

Accents and Second Language Acquisition: Comprehension and Intelligibility of Accented

French

Senior Honors Thesis

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**Abstract:**

The following study assesses the correlation between accent and perceived comprehension and intelligibility. Native speakers of French performed two judgment tasks and a transcription task on non-native French learners' recordings to determine if there is a relationship between accent and comprehension or intelligibility. The study found that though there was a correlation between accent and perceived comprehension, there was not any substantial relationship between accent and intelligibility, or actual comprehension. The results of this study can help teachers of French as a foreign language set realistic goals for students that result in intelligibility rather than becoming native-like. The findings of this study can also help alleviate some of the social stigma that surrounds accents and comprehension.

Tags: accent, second language acquisition (SLA), comprehension, intelligibility, French

## Accents and Second Language Acquisition: Comprehension and Intelligibility of Accented French

Second language acquisition (SLA) is the process by which people learn a second language and the scientific field devoted to studying that process. Within this field, it is a generally accepted theory that one's first language (L1) will affect the way one learns a second language (L2). When one is learning an L2, the mind immediately applies the grammatical features from L1 even if said features do not correctly represent the grammar of the L2. As one learns the rules of grammar associated with the L2, these influences will be corrected. This process is called cross-language transfer. This concept influences a number of factors related to the L2, from phonological to syntactical. When the L2 learner maintains a phonology associated with their L1 when attempting to speak the second language, an accent results. On a basic level, an accent is any variation in pronunciation from the standard of any given language regarding spoken speech. The present study analyzes the effects that accent can have on the comprehensibility and intelligibility of L2 French, specifically spoken by learners who are being taught French through the pedagogical language of English.

### **Background**

#### *Attitudes Towards Accents*

When learning a second language, an accent can often seem like an obstacle. It is one of the hardest parts of mastering a second language. Several studies have shown that listeners generally disfavor nonstandard accents (Gluszek & Dovidio 2010; Lambert 1967; Ryan 1982) and that the social identity is often based on accent or the manner of pronunciation (e.g. Giles 1970). If there is one task that all native speakers seem to be good at, it is determining who is not native by noticing the accent. Munro, Derwing, & Burgess (2003) studied this phenomenon with

the results that native speakers could even identify a speaker as nonnative from a very short sound bite that was played backwards. This astounding ability by native speakers of all languages causes L2 learners to quake in their boots, wondering if they will ever master the language they have set out to learn.

In addition to this, there has been a number of unfortunate incidents for which accents are to blame. One example of this happened in Arizona in 2010. Several nonnative English speakers lost their teaching positions because their Hispanic accents were too strong (Strauss, 2010). The reason behind this, as Trofimovich & Isaacs (2012) point out, is that many educators, researchers, and other members of the community “equate non-native speakers’ accents with their ability to communicate effectively.” Trofimovich & Isaacs (2012) conduct a study that clearly indicated that comprehension and accent were overlapping yet distinct.

These teachers are not the only ones to have lost something because of an accent, Pantos & Perkins (2012) list a number of researchers who have shown that “second language speakers—even fully competent speakers—have been shown to suffer serious negative social, political, financial, and legal consequences due solely to their foreign accents” (Kinzler, Shutts, DeJesus, & Spelke, 2009; Lippi-Green, 1997; Matsuda, 1991). It is clear that generally speaking, people have a negative association with foreign accents and their ability to interfere with comprehension. The present study hopes to break-down this preconceived notion and move us towards a new and improved definition of accent by determining whether or not these attitudes are founded in research.

### *Setting Goals in Second Language Acquisition*

There are two main principles upon which second language pedagogy has been based: the *nativeness principle* and the *intelligibility principle*. Levis (2005) explains that the nativeness

principle holds that it is “both possible and desirable to achieve native-like pronunciation in a foreign language.” However, research came out showing that a native accent appeared to be a biological condition that occurred in early childhood (Lenneberg 1967; Scovel 1995). Despite this finding, Levis (2005) shows that this principle is still affecting how language is taught in the classroom. Perhaps it is because, to a large extent, determining the importance of pronunciation in education in second language acquisition has always been based on intuition rather than research (Levis 2005). However, when we look at research, we find that accent is not actually the sole arbiter of comprehension (Munro & Derwing, 2009). This idea is implied in the intelligibility principle, which holds to the idea that the goal in second language acquisition is to be understood. Being much more realistic, this principle “recognizes that communication can be remarkably successful when foreign accents are noticeable or even strong” (Levis 2005). We hope that the present study will contribute to a better understanding of comprehension, accent, and intelligibility and their relationship in order to properly set goals for students of a second language, specifically in relation to French as an L2.

### *Definitions*

#### Comprehensibility

Before continuing, it is important to establish definitions of our key terms. First, we define perceived comprehensibility similarly to Munro & Derwing (2009): the listener’s perception of how easy or difficult it is to understand a given utterance. Though it is common for people to conflate the terms comprehensibility and intelligibility, the present study teases out very specific details that we believe are important to focus on: perception vs. actuality. Both terms are related to understanding, but where comprehension focuses on perception of understanding, intelligibility focuses on actual understanding. Because this task is based on

listener opinion, it is often tested by a Likert scale that the listeners fill out indicating the ease of understanding. Other judgement tasks could also be used; however, the present study uses the scalar method.

### Intelligibility

We define intelligibility as the degree to which the listener *actually* understood the phrase. This is different from comprehensibility in that it removes the listener's opinion from question. Some methods of testing intelligibility include listener tasks like judgments, transcription, or sentence verification (Anderson-Hsieh, Johnson, & Koehler 1992; Munro & Derwing 1995, 1999). Another study tested intelligibility by conducting before- and after-teaching experiments that focus on a particular aspect of a learner's speech, which shows how the listener is affected by the change in a speakers' pronunciation (Derwing, Munro, & Wiebe 1997, 1998; Perlmutter 1989). Intelligibility is tested in the present study by asking the listeners to transcribe in standard French orthography exactly what they hear the speaker say. From here, we can then count the number of content errors, important mistakes that alter or lose meaning of the sentence, and unimportant errors, like articles or gender agreement, to determine if the transcriber actually understood the sentence or not.

### Accent

The present study defines an accent as any phonetic variation within a given speech sample that differs from the local variety. Some other definitions may include variations from a given "standard," but because our listeners are from different francophone countries and therefore have in their minds different standards, we do not focus on the "standard." This, along with comprehension, is an opinion question and is usually measured by asking the listener to circle a rating on a Likert scale, which we have also used. There are methods of studying accent

that have proven to be more objective and quantitative (Wieling *et al.* 2014; McMahon *et al.* 2007; Maguire *et al.* 2010); however, the present study chose a more subjective approach because it addresses the attitudes that people have towards accents and provides insights to correlations between perceived understanding and perceived accent.

## **Methodology**

### *Munro & Derwing (1999)*

This study was largely based on a similar study done by Munro & Derwing (1999) on comprehension and intelligibility of accented English. They conducted their experiment by eliciting 10 volunteers with an L1 of Mandarin Chinese and an L2 of English. These volunteers served as their speakers and provided the utterances. The speakers were asked to describe the events depicted in a page of cartoons. From there, Munro & Derwing divided the recordings into utterances and played them back to the 18 native Canadian English speakers, who had at least a foundational knowledge of transcription. These listeners rated the utterances on a Likert scale for comprehension by circling a number from 1 to 9, where 1=extremely easy to understand and 9=impossible to understand. Another 9-point scale was used for rating the accent, where 1=no foreign accent and 9=very strong foreign accent. Finally, the listeners were asked to transcribe all the recordings in standard orthography. All speakers met for one session to conduct the recording portion, and all listeners met for two separate sessions for the rating and the transcription.

### *The Present Study*

#### Speakers

To understand how well L1 French speakers understood accented French, six volunteer students from the University of Missouri-Kansas City (UMKC) were recorded. The speakers were all studying French as a foreign language with their L1 being English with the exception of

one L1 Turkish speaker, who spoke English conversationally as an L2. All of these students were studying French at UMKC and were therefore all exposed to French through English as the pedagogical language, that is the bridge language in which the class is taught. Because we felt course numbers were not a reliable representation of how well one spoke French, the students were asked to give the number of years they had been studying the target language. The study completed by Munro & Derwing (1999) did not include this as part of their procedure. The years varied from one semester (.5 years) to twelve years (see Table 1). After accounting for the outliers, the average time was approximately 6.5 years.

Table 1

Speaker:	Years Studying French:
<b>Speaker 1</b>	8 years
<b>Speaker 2</b>	12 years
<b>Speaker 3</b>	.5 years
<b>Speaker 4</b>	7 years
<b>Speaker 5</b>	6 years
<b>Speaker 6</b>	6 years

**Table 1. Number of years each speaker had studied French prior to this study.**

### Speaker Recordings

Individual recording sessions were held in the Language Resource Center on the UMKC campus for ease of access for the students. The means of recording was BlackBoard's Voice Thread application, which was chosen for the sake of anonymity. When they arrived at the Language Resource Center, each student was asked to sit at a desktop computer with an attached headphone and microphone set. We made sure there was no background noise as the speaker created his or her recording. BlackBoard's Voice Thread was already loaded onto the screen, so

all the speaker had to do was click “start recording.” Every speaker recorded under the researcher’s own name and BlackBoard log-in to ensure anonymity with other speakers. On the Voice Thread page, after receiving instructions the speakers were shown an image to describe in French (see Figure 1). This image was chosen because there are many things to describe and the vocabulary needed was commonly known even among lower level French students. As mentioned before, in addition to the recording, the speakers were asked to give the number of years they’ve been studying French and their native language. No preparation was provided, nor was supplementary vocabulary given. The entire task took approximately one minute per student.

The rest of the speaker procedure was similar to Munro & Derwing (1999), in that the recordings were then cut into phrase-like utterances, short enough to be transcribed by the listeners. It was not practical to make each utterance identical in length. This would have resulted in utterances that did not necessarily end or begin in accordance with phrasal or clausal boundaries. We were left with utterances that ranged from approximately 2 seconds to 18 seconds in length. The recordings were then randomly assembled using Audible computer software to create a single file of the 28 different utterances.



**Figure 1.** Image that was described by the speakers.

Heilenman, VOILÀ - Copyright 1989 by Harper & Row, Publishers, Inc.

### Listeners

The listeners were 3 native speakers of French. All of the listeners were students at UMKC, one graduate student and two undergraduate students. Each listener came from a different francophone country, representing both African French and European French. The listeners were not shown the image that the recordings were based off so that we could accurately assess that the comprehension was not solely based on context.

### Listener Rating

Instead of two sessions, like Munro & Derwing (1999) hold, for the sake of simplicity and convenience for the listeners, only one listening session was held. The listeners received 28 pairs of scales (one set of scales per utterance - see Figure 2), which they filled out during the first playback of the session. The first of the scales was to rate *perceived* comprehension, meaning how well the listener *thought* they understood the phrase. In an effort to simplify the rating process and attain a more accurate assessment, we employed a 5-point Likert scale (1-*impossible to understand*, 5-*Extremely easy to understand*) instead of a 9-point Likert scale as was used in Munro & Derwing (1999). The second scale, also a 5-point Likert scale, was based on accentedness. Each listener rated the speaker of the utterance on the strength of their foreign accent (1-*No foreign accent*, 5-*Very strong foreign accent*). Next, the listeners received the transcription exercise (see Figure 3) in order to write out in standard French orthography exactly what they heard the speaker say without correcting the statement. This was done in an effort to gather the intelligibility of the phrase, or how well the listener *actually* understood the phrase. Only one phrase from each speaker was presented at this point to avoid overstimulating the

listeners. For consistency's sake, each sentence that was selected for the transcription phase was around 5 or 6 seconds.

Mark below how understandable you found the speaker to be.

1 Impossible to understand	2 Difficult to understand	3 Somewhat understandable	4 Easy to understand	5 Extremely easy to understand
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Mark below to what degree the speaker has a foreign accent (of a native English speaker).

1 There is no accent	2 Light foreign accent	3 Somewhat strong foreign accent	4 Strong foreign accent	5 Very strong foreign accent
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**Figure 2. Listener Scales**

1. Write exactly what you hear (Do not correct).
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**Figure 3. Transcription Exercise**

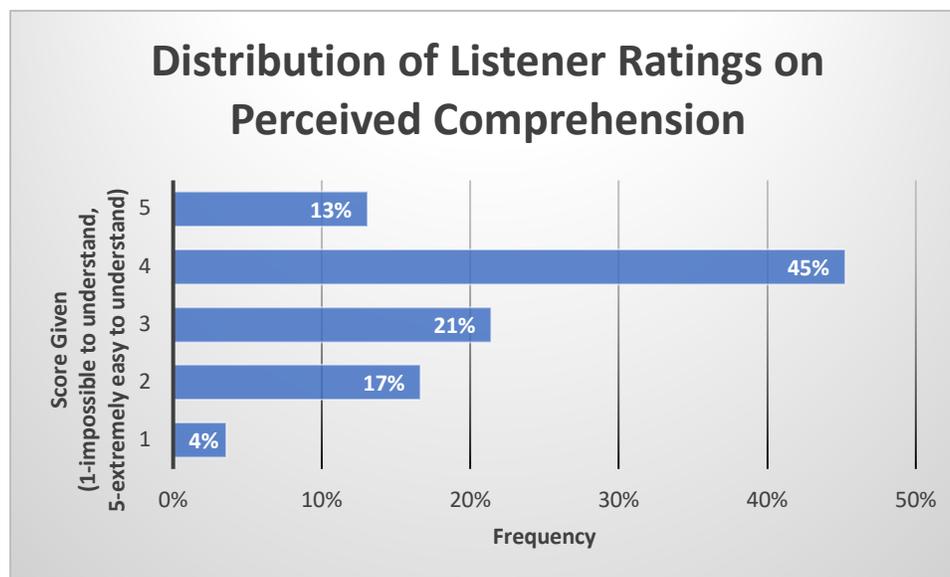
The stimuli were presented to the listeners as a group, but they were not allowed to converse with each other. Before beginning the playback, the listeners went through a practice recording and scale. The stimulus was controlled by the researcher and a new recording was not played until the listeners were finished rating or writing. Each recording was only played once for the scales and the selected transcription recordings were then played again. The entire session lasted about 10 minutes.

## Results

### *Scales*

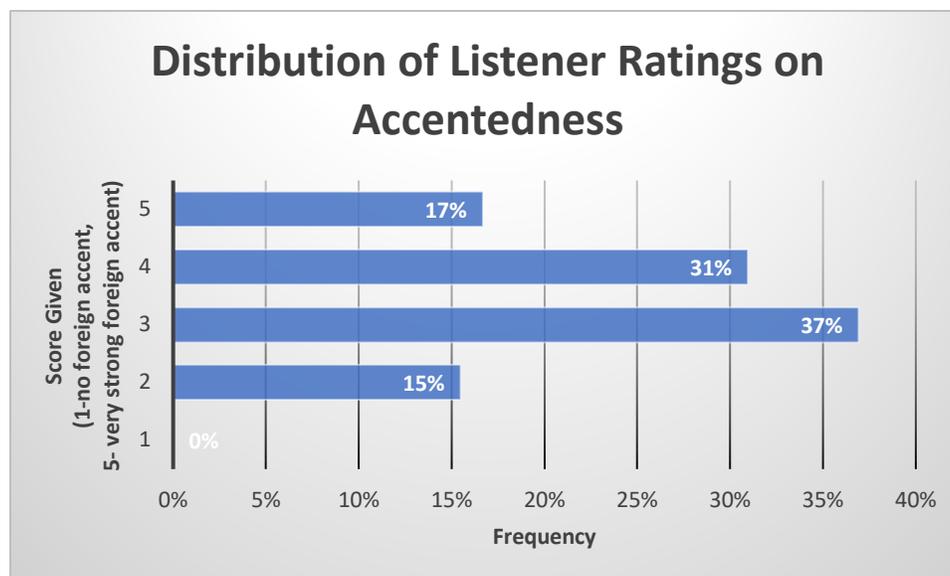
The average score for perceived comprehension were between 1.67 and 4.67. For accent rating, the average scores ranged from 2.33 to 4.67. Figures 4 and 5 show the distribution of the

scores given for each category. As shown, the most common score given for perceived comprehension was 4, indicating that 45% of the utterances were easy to understand. The majority of the utterances were rated 3 or higher, indicating that the nonnative speech utterances used in this study were mostly understandable. Only 21% of the utterances fell into the range of difficult or impossible to understand earning a score of 1 or 2.



**Figure 4. Distribution of Listener Ratings on Comprehension**

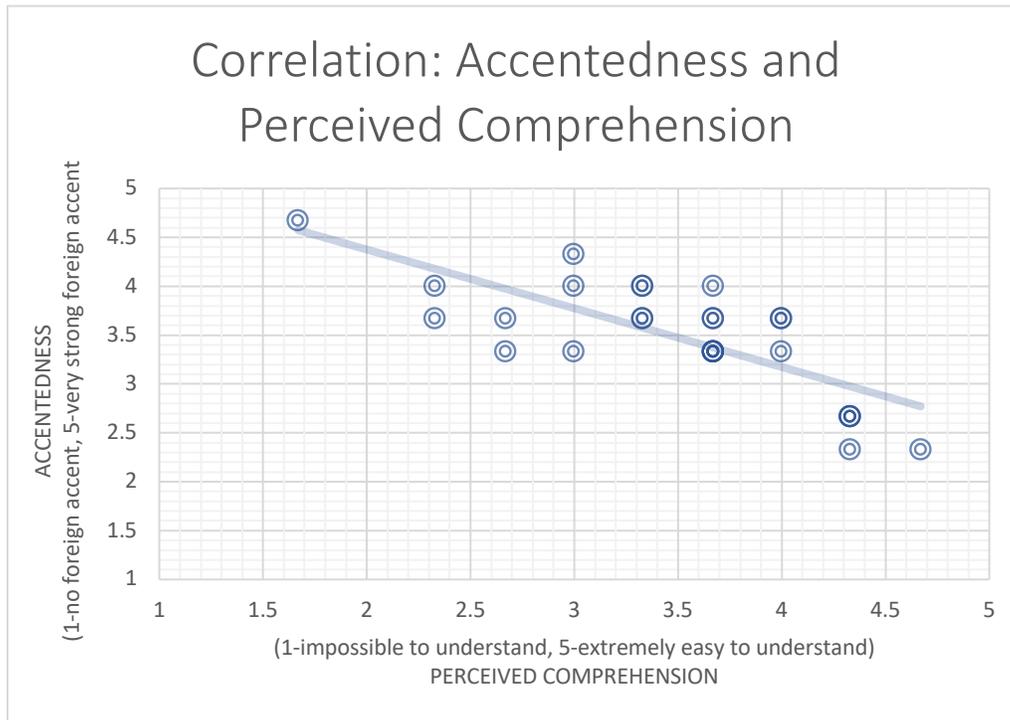
The distribution of accent scores (Figure 5) shows a different pattern. There is not as stark of a contrast in the accent ratings as there was in the comprehension ratings, with a majority (68%) falling in the 3-4 range (somewhat strong to strong accent). It was expected, since all speakers were nonnative, that none of the speakers would receive a score of 1 for accentedness, indicating there was no accent at all. However, given the attitudes that are often associated with accents, it was surprising that the listeners were less inclined to indicate that the speaker had a very strong accent (rating of 5) or even a light foreign accent (rating of 2). This aversion to the extremes perhaps shows less certainty on the part of the listener while rating accents.



**Figure 5. Distribution of Listener Ratings on Accentedness**

To determine if there was any correlation between the strength of the accent and the perceived comprehension, we employed a regression formula on each individual speaker and on the data as a whole. Interestingly, each speaker's individual data set did not always have a significant correlation. Speakers 1, 2, 3, and 5 did not have individually significant correlations. However, the correlation of all the data combined was significant. Figure 6 shows the correlation chart with the linear trendline marking the correlation coefficient. When creating Figure 6, we chose to employ the average score given to each sentence to make the correlation more visible. As mentioned before, the measurement used to obtain this data is meant to be based upon listener opinion and therefore is somewhat ambiguous. Since both scores are based on opinion, it is not surprising to find a strong correlation. Moreover, though the degree to which the raters agreed with each other was relatively low (raters agreed on 8% of the whole dataset), this was not cause for concern because interrater reliability is used for an unambiguous measurement, which ours was not. As shown, the correlation is negative, the higher the accent score, the lower the comprehension score; meaning, the stronger the accent the less is was perceived to be

comprehended. With this data alone, it would seem that accents are in fact correlated with perceived comprehension; however, the intelligibility test was employed to determine the validity of the listener's perception.

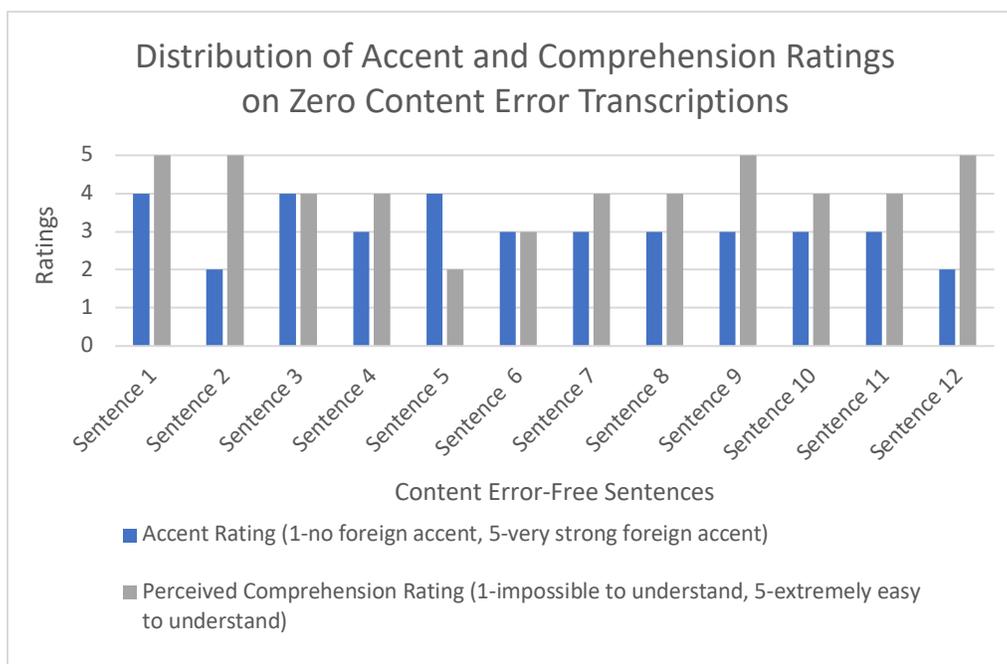


**Figure 6. Correlation Chart of Average Ratings on Accentedness and Comprehension (by sentence) \*Note: The darker the circle, the more frequent that combination appears in the data.**

### *Intelligibility Transcription*

As discussed in the methods section, the listeners were asked to transcribe one sentence from each speaker to determine how well they actually understood the phrase. If the transcription was missing key content words, it would indicate that the listener did not fully understand the sentence. On the other hand, if the transcription was missing unimportant words, such as articles or filler words, it would indicate that the underlying meaning of the phrase was in fact understood. The large majority (75%) of the sentences transcribed by the listeners contained zero content-errors, which would indicate that the listener did in fact understand the meaning of the

sentence. Yet the perceived comprehension scores do not always reflect this actual understanding or lack thereof. For example, Listener 3 marked Speaker 4's utterance as "easy to understand" but when transcribing the sentence, this listener omitted two key words that they did not understand. These two key words happen to be the subject of the sentence, thus missing them renders the sentence incomprehensible. On the other side of the scale, there were a few instances when the listeners would rate the sentence low on comprehensibility and yet manage to transcribe the sentence without any content-errors. These inconsistencies merely show the independence that perceived comprehension, accent, and intelligibility have. To see this more clearly, see Figure 7 below, which shows the distribution of accent ratings on sentences that were perfectly intelligible with zero content-errors.



**Figure 7. Distribution of accent and comprehension ratings on sentences that were transcribed with no content-errors.**

All of these sentences that are displayed in Figure 7 were transcribed without any content-errors, indicating that the listener understood the meaning behind the speaker's

utterance. Notice, though, that the accent scores range from 2 (indicating a light accent) to 4 (indicating a strong accent). In addition to this, the comprehension scores range from 2 (difficult to understand) to 5 (extremely easy to understand). The lack of correlation within this data set indicates that there is no explicit link between accent and intelligibility; that is, sentences remain intelligible despite their being rated strong or light in accent. Furthermore, it shows that intelligibility is independent from accent and perceived comprehension.

### **Discussion**

The present study has shown that within the context of L2 French, intelligibility is not directly correlated with accent and perceived comprehension. Most of the speakers' individual data was not significantly correlated, though it was established that accent and perceived comprehension were significantly correlated for the entire dataset. We would suggest that this correlation is due to both the astounding ability of the native speaker to detect a foreign accent (Munro, Derwing, & Burgess, 2003) and the preconceived notion that was discussed at the start of this study, in which incomprehensibility of a nonnative speaker is typically due to accent. This is because both the comprehension scale and the accent scale were based off listener opinion; if the listener has a preconceived notion that the speaker's incomprehensibility is due to their accent, it is not surprising that that correlation would appear in the data. Despite this, the intelligibility test allowed us to determine that sentences are still understood even when they are rated strongly accented and difficult to understand. This indicates other underlying factors that affect intelligibility, which could be grammatical, prosodic, or related to the vocabulary utilized by the speaker. The present study's results and conclusions mirror those of its basis (Munro & Derwing 1999). For a summary of the differences in methodology, see Table 2. They concluded,

based off the analysis of the intelligibility task, that overall intelligibility was not linked to accent.

**Table 2**

<b>Munro &amp; Derwing (1999)</b>	<b>Present Study</b>	<b>Reasoning</b>
Speakers: 10 L1 Mandarin, L2 English	Speakers: 6 L2 French, pedagogical language English	Difference in target language studied,
Listeners: 18 native Canadian English speakers	Listeners: 3 native French speakers, representing European and African French	Difference in target language studied
Likert scales of 1-9 used on comprehension and accent	Likert scales of 1-5 used on comprehension and accent	To avoid middle of the scale answers and overstimulation of the listeners.
One speaker session, two listener sessions	One speaker session, one listener session	For speaker and listener convenience
Listeners transcribed all utterances	Listeners transcribed one utterance per speaker	To avoid overstimulation of the listeners
Asked speakers to describe events depicted in a cartoon	Asked speakers to simply describe an image in French	To diversify answers and make the task accessible to lower level French students

## **Conclusion**

The results of this study are important because it allows us to move towards a new definition of accent, both in terms of pedagogy and general opinion. Though it is not disadvantageous to learn correct pronunciation, it is almost impossible to “embody” a native speaker. Realistic pedagogical goals are key here, and this study has presented a case against setting the goal as native-speaker-like. As was mentioned, there are other underlying factors to intelligibility that can take part of the focus off of accents. If second language teachers take on an

equal balance of teaching grammar, pronunciation, prosody, and content, the goals of the students will soon reflect reality. Accent no longer has to be, nor should it be, associated with incomprehensibility and accent amelioration no longer has to be at the forefront of every L2 students' mind. Let this study be an encouragement to students, intelligibility is possible and is not dependent upon becoming a native speaker. The general public can also release some of the pressure that is placed upon accents because it is clear that they are not entirely at fault.

### *Considerations and Further Study*

There are a few obvious limitations changes that should have been made. First of all, the scales that we created were 1-no accent to 5-very strong accent and 1-impossible to understand to 5-extremely easy to understand, should this study be taken further we would have inversed one of these two scales for consistency's sake. However, the only difference it made in our present study was that it made the correlation negative rather than positive. Furthermore, a point of limitation to this study was the sample size of the given population. Since this study did not involve any incentives to participate, we were limited only to the number of volunteers that came forward. Lastly, we would have liked to have seen a larger population of lower-level French students participate in this study. Again, though, we were limited to the number of volunteers.

There are several ways in which one could further research this topic of accented French, or perhaps another language. One example would be to analyze the effects certain accents have on a specific language, meaning how do native French speakers understand English-accented French as compared to Spanish-accented French. This would require a larger sample size of both L1 English and L1 Spanish speakers to act as the speakers. Another point of further research would be to analyze the differences in ratings between the European native speakers and the African native speakers. Again, this would require a larger number of listeners to participate, half

of which are from European francophone countries and half of which are from African francophone countries. Lastly, we think it would be interesting to investigate further the reason accent is often the reason people give for incomprehension. This particular analysis would branch into the psycholinguistic field of accents and how others view them. There are many other ways this study could be taken to further shed light on accents and their influence in how one speaks a second language.

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