interview data with a reflection on what this participant appeared to miss most about his country of origin:

(60) Legătura specială cu pământul.

“The special connection I have with the land.”

(Participant #19)

This type of connection was mentioned by only one other participant in the study (Participant #3), the rest of the bilinguals considering their immigration country to be their new “home”.

In conclusion, the factors that contribute to Participant #19’s high level of L1 maintenance are his strong attachment to the L1 language and culture and – from a linguistic perspective – his conscious choice to avoid language mixing and preserve L1 skills.

Type III: proficient L1 speakers and true L2 speakers

According to the linguistic profiles of the three bilinguals described in the above sections, the language proficiency of these participants can be considered to be at the extremities of the bilingual continuum: while Participant #1 and #5’s proficiency in the L1 is reduced, and as such they are the L1 attriters, Participant #19 is at the opposite end and appears to be a proficient speaker of both the L1 and the L2. In fact, in both cases, L2 proficiency appears to be at near-native levels. The rest of the bilingual participants seem to fluctuate widely as to how close they come to one end of the spectrum or the other, in terms of both L1 and L2 proficiency. Therefore, the central questions for this subsection are to identify the factors that led Participants #1 and #5 to experience significant decline in L1 performance and thus be considered Type I bilinguals in
In our study, while Participant #19 successfully maintained a remarkably high level of L1 proficiency and was thus classified as a Type II bilingual in the present research. This subsection will also address the issue of how and why the levels of language proficiency of the majority of the bilinguals in the experimental group were located at various points along the bilingual continuum (i.e., how and why these participants are classified as Type III bilinguals).

In order to find answers to these questions, data collected on personal background and sociolinguistic variables were grouped together based on age at time of emigration (Table 5.15), length of emigration period (Table 5.16), education profile (Table 5.17), frequency of language contact (Table 5.18), language choice (Table 5.19), attitude towards the L1 (Table 5.20), and finally language aptitude (Table 5.21). In what follows, we briefly report on the data illustrated in the tables and figures and then, during the discussion, draw the most important conclusions from all of the information combined. The primary goal for presenting the data provided in the tables below is to see to whether or not the participants who share similar background and sociolinguistic profiles also show similar results with respect to their language proficiency.

In Table 5.15, the participants are grouped according to their age at time of emigration. Six groups were established based on five-year intervals; the number underneath the group category represents the number of participants in that particular group. The table shows that the distribution of participants for each group is fairly uniform, with the exception of Group VI which contains only one participant.
Table 5.15

**Distribution of bilinguals according to age at emigration**

<table>
<thead>
<tr>
<th>Group</th>
<th>Age</th>
<th>(+ number of participants per group)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>18</td>
<td>(3)</td>
</tr>
<tr>
<td>II</td>
<td>20</td>
<td>(3)</td>
</tr>
<tr>
<td>III</td>
<td>23</td>
<td>(5)</td>
</tr>
<tr>
<td>IV</td>
<td>25</td>
<td>(4)</td>
</tr>
<tr>
<td>V</td>
<td>27</td>
<td>(4)</td>
</tr>
<tr>
<td>VI</td>
<td>28</td>
<td>(1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Age</th>
<th>Age</th>
<th>Age</th>
<th>Age</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>18</td>
<td>20</td>
<td>23</td>
<td>25</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>II</td>
<td>31</td>
<td>32</td>
<td>33</td>
<td>36</td>
<td>37</td>
<td>39</td>
</tr>
<tr>
<td>III</td>
<td>31</td>
<td>32</td>
<td>33</td>
<td>36</td>
<td>37</td>
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<tr>
<td>IV</td>
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<tr>
<td>VI</td>
<td>31</td>
<td>32</td>
<td>33</td>
<td>36</td>
<td>37</td>
<td>39</td>
</tr>
</tbody>
</table>

*Note:* P = participant number

Table 5.16 illustrates the distribution of participants according to the length of residence in the L2 country. The table shows that, at the time of data collection, five out of twenty participants have been living in Canada for twelve years, and four participants for fifteen years.

Table 5.16

**Distribution of bilinguals according to length of emigration period**

<table>
<thead>
<tr>
<th>Length of Emigration (in years)</th>
<th>(+ number of participants per category)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (3)</td>
<td></td>
</tr>
<tr>
<td>11 (2)</td>
<td></td>
</tr>
<tr>
<td>12 (5)</td>
<td></td>
</tr>
<tr>
<td>14 (3)</td>
<td></td>
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<td>15 (4)</td>
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<td></td>
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<tr>
<td>19 (1)</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>P#15</td>
<td>P#16</td>
<td>P#17</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>II</td>
<td>P#4</td>
<td>P#5</td>
<td>P#15</td>
<td>P#8</td>
<td>P#6</td>
<td>P#16</td>
<td>P#17</td>
<td>P#11</td>
</tr>
<tr>
<td>III</td>
<td>P#6</td>
<td>P#8</td>
<td>P#18</td>
<td>P#7</td>
<td>P#14</td>
<td>P#3</td>
<td>P#14</td>
<td>P#14</td>
</tr>
<tr>
<td>IV</td>
<td>P#13</td>
<td>P#12</td>
<td>P#20</td>
<td>P#10</td>
<td>P#10</td>
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<tr>
<td>V</td>
<td>P#9</td>
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<td></td>
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</tr>
</tbody>
</table>

*Note:* P = participant number

Table 5.17 shows that the majority of participants attended college or university in Romania. The five exceptions in the group are Participants #1, #2, #4, #6, and #19. Participant #6 is the only respondent who had not completed a university or college degree. Participants #1, #2, #4, and #19 emigrated at a younger age (see Table 5.15) and completed their education in Canada. Moreover, Participants #1 and #2 are the only two informants in the group who also completed their high school in Canada. Furthermore, certain participants attended universities in both Romania and Canada (Participants #12, #20). Other participants completed undergraduate
degrees in Romania and then completed postgraduate degrees in Canada (Participants #8, #9, #13, #15). Participant #4 completed both his undergraduate and graduate degrees in Canada.

Table 5.17

<table>
<thead>
<tr>
<th>Distribution of bilinguals according to level and location of education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education (+ number of participants per category)</td>
</tr>
<tr>
<td>High school attended in Canada (2)</td>
</tr>
<tr>
<td>P#1, P#2</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>

Note. P = participant number

We move now to the data obtained via the sociolinguistic questionnaire. In the next three tables (5.18; 5.19; 5.20), the participants are grouped according to the indices calculated based on the answers to questions related to frequency of L1 contact and use as well as the attitudes towards the L1 language and culture.

As a preliminary observation, we note that Participant #14 consistently obtained the lowest index on all three variables. Participant #1 also obtains the lowest scores on the variables contact and choice. Based on this data, we expect the two participants to share similar linguistic profiles. In the ensuing discussion, we will see to what extent this prediction holds.

Table 5.18

<table>
<thead>
<tr>
<th>Distribution of bilinguals according to frequency of ‘language contact’</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQContact Index (+ number of participants per interval)</td>
</tr>
<tr>
<td>1.83-2.41 (2)</td>
</tr>
<tr>
<td>P# 1, 14</td>
</tr>
</tbody>
</table>

Note. P = participant number
Table 5.19
*Distribution of bilinguals according to ‘language choice’*

<table>
<thead>
<tr>
<th>SQChoice Index (+ number of participants per interval)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6-2.33 (2)</td>
<td>3.07-3.08 (2)</td>
<td>3.35-3.38 (2)</td>
<td>3.57-3.71 (3)</td>
<td>4.07-4.38 (4)</td>
<td>4.357-4.71 (6)</td>
<td>4.92 (1)</td>
</tr>
<tr>
<td>P# 1, 14</td>
<td>P# 7, 13</td>
<td>P# 5, 15</td>
<td>P# 2, 3, 11</td>
<td>P# 4, 12, 18, 19</td>
<td>P# 6, 16, 20</td>
<td>P# 8</td>
</tr>
</tbody>
</table>

*Note.* P = participant number

Table 5.20
*Distribution of bilinguals according to ‘attitude’ towards the L1*

<table>
<thead>
<tr>
<th>SQAttitude Index (+ number of participants per interval)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1.46 (2)</td>
<td>1.81-2.06 (4)</td>
<td>2.46-2.78 (5)</td>
<td>3.2-3.23 (2)</td>
<td>3.37-3.71 (6)</td>
<td>4.04 (1)</td>
<td></td>
</tr>
<tr>
<td>P# 14, 9</td>
<td>P# 1, 4, 6, 11</td>
<td>P# 3, 7, 12, 13, 20</td>
<td>P# 17, 18</td>
<td>P# 2, 5, 8, 10, 15, 16</td>
<td>P# 19</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* P = participant number

Finally, Table 5.21 shows how the participants are grouped according to the language aptitude scores. Those participants who obtained the highest aptitude scores (such as Participants #4 and #14) are expected not only to be highly proficient in the L2, but to also be successful in L1 maintenance.

Table 5.21
*Distribution of bilinguals according to language aptitude scores*

<table>
<thead>
<tr>
<th>Aptitude scores (+ number of participants per category)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>40.55 (2)</td>
<td>75-80 (2)</td>
<td>100 (2)</td>
<td>105-125 (5)</td>
<td>135-155 (5)</td>
<td>160 (2)</td>
<td>190-195 (2)</td>
</tr>
<tr>
<td>P# 10, 12</td>
<td>P# 5, 19</td>
<td>P# 7, 10</td>
<td>P# 2, 3, 8, 9, 13</td>
<td>P# 6, 11, 15, 17, 18</td>
<td>P# 1, 20</td>
<td>P# 4, 14</td>
</tr>
</tbody>
</table>

*Note.* P = participant number

The data illustrated in the tables above allow us to see how participants group together according to the various personal background and sociolinguistic variables examined in the present study. Comparisons between participants with identical background variables were performed in order to see what factors account for the variation found in the test performance.
Since our inferences will be drawn from a limited number of cases, we underline the tentative nature of the associations observed.

The first part of our first analysis takes into account the personal background variables and assesses their predictive power in determining attrition. A closer look at tables 5.15 and 5.16 reveals that Participants #1, #2, and #19 all moved to Canada at the same age and lived in Canada for the same number of years. Moreover, table 5.17 indicates that Participants #1, #2, and #19 have similar education profiles: all three informants completed an undergraduate degree in Canada and Participants #1 and #2 completed their last year of high school in Canada as well. Since differences in age at emigration and in length of residence have been shown to have an important effect on attrition (Dostert, 2009), we expect comparable L1 test performance from the three above mentioned participants. As already seen, however, this was not the case: Participant #1 was identified as an L1 attriter in the group while Participant #19 is highly proficient in both the L1 and the L2. We turn now to the analysis of the sociolinguistic variables to provide an explanation of the two different proficiency-based types of bilinguals: while Participant #1 consistently obtained low indices on all sociolinguistic variables, Participant #19 obtained average contact and language choice indexes, but was the bilingual with the highest attitude index. Therefore, in this case, the factor “attitude” appears to be the trigger of language attrition. Similarly, Participant #2 has a rather low contact index with the L1, but her attitude towards the L1 is somewhere in-between: more positive than that indicated by Participant #1 and less positive than that of Participant #19. This pattern is particularly important as it suggests that, all background variables being equal, a prevailing positive or negative attitude toward the L1 seems to override other factors such as language contact and language choice. Of course, a highly positive attitude toward the L1 leads to higher frequency of L1 use, hence the higher contact and choice indexes for Participants #2 and #19. The high impact of attitude on language choice and ultimately language performance can be further exemplified by the fact that while
both Participants #1 and #2 are married to English monolingual partners, Participant #1, as opposed to Participant #2, favours the use of English almost exclusively with her Romanian extended family and friends. In conclusion, our results point to the factor ‘attitude’ as a vital trigger in determining the development of L1 attrition. As seen above, the important role of the factor *attitude* in attrition was supported even in the case of those participants who emigrated at the same age and have lived in the L2 environment for the same length of time.

Further related to the factor *attitude*, our next question is whether bilinguals with similar attitudes are likely to display comparable language proficiency profiles. In this respect, Tables 5.18, 5.19, and 5.20 indicate that Participants #1 and #14 seem to share similar patterns of language contact and choice, as well as similar attitudes towards the L1. However, as already seen in Chapter 4, Participant #14’s level of L1 performance exceeds that of Participant #1’s, suggesting that the former is not an L1 attriter. While Participant #14 is not an attriter per se, his linguistic profile is similar to that of Participant #1 in several ways. Firstly, the scores for L1 “nativeness” in spontaneous speech provided by the monolingual L1 judges place him at the lower extremity of the continuum, together with Participants #1 and #8 (see Figure 4.14). Secondly, Participants #1 and #14 are the only bilinguals who obtained higher scores on the L2 tests than on the L1 tests. In the case of these two participants, the personal background variables *age at emigration* and *education* seem to play a more important role in establishing the attriter versus non-attriter status. The personal background data indicates that Participant #1’s age at emigration was eighteen and Participant #14’s age at emigration was thirty two (see Table 5.15). Moreover, the education profile could also be the crucial factors since Participant #1 studied at the post-secondary level in Canada and also attended college in the L2 country. Participant #14, on the other hand, completed his education in Romania (see Table 5.17).

Another important point is that the factors *age at emigration* and *education* appear to outweigh the factor *length of emigration period*. Simply put, Participant #1 is considered an L1
attriter in spite of a shorter period of residence in the L2 country. Table 5.16 shows that Participant #14 had resided in Canada uninterruptedly for fifteen years, three years longer than Participant #1. Although our assertions are based on one case only, they are in line with previous findings. As Yukawa (1997) points out, age is inseparably connected to L1 proficiency level, as it also linked to amount of exposure to the L1, including through education. Dostert (2009) also concluded that more advanced ages at emigration correlate positively with L1 maintenance.

With respect to L2 proficiency, a noteworthy pattern emerges: Participant #14 outperformed Participant #1 on the C-test (see Figure 4.4) and the VF (see Figure 4.6), but obtained lower ratings on the speech evaluation from the L2 judges (see Figure 4.14). It can thus be suggested that, in those cases where differences between age at emigration are more significant, positive attitudes towards the L2 can support L2 accomplishment on formal tests, but are less instrumental in achieving native-like L2 speech proficiency. In this respect, Hyltenstam and Abrahamsson (2000, 2003) bring strong support for age being the most important factor in determining overall native-like L2 accomplishment.

As for the factor education, previous studies have emphasized the importance of this factor for attrition, pointing to the fact that a higher level of education renders the L1 less vulnerable to decline and encourages language maintenance (Yağmur, 1997). The data in the present study offer the perfect setting for testing this finding. Consider, for example, the cases of Participants #1 and #2 who both attended one year of high school in Canada and completed university and college degrees in Canada. These participants could be expected to have similar levels of language proficiency. However, in fact, they show very different levels of L1 proficiency; Participant #1 appears to be an L1 attriter whereas Participant #2 does not. As a counterexample, Participant #4, who completed both his undergraduate and graduate schooling in Canada, would be expected to have a lower level of L1 proficiency as compared to other
bilinguals who graduated from Romanian universities. The data presented in Chapter 4, however, indicate that this participant outperforms some bilinguals who completed their education in Romania (such as Participants #10, #11, #12), but underperforms compared to others. As a final remark, while definite conclusions are impossible to draw given the small sample and significant intra-group variation, we can nonetheless account for the data by proposing that the factor attitude appears to be responsible to a larger extent than the factor education for the different levels of L1 proficiency portrayed.

With respect to language aptitude, the picture appears to be even more complicated. Our hypothesis (see 3.1) was that high language aptitude is expected to encourage not only high levels of L2 proficiency, but equally, maintenance of the L1. This line of reasoning seems to be valid in the case of Participants #4 and #14, who obtained the highest scores on the aptitude tests (see Table 4.2) and have relatively high levels of proficiency in both the L1 and the L2. At the same time, in the case of Participant #1, high linguistic aptitude encouraged L2 achievement, but had no impact on L1 maintenance. In this case, a negative attitude towards one language appears to be a strong factor that can influence the allocation of both linguistic (i.e., aptitude) and extra-linguistic (i.e., attitude) resources for L1 maintenance or lack thereof (see also de Bot, 2007).

In fact, the intricate relationship between attitude and language aptitude appears to be a promising future research direction. For now, we provide only a tentative explanation. We propose that the interaction between attitude and aptitude could explain the L1 proficiency difference between Participant #1 and Participant #2, who both share similar personal background profiles (see Tables 5.15; 5.16 and 5.17). For example, a possible assumption is that Participant #1’s subconscious realization of an existing talent for language learning combined with a negative attitude towards the L1 could have led to a complete embracing of the L2 with the confidence of learning it at near native levels and using it as her dominant language, while,
at the same time, disregarding what was perceived to be the less needed L1. On the other hand, Participant #2, in spite of an initial identification with the L2, went back to relying on her L1 as the stronger language. For Participant #14, it could be argued that the combination of strong language aptitude and a rather negative attitude toward the L1 propelled him, in spite of his more advanced age at emigration, closer to the L1 attriter/ L2 near-native speaker profile as compared to other bilinguals who emigrated at a younger age. This line of thinking, however noteworthy, is at this point rather preliminary in nature and requires further research.

From a different perspective, attitudinal and cognitive resources can be perceived as compensatory mechanisms (de Bot et al., 2007:14), the lack of one resource can be offset by the increased availability of the other. From a DST perspective, the resources needed for the system to grow are not only inter-related and inter-independent but also compensatory. Such a view can provide an explanation as to why, for instance, Participant #19’s level of language proficiency in both the L1 and the L2 is exceptionally high, in spite of low linguistic aptitude scores (see Table 4.2). In this respect, in the case of this participant, it can be hypothesized that the apparent lack of linguistic aptitude was compensated with a high degree of intentionality and motivation to maintain the L1 and acquire the L2 at high levels of proficiency.

5.3.1 Discussion

The aim of this section was to evaluate the influence of various personal background factors (age at emigration, education, length of emigration), sociolinguistic factors (language contact, language choice, and attitude), and cognitive factors (language aptitude) on L1 attrition and L2 acquisition in migrant contexts. Although the picture painted by the examples presented above does not lend itself to extensive generalizations, several conclusions can be reached.

With respect to the three personal background variables studied, age at emigration appears to be one of the most influential factors on adult L1 attrition. In the present study, the
different ages at emigration were the relevant factor in explaining the L1 and L2 proficiency difference between Participants #1 and #14, where Participant #1 emerges as an L1 attriter, but an L2 near native speaker and Participant #14 as an L1 non-attriter and an L2 non-native, but proficient speaker.

As for sociolinguistic factors, the results indicate that the motivation for change is attributable to emotional factors such as attitude and issues of identification with the L1 and the L2, both in terms of language and culture. The analysis above strongly suggests that, in adult speakers, bilinguals’ attitude towards the L1 is the deciding factor that ultimately influences frequency of language choice and investment in L1 maintenance efforts and, over time, differentiates between what was categorized in this chapter as Type I, Type II, or Type III bilinguals. In our study, Participant #1’s L1 attrition appears to be the result of distancing herself from the L1 culture and language. It can be inferred that L1 attrition occurs when the informant no longer identifies with the language. Moreover, the interview data provided evidence that Participant’s #1 efforts were focused on L2 acquisition at the expense of the L1 (5.2.2). In this regard, these observations are consistent with Schmid’s (in press) remark that L1 attrition “might be an ‘up and down’ process, and is probably evident more strongly in those situations when a lot of effort has to go into the development and acquisition of the L2” (in press: 73).

At the same time, a positive attitude does not guarantee protection from loss. In the case of Participant #5, and ultimately of all the bilingual participants in the study, mild forms of attrition were present to a certain extent in spite of generally positive attitudes toward the L1. As Dorian (1982: 55) concludes, “a positive attitude toward Gaelic [the L1] is not in any way predictive of the degree of success in maintaining control of the language.” Positive attitudes were present in both the strongest and the weakest Gaelic speakers in her study. As for our study, we conclude that while a negative attitude seems to contribute to the development of L1
attrition to a greater degree, a positive attitude does not guarantee language maintenance. In
time, lack of L1 input and intense contact with another language will erode L1 proficiency
regardless of the type of attitude held. Ultimately, attitude seems to be the link between the
various aspects that are relevant to frequency and type of language use. As such, a positive or
negative attitude influences language choice (Gardner, 1982; Davies, 1986), which in turn
influences language activation thresholds (Paradis, 2004; 2007), and finally overall language
proficiency. With respect to cognitive factors, L1 maintenance (or the avoidance of L1 attrition)
does not appear to be a direct function of high language aptitude. High levels of L2 acquisition,
however, appear to correlate with high language aptitude.

The tendencies discussed in this section suggest indirectly two additional implications.
On the one hand, as shown in the interview data, the influence of all sociolinguistic factors
fluctuates across the lifespan in ways that cannot be predicted, making their impact impossible
to understand fully (see also de Bot et al., 2007). As a result, the language system and its
subsystems are in constant flux and “there is no such thing as an end state” (de Bot et al., 2007:
18). On the other hand, it is usually a combination of factors, rather than factors in isolation, that
influences linguistic behavior. For instance, high language aptitude showed no clear positive
influence on L1 maintenance especially when combined with a younger age of arrival in the L2
country and, to some extent, when supplemented by a negative attitude toward the L1. In the
present study, this particular combination of factors resulted in a visible L1 decline, an outcome
that goes against our initial hypothesis according to which aptitude is regarded as a factor
encouraging not only L2 acquisition, but also L1 maintenance (Köpke, 2007). In addition, there
are also situations in which attitude and aptitude work as compensatory mechanisms. For
example, as underlined by DST and shown in this study, low language aptitude can be
compensated by high motivation (in the case of Participant #19) and both languages can be
maintained at a high level, or conversely (in the case of Participant #1) a high level of aptitude can be overridden by a low motivation thereby leading to significant L1 attrition.
Chapter 6
Conclusions

The objective of this final chapter is to present a summary of the findings from this dissertation study. Subsequently, the limitations of the present research and the measurements included in the testing battery as well as suggestions for future studies are presented.

6.1 Summary of Results

This study explored the language behaviour of twenty adult, bilingual Romanian migrants living in Canada. In particular, this dissertation focused on the linguistic changes and the contributing social and affective factors involved in the attrition of a migrant’s first language as he or she simultaneously acquires a second language in an L2-dominant environment. The following issues were addressed: i) the incidence of L1 attrition in the bilingual subjects, ii) the existence of possible systematic correlations between L1 and L2 proficiency, and iii) the influence of participant background and sociolinguistic factors (such as age at emigration, length of residence in emigration country, education, attitude, language choice, and language use) and cognitive factors (such as language aptitude) on L1 attrition and L2 acquisition in migrant language contact.

The incidence of first language attrition was explored both at the group and at the individual level. At the group level, differences between the bilingual and the L1 control group included generally lower scores and increased variability as compared to the monolinguals. More precisely, the findings showed that the general linguistic characteristics of L1 attrition were reduced vocabulary size and increased frequency of hesitation markers, predominantly before open class words. At the individual level, a significant degree of L1 attrition was
evidenced in two of the twenty migrant bilingual participants. These two participants consistently obtained scores below the threshold established via the monolingual control data on the majority of the tests. On the other hand, our results also suggest the possibility that some speakers can retain two languages and achieve considerable proficiency in both the L1 and the L2 (as was the case for one of the bilingual participants in the current study). The L1 performance of the seventeen other bilingual participants indicated that the migrants’ L1 competence generally remained within the L1 native range. In summary, while L1 attrition remains a possible outcome of language contact in a migrant context, the research conducted here establishes that this is not a necessary outcome in the first generation of migrants.

As for possible correlations between L1 and L2 proficiency, clear trade-off patterns – as predicted by the multicompetence model and Dynamic Systems Theory – were found only in the language proficiency of those participants whose L1 was most affected by attrition. In this regard, the results revealed that those bilinguals whose test results indicated measurable L1 attrition displayed higher levels of L2 proficiency as compared to the rest of the bilinguals studied. At the same time, we conclude that near-native proficiency in the L2 is not an obligatory precursor to attrition, since the speech proficiency of another participant in this group was perceived to be both at L2 near-native levels and indistinguishable from the non-migrant variety of the L1. If the cases mentioned above are taken to represent the extremities of the bilingual language continuum (namely, strong L2 proficiency accompanied by L1 attrition versus high proficiency in both the L1 and the L2), then the language proficiency of the rest of the participants can be mapped at different points on the continuum. In general, our results point to two key conclusions: firstly, these participants are not near-native English speakers and secondly, they remain more or less within the native range proficiency level in Romanian.
The third aim of our investigation was to establish the type of personal background and sociolinguistic factors which influence L1 attrition. Our data point to a number of important conclusions.

First, the sociolinguistic data, and to a larger extent the interview data, indicated that there are different types of attriters. On one hand, the results suggested that, in the case of one attriter, emotional distance from the L1 ultimately played the strongest role in predicting attrition. Conversely, incidence of L1 disintegration in the language proficiency of the other attriter in our group appeared to be the direct result of reduced exposure to the L1 and of increased influence from the L2. We point out that in this participant’s case, a generally positive attitude towards the L1 did not guarantee success in maintaining the L1. It follows, as also argued by Schmid & Dusseldorp (2010), that lack of L1 input and the increasing presence and influence of the L2 are the only factors with a causal impact in determining attrition. The other factors examined in this study play a moderating role. Their influence is restricted to either speeding up or slowing down the attrition process.

Secondly, our results indicate that it is a combination of personal background and sociolinguistic factors that account for the different relationships established between the L1 and L2 proficiency levels in the bilingual participants. Our results indicated that levels of L1 attrition were most strongly dependent on negative attitudes towards the L1 combined with a younger age at the time of emigration and more education in the L2 country. Ultimately, the close relationship between the development of L1 attrition and negative attitude can trigger lower frequency of L1 use and exposure. With respect to language aptitude, it is concluded that success in L1 maintenance is not a clear function of linguistic aptitude alone.

Thirdly, the qualitative analysis of the interview data pointed to an additional important aspect: some participants experienced changing attitudes towards the L1 which, in turn, influenced the amount of effort invested in L1 maintenance. We conclude, therefore, that the
sociolinguistic and background factors operate in a dynamic, rather than static, manner by constantly influencing the degree of L1 attrition and L2 achievement. In summary, the manifestations of linguistic development in the migrant bilingual – whether it is L1 attrition, near-native L2 achievement, or the in-between stages – are dependent on a variety of factors that are in constant flux and evolve in personal and often volatile ways, as described by Dynamic Systems Theory.

6.2 Strengths and Limitations of the Study and the Testing Battery

In this section I review the strengths and weaknesses of the tests included in the testing battery, as well as the study in general. As already stated in Chapter 3, the sociolinguistic questionnaire, the C-test, the VF, and the Charlie Chaplin spontaneous speech production task were taken from the language attrition test battery research manual (Schmid, 2005). The sociolinguistic questionnaire, the C-test, and the VF were administered as recommended in the manual. The Charlie Chaplin spontaneous speech production was transformed into a commenting task. To these tests, we added a post hoc evaluation of the L1 and L2 proficiency by non-migrant monolingual speakers. Along with the advantages of these tests, several limitations have to be taken into account when interpreting the results.

Let us begin by exploring the validity of the methods used to collect data vis-à-vis the factors considered to be important for L1 attrition, namely the sociolinguistic questionnaire and the interviews. A closer examination of the present study, as well as previous research reveals an interesting pattern: those studies that relied exclusively on written sociolinguistic questionnaires (Waas, 1996; Yağmur, 1997; Hulsen, 2000) seem to find no clear correlations between attitude and L1 performance, while the studies that used interviews for their data collection (Ben-Rafael & Schmid, 2007; Prescher, 2007) appear to establish a clearer link
between attitude and L1 attrition. These findings suggest the following conclusions: (1) individual interviews are a more adequate tool than sociolinguistic questionnaires for the prediction of a possible link between attrition and extralinguistic factors; and (2) qualitative analyses at the individual level seem to capture the dynamic, non-linear nature of the ways attitudinal factors change and the impact of these changes on attrition better than group-level analyses. In our opinion, the interviews provide a more appropriate tool for capturing the temporal dimension of the changes in the feelings of attachment or distancing from the L1/L2 as they evolve across the course of immigration. The sociolinguistic questionnaire is more rigid in its format and, therefore, more limited in its ability to reflect the various ways in which extralinguistic factors impact attrition. Moreover, participants seem to have a tendency to report in written questionnaires what is perceived in society as being the proper and expected answer, as opposed to expressing their true feelings. This type of auto-evaluation resembles in many ways self-assessment tests such as Can-Do scales (see also Köpke & Schmid, 2004: 24 for a review of practical concerns in research designs used in attrition studies). Lastly, many items included in written questionnaires are based on assumptions that tend to oversimplify the complex nature of language contact and render its quantification unrealistic (if not unfeasible). In our view, not only are these particular issues, or issues related to the relationship between the speaker and his/her languages overall, rather emotional, but bringing them up in the rigid form of a written questionnaire does not amount to a realistic view of language contact measures. In the questionnaire used in the present study, attempts were made to keep the items as general as possible. In this context, written questionnaires are especially useful in collecting general personal background information, but for more in depth investigations of sociolinguistic variables, the oral interview is, in our opinion, a more adequate elicitation technique.

The language aptitude test used in the present study was designed to measure the learners’ ability to acquire a second language. This test assesses skills involved in memorization
of new words, sound distinctions, and inferencing new grammatical rules. In this regard, our hypothesis predicted that greater language aptitude would not only be beneficial for greater L2 learning achievement, but equally for counteracting L1 attrition. In general, the results indicated a positive correlation between language aptitude and L2 acquisition, but remained inconclusive with respect to L1 maintenance potential. Building on Köpke’s (2004: 12, citing Paradis, 1994) discussion regarding the different types of memory subserving L1 acquisition (namely *procedural* or *implicit* memory) and L2 acquisition (*declarative* or *explicit* memory), we propose that one possible explanation for the lack of correlation between aptitude (as tested in the present study) and L1 test performance is that the skills necessary for L1 maintenance are partially different from the skills that appear to be key in L2 learning. Given this line of thinking, a more appropriately designed aptitude test for the study of language attrition would need to focus not only on the bilingual’s ability to observe differences between languages, but also on her/his ability to detect the specific L1 structures that are more vulnerable to attrition. In other words, in the context of adult L1 attrition, language aptitude tests should tap into the speaker’s declarative memory capacity for measuring L2 learning ability and into his or her implicit memory capacity for L1 maintenance facility. In conclusion, while exploring linguistic aptitude and its influence on the degree of L1 maintenance success is an innovative measure in our study and remains a promising direction for future research, the tools used to assess language aptitude require further fine-tuning before they can address the realities of L1 maintenance in an L2 environment. Describing with precision how the aptitude test may be changed is beyond the scope of our study, but we consider that the suggestion above could be a starting point.

As for the formal elicitation techniques, the C-test yielded significant between-group results in the L2 (English), but not in the L1 (Romanian). These results suggest that the C-test was a useful tool for detecting differences in L2 global language proficiency between the L2
control and bilingual groups. The fact that the C-test revealed no attrition in the L1 could be interpreted in two ways: either the participants did not show a significant level of attrition or the C-test is not a sufficiently sensitive tool to capture attrition. Given our general finding that there are differences between the bilingual group and the L1 control group, it can be argued that the classic version of the C-test used here may not have been sufficiently fine-grained to capture such subtle distinctions. For the purpose of detecting language attrition, a more refined C-test seems necessary. For example, a C-test that focuses on one particular morphosyntactic feature, such as case markers or prepositions, would probably yield more interesting results. Another suggestion comes from Dostert’s (2009) use of weighted C-tests, where additional results were computed for each participant based on the length of time needed to find the correct answer. Dostert concludes that the weighted test seemed more useful than the classic, unweighted test as the results correlated with the film retelling and the picture description tasks.

The VF task revealed significant differences between the attriters’ and the L1 controls’ lexicons in both the L1 and L2 versions of the test. This outcome could be due to the commonly increased visibility of attrition in the lexical domain. While generally a useful task, its results can be enhanced by adding a more detailed analysis of the lists of items produced by the participants. In the present study, the analysis consisted of a count of the total items produced and the incidence of attrition was established based on the differences in the sum of items between the control and bilingual groups. Partly following Dostert (2009), a more detailed analysis could include the semantic classification of the items produced in three categories: superordinate, basic, subordinate. One aim of this additional analysis lies in investigating the extent to which the bilinguals’ choice of items results from the interaction with the L2 culture. Another interesting application would be to investigate the extent to which bilinguals show a tendency to enumerate more superordinate, basic, or subordinate items. Such an analysis could provide a window into the general organization of the mental lexicon in long term migrant
speakers. In conclusion, both the C-test and the VF are useful and valid elicitation techniques. At the same time their potential can be further achieved with more focused versions and a more detailed analysis of the results.

Spontaneous speech provides a very versatile set of data that can accommodate a variety of analyses from different angles: frequency and distribution of hesitation markers, measurements of lexical diversity, or usage patterns of certain morpho-syntactic structures such as relative pronouns, prepositions, case markers, gender and number markers, among others. In the present research, the film retelling task was used to measure differences in lexical variety and frequency of hesitation markers. The task, however, yielded weaker between-group differences than expected, especially with respect to L1 attrition. The lack of clear cut inter-group differences can be attributed to a number of reasons, including the choice of visual support for the task or the type of measurements performed.

As for the type of visual support used, the specific excerpt from the Charlie Chaplin film *Modern Times* appears to be problematic, as it betrays familiarities with North-American culture. Such similarities may have had the effect of speeding up speech production in the migrant group, while slowing down processing in the Romanian control group, thereby attenuating the difference between the two groups. For example, in one particular scene in the film, Charlie Chaplin goes to a cafeteria and orders food. While the bilingual speakers recognized immediately what was going on and continued the retelling without interruption, certain Romanian speakers in the control group were inclined to wait a few scenes before continuing the story. Presumably, two things could have created confusion and slowed down the participants in the control group. On one hand, one finds the mention of the word ‘cafe’ in the name of the locale and on the other, the fact that ‘cafeteria’ is a false cognate with the related word ‘cofetărie’ (meaning *sweet shop*). Therefore, the Romanian monolinguals stopped for a few seconds in order to grasp that, in spite of the mention of the word “cafe”, the scene was
taking place in a regular restaurant. This problem was discovered only after the testing had already started. As an alternative, more culturally neutral visual supports should be used for spontaneous speech elicitation tasks. On the other hand, and possibly even more relevant to testing L1 attrition, the choice of visual supports can pertain directly to the L1 and L2 cultures, in a way similar to the descriptions of typically Dutch and Australian scenes used by de Bot and Clyne (1994) in the research on attrition in Dutch immigrants in Australia.

As for the measurements employed in the spontaneous speech data analysis, certain concerns should be kept in mind. First, no objective measure of the length of empty pauses was used in the present study. The pauses were observed and recorded by the researcher alone, and while the data has been checked for accuracy three times, no specialized software or verification by a second researcher was carried out. In the near future, we intend to carry out a more precise analysis of these phenomena that includes measurements by means of acoustic software and verify the present results. Secondly, the calculations of the D value were based only on the CLAN software, which is not designed to take Romanian morphology into account. In hindsight, in order to get a more accurate D value, we could have run a frequency count on a certain stretch of words, e.g. 1,000 words, lemmatized them by hand, eliminated all function words, and included only nouns, verbs and adjectives in the count. While the D value calculation used in the present study managed to correlate largely with the C-test and VF results, using a more precise measurement of lexical diversity would increase the accuracy of the measurement. However, we do not believe that the results would be greatly changed, since the effect of inflection is expected to be similar for all participants.

Before moving on to the native speaker assessments, we discuss briefly the advantages and disadvantages of using a film commenting task (Skaaden, 2005). As stated in Chapter 3, the commenting task was considered to be more conducive to obtaining comparable stretches of speech from all of the participants and, given its real-time dimension, to forcing the participants
to use fewer avoidance strategies. In spite of these strengths, the task had the limitation that, at times, participants would not finish their sentences, or they would watch the scenes unfold without providing any commentary. In order to avoid the latter limitation and familiarize the participants with the story line, the film episode was first watched without any commentary. This practice proved to be helpful in most cases.

Finally, spontaneous speech production can be used in conjunction with native speakers’ assessments. In the present study, this type of measurement has proved to be exceptionally useful in locating or confirming the L1 attriters in the bilingual group. The ratings correlated closely with the rest of the tests: the raters’ scoring identified the same two participants to be L1 attriters as the rest of the tests included in the testing battery. Moreover, the native speakers’ evaluation indicated that Participant #19 was clearly perceived to be within the native-speaker range in both the L1 and the L2. In spite of these findings, certain methodological shortcomings have to be stated. For example, no speech productions from the Romanian and English control monolinguals, with the purpose to evaluate the raters’ baseline judgments, were included among the recordings rated by the evaluators. In other words, the recordings contained data from the bilinguals only. We argue, however, that while the absence of control recordings may be problematic for the evaluation of L2 proficiency, it is less important for the L1 assessment, mainly because the two types of evaluation are different in nature. The English evaluators were asked to assess the level of nativeness of bilingual, non-native speakers. In this case, the inclusion of English native speakers would have served as dissimulated baseline data for comparison. The purpose of the Romanian evaluation, on the other hand, was to indentify the L1 attriters from a pool of migrant native speakers of Romanian, and not to distinguish between native and L2 speakers of Romanian and non-native speakers. Therefore, since the objective of the L1 evaluation was to obtain judgments about more subtle changes to the speaker output, it can be argued that the bilingual group was sufficient, as it allowed for comparisons between the
changes occurring in the speech of attriters with the changes occurring in the speech of non-attriters.

In the same vein, an additional observation is made in respect of the general test construction. Subsequent to the test administration, it became apparent that the one-minute recording used for the evaluations, while long enough for a general assessment of L2 nativeness, may have been too short in length to detect more subtle language changes in the L1, which, otherwise, might have been revealed through longer recordings. In some cases, evaluators experienced difficulty assigning scores and occasionally expressed uncertainty in their scoring decision when the recording ended. Attrition research has shown that, as a general rule, the level of proficiency of attriters’ speech is highly inconsistent. In certain situations, speech patterns of attriters are indistinguishable from non-migrant speech, while in other situations, these speech patterns sound clearly foreign. By way of example, some excerpts from the bilinguals happened to contain no code-switches, errors or other indicators of foreign speech. In such cases, the evaluators may not have had a sufficiently comprehensive sample with which to judge the speech with complete accuracy. In other words, the evaluation given depends heavily on the speaker’s articulateness in a specific context. Ergo, in the case of certain bilinguals, longer excerpts would be required to make a more accurate appraisal of such bilinguals’ speech patterns.

In addition to the suggestions mentioned above, according to De Leeuw (2009), another way to improve the perceptual judgement task would be to use trained raters instead of random non-migrant L1 speakers. Such measures, of course, are directly influenced by the goals pursued in the experiment, since they can result in different conclusions. De Leeuw (2009) argues that the phonetic training of the listeners in her study made them more adept at detecting foreign accent in the speech of German migrants than monolingual native speakers with no training. Given that distinguishing between changes in the L1 output of adult migrant speakers often
requires a high degree of subtlety, using trained evaluators can only be advantageous for the
detection of L1 attrition. By the same token, Hyltenstam and Abrahamsson (2003) show that
while L2 non-native speech can go unnoticed and be taken as ‘native’ by native speakers, more
precise measurements (acoustic analysis, articulatory techniques such as ultrasound and
electropalatography, as well as brain imaging methods such as fMRI) allow for an accurate
detection of non-native speech. Akin to the assessment of L2 non-native speech in Hyltenstam
and Abrahamsson’s study, the presence of trained listeners can, therefore, serve as a more
advanced and elaborated evaluation process. In fact, one of the evaluators in our study was a
linguist and her observations were significantly more detailed and astute than those coming
from non-trained raters.

In retrospect, there are no major changes that we would have brought to the
experimental design of the present study. We would not omit any of the tests included in the
testing battery, but we would modify the existing tests and also add more tests, depending on the
depth of the questions to be investigated. The formal tests are easy to administer and lend
themselves to faster analysis. The spontaneous speech sample, on the other hand, while more
difficult to collect and requiring a more time consuming analysis, provides data that are
indispensable in assessing a variety of aspects related to language proficiency and use in the
migrant speaker. All in all, the present testing battery succeeded in answering the questions
raised in the current research. The manner in which data was elicited yielded sufficiently
relevant results to offer a snapshot of the migrant speakers’ linguistic proficiency.

We conclude with several remarks regarding some of the contributions brought by the
present study to the field of attrition research. To our knowledge, this research is the first project
studying the attrition of L1 Romanian, a language that has not been as yet systematically
examined in migrant contexts. Furthermore, it brings together a complex test battery that
combines measures coming from formal tests and spontaneous speech data. It is also one of the
few studies to account for the migrant bilingual’s portrait by investigating not only data coming from the L1, but from the L2 as well. Equally important, this study also included the use of an L1 and an L2 monolingual control group as baseline for comparisons. As for the analysis of results, the present study has combined a quantitative analysis with more individual, qualitative analysis of the various measurements used. In fact, the latter approach has proven to be more suitable in providing an accurate account of the type of language changes taking place in the L1 and the L2 proficiency of the bilingual speakers. With respect to the findings, this study has proven that L1 attrition is a possible outcome of language contact within the first generation of adult migrants. The results indicated that the main linguistic indicators of L1 attrition included reduced vocabulary size and increased frequency of hesitation markers in spontaneous speech. Our investigation has also shown that L1 attrition is a function of increasing levels of L2 achievement and that attrition is, to a larger extent, dependant on attitudinal factors, rather than on cognitive factors, such as language aptitude. At the same time, the results of our investigation also suggest that L1 attrition is not an “end state” and that different life events and changing attitudes across the life span can influence maintenance efforts and possibly even revert the attrition process.

**6.3 Directions for Future Research**

Attrition research so far has shown that establishing the incidence of L1 attrition in adult migrants who have relocated to an L2 country with a fully developed grammar presents massive methodological challenges (Skaaden, 2005). This is due to the slow nature of the process of attrition, to the subtle linguistic changes that are taking place, and to the multitude of factors involved.

Arguably, one of the reasons that L1 attrition has proved difficult to establish is that cross-sectional research has used data from a control group in the L1 country or a speaker’s
retrospective self-evaluation to compensate for the lack of information about the individual’s former language skills. As Hutz (2004:190) points out, this type of approach has two important limitations: it makes tacit assumptions about a speaker’s former competence, and can only represent information about the linguistic skills of the migrant at one particular point in time. Since L1 loss is a dynamic phenomenon, longitudinal designs, although more difficult to set up, have the advantage of allowing evaluation of the development of language attrition by comparing specific assessments of the proficiency of individuals at different moments in time (Hutz, 2004:190). This results in a more reliable measurement of the process of attrition (Jaspaert & Kroon, 1989:82). With the exception of a few studies (de Bot & Clyne, 1994; Hutz, 2004), little research has been conducted to understand how attrition develops longitudinally, despite the fact that this type of design is a promising approach for attrition research.

Another issue related to longitudinal studies is that some of the differences between the migrant and control groups may not be the result of attrition, but reflect diachronic changes taking place in the L1 non-migrant community. The bilingual migrant has not been exposed to these changes due to long periods of separation from the non-migrant L1 variety (Jaspaert & Kroon, 1989:80). Parallels between language change at the societal level and change in individuals can be particularly relevant for understanding language dynamics, and the study of L1 changes in migrant contexts can provide important indicators of the direction such changes can take. In other words, language attrition can be viewed as a condensed form of change processes in the language itself (de Bot & Weltens, 1991:36). For example, similar evidence is reported in studies such as Boyd’s (1993) research on the loss of clitic elements in Finnish speakers in Finland and Sweden. Boyd shows that the tendency to drop clitic elements in possessive constructions is accelerated in bilingual Finns living in Sweden as compared to a control group in Finland. Tangentially, longitudinal approaches can also be beneficial in
answering questions related to how various sociolinguistic factors play out in combination over time and their influence on attrition.

As argued in previous research, as well as in the present study, language attrition is, to a large extent, the result of L2 transfer and influence. In this context, hesitation phenomena can be explored more in depth by means of comparisons between L1 speakers living in different L2 environments. For example, comparing L1 Romanian speakers living in English-speaking Canada with those living in French-speaking Canada could provide insights into questions concerning the impact of the degree of language and cultural proximity on attrition phenomena. In other words, as part of a native speaker evaluation task, one could examine whether or not semantic disfluency phenomena – which are more sensitive to crosslinguistic influence than cognitive disfluency markers (Schmid & Beers Fägersten, 2010) – are more easily perceived in the L1 of Romanian speakers living in French-speaking as opposed to English-speaking environments.

The current study also provides the necessary platform for new research directions that are closely tied to the specific lexical and morphosyntactic manifestations of attrition in the context of Romanian. The spontaneous speech data and the interviews revealed a number of structures which appear vulnerable to attrition under the pressure of English. Such constructions include the elimination of the distinction between the relative pronoun with a noun antecedent (*care) and the relative pronoun with a phrase antecedent (ceea ce; see example (61)), or the optionality of the accusative marker in prescriptively obligatory contexts (example (62)) and the deletion of the dative pronominal clitics (example (62)).

(61)  S-a stricat GPS-ul, *care (vs. ceea ce) e foarte nasol.

The GPS broke, which is very bad for us.
Medicii și asistentele din Sunnybrook sunt printre cei mai buni în domeniu, și sunt în măsură să învețe și alți colegi cea ce știu.

The doctors and nurses at Sunnybrook are among the best in the field and are able to teach other colleagues what they know.

These observations suggest an additional possible direction of research in language attrition. One way to test L2 influence on the L1 is by investigating crosslinguistic traffic affecting structures that, on the one hand, are shared by both the L1 and the L2, and, on the other hand, have different syntactic mechanisms in the L1 and the L2. Such a situation could, for example, be tested with the relative pronoun in Romanian in contact with French (languages that distinguish between relative pronouns that take a noun or a phrase as antecedents) and English (a language that uses the same relative pronoun regardless of the type of antecedent).

In terms of result analysis, de Bot, Lowie, and Verspoor (2007) underline the importance in future studies of employing not only traditional statistics, which are “meant to reveal how a group performs as a whole and may be useful to see the grand sweep of things”, but also of looking at “the messy little details, the first attempts, the degree of variations at a developmental stage, and the possible attrition” (de Bot et al., 2007:19). According to Dynamic Systems Theory, a theory which is “more geared towards visualization to see developments rather than to test them” (de Bot et al., 2007:14), such an approach is essential for understanding the phenomenon of L1 attrition.

Finally, in this context, the phenomenon of non-pathological “loss” of an infrequently used language in migrant contexts is an important research issue that can help us better understand the organization of the bilingual mind. As stressed by Grosjean (1998), bilinguals are rarely equally fluent in all language skills in both their languages and language dominance patterns are in constant change depending on the present communicative needs of the bilingual. In this context, L1 attrition appears to be a natural consequence of the lack of use of a language,
mostly due to its reduced usefulness in the new environment and, also, to the increasing influence exerted by the competing L2. Given the ever growing number of bilingual speakers around the world, it is crucial that there be more studies of both the linguistic and cognitive aspects related to attrition. These studies need to examine both a larger numbers of participants and a greater variety of first and second languages in contact situations. It is hoped that the present study has made a contribution in this direction.
References


Appendix A
Call for Participants

1. English version

Research on Romanian language change:

Participants wanted for linguistic study!

It has long been established by linguistic science that all human languages are undergoing a constant process of change. For many languages, this change has been sped up considerably over the past years by the rising patterns of emigration and by technological innovations such as the internet. We would like to investigate this and are looking for Romanians in the Toronto area who have been living in Canada for the past 10 years (or longer) and left Romania after the age of 17.

There is no specialized knowledge required – we’re looking for you, whether you speak Romanian on a daily basis or virtually never!

Time involved in data collection is approximately 2 hours and will take place at a location of your choice. Parts of the testing can be completed via email.

Interested and want to find out more? Please contact me at: mirela.cherciov@utoronto.ca
2. Romanian version

Studiu asupra schimbărilor din limba Română:

Căutăm participanți pentru un studiu lingvistic!

Faptul că toate limbile trec printr-un constant proces de schimbare reprezintă un adevăr lingvistic recunoscut. Acest proces natural a fost în ultimul timp accelerat considerabil atât din cauza emigrației, cât și din cauza folosirii la scară din ce în ce mai largă a inovațiilor tehnologice, precum internetul. Pentru a analiza schimbările produse în cadrul limbii române, căutăm Români din zona Toronto care trăiesc în Canada de cel puțin 10 ani și au plecat din România după vârsta de 17 ani.

Nu sunt necesare cunoștințe lingvistice de specialitate – avem nevoie de dumneavoastra, chiar dacă vorbiți românește zilnic sau deloc!

Colecționarea datelor durează aproximativ 2 ore și se poate desfășura într-o locație la alegerea dumneavoastră. O parte din teste pot fi trimise și completate prin email.

Dacă acest studiu vă interesează și doriți să aflați mai multe informații, va rog sa-mi scrieți: mirela.cherciov@utoronto.ca
APPENDIX B
Sociolinguistic and Personal Background Questionnaire for the Bilingual Group

(English translation, followed by the Romanian version)

Sociolinguistic and personal background questionnaire

With this questionnaire I would like to get an impression of the personal background and language use of Romanian emigrants in Canada. It consists of 67 items. It is important to note that not all items may apply to you personally. Should you think that a certain item does not apply to you (for example when you are asked about the language use of your children and you don’t have any children), you may cross out the number in front of that particular question and move on to the next. It is important that you answer these questions on your own, because I am interested in your language use. If you don’t understand a certain question, please do not hesitate to ask me. There are no right or wrong answers!

1) What is your date of birth?

2) Are you:
   □ male
   □ female

3) Where were you born:
   Village/Town: ..................................................................................
   Country: .................................................................................................

4) What nationality do you have?

5) Would you say that you spoke a standard variety of Romanian while you lived in Romania or a dialect?
   □ standard Romanian
   □ a dialect, namely:

6) What is the highest level of education you have completed and in what country?
   □ primary school Country:
   □ secondary school Country:
   □ high school Country:
   □ higher education, namely: Country:
   □ university, degree: Country:
   □ postgraduate degree, namely: Country:

   Have you pursued further education while living in Canada? (this does not have to be language-related)
   □ yes, for (number of years):
   □ no

7) If you attended high school in Canada, please specify how many years you attended in Romania and how many years in Canada? ......................

8) When did you come to Canada (year)? 19..........., at the age of ...................

9) Apart from Canada, have you ever lived in a country other than Romania for a longer period of time (that is, more than 6 months)?
   □ no
   □ yes, in: ............................................................ for the period of:

10) What language(s) did you acquire before starting school?
    □ only Romanian
    □ (an)other language(s) as well, namely: ..................................................................................................................................................
11) Did you attend any English classes before coming to Canada?:
   ❑ no
   ❑ yes, for the duration of (number of years):

12) Did you attend English classes in Canada?
   ❑ no
   ❑ yes, for the duration of (number of years):

13) What language or languages did you learn professionally or at school?
   .................................................................................................................................
   .................................................................................................................................
   .................................................................................................................................
   .................................................................................................................................

14) What language or languages did you learn outside of an educational environment (so outside of school or work)?
   .................................................................................................................................
   .................................................................................................................................
   .................................................................................................................................
   .................................................................................................................................

15) What is your current profession?
   .................................................................................................................................

16) If you have had several professions, could you indicate each one of them in chronological order?
   1. .................................................................................................................................
   2. .................................................................................................................................
   3. .................................................................................................................................
   4. .................................................................................................................................

17) Have you ever been back to Romania since leaving for Canada?
   ❑ no, never
   ❑ yes, but only occasionally
   ❑ yes, regularly: one in….years OR about:…… times a year.

18) If you have indicated that you have been back to Romania, could you please indicate what the reason or reasons for such a visit were (you may tick more than one box here)?
   ❑ because of urgent family matters (such as a wedding or a funeral)
   ❑ to visit friends and relatives
   ❑ for another reason, namely:

19) Do you ever go to church in Canada?
   ❑ no, never
   ❑ yes, occasionally
   ❑ yes, regularly

20) If you have indicated you go to church, could you please indicate in which language the services are held?
   .................................................................................................................................

21) In general, how would you rate your English language proficiency before you moved to Canada?
   ❑ very good
   ❑ good
   ❑ ok
   ❑ fairly poor
   ❑ very poor

22) In general, how would you rate your English language proficiency at present?
   ❑ very poor
   ❑ fairly poor
   ❑ ok
   ❑ good
   ❑ very good

23) How often do you speak Romanian?
   ❑ daily
   ❑ weekly
24) Do you consider it important to maintain your Romanian?
   - very important
   - important
   - no opinion
   - fairly unimportant
   - very unimportant

25) What language are you using during mental calculations?

   Romanian: Never  Rarely  Sometimes  Often  Always
   English: Never  Rarely  Sometimes  Often  Always
   Comments……………………………………………………………………………………….

26) Do you consider it important that your children can speak and understand Romanian?
   - very unimportant
   - fairly unimportant
   - no opinion
   - important
   - very important

27) Have you made many new friends in Canada?
   - yes
   - no

28) In general, do you have more Romanian- or English-speaking friends in Canada?
   - only Romanian-speaking friends
   - both, but more Romanian-speaking friends
   - as many Romanian- as English-speaking friends
   - both, but more English-speaking friends
   - only English-speaking friends

29) How did you meet most of these people?
   - through a Romanian club or organisation
   - through a mutual friend
   - through work or the children’s school
   - through another way, namely:

30) Do you feel more at home with Romanian or with Canadian culture?
   - with Canadian culture
   - with both, but more with Canadian culture
   - with both cultures, equally
   - with both, but more with Romanian culture
   - with Romanian culture

31) Do you feel more comfortable speaking Romanian or English?
   - no preference
   - Romanian
   - English

32) What is your current marital status?
   - married
   - separated/divorced
   - widow/widower
   - living together unmarried
   - single
33) With what language(s) was your (ex)partner brought up?
  □ English
  □ Romanian
  □ other, namely: .................................................................................................................................

34) If your (ex)partner was not born in Canada, what were the reasons that he or she came to Canada?
................................................................................................................................................................

35) When did your (ex)partner come to Canada (year)? 19....... at the age of............

36) What language or languages do you mostly use when talking to your (ex)partner?
  □ only Romanian
  □ both Romanian and English, but mostly Romanian
  □ both Romanian and English, without preference
  □ both Romanian and English, but mostly English
  □ only English

37) What is the current profession of your (ex)partner? If your (ex)partner is retired, could you please indicate what his or her last profession before retirement was?
................................................................................................................................................................

38) Do you have children?
  □ no
  □ yes, they are................................................................. years old.

39) What language or languages do you mostly use when talking to your children? If you don’t have children, what language would you use?
  □ only Romanian
  □ both Romanian and English, but mostly Romanian
  □ both Romanian and English, without preference
  □ both Romanian and English, but mostly English
  □ only English

40) What language or languages do your children mostly use when talking to you?
  □ only English
  □ both Romanian and English, but mostly English
  □ both Romanian and English, without preference
  □ both Romanian and English, but mostly Romanian
  □ only Romanian

41) Do you encourage your children to speak Romanian?
  □ yes, occasionally
  □ no, never
  □ yes, often

42) Did /do you ever correct your children’s Romanian?
  □ never
  □ very rarely
  □ sometimes
  □ regularly
  □ very often

43) If your children do not speak or understand Romanian, do you regret that? If you don’t have children, would you regret it?
  □ not at all
  □ not much
  □ no opinion
  □ a bit
  □ very much
44) Are you in frequent contact with relatives and friends in Romania?

- all the time
- frequently
- sometimes
- rarely
- very rarely

45) How do you keep in touch with those relatives and friends in Romania?

- telephone
- letters
- e-mail
- another way, namely:

46) What language or languages do you mostly use to keep in touch with relatives and friends in Romania?

- only Romanian
- both Romanian and English, but mostly Romanian
- both Romanian and English, without preference
- both Romanian and English, but mostly English
- only English

47) Do you think Romanian plays an important role in the relationship between your direct family members?

- not at all
- not much
- no opinion
- a bit
- very much

48) Could you please fill in those people that you are most frequently in touch with in the following table? These people can live in Romania or in Canada. I wish to see through this table which language you most frequently use in your daily life: Romanian or English. You don’t have to fill in the name of the person if you do not wish to. I would like to ask you, however, to provide the rest of the information asked for. One name has already been filled in as an example.

<table>
<thead>
<tr>
<th>Name</th>
<th>Residence</th>
<th>Nationality</th>
<th>How did you meet?</th>
<th>How long have you known each other</th>
<th>Is s/he a relative of yours? If so, what is the relation?</th>
<th>What language do you speak with each other?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anabela</td>
<td>Romania</td>
<td>Romanian</td>
<td>She is my sister</td>
<td>25 years</td>
<td>Yes, she is my sister</td>
<td>Romanian</td>
</tr>
</tbody>
</table>

49) Could you, in the following tables, please indicate to what extent you use Romanian (table 1) and English (table 2) in the domains provided? You may simply tick the box. If a certain domain is not applicable to you (for example, if you don’t have any pets), you may leave the box empty.

**Table 1: I speak Romanian**

<table>
<thead>
<tr>
<th></th>
<th>all the time</th>
<th>frequently</th>
<th>sometimes</th>
<th>rarely</th>
<th>very rarely</th>
</tr>
</thead>
<tbody>
<tr>
<td>With relatives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>With friends</td>
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<td>To pets</td>
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<td>At work</td>
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<td>In church</td>
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<td>In shops</td>
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</tbody>
</table>
At clubs or organisations
Other, namely:

I speak English

<table>
<thead>
<tr>
<th></th>
<th>all the time</th>
<th>frequently</th>
<th>sometimes</th>
<th>rarely</th>
<th>very rarely</th>
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<tbody>
<tr>
<td>With relatives</td>
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<td>At work</td>
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<td>In shops</td>
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<td>At clubs or organisations</td>
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<td>Other, namely:</td>
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</tbody>
</table>

50) Have you ever been a member of a Romanian club or organisation in Canada?
   - no
   - yes, namely (name of the organisation and period of membership)

51) What language do you use when you are alone or upset?.................................

52) Do you ever get homesick in the sense of missing Romania?
   - no, because…..
   - yes, what I then miss most is/are:
     - sometimes……

53) What language do you use when talking to yourself?.................................

54) Do you ever listen to Romanian songs?
   - no
   - yes

55) Do you ever listen to Romanian radio programmes?
   - no
   - yes

56) Do you ever read Romanian newspapers, books or magazines?
   - no
   - yes

57) Do you ever watch Romanian television programmes?
   - no
   - yes
   - I would love to, but I can’t get them

58) Do you think your Romanian language proficiency has changed since you moved to Canada?
   - no
   - yes, I think it has become better
   - yes, I think it has become worse

59) Do you think you use more or less Romanian since you moved to Canada?
   - no, I don’t think I use more or less Romanian now
   - yes, I think I use less Romanian
   - yes, I think I use more Romanian

60) Do you ever feel uncomfortable when speaking Romanian with a Romanian person who has never spent a considerable amount of time in an English-speaking country?
61) If you ever do feel uncomfortable in such a situation, could you indicate whether this is also the case when you speak Romanian with someone who, like you, has lived in Canada for a long time?
- I feel just as uncomfortable then ........................................................................................................
- I feel less uncomfortable then ........................................................................................................

62) Do you see yourself as bilingual? In other words, do you think you are as proficient in Romanian as in English?
- no, because........................................................................................................................................
- yes, because.........................................................................................................................................
- I don’t know, because ..........................................................................................................................

63) Are you better at guessing a person’s social position/status when they speak Romanian or English?
- Romanian, because.............................................................................................................................
- English, because.................................................................................................................................
- it makes no difference, because ........................................................................................................

64) How do you feel about Romanian people (tourists for example) who speak English with a heavy Romanian accent?
- that annoys me
- I don’t have any problems with that

65) Do you ever intend to move back to Romania?
- no, I don’t intend to ever return to Romania
- I have never really given it much thought
- yes, I would eventually like to move back to Romania

66) Looking back, do you think you have made the right decision in moving to Canada?
- yes
- no
- I don’t know

67) You have come to the end of this questionnaire. Is there anything you would like to add? This can be anything from language-related comments to remarks about the questionnaire or research itself.

SOCIOLINGUISTIC AND PERSONAL BACKGROUND QUESTIONNAIRE – BILINGUAL GROUP
(Romanian version)

Acest chestionar a fost alcătuit cu scopul de a vedea modul în care limba română este folosită în mijlocul comunității românești din Canada. El conține un număr de 67 de întrebări. Dacă una dintre întrebări nu este relevantă în cazul dumneavoastră (de exemplu, dacă o întrebare se referă la modul în care copiii dumneavoastră folosesc limba română și dumneavoastră nu aveți copii), puneti un X în dreptul întrebării și treceți la întrebarea următoare. Răspunsurile la aceste întrebări trebuie să fie date pe cont propriu, pentru că ceea ce mă interesează este modul în care dumneavoastră, ca și vorbitor de limba română în Canada, folosiți această limbă. Dacă o întrebare vi se pare neclară, nu ezită să-i mă ceri lucruri. Nu există răspunsuri corecte sau greșite!

Vă mulțumesc frumos!

1) Care este data dumneavoastră de naștere?
..................................................................................................................................................19

2) Sunteți de genul:
- feminin
- masculin
3) Unde v-aţi născut:
Sat/Oraş: ..............................................................................................................................
Ţară: .................................................................................................................................

4) Ce cetăţenie sau cetăţenii deţineţi?
.............................................................................................................................................

5) Consideraţi ca limba vorbită de dumneavoastră atunci când trăiaţi in România era limba standard sau un
dialect?
- Româna standard
- un dialect, şi anume:........................................................................................................

6) Specificaţi nivelul de şcolarizare absolvit şi ţara în care l-aţi absolvit:
- Școala primară Țara:
- Clasele V-VIII Țara:
- Liceul Țara:
- Alte specializări, de exemplu:................................................................. Țara:
- Universitate, specializarea în:............................................................. Țara:
- Doctorat sau masterat, specializarea în:................................. Țara:

Ce cursuri (exceptând cele de limba engleză) aţi urmat doar în Canada şi pe ce perioadă de timp (ani/ luni)?
.............................................................................................................................................
.............................................................................................................................................

7) În cazul în care aţi urmat liceul în Canada, câţi ani aţi terminat în România şi câţi în Canada?
România _____ Canada ______

8) În ce an aţi venit în Canada? 19 ..............................................................
La ce vârstă?.................................

9) Cu excepția perioadei trăite în Canada, ați trăit în vreo altă țară în afara României pentru o perioadă mai lungă
de 6 luni?
- Nu
- Da, în......................................................... pe o perioadă de:

10) Ce limbi ați învățat înainte de a începe școală?
- numai româna
- alte limbi, anume:.........................................................................................

11) Înainte de venirea în Canada, ați fost înscriși la cursuri de limba engleză?
- Nu
- Da, pe o perioadă de:.................................................

12) Ați urmat și alte cursuri de engleză în Canada?
- Da, (câți ani?):.........................
- Nu

13) Ce limbi ați învățat la școală?
.............................................................................................................................................
.............................................................................................................................................
14) Ce limbi ați învățat în afara sistemului școlar?
...........................................................................................................................................................................................................................................................................................................
...........................................................................................................................................................................................................................................................................................................

15) Care este profesia dumneavoastră actuală?
...........................................................................................................................................................................................................................................................................................................
...........................................................................................................................................................................................................................................................................................................

16) Dacă ați avut mai multe profesii, le-ați putea indica în ordine cronologică?
1. ...........................................................................................................................................................................................................................................................................................................
2. ...........................................................................................................................................................................................................................................................................................................
3. ...........................................................................................................................................................................................................................................................................................................
4. ...........................................................................................................................................................................................................................................................................................................

17) De când v-ați mutat în Canada, ați mai fost în România?
☐ nu, niciodată
☐ da, numai ocazional
☐ da, în mod regulat:

O dată la ........ ani De...........ori pe an

18) Dacă ați fost în România, ați putea indica motivul vizitei (puteți marca mai multe căsuțe)?
☐ Probleme de familie urgente (spre exemplu, nunți sau înmormântări)
☐ Vizitarea familiei și a rudelor
☐ Alte motive, și anume:

19) Mergeți la biserică în Canada?
☐ nu, nicioadată
☐ da, ocazional
☐ da, în mod regulat

20) Dacă ați indicat că mergeți la biserică, în ce limbă se ține slujba?
...........................................................................................................................................................................................................................................................................................................

21) În general, cum ați aprecia nivelul dumneavoastră de engleză înainte de venirea în Canada?
☐ avansat
☐ ok
☐ slăbuț
☐ foarte slăbuț
☐ nu ştim engleză deloc

22) În general, cum apreciați nivelul dumneavoastră de engleză actual?
☐ foarte slăbuț
☐ slăbuț
☐ ok
☐ avansat
☐ competență nativă

23) Cât de des vorbiți Românește?
☐ zilnic
☐ săptămânal
☐ lunar
226

de câteva ori pe an
mai rar de atît, şi anume………………

24) Consideraţi că este important să vorbiţi româneşte?

- foarte important
- important
- nu am nici o opinie
- nu e important
- nu e deloc important

25) Ce limbă folosiţi atunci când faceţi calcule mentale (încercuie/ subliniaţii)?

<table>
<thead>
<tr>
<th>Română</th>
<th>Niciodată</th>
<th>Rar</th>
<th>Uneori</th>
<th>Des</th>
<th>Tot timpul</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engleza</td>
<td>Niciodată</td>
<td>Rar</td>
<td>Uneori</td>
<td>Des</td>
<td>Tot timpul</td>
</tr>
</tbody>
</table>

Comentarii:……………………………………………………………………………………………………………………………………………………………………
……………………………………………………………………………………………………………………………………………………………………

26) Consideraţi că este important ca şi copiii dumneavoastră (sau viitorii copii) să vorbească şi să înveţe româneşte?

- nu e deloc important
- nu e important
- nu ştiu
- este important
- este foarte important

27) V-aţi făcut mulţi prieteni în Canada?

- Da
- Nu

28) In general, în Canada, ce fel de prieteni v-aţi făcut?

- doar vorbitori de limba română
- din ambele grupe, dar mai mulţi vorbitori de limba română
- vorbitori de română şi engleză în număr egal
- din ambele grupe, dar mai mulţi vorbitori de limba engleză
- doar vorbitori de limba engleză

29) Cum/unde v-aţi găsit noii prieteni?

- în cadrul unui club sau organizaţie românească
- prin intermediul altor prieteni
- prin servici
- prin școala copiilor
- în alte feluri, şi anume:………………………………………

30) Vă simţiţi mai apropiat/ă de cultura română sau canadiană?

- de cultura canadiană
- de ambele, dar puţin mai mult de cea canadiană
- de ambele culturi în mod egal
- de ambele, dar puţin mai mult de cea română
- de cultura română

31) În ce limbă simţiţi că vă exprimţi cu mai multă uşurinţă?

226
32) Care este starea dumneavoastră civilă actuală?
- căsătorit/ă
- separat/divorțat
- văduv/ă
- concubinaj
- singur/ă

33) Ce limbă a vorbit (ex)partenerul/a dumneavoastră în copilărie?
- engleză
- română
- altă limbă, și anume: .................................................................

34) Dacă partenerul/a nu e născut/ă în Canada, care au fost motivele pentru care el/ea s-a mutat în Canada?
..........................................................................................................
..........................................................................................................
..........................................................................................................

35) In ce an s-a mutat partnerul/a în Canada? 19 ................................................
La ce vârstă?...........................

36) In ce limbă vorbiți/vorbeați cu partenerul/a dumneavoastră?
- doar în românește
- în ambele, dar mai mult în românește
- în ambele, în mod egal
- în ambele, dar mai mult în engleză
- doar în engleză

37) Care este profesia partnerului/ei dumneavoastră?
...........................................................

38) Aveți copii?
- nu
- da, în vârstă de.................................................................

39) In ce limbă vorbiți cu copiii dumneavoastră? Dacă nu aveți copii, în ce limbă ați vorbi cu ei?
- doar în românește
- în ambele, dar mai mult în românește
- în ambele, în mod egal
- în ambele, dar mai mult în engleză
- doar în engleză

40) In ce limbă vă vorbesc copiii?
- doar în engleză
- în ambele, dar mai mult în engleză
- în ambele, în mod egal
- în ambele, dar mai mult în românește
- doar în românește

41) Ii încurajați pe copii să vorbească românește? Dacă nu aveți copii, i-ați încuraja?
- da, din când în când
42) Ii corectați pe copii dacă fac greșeli în română? Dacă nu aveți copii, i-ați corecta?

☐ niciodată
☐ foarte rar
☐ uneori
☐ în mod regulat
☐ foarte des

43) Dacă copiii dumneavoastră nu vorbesc și nu înțeleg româna, regretați acest fapt?
   Pentru cei care nu au copii, în cazul în care ați avea copii, ați regredat acest fapt?

☐ nu, deloc
☐ nu prea
☐ nu știu
☐ puțin
☐ foarte mult

44) Țineți legătura cu familia și prietenii din România?

☐ tot timpul
☐ frecvent
☐ uneori
☐ rar
☐ foarte rar

45) Cum țineți legătura cu cei din România?

☐ telefon
☐ scrisori
☐ e-mail
☐ alte modalități, și anume:…………………………

46) Ce limbă folosiți în contactele cu cei din România?

☐ doar în românește
☐ în ambele, dar mai mult în românește
☐ în ambele, în mod egal
☐ în ambele, dar mai mult în engleză
☐ doar în engleză

47) Considerați că limba română joacă un rol important în menținerea legăturilor cu familia dumneavoastră?

☐ deloc
☐ nu prea
☐ nu știu
☐ mare
☐ foarte mare

<table>
<thead>
<tr>
<th>Numele</th>
<th>Ţara unde locuieşte</th>
<th>Naţionalitate</th>
<th>Cum v-aţi înălţit?</th>
<th>De cât timp vă cunoaşteţi?</th>
<th>Este vorba despre o rudă? Dacă da, care este relaţia?</th>
<th>In ce limbă vă vorbiţi?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anabela</td>
<td>România</td>
<td>Română şi canadiană</td>
<td>Este sora mea</td>
<td>25</td>
<td>Da, este sora mea</td>
<td>Română</td>
</tr>
</tbody>
</table>

49) In tabelele de mai jos, indicaţi în ce masură folosiţi limba română (tabel 1) şi engleza (tabel 2). Lăsaţi nemarcate domeniile care nu vi se aplică.

### Vorbesc româneşte

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<thead>
<tr>
<th></th>
<th>tot timpul</th>
<th>frecvent</th>
<th>uneori</th>
<th>Rar</th>
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<td>la servici</td>
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<td>la biserică</td>
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<tr>
<td>cu alte ocazie, şi anume:</td>
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### Vorbesc engleza

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<th>Uneori</th>
<th>rar</th>
<th>foarte rar</th>
<th>niciodată</th>
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<td>cu rudele</td>
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<td>la cluburi şi organizaţii</td>
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50) De când sunteți în Canada, ați făcut vreodată parte dintr-un club sau organizație românească?
- nu
- da, și anume (includeți numele organizației și perioada de activitate)

51) Ce limbă vorbiți atunci cind sunteți supărat(ă) și sunteți singur(ă)?

52) Vă este dor vreodată de România?
- nu, deoarece
- da, cel mai mult îmi împărtășesc
- uneori, deoarece

53) Când vorbiți în gând, ce limbă folosiți de obicei?

54) Ascutați muzică românească?
- nu
- da

55) Ascutați programe de radio românești?
- nu
- da

56) Citiți ziare, cărți sau reviste românești?
- nu
- da

57) Vă uitați la programele TV în limba română?
- nu
- da
- mi-ar plăcea dar nu am acces la ele

58) Considerați că nivelul dumneavoastră de limba română s-a schimbat?
- nu
- da, consider că s-a îmbunătățit
- da, consider că s-a înrăutățit

59) Considerați că folosiți limba română mai mult sau mai puțin de când locuiți în Canada?
- nu, nu consider că folosesc română mai mult sau mai puțin
- da, cred că folosesc mai rădăcinită
- da, cred că folosesc mai des limba română

60) Se întâmplă să nu vă simțiți în largul dumneavoastră atunci când vorbiți românește cu o persoană care nu a trăit o perioadă mai îndelungată într-o țară anglofonă?
- da, uneori
- nu, niciodată

61) Dacă ați răspuns pozitiv la întrebarea anterioară, ați putea spune că la fel simțiți și atunci când vorbiți cu un român care trăiește, la fel ca și dumneavoastră, de mulți ani în Canada?
- nici atunci nu ma simt în largul meu
mă simt mai mult în largul meu .................................................................

62) Vă considerați un vorbitor bilingv? În alte cuvinte, considerați că sunteți un vorbitor la fel de competent atât în română cât și în engleză?
☐ nu, deoarece ..................................................................................................
☐ da, deoarece ..................................................................................................
☐ nu știu, deoarece ..........................................................................................

63) Considerați ca puteți ghici mai ușor statutul social al unei persoane necunoscute atunci când vorbește în engleză sau în română?
☐ când vorbește în română, deoarece ..................................................................
☐ când vorbește în engleză, deoarece ..................................................................
☐ nu contează ce limbă vorbește, deoarece ..........................................................

64) Ce părere aveți despre românii (de exemplu turistii) care vorbesc engleza cu accent puternic?
☐ mă irită
☐ nu mă deranjează

65) Intenționați să vă mutați înapoi în România?
☐ nu, nu intenționez să mă mut în România
☐ nu m-am gândit încă serios la acest lucru
☐ da, mi-ar plăcea cu timpul să mă mut în România

66) Privind înapoi, considerați că decizia de a emigra în Canada a fost bună?
☐ da
☐ nu
☐ nu stiu
..........................................................................................................................

67) Iată ca am ajuns și la sfârșitul acestui chestionar. Ați dori să adăugați ceva? Puteți adăuga orice, inclusiv comentarii legate de limbă sau de acest proiect de teză.
..........................................................................................................................
..........................................................................................................................
APPENDIX C
Sociolinguistic Questionnaire for the Control Group
(English version, followed by the Romanian version)

Personal Background Questionnaire

With this questionnaire I would like to get an impression of the personal background and language use of Canadians. The questionnaire consists of 22 questions. Not all items may apply to you personally. Should you feel that a certain item does not apply to you, you may leave that question open. It is important that you answer these questions on your own, because I am interested in your language background. There are no right or wrong answers!

Name: ____________________________ Date: ____________________________

1. What is your date of birth? …………………………………………………………………
2. Are you: O Male  O Female
3. Where were you born?
   Village/town:………………………………………………………………
   Country:……………………………………………………………………
   If not born in Toronto, for how long have you been living in here? …………………
4. Would you say you speak standard English or a dialect?
   O Standard English
   O A dialect, namely:……………………………………………………

5. What is the highest level of education you have completed?
   O Primary school
   O Secondary school, level:…………………………………………
   O Vocational education, namely:……………………………………
   O University, degree:……………………………………………………
   O Postgraduate studies, degree……………………………………

6. Apart from Canada, have you ever lived in another country for a longer period of time (i.e. more than 6 months)?
   O No
   O Yes, namely in………………..for the duration of………………………

7. What language(s) did you acquire before going to school?
   O Only English
   O (an)other language(s) as well, namely:………………………………

8. What language or languages did you learn professionally or at school?…………………………

9. What language or languages did you learn outside of an educational environment (so outside of school or work), if any? …………………………………………………………………

10. At present, do you use another language besides English on a regular basis?
    O Yes, it is………………
    O No
    Briefly describe how often you use this language and in what context (work, school, etc.)
    ………………………………………………………………………………………………………

11. Would you say you are a bilingual person? O Yes O No
    If yes, how would you rate your skills in your other language?
    O Native command
    O Very good
    O Good
    O Ok
12. What is your current profession? .................................................................

13. If you have had several professions, could you indicate each one of them in chronological order?
............................................................................................................................

14. In general, how would you rate your English language proficiency at present?
O Native command
O Very good
O Good
O Ok
O Fairly poor
O Very poor

15. How important do you think it is to have a good command of English?
O Very unimportant
O Unimportant
O No opinion
O Important
O Very important

16. Do you have any children? O No  O Yes

17. Do you think it is important that your children have a good command of English?
O Very unimportant
O Unimportant
O No opinion
O Important
O Very important

18. Do you ever correct your children’s English?
O No, never
O Yes, sometimes
O Yes, often

19. Do you think it is important that your children acquire another language besides English?
O Yes
O No
Why? ...........................................................................................................

20. What is your current marital status?
O Married
O Separated/divorced
O Widow/widower
O Living together unmarried
O Single

21. What language(s) does/did you (ex)partner speak? ................................................

22. Do you think the English language is an important part of your identity? .................

Thank you!
Chestionar sociolingvistic pentru grupul de control Român (Romanian version)

Nume: ..................................................................................

20. Sunteți de sex: O Masculin     O Feminin

21. Unde v-ați născut?
Oraș sau sat:..................................................................................
Țară:.................................................................................................
Unde locuiți acum și de cât timp? ..................................................

22. Considerați ca vorbiți limba română standard sau un dialect?
O Limba română standard
O Un dialect, și anume:.................................................................

23. Indicați cel mai înalt nivel educațional absolvit:
O Școală profesională:.................................................................
O Liceu:............................................................................................
O Colegiu, specializare în.................................................................
O Universitate, specializare în.........................................................
O Master, specializare în..................................................................
O Doctorat, specializare în.................................................................

24. Până în prezent, ați locuit în altă țară în afara României pe o perioadă mai lungă de 6 luni?
O Nu
O Da, în…………………………..pe o perioadă de…………………………..
O Nu, dar urmează să-mi schimb domiciliul în altă țară în anul…………..

25. Ce limbi ați învățat și vorbit înainte de începerea școlii?
O numai limba română
O o altă limbă, și anume:...........................................................

26. Ce limbi ați învățat în afara școlii sau în cadrul unui curs de limbi străine?
...........................................................................................................

27. Ce limbi ați învățat în afara școlii sau in cadrul unui curs de limbă străine?
...........................................................................................................

28. În momentul de față, folosiți o altă limbă în mod curent (în afară de limba română)?
O Da, și anume…………………..
O Nu

Dacă ați răspuns pozitiv, descrieți pe scurt în ce context folosiți această limbă (de exemplu, în cadrul serviciului, la școală). Cât de des o folosiți?
...........................................................................................................
Indicați nivelul de competență în această limbă?
O competență nativă
O nivel foarte ridicat
O nivel ridicat
O nivel intermediar
O nivel slab
O nivel foarte slab

234
29. Vă considerați un vorbitor bilingv?
O Da, deoarece..............................................................................................................
O Nu, deoarece..............................................................................................................

30. Care este serviciul dumneavoastră actual?
........................................................................................................................................

31. Daca ați avut mai multe servicii, indicați-le în ordine cronologică:
........................................................................................................................................

32. În general, cum estima nivelul dumneavoastră în limba română?
O competență nativă
O nivel foarte ridicat
O nivel ridicat
O nivel intermediar
O nivel slab
O nivel foarte slab

33. Aveți copii? O Nu O Da

34. Considerați ca este important ca și copiii dumneavoastră să aibă un nivel ridicat de limba română?
O foarte neimportant
O neimportant
O important
O foarte important

35. Îi corectați pe copii atunci când fac greșeli în limba română?
O Nu, niciodată
O Da, uneori
O Da, adeseori

19. Considerați că învățarea unei limbi străine este importantă pentru copiii dumneavoastră?
O Da O Nu
De ce?................................................................................................................................

20. Care este starea dumneavoastră civilă actuală?
O căsătorit/ă
O separat/ă sau divorțat/ă
O văduv/ă
O concubinaj
O necăsătorit

21. Ce limbă vorbește (sau a vorbit) actualul (fostul) partener?
........................................................................................................................................

22. Considerați că limba română joacă un rol important în definierea identității voastre? Explicați.
........................................................................................................................................

Vă mulțumesc!
Appendix D
The Interview Questions

1. Language proficiency, language choice, bilingualism

1) In cadrul chestionarului ați indicat că nivelul dumneavoastră de Română s-a schimbat. Cum se manifestă acest lucru? În ce fel?
(In the questionnaire you indicated that you feel your Romanian has changed. In what way? Please explain.)

2) V-a fost greu să vă descurcați în limba engleză la început? Ce aspecte ale limbii vi s-au părut mai dificil de stăpânit? Explicați. În prezent, vă considerați un vorbitor cu competență nativă în engleză? De ce da/ nu?
(Was communication in English difficult in the beginning? What aspects of the language were most difficult to master? Explain. Do you consider yourself a speaker with native competence? Why yes/no?)

3) Dacă țiineți un jurnal, sau dacă ați ține unul, în ce limbă l-ați scris? De ce?
(If you were to keep a journal, in what language would you write it? Why?)

4) Treceți de la o limbă la alta atunci când vorbiți despre anumite subiecte (subiecte neutre; servici; personale; emoționale)?
(Do you switch from one language to another when you tackle different topics (common topics; work; personal; emotional?)

5) Considerați că limba română și engleza au diferite nivele de încârcătură emoțională? De exemplu, în ce sens este engleza sau limba română mai semnificativă din punct de vedere emoțional? Dacă ar trebui să vă amintiți și să povestiți lucruri mai triste, în ce limbă ați prefera să o faceți?
(Do you feel that English or Romanian have different levels of emotional weight for you? In what way? If you were to recall some bad or difficult memories, what language would you prefer to discuss them in and why?)

6) Vi s-a întâmplat să aveți impresia că deveniți o altă persoană atunci când treceți de la o limbă la alta? În alte cuvinte, că ’sunați’ diferit atunci când vorbiți in engleză sau română?
(Have you ever felt like you become ’a different person’ when you change languages? That you sound different when you speak Romanian or English?)

7) Credeți că este posibil să stăpâniți două limbi la perfecție? Care ar fi greutățile, provocările?
(Do you think it’s possible to master 2 languages? What are the challenges?)

8) Când mergeți în România, aveți nevoie de o perioadă de timp să vă reobișnuți cu limba?
(When you visit Romania, do zou need a moment to readjust to the language?)

9) Limba română - ce rol joacă în viața dumneavoastră acum?
(What is the role of Romanian in your present, day-to-day life?)

10) Trăim în Canada. Este necesar să mai facem eforturi să menținem limba română? De ce da? De ce nu?
We’re living in Canada. Is it still important to make efforts to maintain our Romanian? Why? Why not?)

2. Emigration, attitudes

1) De ce ați emigrat în Canada și nu în altă țară? Care au fost motivele pentru care ați emigrat? (Why did you immigrate to Canada in particular? What were some of the reasons behind your decision to emigrate?)

2) Ce v-a surprins cel mai mult în Canada când ați ajuns aici? (What surprised you most in Canada when you first arrived here?)

3) Cum vi se pare Canada acum? Vi s-a schimbat percepția cu timpul? În ce sens? (How do you find Canada now? Has it changed since you arrived here? How?)

4) Cum vă simțiți când vă întoarceți în România? Percepeți schimbări? Ce fel de schimbări? Cum prevedeți viitorul? (How do you feel when you go back to Romania? Has it changed since you left? In what way? How do you see the future?)

5) Vă simțiți ca un străin în Canada? Dar în România? (Do you feel like a foreigner in Canada? What about in Romania?)

6) În cadrul chestionarului ați indicat ca nu/încă mai ascultați muzică românească, programe de radio românești, cîtiți ziare sau cărți românești, vă uitați la emisiuni românești. Ați putea explica de ce? (In the questionnaire you have indicated that you never/still listen to Romanian songs or radio programmes, read Romanian newspapers, books or magazines and that you don’t/do watch Romanian television programmes. Could you indicate why you think that is?)

7) Vă indentificați mai mult cu cultura canadiană sau cu cea românească? Explicați. (Do you feel more at home with Canadian or Romanian culture? Why?)

8) Ce vă lipsește cel mai mult din România? (What do you/did you miss most from Romania?)

9) În cadrul chestionarului ați indicat că intenționați / că nu intenționați să vă reîntoarceți în România. Ați putea explicați de ce? Privind înapoi, credeți ca emigrajarea în Canada a fost o decizie bună? (In the questionnaire you indicated that you do/do not intend to ever move back to Romania. Can you explain why you feel this way? Looking back was moving to Canada a good decision?)

APPENDIX E
C-test : Romanian

In următoarele pagini veți găsi 5 texte scurte. Fiecare text conține spații goale în care anumite părți ale cuvintelor au fost eliminate (de reținut însă că nici un cuvânt nu a fost eliminat în întregime). Încercați să completați spațiile goale. În unele situații, mai multe variante sunt posibile, astfel neexistând doar răspunsuri corecte sau greșite. Acest test a fost conceput în așa fel încât obținerea unui scor de 100% să fie aproape imposibilă, deci nu vă faceți probleme dacă întâmpinați greutăți. Vă rugăm să alocăți un număr de maxim 5 minute fiecărui text. De asemenea, pentru ca testul să fie pertinent nu folosiți nici un fel de dicționare, lucrați singur(ă) și nu reveniți asupra textelor completeate în prealabil.
Vă mulțumesc frumos pentru ajutor!

(On the next pages you will find 5 short texts. Each one contains gaps where parts of some words have been left out (no whole words are missing, though). Please try and fill in the gaps appropriately. In many cases there are several possibilities, so there are no right or wrong answers. Please also note that these tests are designed to make it virtually impossible for anyone to get 100% correct, so don’t worry if you have problems. You will have a maximum of 5 minutes for each text. Thank you very much for your help!)

1. Bine ați venit la Facultatea de Litere din cadrul Universității de Vest! Facultatea de Litere, u____ dintre ce_____ mai ma____ facultați d______ cadrul univer_______, prin carac______ ei diversificat, pregă______ , în fun_______ de specificul sec_______, profesori pen______ invățământul preuniv_______, precum și cerce______ (lingviștii și cri______ literari), ca______ didactice univer_______, traducători, inter_______, specialiști în rela______ cu publ_______. Cercetarea știin_____ este ax_______ pe problemele limbii, lingvisticii, ale literaturii sau ale etnologiei.

Welcome to the Faculty of Languages at the West University! The Faculty of Languages, one of the biggest faculties in the university, offers a variety of programs, preparing, according to the specific orientation of each department - teachers, researchers (linguists and literary critics), translators, interpreters, and public relations specialists. The scientific research focuses on language, linguistics, literature, and ethnology.

1.una
2. cele
3. mari
4. din
5. universității
6. caracterul
7. pregatește
8. funcție
9. secției
10.pentru
11.preuniversitar
12. cercetători
13. critici
14. cadre
15. universitare
16. interpreţi
17. relaţiile
18. publicul
19. stiinţifică
20. axată

2. Pe vremea dacilor, simbolurile primăverii erau confectionate în timpul iernii și se purtau doar după 1 Martie. Mărţișoarele erau atunci, pe atunci, pietricele albe și roșii înșirate pe o ață. Alte surse sugerează că mărțișoarele constau în monede care eră atârnate de fiare subțiri de lână, negru cu ață. Tipul de monedă (aur, argint și bronz) indică statutul social. Dacii creduse că aceste amulete aduceau fertilitate și frumusețe. Acestea erau purtate până când copacii începuseră să înflorescă și apoi atârnate de crengile acestora.

During the time of the Dacian people, the symbols of spring were made during the winter time and were worn only after March 1st. The figurines were, at that time, little stones white and red, beaded on a string. Other sources suggest that the figurines were in fact coins that were hanging off thin threads of black and white wool. The type of coin (golden, silver or bronze) indicated the social status. The Dacians believed that these amulets brought fertility and beauty. They were worn till the trees were in bloom and then people hung them on the branches.

21. erau
22. atunci
23. albe
24. roșii
25. ață
26. surse
27. mărțișoarele
28. monede
29. erau
30. fiare
31. lână
32. alb
33. monedă
34. argint
35. bronz
36. statutul
37. creduse
3. Etnogeneza romanilor reprezintă un eveniment istoric fundamental în istoria noastră naţională. Ea a fost un proces complex, îndelungat la care au contribuit: statalitatea dacă și creșterea puterii acesteia, cucerirea Daciei de către romani, colonizarea, romanizarea daco-române, continuarea populării dacice și daco-române în condițiile conviețuirii cu populări migratoare; astfel, răspândirea creștinismului ducând în final la crearea unei etnii distincte în spațiul central-sud-est european.

The formation of the Romanian nation is a milestone in our national history. It was a long and complex process to which contributed the growth of the Dacian state, the Roman conquest, the colonization, the spread of the Roman influence, the continuity of the newly formed state together with other migrating populations; in this way, the spread of Christianity leading in the end to the creation of a distinct population in the central and South-Eastern part of Europe.

4. Satul reprezintă cea mai veche formă de locuire a peisajului geografic românesc. Leagănul civil roman este un locuitor al satului, un poete Lucian Blaga consacrat viseoșă, a conturat la im bogățire permanentă a tradiției și a patriei culturale. Încă din perioada Daciei...
prer___________ se cons___________ pe terit___________ ţării noa___________ existenţa
constru___________ din le_________, piatră şi cără_____________. Părăsirea Daciei de
 că___________ romani a d__________ la accentu________ ruralizării oraş__________,
predominînd aşezările alcătuite din bordeie şi amplasate aproape de pădure sau lângă cursul
unui râu. Întemeierea Ţărilor Române şi apoi a României Mari a adus cu sine transformări
profunde satului românesc.

The village represents the oldest way of living in the Romanian geographical context. Cradle of
the Romanian civilization, the village - the place where, according to poet Lucian Blaga,
‘forever’ was born - brought a strong contribution to the richness of the Romanian traditions and
cultural heritage. Going back to the Dacian period, one can attest to the existence of houses
made of wood, stone, or brick. After the Roman troops retreated, we can see an increased
tendency towards ruralization. The predominant houses were adobes and were built close to
forests or rivers. Once the new Romania was formed, the village suffered the most profound
changes in history.

61. civilizaţiei
62. satul
63. unde
64. considera
65. născut
66. contribuit
67. imbogăţirea
68. tradiţiilor/ tradiţiei
69. patrimoniului
70. preromane
71. constata
72. teritoriul
73. noastre
74. construcţiilor
75. lemn
76. caramidă
77. către
78. dus
79. accentuarea
80. oraşelor

5. Psihologii consideră că funcţia de conducere modifică personalitatea cu peste 70%.
Percepţia put___________, posibilitatea prac___________ de expr___________ a
tend___________ de domi___________ modifică int___________ şi un_______ aspecte
Psychologists consider that occupying a managerial position modifies one’s personality by more than 70%. The perception of power and the opportunity to express dominance modify certain biological aspects of the nervous system that, in turn, becomes extremely reactive and instable. Recent studies have shown that people who have reached positions of control encounter various psychological problems. However, it all depends on the intensity of power perception and on the level of education and selfcontrol of the newly invested superior.
On the next pages you will find 5 short texts. Each one contains gaps where parts of some words have been left out (no whole words are missing, though). Please try and fill in the gaps appropriately. In many cases there are several possibilities, so there are no right or wrong answers. Please also note that these tests are designed to make it virtually impossible for anyone to get 100% correct, so don’t worry if you have problems.

You will have a maximum of 5 minutes for each text. It is important to not use dictionaries or any other grammar source. Also, once you have moved on to the next text, do not go back to the texts you have already completed.

Thank you very much for your help!

1. We all live with other people’s expectations of us. These are a refl___________ of th___________ trying to under___________ us; the___________ are predic___________ of wh__________

they th___________ we will think, d___________ and feel . Gene___________, we acc___________ the sta___________

quo, but these expec___________ can be ha___________ to han___________ when they co___________ from our fami___________ and can be diff___________ to ign___________, especially wh___________ they come from our par___________.

1. reflection
2. them
3. understand
4. they
5. predictions
6. what
7. think
8. do
9. generally
10. accept
11. status
12. expectations
13. hard
14. handle
15. come
16. family
17. difficult
18. ignore
19. when
20. parents
2. Founded in 1878 by Bishop Isaac Helmuth and the Anglican Diocese of Huron as “The Western University of London Ontario”, Western is one of Canada’s oldest and best universities. The fi___________ students grad___________ in ar___________ and medi___________ in 1883. To___________, The University of Western Ontario is a vib___________ centre of lear___________ with 1,164 fac___________ members and alm___________ 29,000 underg___________ and graduate stud___________. Through i___________ 12 Facu___________ and Sch___________, and three affi___________ Colleges, the University off___________ more th___________ 60 diffe___________ degree and dip___________ programs to London’s comm___________.

21. first
22. graduated
23. arts
24. medicine
25. today
26. vibrant
27. learning
28. faculty
29. almost
30. undergraduate
31. students
32. its
33. faculties
34. schools
35. affiliated
36. offers
37. than
38. different
39. diploma
40. community

3. The BBC’s core purpose is broadcasting. Since the lau___________ of Radio Times in 1923 it h___________ also eng___________ in comme___________ activities. If pur___________ properly, su___________ commercial activities he___________ to rea___________ the va___________ of lic___________.
41. launch
42. has
43. engaged
44. commercial
45. pursued
46. such
47. help
48. realize
49. value
50. licence
51. assets
52. generate
53. ploughed
54. into
55. service
56. these
57. set
58. framework
59. ensures
60. support

4. The decision to remove soft drinks from elementary and junior high school vending machines is a step in the right direction to help children make better choices when it comes to what they eat and drink. Childhood obe________________ has bec________________ a ser________________ problem in th________________ country a________________ children cons________________ more sugar-based fo________________ and sp________________ less ti________________ getting the nece________________ exercise. Many par________________ have quest________________ schools’ deci________________ to al________________ vending machines which disp________________ candy and so________________ drinks. Many schools, th________________, have co________________ to re________________ on the mo________________
these machines generate through agreements with the companies which makes soft drinks and junk food.

61. obesity
62. become
63. serious
64. this
65. as
66. consume
67. food(s)
68. spend
69. time
70. necessary
71. parents
72. questioned
73. decisions
74. allow
75. dispense
76. allow
77. though
78. come
79. rely
80. money

5. In the last federal election, 61% of eligible voters cast a ballot. That’s a fright______________ lack of inte______________ by the elect______________, but is not______________ compared to the turn______________ in provi______________ and munic______________ elections, which s______________ even lo______________ turnouts. It’s diff______________ to bel______________ there’s so lit______________ interest in elections. In Canada, we’re fort______________ to have pol______________ stations wi______________ a short wa______________ or dr______________. There are volun______________ more th______________ willing to pro______________ rides to someone unable to walk or who doesn’t have a car.

81. frightening
82. interest
83. electorate
84. nothing
85. turnouts
86. provincial
87. municipal
88. see
89. lower
90. difficult
91. believe
92. little
93. fortunate
94. polling
95. within
96. walk
97. drive
98. volunteers
99. than
100. provide
APPENDIX G
Instructions for the VF and the Charlie Chaplin Tasks

1. Verbal Fluency

“I want to see how many different animals you can name in a minute. Any animals will do; they can be from the farm, the jungle, the ocean or house pets. Avoid general categories like bird, fish, animal, etc.”

“I want to see how many different fruits and vegetables you can name in a minute. Any type will do.”

2. Charlie Chaplin film commenting task

Instructions for both experimental and control groups:

“You are about to watch a scene of the movie Modern Times. Charlie Chaplin is about to be released from prison, but he is rather reluctant to leave. The director of the prison gives Charlie Chaplin a letter of reference to help him find a job. You will see how Charlie Chaplin manages to find work and what other adventures are awaiting him.”

Instructions for the experimental group only:

“You will view the first 5 minutes of the movie twice. During the first time, you will simply watch without making any comments. During the second viewing, I would like you to comment on what is happening in as much detail as you want in English/ Romanian.”

“You will view the last 5 minutes of the movie twice. During the first time, you will simply watch without making any comments. During the second viewing, I would like you to comment on what is happening in as much detail as you want in English/ Romanian.”

Instructions for the control group only:

“You will view 10 minutes of the movie twice. During the first time, you will simply watch without making any comments. During the second, I would like you to comment on what is happening in as much detail as you want in English/ Romanian.”
APPENDIX H

CHAT Symbols

Symbols used in the transcription (CHAT format):

@ shift to the other language
um@ fp filled pause
xxx unintelligible speech, not treated as a word
xx unintelligible speech, treated as a word
[?] best guess
text(text)text non-completion of a word
0word omitted word: I want 0to go.
. period
? question
! exclamation
↑ tone rise
: lengthened syllable
text^text pause between syllables
&=text simple local event (&=laugh)
# pause between words (pause marked by silence: I don’t # know)
## long pause between words
+/ trailing off
+”/. Quotation follows on next line
+” quotation utterance follows
+”. Quotation utterance follows
+. Utterance broken for transcription
[=! text] paralinguistics, prosodics
[: text] replacement (gonna [:going to] p. 68)
[/] retracing without correction
word [x N] word repetition
[//] retracing with correction
[///] complete reformulation
[/-] false start without retracing
[*] error marking

DEPENDENT Tiers
%eng English translation
%err error coding
%exp explanation
%int intonation
%lan language
%syn simple syntactic categories
APPENDIX I
Assessment Form for the Romanian Native Raters

În următoarele minute veți asculta 20 de înregistrări a câte un minut fiecare, în care participanții comentează o scenă din filmul Timpuri moderne de Charlie Chaplin. La sfârșitul fiecărei înregistrări acordați un scor de la 1 la 4. În rubrica Comentarii enumerați ce aspecte din vorbirea fiecărui participant v-au determinat să faceți această alegere.

(You will listen to 20, one-minute-long recordings, in which participants comment on a short fragment of the movie Modern Times by Charlie Chaplin. After listening to each excerpt, please indicate a score from 1 to 4. Add comments that support your choice of score.)

1= este clar că vorbitorul nu trăiește în România (This speaker clearly does not live in Romania)
2= vorbitorul nu trăiește în România deși vorbește mai bine ca in 1 (The speaker does not live in Romania, although their language is better than in 1)
3= s-ar putea ca vorbitorul să trăiască în România, dar anumite aspecte din vorbirea lui mă determină să ezit (The speaker might live in Romania, but certain aspects in their speech make me hesitate)
4= este clar ca acest vorbitor trăiește în România (It is obvious that this speaker lives in Romania)

<table>
<thead>
<tr>
<th>Part.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Comentarii (Comments)</th>
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APPENDIX J
Assessment Form for the English Native Raters

You will listen to 20, one-minute-long recordings, in which participants comment on a short fragment of the movie *Modern Times* by Charlie Chaplin. After listening to each excerpt, please rate how native the speaker sounds by choosing a digit from 1 to 4 for each participant. You can add comments that explain your choice.

1 = least native/ clearly not a native speaker
2 = not a native speaker but good level of English
3 = almost native, still some words do not sound native
4 = this is a native speaker

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# APPENDIX K
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### Background Profiles of the Participants in the Bilingual Group

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<th>Age at emigration</th>
<th>Length of residence in L2 country</th>
<th>Period longer than 6 months lived in other countries</th>
<th>Home language as a child</th>
<th>L1 standard or dialect</th>
<th>L2 lessons before emigration</th>
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APPENDIX N
Individual Graphs per Sociolinguistic Variable (SQChoice, SQContact, SQChoice)
APPENDIX O
Individual Graphs per Test (C-test, VF, D, Pauses, Repetitions, Retracings), Language, Participants, and Groups

The C-test

Individual scores obtained on the Romanian C-test (C-test L1) by the bilinguals (BIL)

Scores

Participants

C-test L1 BIL

52
62
66
69
75
77
82
83
83
83
85
85
86
87
87
89
90
90
91

Individual scores obtained on the English C-test (C-test L2) by the bilinguals (BIL)

Scores

Participants

C-test L2 BIL

53
57
58
60
63
64
64
67
72
72
74
76
76
78
83
85
87
88
89
Individual scores obtained on the C-test by the Romanian control group (CR)

Scores

Participants 5 10 11 4 7 12 3 2 8 1 6 14 9 13 15
C-test CR 78 79 82 83 83 84 85 86 87 88 88 91 93 95

Individual scores obtained on the C-test by the English control group (CE)

Scores

Participants 11 3 12 4 13 7 8 14 1 10 6 2 9 5 15
C-test CE 72 74 75 77 78 82 86 87 88 88 90 91 93 94 94
The Verbal Fluency Task

Verbal fluency scores in Romanian (VF L1), bilingual group (BG)

Verbal fluency scores in English (VF L2), bilingual group (BG)
Verbal fluency (VF) score for Romanian control group (CR)

Scores

Participants 3 6 10 7 2 1 5 11 4 8 9 14 15 12 13

VF CR 37 37 41 42 45 49 49 52 53 55 55 55 58 63 65

Verbal Fluency (VF) scores for the English control group (CE)

Scores

Participants 12 3 6 13 4 10 14 8 9 2 11 1 7 15 5

VF CE 46 50 50 50 53 53 54 54 55 55 55 57 57 70 75
The D Value

Individual values for the Romanian lexical diversity measurement (D L1) for the bilingual group (BIL)

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Individual values for the English lexical diversity measurement (D L2) for the bilingual group (BIL)

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Lexical Diversity Values for Romanian Control Group

Lexical Diversity Values for the English Control Group
Fluency Measures

Number of Pauses

Number of pauses in Romanian (P L1) produced by the bilingual group (BIL)

Number of pauses in English (P L2) produced by the bilingual group (BIL)
Number of Repetitions

Number of repetitions in Romanian (R L1) produced by the bilingual group (BIL)

Number of repetitions produced in English (R L2) by the bilingual participants (BIL)
Number of Retracing

Number of retracings produced in Romanian (RE L1) by the bilingual group (BIL)

Number of retracings produced in English (RE L2) by the bilingual participants (BIL)
Number of Retracing for the Romanian Control Group (CR)

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