"BuzzTrans"

A Translating Instant Messaging Program
for the
"Global Classroom Project"

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Executive summary

BuzzTrans is an instant messaging program that includes translation functionality. The program was built using the Microsoft .NET framework and GNU GPL licensed software. A major goal of this program is to offer a technological means to improve interpersonal communication in the context of the Global Classroom Project at Georgia Tech. Eight subjects encompassing six different languages engaged in a simulated conversation using BuzzTrans. Results suggest that while translation is not perfect, interpersonal communication could easily be supported. Future evaluation is needed in the form of a field deployment, and recommendations for future development and evaluation are provided.

Introduction

The world is truly growing smaller. Indeed, physical distances that once served to isolate communities and cultures have been drastically reduced through such technological advances such as the automobile, airplane, and networked computer. Yet it is the last of these advances that has truly altered the face of global communications. Whereas the airplane can transfer a business executive to a corporate meeting halfway around the globe in a matter of hours, the Internet now allows an individual to communicate both simultaneously and instantaneously with correspondents around the world. The face of business, entertainment, and certainly education is changing in light of new communication styles offered by the Internet. A corporate executive can e-mail his business strategy to offices in every country, a popular music artist can make her newest single instantly available to a global audience, and researchers and scientists around the world can collaborate on new projects and exchange vast amounts of knowledge through online repositories. In fact, many of the most popular communication methods made possible via the Internet were first developed and fielded at universities, or at least through their resources. With these recent developments in communication, how will the face of the classroom change in future years? What kinds of tasks will students be able to perform with their peers across the world, and what are the best ways to encourage the growth of the "global classroom"?

Enter the Global Classroom Project (GCP). Designed and run by Professor TyAnna Herrington of the Georgia Institute of Technology and Professor Yuri Tretyakov of the European University in St. Petersburg, Russia. A description of the project may be found at http://www.lcc.gatech.edu/projects/globalclassroom/description/index.html, and a brief excerpt follows:

> The Global Classroom Project provides a shared distance learning environment for the US, Russia, and the NIS. The project creates a model for effective pedagogical and technological means to manage cross-curricular, cross-cultural courses, while electronically linking students and professors from around the world. The project supports collaborative dialogue within digital classrooms to foster an atmosphere of mutual understanding and cooperation. It takes advantage of Internet technology to effectuate a pedagogy that not only supports but requires dialogue among faculty and student participants. In turn, the Global Classroom Project models a dialogic process of mutual collaboration that can be shared with other educators world-wide.

The project leverages the power of the Internet to facilitate communication between students in the US and Russia. Specifically, the GCP utilizes WebBoard network communications software, which is a website which allows posting and reading of messages, similar to many other HTML –based user groups and the Usenet protocol.

The static nature of a HTML based newsgroup is not conducive to interpersonal, informal communication. With a few exceptions, users can read every message posted and any replies. No matter how long a message is that a user might want to send, he or she must engage in a lengthy process (relative to other computer-supported tasks). The user must first log onto WebBoard, find the thread they wish to post or reply to, compose and then send their message. The user must then wait for some unknown period of time while clicking "refresh" in order to receive feedback that their message posted correctly.

Despite these shortcomings, WebBoard certainly meets the needs of the GCP. The program allows searching for specific messages, allows simple posting of files (to include pictures), and perhaps most importantly is quite reliable in that it rarely crashes, which would leave students involved in the GCP at a standstill in regards to their international projects. However, is there a way to augment the capabilities of and address the shortcomings of WebBoard? This report describes an attempt to answer this very question.

Instant messaging (IM) has become a popular method of rapid and simple interpersonal communication. Programs such as AOL Instant Messenger, Yahoo! Messenger, and Microsoft Messenger are freely available on the Internet and allow users to view other "friends" who are online, and then send them a text message which appears on the receiving party's end almost instantaneously. IM has come to support chat rooms, where more than two individuals can have a conversation, and the exchange of files, such as documents and pictures. Perhaps most important about IM is its pervasive nature. The program can be set to launch when the user starts their computer, and it runs in the background, waiting to receive a message or for the user to call up their list of friends and send a message. This behavior stands in contrast to traditional e-mail, in which a user must compose a message, look up the address to send to, send the message, wait for the message to bounce from server to server, and then wait for the message to be read by the recipient. This process can take several minutes, where the same operation for an IM client takes mere seconds. Additionally, an IM program can inform one about the state of a user, for example, if they are away at lunch, working on a project, or if a user has been idle for some time and most likely not sitting in front of their computer. The latest versions of IM programs can even inform parties on each end when the other is typing, allowing each individual to take turns speaking, just as in an actual face to face conversation.

On the surface, it would appear that the addition of one of these IM programs to the GCP would augment the capabilities supplied by WebBoard. Students could start a chat with a student on the other side of the Atlantic Ocean to quickly check on the status of an assignment, send a quick photo, or engage in personal communication to exchange cultural experiences, which are somewhat out of place in the academic nature of WebBoard. However, the language barrier is somewhat of an obstacle, given that few if any of the students involved in the GCP during a

given semester speak Russian, or another foreign language. On the other hand, Russian students tend to speak at worst passable English (and usually are quite fluent). It seems like a novel use of technology would be to create an IM program that could translate either one-way or two-way between languages, for the benefit of users who speak different languages yet still want to engage in some form of interpersonal communication.

In this report we describe the design and initial evaluation of BuzzTrans, a freely available IM client that facilitates interpersonal communication between cultures by offering translation functionality. The program relies on freely available source code under the GNU public license, and may allow the IM "world" to expand from a language specific phenomenon to the creation of a global community.

We have identified several areas that we would like BuzzTrans to be able to address. First, it must allow two or more users to engage in real-time (or as close as possible) communication. Second, BuzzTrans should provide a means for users to be able to communicate even if they do not speak a common language. Finally, and by no means less important that the other two needs, our design must be usable and useful. These two concepts are somewhat linked. For example, our interface must not be confusing, or we risk our software artifact being ignored because it is not easy to use.

Another objective is for our research to determine if a translating instant messenger program would be useful to the GCP. Our design has the potential to increase interest (on the part of participating students) in the use of virtual communication. This can be accomplished by students having the ability to use the WebBoard, and if a user they want to chat with is logged on, they can start a chat session. If one user has a short question, they can quickly receive an answer by chatting with a person who is online.

Finally, our last objective is to evaluate the effectiveness of translation software used in this manner in this type of environment. Users of instant messaging programs typically employ slang, and abbreviations in their conversations. Currently, no software exists that can handle the dual issues of translation between languages and also interpreting jargon and text shortcuts. Users of our system will most likely have to use near perfect grammar and spelling if they want the software to correctly interpret their text messages.

Design Process

We developed a prototype version of the BuzzTrans program by harnessing freely available technology and relying on our own computer application development experience. BuzzTrans itself makes use of the Jabber technology (www.jabber.org), an instant messenger protocol that has existed since 1998. Our interface is based on the TechJab client, which is built on the Microsoft .NET framework. Both of these technologies are available for use to anyone under the GNU General Public License (GPL). Finally, the translation functions rely on a free translation service supplied by Systran (www.systransoft.com).

During the actual design of the prototype we ran into two difficulties. One was the restructuring of the first translation service we were accessing, named Babelfish. This site began using a nonstandard form of data that was not supported by our development environment, Microsoft .NET. To counter this, we relied on the Systran service described earlier. Additionally, inexplicable delays in translation sometimes arose. We are still working to determine if this is because of Internet traffic conditions or some delay in the translation service provided by Systran.

BuzzTrans can work with any IM client which utilizes the Jabber chat protocol. That means that users who do not have our program can still have their messages translated by a user

who does have our program. Users must specify which languages to translate between.

Currently, BuzzTrans supports the following translations:

English to Dutch	Spanish to English	French to Spanish
Dutch to English	English to French	Spanish to French
English to Japanese	French to English	French to English
Japanese to English	English to German	English to French
English to Korean	German to English	French to German
Korean to English	English to Italian	German to French
English to Chinese	Italian to English	French to Portuguese
Chinese to English	English to Portuguese	Portuguese to French
English to Russian	Portuguese to English	French to Italian
Russian to English	French to Dutch	Italian to French
English to Spanish	Dutch to French	

Methodology

After building the BuzzTrans prototype, we designed an evaluation plan to attempt an initial assessment of the feasibility of achieving interpersonal communication with users engaging in rapid, translated conversation. We created a scenario in which subjects engaged in an IM conversation with one of the researchers. The experimenter's portion of the conversation was scripted, to ensure that all subjects received exposure to same questions. Subjects also filled out a questionnaire to assess demographics, perceived language proficiency, and impressions of BuzzTrans. Following is a detailed examination of the evaluation:

Participants

Participants in our evaluation were recruited from the Georgia Tech campus. Their only qualifications were that they are able to read, write, and comprehend a language that our system is capable of translating. Eight subjects (7 graduate students, 1 post doctorate) participated in the study, with an average age of 32 years. The average amount of daily computer use was 5.6 hours. Each participant considered themselves fully fluent (reading, writing, speaking) in their native

language and on average, ranked their English skills as an 8 on a 10-point scale. Participants spoke the following languages: Korean, Portuguese, French (2), Chinese (2), Russian, and Spanish.

Method

After signing a consent form, participants were given a demographic survey, in which they were asked about age, education, computer usage, instant messaging usage, and language experience.

Subjects then engaged in an instant messenger "conversation" with one of the experimenters. Participants were told that they were engaging in a conversation with a person, but that a computer was translating the conversation back and forth. The experiment had a list of 26 questions typical of those that might be asked at a first meeting between two individuals. For example, a list of such questions might include "How are you?", "What is your name?", "Where are you from?", "What classes are you taking?" etc. For the complete list, please see Appendix G. Subjects were encouraged to respond to the questions in this conversation in as realistic manner as possible, to include typing "I don't understand" and "Please rephrase". During the conversation, another researcher sat with the participant to log any difficulties the software encountered and instances when the subject became confused or frustrated. The researchers also encouraged subjects to "think aloud" about what the translation and meaning of the received message.

Participants were then given a post-task questionnaire (see Appendix I) to gather impressions about their experience using BuzzTrans.

Data analysis

To facilitate review of the conversations, each participant's session was logged to a computer file. After each conversation, the log file was reviewed in conjunction with the experimenters' notes to identify areas of confusion and aspects of the system that needed improvement.

The data collected from the post-task question was complied and measures of central tendency and variance were calculated both individually and as a group.

Results and Discussion

The following section identifies and explains design issues that we uncovered from user comments and review of the conversation logs:

1) **Context is Key**
   The context within which users are chatting is of great importance. We found that users often found it difficult when the conversation suddenly changed track. If users had a flowing conversation they were able to use information from the previous exchange to compensate for errors in translation

2) **Explicitly mention that it is machine translated**
   Users were much more forgiving of the conversation when they were told that the translation was being done automatically. One example of this was when a Portuguese user was asked "How are you doing?" the equivalent translation was a slang question that asked "Are you Gay?" Since the user was aware that it was machine translated he was able answer appropriately however, he did say that using that kind of a phrase could easily offend people. This means that any eventual production system should explicitly state that it is using machine translation, either at the beginning of the conversation or appended to the end of every statement

   > **Me:**
   > How do you do?
   > **Translated message:**
   > Como você faz?

3) **Introduce an Escape sequence that will allow sections of text to go through without translation**
   Users also found the need to have an escape sequence that would allow certain sections of text to pass through untranslated. This is most commonly needed in the case of names such as "Howard Stern" which was being translated to Howard "Ship Stern". In another such instance, while we were chatting with one of our Chinese participants, his name was translated literally into English, for e.g. his first name converted to "beautiful" and his second name converted to "world" (This is not the real name of the participant). While

this may be easier to implement for conversations between languages with a similar script it will require some form of transliteration to convert between languages like Chinese and Russian.

> **Me:**
> do you listen to "the howard Stern" show on the radio?
> **Translated message:**
> ¿usted escucha "la demostración severa del howard" en la radio?
>
> **kedarshiroor@jabber.org:**
> 我的名字是******
> **Translated message:**
> My name is *********

Note: In order to protect the identity of the participant, we will not mention the translated or the original version of the name.

4) Write in simple, single statements

Users quickly understood that simple atomic statements would be translated well. Compound sentences or using multiple phrases with a punctuation separator led to several errors in translation including some where the entire meaning of the sentence was reversed.

> **kedarshiroor@jabber.org:**
> no... tienen un show separado para musica latina, se llama, los LATIN GRAMMYS... no me acuerdo quien ganó.
> **Translated message:**
> ... they do not have a separated show for Latin musica, is called, the LATIN GRAMMYS... I do not decide to me that won.

5) Words are translated to their primary meaning-avoid alternate usage

> **kedarshiroor@jabber.org:**
> I like rock music.
> **Translated message:**
> Tengo gusto de la música de la roca.
>
> **kedarshiroor@jabber.org:**
> 可穿戴计算
> **Translated message:**
> May dress the computation

We noticed that in most languages certain words got literally translated. For example, one of our Spanish participants happened to mention that she liked listening to rock music. Here rock got literally translated to the word "rock" (stone) .Another example is; one of the users wanted to say that he works in the field of wearable computing. This transformed to "May dress the competition". So there obviously are a few problems to new and slightly more technical words.

Since these words and statements are quite important in a casual conversation also, it is necessary to come up with some technique which will allow accurate translation.

6) Shared context is critical (Lei and the FCC)

Me:
What do you think about the new FCC indecency standards for radio broadcast?
Translated message:
你认为新FCC 猥亵标准怎么样为无线电广播?

Me:
What are your thoughts on Tech Square?
Translated message:
什么是您的想法在技术正方形?

Sometimes some words might not retain the original meaning intended by the user. For example, the word indecency in the above statement translated to abuse when the Chinese were using the software. One user had no idea about the FCC or anything to do with the whole episode, and he could not figure out the reason why abuse was used. Another user who was aware about the radio broadcast situation correctly assumed the meaning to be indecency, in spite of the translation being "abuse"

7) Pop culture will not translate well

Me:
you are fired   :-D
Translated message:
usted es:-D encendido

The famous statement from "The Apprentice - You are fired" translates to "you   are on fire". Grammar is a very important aspect of any conversation. It was   noticed that when slang or some informal manner of speech was used the context would completely change as shown in the example above. So the use of slang has   to be controlled and as we said earlier, there should be some form of sending   exact statements so that the user's context is preserved.

8) There should be feedback to show that a message is being translated

At most times the translation takes time, due to the length of the sentence (The translation occurs word to word. This means that if there is a very long sentence,   it would naturally take a little time for the result to appear back on your screen) or   also because at times the server is slow. This can lead to a lot of frustration for the user as he tends to wonder whether things are working right or not.

9) Reduce latency by running the translation on the local machine

Like we said earlier, there are quite a few problems with user frustration levels   when the translation is not immediate and there is waiting time involved. So to   counter this, the translation mechanism should be on a local server or a machine   to increase speeds and improve efficiency and user satisfaction levels.

Following are the results of the post-task survey:

Average Score for Participants in Post-Task questionnaire: The participants were asked to complete a post-task questionnaire at the end of the experiment. The questionnaire consisted of 5 questions. Each question was answered on a Likert Scale. The responses from all the participants are shown in Table 1 below:

Table 1 - Post-task survey results

Participant	Question A	Question B	Question C	Question D	Question E
Korean	4	3.5	4	4	2
Portuguese	4	3	4	2	3
French	4	3	3	2	4
French	4	3	4	3	3
Chinese	4	3	3	4	3
Russian	3	2	3	2	5
Spanish	5	3	4	2	5
Chinese	4	4	3	3	3
Average Score	**4**	**3.0625**	**3.5**	**2.75**	**3.5**
Std. Deviation	0.53452248	0.562995813	0.534522484	0.88640526	1.069044968

The questions are shown below to better understand the table:

Question A: How were you able to communicate with the person you were chatting with?
 [(1)Very Difficult – (5) Very Easily]

Average Score: 4

Question B: Did the translated messages seem natural?
[(1) Not at all Natural – (5) Very Natural]

Average Score: 3.1

Question C: How often did you have to modify your messages to improve the accuracy of translation?
[(1) Not at all – (5) All the time]

Average Score: 3.5

Question D: After using the translating messenger, do you feel it can support abbreviations?
[(1)Not at all – (5) Very Easily]

Average Score: 2.8

Question E: Did you feel the messages were too formal for an IM conversation?
[(1)Not at all formal– (5) Too formal]

Average Score: 3.5

Conclusion

For the purpose of the GCP, where students from different universities correspond over the Internet, it is highly desirable for some form of synchronous and interpersonal communication to exist. The class requires students to complete group projects with students from different countries, and some form of communication which would help them volley their questions and suggestions back and forth, as quickly and efficiently as possible, would probably be well appreciated. The WebBoard as mentioned before did accomplish this, but could be slow and inefficient as compared to instant messaging.

The translating instant messaging program, BuzzTrans, is a tool that we hope will augment the capabilities of the WebBoard and perhaps allow a synchronous and direct form of communication. We did face a lot of technical problems as well as organizational problems but were finally able to run our IM client through 8 participants and the results were quite intriguing and satisfying.

One of the interesting observations we made was the fact that BuzzTrans could support abbreviations to a certain extent. For example, the abbreviation EU translated to the Chinese equivalent of "European Union". This form of "abbreviation translation", if slightly improved for all languages, could significantly make BuzzTrans very popular in the global market. We also noticed a few problems with technical terms. These sort of technical glitches are always a hindrance but can be worked around with ease as done by some of our participants. To iron out these possibilities and to extract more information about this socio-technical innovation, it will require a lot more data and conversations. This would mean testing more participants and a significant amount of data analysis.

There was a learning curve involved with using BuzzTrans. Of course, the translation capabilities of the program were limited and often produced the wrong grammar or syntactical structure for a given message. However, due to the fact that IM has an informal touch to it, the participants were quickly able to work around these problems and have a sensible conversation. This shows that BuzzTrans may effectively be used by GCP students to have a quick conversation about project due dates or just trade cultural experiences. As long as users realize that their conversations are being translated by a computer, it should help them accommodate possible mistranslations and extract the correct meaning from incorrect syntax.

The next logical step in evaluating BuzzTrans is to field test the program. Providing students in the GCP with a copy of the program and encouraging its use should yield substantial amounts of qualitative data. This information can then be used to improve the user interface, improve the translation, and determine how far in the market a product such as this might penetrate.

BuzzTrans appears to be a viable addition to the GCP toolkit for supporting communication. While there are some difficulties, the system overall seems to promote a common understanding between users, and that is the ultimate goal. Rather than drawing any strong conclusions, the present study has demonstrated a need for further evaluation, and the future of BuzzTrans looks promising.

Recommendations

Our findings demonstrate that it is hard for the translation mechanism to handle slang, highly informal language, and abbreviations, so it is recommended that the users keep this in mind when using the software and type in as grammatically correct a manner as possible. Not doing so will only increase the time in conveying the meaning of a message through to another

person. It is also necessary to note that words are translated to a specific meaning, which might make it difficult for people to use alternate meanings. Sometimes the system has trouble translating long sentences. On a couple of occasions the entire meaning and context of the sentence has changed dramatically, to the extent that it might sound offensive to the reader. So it is recommended that users be concise and to the point as far as possible, and both sender and receiver need to recall that a computer is translating the language and mistakes could occur.

Users also have to realize that translation from one language to another is not an easy task. Every language has its own grammatical schema and it is quite tough to maintain the context when changing from one language to another. People who speak two languages well also notice this problem. Therefore, maintaining context is important. To have a successful and continuous chat, users should start and finish discussing one topic before moving on to another one. Immediately interjecting a new topic without appropriate context might be confusing for both sides to understand.

As explained earlier, BuzzTrans uses a translating service provided by Systran. It may take time for messages to be sent there, translated and sent on to the receiver. This could be frustrating to users, especially because we have not yet provided a source of feedback telling you about the translation process. We will be working on those interface aspects in due time, but until then we would request our users to be a little more patient with the translation time, if and when it does take time.

Finally, we would like to say that BuzzTrans has been built to help users communicate better and more synchronously. Users might find a few problems with it initially, but we hope to iron them out as and when we get suggestions and recommendations.

Appendix A

English to Chinese two way translation log

Subject 1

Native Chinese speaker with poor spoken but good written English.

Experimenter:
good morning
Translated message:
早晨好

Experimenter:
how are you
Translated message:
怎么样您

Subject 1:
starting experiment
Translated message:
Starting experiment

Subject 1:
下午好
Translated message:
Afternoon is good

Experimenter:
good afternoon
Translated message:
你好

Experimenter:
What is your name?
Translated message:
您的名字是什么?

Subject 1:
好
Translated message:
Good

Subject 1:
我的名字是 *******
Translated message:
My name is *********************

Experimenter:
mn name is ********
Translated message:
mn 名字是 ******

Experimenter:
my name is *********
Translated message:
我的名字是*********

Subject 1:
我知道了
Translated message:
I knew

Experimenter:
What is your area of study?
Translated message:
什么是您的研究领域?

Subject 1:
可穿戴计算
Translated message:
May dress the computation   **(Subject was referring to wearable computing)**

Experimenter:
i dont understand
Translated message:
我不了解

Experimenter:
do you work on computer science?
Translated message:
您从事计算机科学吗?

Subject 1:
是的，计算机科学
Translated message:
Yes, computer science

Experimenter:
dress computing?
Translated message:
礼服计算?

Experimenter:
i dont know what that is
Translated message:
我不知道是什么那

Experimenter:
what is "可穿戴计算" computing?
Translated message:
什么是"?????" 计算?

Experimenter:
what type of computing are you doing?
Translated message:
您做着什么样计算?

Experimenter:
i did not understand the type
Translated message:
我没有了解型

Subject 1:
可穿戴计算，可穿戴means werable
Translated message:
May dress the computation, may dress means
werable

Experimenter:
i understand now
Translated message:
我现在了解

Experimenter:
do you enjoy your work?
Translated message:
您享受您的工作吗?

Subject 1:
明白了？我是做什么研究的了吗
Translated message:
Understood? I was do any research

Experimenter:
yes i do
Translated message:
是我

Experimenter:
yes i understand
Translated message:
是我了解

Subject 1:
我喜欢我的工作
Translated message:
I like my work

Experimenter:
very good   :-)
Translated message:
非常好:-)

Subject 1:
谢谢
Translated message:
Thanks

Experimenter:
How long have you been at Georgia Tech?
Translated message:
多久您是在佐治亚技术?

Subject 1:
差不多一年办了
Translated message:
An almost year managed

Experimenter:
That is nice. Will you remain here for a long time?

Translated message:
那是好的。您长期将保留这里吗?

Subject 1:
不是很长，还要呆在这里一年左右吧，不是很确定
Translated message:
Is not very long, but also must stay about here year,
is not very
definite

Experimenter:
ok
Translated message:
好

Experimenter:
What languages do you speak?
Translated message:
您讲什么语言?

Subject 1:
我讲中国话，普通话，
Translated message:
I speak Chinese, the standard spoken Chinese,

Subject 1:
你讲什么话
Translated message:
You deliver any speech

Experimenter:
good
Translated message:
好

Experimenter:
i dont understand
Translated message:
我不了解

Experimenter:
are you asking if I am giving speeches?
Translated message:
您问如果我发表讲话?

Subject 1:
不，我问你你讲什么语言
Translated message:
No, I asked your you speak any language

Experimenter:
ok. I speak english, hindi and tamil
Translated message:
好。我讲英语、hindi 和泰米尔语

Experimenter:
I want to learn chinese. Can you teach me?
Translated message:
我想要学会中文。您可以教我吗?

Subject 1:
好啊，如果你想学习，最好到中国去
Translated message:

Good, if you want to study, as is best as China goes

Experimenter:
I dont have money to go to China :-(
Translated message:
我没有金钱去中国:-（

Experimenter:
What extracurricular activities do you participate in?
Translated message:
您参与什么课外活动?

Subject 1:
中国有很多准们给外国人办的语言培训班
Translated message:
China very many has the language training class which manages to the
foreigner

Subject 1:
中国有很多专门给外国人办的语言培训班
Translated message:
China very many has specially the language training class which
manages to the foreigner

Experimenter:
Ok. Can you buy me a ticket to go to china? :)
Translated message:
好。您可以给我买票去瓷吗？:)

Subject 1:
哈哈，这个翻译有意思，把中国翻译成了瓷器
Translated message:
Ha ha, this translation is interesting, translated China the
chinaware

Experimenter:
What kind of food do you like?
Translated message:
什么样的食物您喜欢?

Subject 1:
我喜欢水饺
Translated message:
I like the boiled dumplings

Subject 1:
你喜欢什么食物？
Translated message:
What food do you like?

Experimenter:
I like indian food
Translated message:
我喜欢印第安食物

Experimenter:
I also like pizza
Translated message:
我并且喜欢薄饼

Subject 1:

印度有什么好的吃的，给我讲讲
Translated message:
India has, to me which any good eats says

Experimenter:
Chicken tikka masala is very good
Translated message:
鸡tikka masala 是非常好的

Experimenter:
we have very good curry
Translated message:
我们食用非常好咖喱

Experimenter:
What kind of music do you like?
Translated message:
什么样的音乐您喜欢?

Subject 1:
我喜欢听古典轻音乐
Translated message:
I like listening to the classical light music

Experimenter:
I like listening to rock music
Translated message:
我喜欢倾听摇滚乐

Experimenter:
What do you think about the new FCC indecency standards for radio broadcast?
Translated message:
你认为新FCC 猥亵标准怎么样为无线电广播?

Subject 1:
我不太明白猥亵的意思
Translated message:
I not too understand the indecent meaning

Subject 1:
这个句子翻译的不好啊
Translated message:
This sentence translation is not good

Subject 1:
语言翻译真实个挑战的问题
Translated message:
Language translation real challenge question

Experimenter:
the FCC has new rules for cursing on radio, do you agree with them?
Translated message:
FCC 有新规则为诅咒在收音机，您同意他们吗?

Experimenter:
Did you watch the Oscars?
Translated message:
您观看了Oscars 吗?

Subject 1:
我看过，不太喜欢

Translated message:
I have looked, not too likes

Subject 1:
你喜欢奥斯卡？
Translated message:
You like Oscar?

Experimenter:
yes i do
Translated message:
是我

Experimenter:
Do you think Microsoft is being treated fairly by the EU?
Translated message:
您认为微软由欧共体相当对待吗？

Subject 1:
我喜欢一些印度电影，我小时后就看过印度电影，但是认为电影里总是唱歌，太长了
Translated message:
I like some Indian movie, after my hour has watched the Indian movie,
but thought in the movie always sings, too was long

Experimenter:
you do not like songs in movies?
Translated message:
您不喜欢歌曲在电影？

Experimenter:
I like chinese kung fu movies   :)
Translated message:
我喜欢中国kung fu 电影:)

Subject 1:
是吗，我可是会功夫啊，我学过武术，摔交，但是早不练了
Translated message:
Yes, I but meet the time, I have studied the martial arts, 摔交, but
early does not practice

Experimenter:
Do you drink coffee?
Translated message:
您喝咖啡吗？

Experimenter:
What is your favorite coffee shop in Atlanta?
Translated message:
什么是您喜爱的咖啡店在亚特兰大？

Subject 1:
有时喝咖啡，但是我更喜欢中国茶
Translated message:
Sometimes drinks the coffee, but I like the Chinese tea

Experimenter:

do you make the chinese tea youself or do you go to a shop?
Translated message:
您做中国茶youself 或您去商店吗？

Experimenter:
do you make the chinese tea yourself or do you go to a shop?
Translated message:
您做中国茶你自己或您去商店吗？

Subject 1:
我在商店里买咖啡
Translated message:
I buy the coffee in the store

Subject 1:
我在商店里茶叶
Translated message:
I in store tea

Experimenter:
ok
Translated message:
好

Experimenter:
What part of Atlanta do you live in?
Translated message:
什么亚特兰大的部份您活在?

Experimenter:
Do you drive to work everyday?
Translated message:
您驾驶工作每天吗？

Subject 1:
我每天开车上班，不太远
Translated message:
I drive every day go to work, not too is far

Experimenter:
that is good
Translated message:
那是好的

Experimenter:
Do you use any P2P clients?
Translated message:
您使用任何P2P 客户吗？

Subject 1:
你住在什么地方
Translated message:
You live in any place

Experimenter:
i live in Hartford place
Translated message:
我居住在哈特福德地方

Subject 1:
我用p2p客户

Translated message:
I use the p2p customer

Subject 1:
我用p2p客户机
Translated message:
I use the p2p client

Experimenter:
thank you for your time
Translated message:
谢谢在您的时间

Experimenter:
you have been very helpfull
Translated message:
您是非常helpfull

Experimenter:
you have been a great help
Translated message:
您是伟大的帮助

Subject 1:
不客气，
Translated message:
Is impolite,

Subject 1:
我很乐意帮助
Translated message:
I am glad to help very much

Experimenter:
i am sorry
Translated message:
我抱歉

Experimenter:
i did not mean it that way
Translated message:
我没有意味它那样

Subject 2

Native Chinese speaker with excellent written and spoken English

Subject: 2: 2:09:33 PM,你好
Subject: 2: 2:09:57 PM,我的名字是孔雷
Experimenter: 2:10:04 PM,What is your name?
Experimenter: 2:10:13 PM,How are you doing today?
Subject: 2: 2:10:19 PM,我的名字叫**********
Subject: 2: 2:10:57 PM,还行
Subject: 2: 2:11:10 PM,你呢
Experimenter: 2:11:13 PM,What is your academic major?
Experimenter: 2:11:24 PM,I am doing well thank you
Experimenter: 2:12:42 PM,are you able to understand what I am saying?
Subject: 2: 2:12:58 PM,绝大部分
Experimenter: 2:13:22 PM,ok good..:) So what is your area of study?
Subject: 2: 2:14:02 PM,系统和安全
Experimenter: 2:14:22 PM,When do you plan to graduate with your degree?
Subject: 2: 2:14:24 PM,你的呢？
Experimenter: 2:14:37 PM,I am studying Human Computer Interaction.
Subject: 2: 2:14:57 PM,明年
Experimenter: 2:15:11 PM,Do you enjoy your academic major?
Subject: 2: 2:16:40 PM,使得
Subject: 2: 2:16:41 PM,是的
Subject: 2: 2:16:56 PM,你是几年级的？
Experimenter: 2:17:21 PM,Did you say something about "causes"?
Subject: 2: 2:18:19 PM,不明白
Experimenter: 2:18:37 PM,let us move on. Do you enjoy your classes?
Subject: 2: 2:19:10 PM,我问是你的年级
Experimenter: 2:19:26 PM,I did not understand.
Subject: 2: 2:20:36 PM,你在这个学校几年了？
Experimenter: 2:20:48 PM,I have been here for 2 years
Subject: 2: 2:21:27 PM,你在读硕士还是博士？
Experimenter: 2:21:42 PM,I am graduating as a Master
Experimenter: 2:21:45 PM,Master
Experimenter: 2:21:55 PM,sorry. Master's Student
Experimenter: 2:22:09 PM,Do you enjoy your courses?
Subject: 2: 2:23:15 PM,越来越了
Experimenter: 2:23:34 PM,that's good.
Experimenter: 2:23:54 PM,How long have you been at Georgia Tech?
Subject: 2: 2:24:19 PM,这是第四年
Experimenter: 2:24:40 PM,What languages do you speak?
Subject: 2: 2:25:18 PM,我在学校
Subject: 2: 2:25:35 PM,我在学校讲
Experimenter: 2:26:06 PM,ok.. good.. what languages do you speak?

Subject:	2: 2:26:10 PM,我在学校讲英语，在家里说中文
Experimenter:	2:26:36 PM,What extracurricular activities do you participate in?
Experimenter:	2:28:26 PM,are you there?
Subject:	2: 2:29:50 PM,因为我的室友是中国人
Subject:	2: 2:29:50 PM,你是从印度来的吧？
Experimenter:	2:30:56 PM,Yes I am from India I did not ask you about your roommate
Experimenter:	2:31:19 PM,I asked you what extracurricular activities you participate in.
Subject:	2: 2:31:22 PM,我打乒乓球
Experimenter:	2:31:42 PM,ah..!! i play ping pong too.. we should play sometime
Subject:	2: 2:31:53 PM,那好啊
Experimenter:	2:31:55 PM,table tennis is my favorite game
Experimenter:	2:32:15 PM,What kind of music do you like?
Subject:	2: 2:32:39 PM,流行音乐
Subject:	2: 2:33:14 PM,有时也听一些古典音乐
Experimenter:	2:33:20 PM,oh ok.. What do you think about the new FCC indecency standards for radio broadcast?
Subject:	2: 2:34:25 PM,我不太关心
Experimenter:	2:34:39 PM,ok ok..Did you watch the Oscars?
Experimenter:	2:34:51 PM,Did you watch the Oscars?
Subject:	2: 2:35:21 PM,看了一点儿，那天晚上我太忙
Subject:	2: 2:35:39 PM,你呢？
Experimenter:	2:36:09 PM,Did you mean your evening was busy that day?
Subject:	2: 2:36:58 PM,是的 我的作业第二天要交
Experimenter:	2:37:11 PM,I did not understand
Experimenter:	2:37:35 PM,Do you think Microsoft is being treated fairly by the EU?
Subject:	2: 2:39:23 PM,什末？
Subject:	2: 2:39:43 PM,我不太理解你的问题
Experimenter:	2:40:07 PM,Microsoft are being fined by the European Union.
Experimenter:	2:40:14 PM,What do you think of that?
Subject:	2: 2:41:05 PM,不太公平
Experimenter:	2:41:20 PM,ok
Subject:	2: 2:41:51 PM,树大招风
Experimenter:	2:41:55 PM,How do you think the GT basketball team has done this year?
Subject:	2: 2:42:38 PM,他们太牛了
Experimenter:	2:42:53 PM,i did not understand
Subject:	2: 2:43:17 PM,他们太好了
Experimenter:	2:43:39 PM,ok
Experimenter:	2:43:52 PM,What are your plans for the summer?
Subject:	2: 2:44:02 PM,如果能拿冠军就更好了
Experimenter:	2:44:23 PM,I did not understand
Subject:	2: 2:44:51 PM,我会呆在学校

Experimenter: 2:45:23 PM,You are going to stay in school?
Subject: 2: 2:45:33 PM,是的
Experimenter: 2:45:52 PM,What are your thoughts on Tech Square?
Subject: 2: 2:46:55 PM,我刚从那边回来，很不错
Experimenter: 2:47:13 PM,What is your favorite restaurant at TSRB
Subject: 2: 2:48:41 PM,我没在那里吃过饭，不好说
Experimenter: 2:49:16 PM,I like "Tin Drum". They have east asian food and it is really tasty
Experimenter: 2:49:24 PM,Do you drink coffee?
Subject: 2: 2:50:17 PM,不太多，太苦了，我喜欢甜东西
Experimenter: 2:50:37 PM,i didn't understand.
Experimenter: 2:53:07 PM,are you there?
Experimenter: 2:55:08 PM,What part of Atlanta do you live in?
Subject: 2: 2:57:41 PM,TSR真的象是在城里，我们的主校园象是在乡下
Subject: 2: 2:57:41 PM,COBB县

Appendix B

English to Spanish two way translation log

Subject
Native Spanish speaker with good written and spoken english skills

Subject:
hola

Experimenter:
hello
Translated message:
hola

Subject:
que hay_
Translated message:
that there is _

Experimenter:
how are you?
Translated message:
¿cómo es usted?

Subject:
¿que hay?
Translated message:
that there is?

Subject:
start over!
Translated message:
start to over!

Experimenter:
ok
Translated message:
autorización

Experimenter:
hello
Translated message:
hola

Subject:
¡hola!
Translated message:
hello!

Experimenter:
how are you?
Translated message:
¿cómo es usted?

Subject:
estoy muy bien y tu?
Translated message:
I am very well and your?

Experimenter:
I am fine
Translated message:
Estoy muy bien

Experimenter:
What is your name?
Translated message:
¿Cuál es su nombre?

Subject:
me llamo ******* y soy de Colombia, tu de donde eres?
Translated message:
I am called ******** and I been of Colombia, your of where you are?

Experimenter:
I am from India
Translated message:
Soy de la India

Experimenter:
have you ever been there?
Translated message:
¿usted ha estado siempre allí?

Subject:
De que parte?
Translated message:
From which it leaves?

Experimenter:
South India-a city called Madras
Translated message:
La ciudad del sur de la India-uno llamó Madras

Subject:
No ahora estoy en Atlanta, estudiando engenieria, y que haces?
Translated message:
Not now I am in Atlanta, studying engenieria, and that beams?

Experimenter:
I am studying computer science
Translated message:
Estoy estudiando la informática

Experimenter:
When do you plan to graduate?
Translated message:
¿Cuándo usted planea graduar?

Subject:
Me graduare este verano... pero no estoy segura que tipo de trabajo conseguire... solo espero que page bien!
Translated message:
It will graduate east summer to me... but I am not sure that type of
single work conseguire... I hope that page well!

Experimenter:
I wish you all the best-I will be graduating in Spring
Translated message:
Deseo que usted que todo el la mejor-Yo graduará en resorte

Subject:
halo!
Translated message:
I pull ahead!

Experimenter:
I dont understand

Experimenter:
i dont understand
Translated message:
no entiendo

Subject:
Me graduare este verano... pero no estoy segura que tipo de trabajo conseguire... solo espero que page bien!
Translated message:
It will graduate east summer to me... but I am not sure that type of
single work conseguire... I hope that page well!

Experimenter:
best of luck
Translated message:
lo más mejor posible de la suerte

Experimenter:
do you enjoy you studies?
Translated message:
¿usted goza de usted estudia?

Subject:
gracias! tu volveras a la Indial o te quedaras aqui?
Translated message:
thanks! your volveras to the Indial or you remained aqui?

Experimenter:
It depends on where I get a job
Translated message:
Depende encendido donde consigo un trabajo

Experimenter:
I would prefer to stay in america but will not mind returning to inida
Translated message:
Preferiría permanecer en América pero no importaré el volver al

inida
Subject:
En que parte de America?
Translated message:
In which it leaves from America?

Experimenter:
California   :-D
Translated message:
California:-D

Subject:
A mi me gustaria ir a Nueva York, porque hay mucha marcha en informatica y arte digital.
Translated message:
To my gustaria one to go away to New York, because there is much march
in informatica and digital art.

Subject:
Eso me interesa mucho...
Translated message:
That interests much to me...

Subject:
California me gusta tambien!
Translated message:
California I also like!

Experimenter:
do you plan to go back to Columbia?
Translated message:
¿usted planea ir de nuevo a Colombia?

Experimenter:
I like new york too-It reminds me of India
Translated message:
Tengo gusto de Nueva York que demasiado- me recuerda la India

Subject:
Si espero ir las proximas navidades con mi hermana... Pero tambien me gustaria encontrar trabajo ahi, aunque la economia no es muy fuerte.
Translated message:
If I hope to go proximas Christmases with my sister... But also
gustaria to find a job me ahi, although economia is not very strong.

Experimenter:
I understand- that is very sad
Translated message:
Entiendo que es muy triste

Experimenter:
How long have you been at "Georgia Tech"?
Translated message:
¿Cuanto tiempo usted ha estado en el "tech de Georgia"?

Subject:
Llevo dos años aqui, haciendo el Masters en Informatica, diseño y tecnologia, pero antes de venir

aqui, iba a la Universidad de Michigan, donde
estudié diseño grafico
Translated message:
I take to two years aqui, doing the Masters in
Informatica, design and
tecnologia, but before coming aqui, it went to the
University of
Michigan, where I studied grafico design

Experimenter:
Did you do a masters or a bachelors degree over
there?
Translated message:
¿Usted hizo amos o una licenciatura allá?

Subject:
!no entiendo!
Translated message:
!no I understand!

Experimenter:
what degree did you recieve in michigan?
Translated message:
¿qué grado usted recieve en Michigan?

Experimenter:
masters or bachelors?
Translated message:
¿amos o solteros?

Subject:
Me gradué en diseno grafico en cuatro anos.
Translated message:
I graduated in grafico diseno in four anuses.

Experimenter:
ok
Translated message:
autorización

Experimenter:
What extracurricular activities do you participate in?
Translated message:
¿Qué actividades extracurricular usted participa
adentro?

Subject:
!estoy en el club lesbiano de georgia tech, porque
me gustan mucho las mujeres!
Translated message:
!estoy in the lesbian club of georgia tech, because I
like much the
women!

Subject:
y tu?
Translated message:
and your?

Experimenter:
I watch cricket and formula 1
Translated message:
Miro el grillo y el fórmula 1

Experimenter:
Do you like Juan Pablo Montoya?

Translated message:
¿usted tienen gusto de Juan Pablo Montoya?

Subject:
no entiendo 'grillo' y no conozco a Juan Pablo
Montoya...
Translated message:
I do not understand ' grilló and I do not know Juan
Pablo Montoya...

Experimenter:
"Cricket" is the national game of India
Translated message:
el "grillo" es el juego nacional de la India

Experimenter:
Juan Pablo Montoya is a formula 1 racer from
Columbia-he has many fans in America
Translated message:
Juan Pablo que Montoya es corredor del fórmula 1
del Colombia-él
tiene muchos ventiladores en América

Experimenter:
What kind of food do you like?
Translated message:
¿Qué clase de alimento usted tiene gusto?

Subject:
me gusta la comida india muchisimo... acabo de
comerla...
Translated message:
I like the India food muchisimo... I finish eating it...

Experimenter:
What is your favourite dish?
Translated message:
¿Cuál es su plato del favorito?

Subject:
samosa... mutter paneer... a
Translated message:
samosa... to mutter to paneer... a

Experimenter:
good
Translated message:
bueno

Experimenter:
What kind of music do you like?
Translated message:
¿Qué clase de música usted tiene gusto?

Subject:
me gusta la musica cubana porque mi padre es
cubano... asi que me encanta bailar salsa!
Translated message:
I like the Cuban musica because my father is
Cuban... asi that it
enchants to me to dance sauce!

Subject:
y tu?
Translated message:
and your?

Experimenter:
I like rock music - its very loud :-)
Translated message:
Tengo gusto de la música de la roca - su muy ruidoso:-)

Experimenter:
What do you think about the new FCC indecency standards for radio broadcast?
Translated message:
¿Qué usted piensa de los nuevos estándares de la indecencia de la
FCC para la difusión de radio?

Subject:
me parece una mierda, porque casi no hay musica buena y la poca que la van a cubrir.
Translated message:
it seems to me an excrement, because almost there is no good musica
and the little that is going it to cover.

Experimenter:
Do you listen to Howard Stern?
Translated message:
¿Usted escucha la popa de Howard?

Subject:
no entiendo!
Translated message:
I do not understand!

Experimenter:
do you listen to "the howard Stern" show on the radio?
Translated message:
¿usted escucha "la demostración severa del howard" en la radio?

Subject:
quieres decir 'Howard Stern'_
Translated message:
you mean ' to Howard Stern' _

Experimenter:
yes
Translated message:
sí

Subject:
???
Translated message:
?

Subject:
aveces, pero no tengo mucho tiempo libre. Si me gusta y me parece muy mal que lo quiten del aire.
Translated message:
accustom, but I do not have long free time. If I like and I seem to me
very bad that they clear it of the air.

Experimenter:
i agree
Translated message:

convengo

Experimenter:
Did you watch the Oscars?
Translated message:
¿Usted miró el Oscars?

Subject:
no, me aburren mucho.
Translated message:
no, they bore to me much.

Subject:
pero si vi los GRAMMY's
Translated message:
but if I saw the GRAMMY's

Subject:
y el ultimo episodio de EL 'APPRENTICE'
Translated message:
and I complete episodo of the ' APPRENTICÉ

Experimenter:
Do you know who won the Latin music grammy?
Translated message:
¿Usted sabe quién ganó la música latina grammy?

Experimenter:
you are fired   :-D
Translated message:
usted es:-D encendido

Experimenter:
How do you think GT's basketball team has done this year?
Translated message:
¿Cómo usted piensa a equipo de baloncesto de GT ha hecho este año?

Subject:
no... tienen un show separado para musica latina, se llama, los LATIN GRAMMYS... no me acuerdo quien ganó.
Translated message:
... they do not have a separated show for Latin musica, is called, the
LATIN GRAMMYS... I do not decide to me that won.

Experimenter:
i see
Translated message:
veo

Subject:
muy bien, pero va a ser dificil superar el año que viene...
Translated message:
very well, but it is going to be dificil to surpass next year...

Experimenter:
What are your plans for the summer?
Translated message:
¿Cuáles son sus planes para el verano?

Subject:

tengo que terminar my tesis, y espero conseguir un internship... en algun sitio. tambien tengo que buscar trabajo para el año que viene... tengo un verano muy ocupado.
Translated message:
I must finish my thesis, and hope to obtain internship... in algun
site. also I must look for work for next year... I very have a
occupied summer.

Experimenter:
Have you been to TSRB?
Translated message:
¿Usted ha estado a TSRB?

Subject:
si, porque trabajo con el profesor SHA XIN WEI, y el tiene su laboratorio alli.
Translated message:
if, because work with professor SHA XIN WEI, and alli has its
laboratory.

Subject:
me gusta mucho.
Translated message:
I like much.

Experimenter:
Do you have a car or do you use MARTA?
Translated message:
¿Usted tiene un coche o usted utiliza MARTA?

Subject:
no me gusta Marta, ella es una puta!
Translated message:
I do not like Marta, she is one puta!

Experimenter:
:-D
Translated message:
:-D

Experimenter:
Do you use any P2P clients?
Translated message:
¿Usted utiliza a clientes del P2P?

Experimenter:
do not worry-we wont tell the RIAA
Translated message:
no preocupar- no diremos el RIAA

Subject:
si aveces.
Translated message:
if you accustom.

Subject:
y tu_
Translated message:
and your _

Subject:
??
Translated message:
?

Experimenter:
never   ;-)
Translated message:
nunca

Subject:
si seguro.
Translated message:
if surely.

Experimenter:
it is illegal   ;-)
Translated message:
es ilegal

Experimenter:
;-)
Translated message:
Unable to translate (;-))

Experimenter:
thank you Yvonne
Translated message:
gracias Yvonne

Experimenter:
You have been very helpful
Translated message:
Usted ha sido muy provechoso

Subject:
denada, hasta muy pronto.
Translated message:
denada, until in a moment.

Subject:
ciao!
Translated message:
ciao!

Experimenter:
bye
Translated message:
adiós

Appendix C

English to Korean one way translation log

Subject
Native Korean speaker with poor spoken but good written English.

Experimenter:
hello
Translated message:
여보세요

Subject:
Hello
Translated message:
여보세요

Experimenter:
it work
Translated message:
IT work

Experimenter:
What is your name?
Translated message:
너의 이름은 무엇 이는가?

Subject:
my name is **********

Experimenter:
How are you doing today?
Translated message:
너는 안녕하세요 오늘?

Subject:
fine

Experimenter:
What is your academic major?
Translated message:
너의 학문적인 소령은 무엇 이는가?

Experimenter:
What is your major?
Translated message:
너의 소령은 무엇 이는가?

Subject:
still i don't understand

Experimenter:
What are you studying?
Translated message:
너는 무엇을 공부하고 있는가?

Subject:
I am studying Aerospace eng.

Experimenter:
When will you graduate?
Translated message:
너는 언제 졸업할 것인가?

Subject:
I hope that I could graduate june 2007

Experimenter:
Do you enjoy your studies?
Translated message:
너는 너의 학문을 즐기는가?

Subject:
absolutely yes

Experimenter:
What time is your earliest class?
Translated message:
몇시에 너의 가장 이른가 종류는 이는가?

Subject:
it's totally wierd

Experimenter:
What time is your morning class?
Translated message:
몇시에 너의 아침은 종류 이는가?

Subject:
I don't understand

Experimenter:
How long have you been at Georgia Tech?
Translated message:
얼마나 너는 조오지아 기술에 이었는가?

Subject:
about 2 years

Experimenter:
What languages do you speak?
Translated message:
너는 무슨 언어를 말하는가?

Subject:
I speak Korean

Experimenter:
What extracurricular activities do you participate in?
Translated message:

너는 무슨 과외 활동을 안으로 참가하는가?

Subject:
i'm so busy , so.... almost nothing

Experimenter:
What kind of food do you like?
Translated message:
어떤 종류의 음식을 너는 좋아하는가?

Subject:
I like all kind of korean foods

Experimenter:
What kind of music do you like?
Translated message:
어떤 종류의 음악을 너는 좋아하는가?

Subject:
classic

Experimenter:
What do you think about the new FCC indecency standards for radio broadcast?
Translated message:
라디오 방송을 위해 새로운가FCC예절 기준에 대해서 어떻게 생각하세요?

Subject:
actuall I have no idea...cause I don;t know what is FCC

Experimenter:
Did you watch the Oscars?
Translated message:
너는Oscars을 봤는가?

Subject:
yes

Experimenter:
Do you think Microsoft is being treated fairly by the EU?
Translated message:
너는EU에의해 마이크로소프트를 대우되고 있는가 공정한가 생각하는가?

Experimenter:
Do you think Microsoft is being treated fairly by the European Union?
Translated message:
너는 유럽 연합에의해 마이크로소프트를 대우되고 있는가 공정한가 생각하는가?

Subject:
I don't know...

Experimenter:
How do you think GT's basketball team has done this year?
Translated message:
너는 어떻게GT's농구 팀을 했는가 올해에 생각하는가?

Subject:
very nice!...incredible!

Experimenter:
My name is Justin, and I am from Bradford. I like to play basketball and work for the military, but I graduate in summer 2003.
Translated message:
나의 이름은Justin이고, 나는Bradford에서 이다. 나는
농구를 하, 군을 위해 일하고 싶다, 그러나 나는 여름2003년안에 졸업한다.

Subject:
good luck

Experimenter:
What are your plans for the summer?
Translated message:
여름을 위해 너의 계획은 무엇 이는가?

Subject:
I am supposed to take a trip for Floriad with my friends

Experimenter:
What are your thoughts on Tech Square?
Translated message:
기술 사각에 너의 생각은 무엇 이는가?

Subject:
i don't understand what is "techonology ...."

Experimenter:
What are your thoughts on Technology Square?
Translated message:
기술 사각에 너의 생각은 무엇 이는가?

Subject:
you said the same

Experimenter:
What are your thoughts on Tech square building?
Translated message:
기술 정연한가 건물에 너의 생각은 무엇 이는가?

Subject:
You said " what is your idea about the building for technology ....? I don't understand

Experimenter:
What are your thoughts on new Tech building area?
Translated message:
새로운가 기술 건물 지역에 너의 생각은 무엇 이는가?

Subject:
I thinks your words, what's your idear about new technology complex

Experimenter:

Yes
Translated message:
그렇다

Subject:
oh I see

Experimenter:
Do you know where TSRB is?
Translated message:
TSRB이 있는 곳에 너는 알는가?

Subject:
I don't know

Experimenter:
Do you drink coffee?
Translated message:
너는 커피를 마시는가?

Subject:
yes very often

Experimenter:
what is your favorite coffee place in atlanta?
Translated message:
애틀란타안에 너의 마음에 들는가 커피 장소는 무엇 이는가?

Subject:
just starbucks in school

Experimenter:
What part of atlanta do you live in?
Translated message:
애틀란타의 너는 무슨 부분안에 살아있는가?

Subject:
Windy hill rd, marriettra^^

Experimenter:
Do you own a car?
Translated message:
너는 차를 소유하는가?

Subject:
yes

Experimenter:
How do you travel to school?
Translated message:
너는 어떻게 학교에 여행하는가?

Subject:
by my car..

Experimenter:
Have you ever used MARTA?
Translated message:
너는 이제까지MARTA을 사용하는가것이?

Subject:
no

Experimenter:
Do you use any P2P clients?
Translated message:
너는 어떤P2P클라이언트를 사용하는가?

Subject:
freechal website....

Experimenter:
Thank you for your time!
Translated message:
너의 시간을 위해 너를 감사하십시요!

Subject:
you said ' thank me for my time"..but I think, thank you...

Experimenter:
Thank you
Translated message:
너를 감사하십시요

Experimenter:
Thanks
Translated message:
감사

Experimenter:
Much Thanks
Translated message:
다량 감사

Subject:
wired

Experimenter:
We appreciate your help
Translated message:
우리는 너의 도움을 평가한다

Appendix D

English to French two way translation log

Subjects
Native French speakers with a good command over written and spoken English

Experimenter:
Comment allez-vous aujourd'hui ?

Subjects:
Bien et toi

Experimenter:
Bon

Subjects:
Tu as aime le cours de cognitive science de vendredi ?

Experimenter:
Quel est votre commandant scolaire ?

Experimenter:
Oui, j'aime la science cognitive

Subjects:
Je ne comprends pas

Experimenter:
Qu'étudiez-vous ?

Subjects:
J'etudie l'electrical and computer engineering

Subjects:
Tu as des freres et soeurs ?

Experimenter:
Translation error(Cool)

Experimenter:
Comment vos classes vont-elles ?

Experimenter:
Oui, trois frères

Subjects:
Habites-tu sur le campus ?

Experimenter:
Comment vos classes vont-elles ?

Experimenter:
Non. vous ?

Subjects:

tout va bien. Mais c'est la fin du semestre donc j'ai beaucoup de travail

Subjects:
Oui j´habite sur le campus

Experimenter:
Quand votre est-elle première classe ?

Subjects:
je ne comprends pas

Experimenter:
Est combien tôt votre première classe ?

Subjects:
tu veux dire à quelle heure est mon premier cours dans la semaine ?

Experimenter:
Presque...

Experimenter:
Premier cours le matin ?

Subjects:
à 9h30

Experimenter:
OK

Experimenter:
Combien de temps avez-vous été à la technologie de la Géorgie ?

Subjects:
quel sport pratiaues-tu ?

Experimenter:
Je ne comprends pas. Vous a demandé, quel sport j'aiment ?

Subjects:
pardon je voulais dire quel sport pratiques-tu ?

Experimenter:
Je pense que vous a demandé, quel sport vous jouent ?

Experimenter:

Je joue au basket-ball

Experimenter:
Quelles langues parlez-vous ?

Subjects:
Je suis impressionne

Subjects:
Je parle le francais, anglais et espagnol

Experimenter:
Je suis impressionné !

Subjects:
.:;-

Experimenter:
Quelles activités hors-programme participez-vous dedans ?

Subjects:
:-0

Subjects:
je fais parti du club de natation

Subjects:
partie

Experimenter:
Nice

Experimenter:
Quel genre de nourriture aimez-vous ?

Subjects:
j'aime les hambugers et le lait

Experimenter:
ok

Experimenter:
Quel genre de musique aimez-vous ?

Subjects:
et toi ?

Experimenter:
Milk-shakes !

Subjects:
tout type de musique

Subjects:
mdr

Experimenter:
J'aime la roche

Experimenter:
Que pensez-vous des nouvelles normes d'immodesté de FCC pour l'émission par radio ?

Subjects:
trop technique pour moi

Experimenter:
désolé

Experimenter:
Avez-vous observé l'Oscars ?

Subjects:
non car mes collocataires regardent le basket-ball tout le temps

Experimenter:
Je ne sais pas ce que les "est collocataires" ?

Subjects:
Tu viens d'Atlanta ?

Experimenter:
Je suis de Pittsburgh

Subjects:
"collocataires" veut dire "room mates"

Experimenter:
Je comprends maintenant !

Experimenter:
ha ha

Experimenter:
Pensez-vous Microsoft est-vous traité assez par l'EU ?

Subjects:
ce n'est pas tres clair comme question

Experimenter:
désolé

Experimenter:
Quels sont vos plans pour l'été ?

Subjects:
je crois que Microsoft merite cette amende

Subjects:
je vais travailler pour une societe francaise

Experimenter:
Frais

Subjects:
quoi ?

Experimenter:
Buvez-vous du café ?

Subjects:
non je prefere le the et toi ?

Experimenter:

Je ne comprends pas

Experimenter:
Vous préférez le thé ?

Subjects:
oui!

Experimenter:
Obtenu le !

Experimenter:
Où est votre magasin préféré de thé à Atlanta ?

Subjects:
Kroger :-)

Experimenter:
Ha ha

Experimenter:
Possédez-vous une voiture ?

Subjects:
non malheureusement

Experimenter:
Trop mauvais

Subjects:
j'aime les Corvettes

Experimenter:
Comment voyagez-vous à l'école ?

Subjects:
à pied ou avec les navettes

Experimenter:
Avez-vous jamais employé MARTA ?

Subjects:
si mais c'est cher

Experimenter:
Employez-vous des clients de P2P ?

Subjects:
oui souvent

Subjects:
mais c'est interdit

Experimenter:
merci !

Appendix E

English to Portuguese two way translation log

Subjects

Native Portuguese speakers with an excellent command over written and spoken English

Experimenter:	12:04:53 PM,Hello!
Subject:	12:05:08 PM,oi
Experimenter:	12:05:18 PM,What is your name?
Subject:	12:05:28 PM,*******.
Subject:	12:06:06 PM,e o seu
Experimenter:	12:06:23 PM,I did not understand
Subject:	12:06:39 PM,Desculpe. vou tentar novamente.
Subject:	12:07:01 PM,Qual o seu nome
Experimenter:	12:07:14 PM,Do you want to know my name?
Subject:	12:07:41 PM,Quero.
Experimenter:	12:08:00 PM,my name is *******
Experimenter:	12:08:33 PM,How are you doing today?
Experimenter:	12:09:09 PM,How do you do?
Subject:	12:09:30 PM,Você quer saber como estou
Experimenter:	12:10:13 PM,I want to know how you are.
Subject:	12:10:34 PM,Eu estou bem.
Experimenter:	12:11:13 PM,that is not what i wanted to say
Experimenter:	12:11:52 PM,what is you academic major or area of study?
Experimenter:	12:12:10 PM,What is your academic major or area of study?
Subject:	12:12:51 PM,Eu estudo ciência da computação
Experimenter:	12:13:12 PM,awesome
Experimenter:	12:13:21 PM,When do you plan to graduate with your degree?
Subject:	12:14:56 PM,eu espero terminar em um ano.
Subject:	12:15:17 PM,acabar
Experimenter:	12:15:45 PM,that is nice!
Experimenter:	12:16:05 PM,Do you enjoy your academic major?
Experimenter:	12:17:09 PM,Do you enjoy your area of study?
Subject:	12:17:34 PM,o que é <<major academic>>
Experimenter:	12:18:15 PM,major academic = area of study
Subject:	12:19:30 PM,agora eu entendi.
Experimenter:	12:19:36 PM,How are your classes going?
Subject:	12:20:07 PM, -- eu não tenho mais que ir às aulas
Experimenter:	12:20:36 PM,i didnt understand.
Experimenter:	12:20:45 PM,I did not understand
Subject:	12:21:12 PM,eu disse que já não tenho mais classes
Subject:	12:21:31 PM,aula
Experimenter:	12:21:49 PM,why are you talking about classrooms?
Subject:	12:22:35 PM,eu estava falando sobre as aulas....

Experimenter: 12:22:47 PM,ah ok
Experimenter: 12:23:10 PM,What time is your earliest class?
Subject: 12:24:40 PM,Eu já disse que não tenho mais aulas!!!!!
Experimenter: 12:25:04 PM,oh yes.. i forgot
Subject: 12:25:12 PM,você está me deixando nervoso!
Experimenter: 12:25:34 PM,Angry or Nervous?
Subject: 12:27:19 PM,já estou mais calmo....
Experimenter: 12:27:22 PM,How long have you been at Georgia Tech?
Subject: 12:28:23 PM,eu já estou aqui há 5 anos.
Subject: 12:29:50 PM,eu cheguei em 1999.
Experimenter: 12:30:01 PM,What languages do you speak?
Subject: 12:31:32 PM,desde 1999
Experimenter: 12:32:00 PM,that is a long time back
Experimenter: 12:32:33 PM,that is a long time back
Subject: 12:32:36 PM,eu falo Português e Inglês.
Experimenter: 12:33:46 PM,it has been a long time since you have been here
Subject: 12:34:16 PM,o que você disse. Eu não entendi...
Subject: 12:38:19 PM,...
Experimenter: 12:38:20 PM,Are you not able to understand my good portuguese?
Experimenter: 12:38:31 PM,hello?

Appendix F

English to Russian translation log

Subjects
Non native English speakers with a good knowledge over written and spoken Russian

Subject: 12:37:59 PM,привет
Experimenter: 12:38:07 PM,Hello
Experimenter: 12:38:21 PM,What is your name?
Subject: 12:39:10 PM,не ********
Experimenter: 12:39:35 PM,i did not understand
Subject: 12:40:12 PM,что не понял??
Experimenter: 12:40:53 PM,i still do not understand
Experimenter: 12:41:13 PM,what does "ponyal" mean?
Subject: 12:42:59 PM,понял
Experimenter: 12:43:44 PM,let us forget that. How are you doing today?
Subject: 12:44:43 PM,хорошо
Experimenter: 12:45:09 PM,What is your academic major?
Subject: 12:46:34 PM,я не понял
Experimenter: 12:47:12 PM,What is your area of study?
Subject: 12:49:16 PM,аерокосмический инженер
Experimenter: 12:49:58 PM,I guess you meant aerospace engineer?
Experimenter: 12:52:03 PM,When do you plan to graduate with your degree?
Subject: 12:52:38 PM,я не понял что вы хотите сказать?
Subject: 12:54:05 PM,весной 2005 года
Experimenter: 12:54:28 PM,Do you enjoy your academic major?
Subject: 12:54:47 PM,да
Experimenter: 12:55:11 PM,How are your classes going?
Subject: 12:58:19 PM,я не понял что вы хотите сказать словом "типы"
Experimenter: 12:58:54 PM,How are your courses going?
Subject: 12:59:34 PM,хорошо
Experimenter: 12:59:41 PM,ok good..
Experimenter: 12:59:52 PM,What time is your earliest course?
Subject: 1:03:41 PM,вы хотите спросить что во сколько было у меня последнее занятие?
Experimenter: 1:04:43 PM,How long have you been at "Georgia Tech"?
Subject: 1:06:29 PM,testing
Subject: 1:07:09 PM, -- we are switching machines
Subject: 1:08:48 PM,How long have you been at "Georgia Tech"?
Experimenter: 1:09:45 PM,I have been here for a year
Experimenter: 1:09:52 PM,and a half
Subject: 1:10:00 PM,nice..!
Subject: 1:10:10 PM,that is not a long time..

Subject: 1:10:24 PM,What languages do you speak?
Experimenter: 1:10:50 PM,I speak english russian and hindi
Subject: 1:11:17 PM,excellent i speak hindi too :)
Experimenter: 1:11:30 PM,thats great
Experimenter: 1:11:42 PM,me too
Subject: 1:11:52 PM,what extracurricular activities do you participate in?
Experimenter: 1:12:27 PM,I sometimes go to SAC and most of the time internet
Subject: 1:12:44 PM,oh wow..!
Subject: 1:13:03 PM,what kind of food do you like?
Experimenter: 1:13:55 PM,I love to make indian food thats my favorite cuisine
Subject: 1:14:29 PM,i love indian food too. I also like thai food.
Experimenter: 1:14:46 PM,I also love thai food its good
Subject: 1:14:51 PM,What kind of music do you like?
Experimenter: 1:15:35 PM,what do you mean by "нот"
Subject: 1:17:42 PM,What do you think about the new FCC indecency standards for
radio broadcast?
Experimenter: 1:18:37 PM,I dont know
Subject: 1:18:57 PM,thats alright... Did you watch the Oscars this year?
Experimenter: 1:19:41 PM,I was having my qualifiers so not fully
Subject: 1:19:55 PM,oh that
Subject: 1:20:02 PM,oh that's bad
Experimenter: 1:20:10 PM,yeah :(
Subject: 1:20:17 PM,Do you think Microsoft is being treated fairly by the EU (or
European Union)?
Experimenter: 1:21:08 PM,what is it about?
Experimenter: 1:21:28 PM,what is Microsoft doing???
Subject: 1:21:30 PM,They are being fined..
Experimenter: 1:21:45 PM,oh why????
Subject: 1:21:50 PM,I will tell you about it in detail later
Experimenter: 1:21:57 PM,ok
Subject: 1:21:59 PM,How do you think GT's basketball team has done this year?
Experimenter: 1:22:08 PM,very good
Subject: 1:22:22 PM,What are your plans for the summer?
Experimenter: 1:22:58 PM,I dont have any yet but think will be here only
Experimenter: 1:23:05 PM,what about you?
Subject: 1:23:14 PM,I might be going to Moscow to learn Russian
Subject: 1:23:35 PM,What are your thoughts on Tech Square?
Experimenter: 1:23:51 PM,thats nice are you serious
Subject: 1:24:21 PM,i dont really know. If you give me money I will go
Experimenter: 1:24:30 PM,hehe
Experimenter: 1:25:05 PM,what languages do u know?
Subject: 1:25:36 PM,I know English Hindi Marathi Kannada and a little French
Experimenter: 1:25:48 PM,that good
Subject: 1:26:18 PM,I can also swear in German Tamil and Urdu
Experimenter: 1:26:30 PM,u are great man
Subject: 1:26:36 PM,thank you very much

Experimenter: 1:26:46 PM,welcome
Subject: 1:26:50 PM,Do you drink coffee?
Experimenter: 1:26:59 PM,it was nice chatting with u
Subject: 1:27:08 PM,are you leaving now?
Subject: 1:27:31 PM,I still have to ask you a few more questions
Experimenter: 1:27:41 PM,go on
Experimenter: 1:27:54 PM,I thought it was over
Subject: 1:27:58 PM,What is your favorite coffee place in atlanta?
Subject: 1:28:10 PM,not so fast
Subject: 1:28:37 PM,you have to bear this for a little longer
Experimenter: 1:29:00 PM,what I am not getting correctly
Subject: 1:29:57 PM,Where do you like drinking coffee?
Experimenter: 1:30:14 PM,starbucks
Subject: 1:30:25 PM,is that your favorite place?
Experimenter: 1:30:54 PM,do u want to ask is it my favorite place or not
Subject: 1:30:59 PM,yes
Experimenter: 1:31:04 PM,its ok
Subject: 1:31:13 PM,ok..What part of Atlanta do you live in?
Experimenter: 1:31:42 PM,the line got messed up
Experimenter: 1:32:17 PM,expt first
Experimenter: 1:32:22 PM,talk on the oh later :P
Subject: 1:32:29 PM,What part of atlanta do you live in?
Subject: 1:32:56 PM,sorry about that.
Experimenter: 1:33:51 PM,I still dont understand the atlanta question
Subject: 1:34:05 PM,Where do you live in atlanta?
Experimenter: 1:34:17 PM,I lived in centennial
Experimenter: 1:34:24 PM,what about u???
Subject: 1:34:43 PM,I live there also
Subject: 1:34:49 PM,Do you own a car?
Experimenter: 1:34:59 PM,oh thats great where on which street
Experimenter: 1:35:04 PM,no
Subject: 1:35:15 PM,how do you travel to work or school?
Experimenter: 1:35:16 PM,what about u???
Experimenter: 1:35:24 PM,by foot
Subject: 1:35:28 PM,I have a car. 97 model Mazda 626
Experimenter: 1:35:35 PM,thats good
Experimenter: 1:35:45 PM,on which street do u live on
Subject: 1:35:48 PM,Have you ever used MARTA?
Subject: 1:35:59 PM,i do not wish to disclose that information.
Subject: 1:36:04 PM,:D
Experimenter: 1:36:08 PM,why :(
Subject: 1:36:23 PM,hehe.. I live on techwood drive
Experimenter: 1:36:33 PM,oh ok
Subject: 1:36:50 PM,so have you ever used Marta?
Experimenter: 1:37:35 PM,U mean :Did I always use Marta
Subject: 1:37:52 PM,Do you use Marta

Experimenter: 1:38:06 PM,yes
Subject: 1:38:23 PM,good.. me too..
Subject: 1:38:29 PM,Do you use any P2P Clients?
Experimenter: 1:38:39 PM,but u have a car so why do u use it
Experimenter: 1:38:51 PM,no
Experimenter: 1:38:55 PM,I dont use it
Subject: 1:39:07 PM,I used to use Marta.. now i dont.. thank GOD
Experimenter: 1:39:34 PM,:)
Subject: 1:39:35 PM,Thank you for your cooperation Sachin. You were of great help!
Experimenter: 1:39:53 PM,welcome
Subject: 1:40:05 PM,You can now relax. The experiment is over. You will now be subjected to electric shocks ;)
Experimenter: 1:40:23 PM,oh!!!!!!!!!!!!

Appendix G

Simulated conversation questions

First-time conversation (just meeting)

Hello!

What is your name?
How are you doing today?
What is your academic major or area of study?
When do you plan to graduate with your degree?
Do you enjoy your academic major?

How are your classes going?
What time is your earliest class?
How long have you been at "Georgia Tech"?

What languages do you speak?
What extracurricular activities do you participate in?
What kind of food do you like?

What kind of music do you like?
What do you think about the new FCC indecency standards for radio broadcast?

Did you watch the Oscars?
Do you think Microsoft is being treated fairly by the EU (or European Union)?

How do you think GT's basketball team has done this year?
What are your plans for the summer?

What are your thoughts on Tech Square?
What is your favorite restaurant there?

Do you drink coffee?
What is your favorite coffee place in Atlanta?

What part of Atlanta do you live in?
Do you own a car?
How do you travel to work or school?
Have you ever used MARTA?

Do you use any P2P clients?

Appendix H
Pre-Experiment Questionnaire

Please go through these set of Questions and give us your feedback.

1) What age bracket do you fall in? 18 ☐-23 24 ☐-29 30 ☐-35 36 ☐-41 42 ☐-47

2) Sex: ☐ Male ☐ Female

3) What is the highest level of education you have attained?

   ☐ High School
   ☐ Undergraduate Degree
   ☐ Graduate Degree
   ☐ Doctoral Degree
   ☐ Post-Doctoral Degree

4) Do you have a computer at your home or workplace?

5) How often do you use computers?

   ☐ Daily
   ☐ Once in two/three days
   ☐ Once a week
   ☐ Once a month
   ☐ Never used a computer

6) Approximately how long do you use a computer, when you use one?

7) Do you use the facility of Instant Messaging (MSN messenger, Yahoo, AOL instant messaging, etc…) which is freely available on the internet?

8) What purposes do you Instant Message for? Please give us your answers on the space below.

9) Which of these languages are you able to converse with and understand?

   ☐ English
   ☐ French
   ☐ German
   ☐ Spanish
   ☐ Portuguese
   ☐ Chinese
   ☐ Korean
   ☐ Japanese

10) Of the languages selected above, how would you rate your proficiency in each of them (on a scale of 1-10, 1 denoting lowest and 10 being the highest)? Please give us your answer in the space   below.

11) How frequently do you use the languages that you'll have selected above? Please mention the languages in the brackets provided next to the levels.

☐ Not at all, just know it but never use it. (   )
☐ Once in a while to speak to a few people who speak the same language. (   )
☐ All the time. (   )

Appendix I
Post-Task Questionnaire

Please answer the following questions and give us your feedback. The section after these questions is for comments and suggestions which you might have after using the IM translator.

A. How were you able to communicate with the person you were chatting with?

    (1) Very Easily
    (2)
    (3)
    (4)
    (5) Very Difficult

B. Did the translated messages seem natural?

    (1) Not at all Natural
    (2)
    (3)
    (4)
    (5) Very Natural

C. How often did you have to modify your messages to improve the accuracy of translation?

    (1) Not at all
    (2)
    (3)
    (4)
    (5) All the time

D. After using the translating messenger, do you feel it can support abbreviations?

    (1) Not at all
    (2)
    (3)
    (4)
    (5) Very easily supports

E. Did you feel the messages were too formal for an IM conversation?

    (1) Not at all formal
    (2)
    (3)
    (4)
    (5) Too formal

Comments and Suggestions