HOMELAND SECURITY EVALUATION OF THE MULTI-LINGUISTIC
AND CULTURAL CAPABILITIES OF INTERNET TRANSLATION
TOOLS WITH A FOCUS ON FRENCH-ARABIC-ENGLISH IN
MAGHREBI COUNTER-TERRORISM ANALYSIS

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DEDICATION

To my parents, who passed away.
Nothing in life is to be feared. It is only to be understood. - Marie Curie
ABSTRACT OF THE THESIS

Homeland Security Evaluation of the Multi-Linguistic and Cultural Capabilities of Internet Translation Tools with a Focus on French-Arabic-English in Maghrebi Counter-Terrorism Analysis

by

Valerie S. Bradley
Master of Science in Homeland Security
San Diego State University, 2011

This study examines the current Internet translation capabilities of major tools being used in Homeland Security such as Google Search (web, images, blogs, scholar, news, others) and Global Talk (multi-linguistic chat). Because Internet tools are often used as if they give appropriate answers across language barriers, this study will try to articulate some of the language and cultural accomplishments and challenges of these widely used tools. Because language also incorporates culture to provide meaning, Homeland Security applications must have the correct meaning if words are translated and actions taken on the basis of those words. The specific focus of this work is on the combination of French and Arabic as commonly spoken by the North African community such as the Maghrebi people. As many millions of Maghrebi are now in France as French citizens, they are able to enter the US as French citizens on simple visas. The Homeland Security and counter-terrorism concerns in this world are likely significantly different than for traditional French visitors. How language and especially culture are considered in counter-terrorism analysis of global databases such as Google Search, Images, Blogs, Scholar, News, and others is exceedingly important as the straight translation of words gives only a partial reality of what the words represent. Tools such as Google Global Talk, which translates chat from one language to another, is of particular concern as many US Agencies are considering its use as a primary tool to convert meaning from one language to another, including as they would interact with the Homeland Security and Law Enforcement officials in other countries. By analyzing what groups like Google serve up when searches are done in different languages and with different terms, this study seeks to provide a quality-control evaluation of Internet tools versus language/cultural subject matter experts. By also using Exercise 24 (x24) as a major Homeland Security event where multi-lingual interactions took place, this effort seeks to evaluate the efficacy of Internet tools without a language/cultural subject matter expert versus with insight provided by a person speaking all the languages (French-Arabic-English).
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CHAPTER 1

INTRODUCTION

The Global War on Terrorism (GWOT) and United States (US) influence around the world have brought an increasing number of US military forces, US diplomats, civilian personnel, and independent humanitarian organizations into foreign lands, many of which have not previously had a significant US presence. In this era of rapidly increasing globalization, communication is often attempted via computer systems rather than traditional face-to-face encounters. Automatic translation as using Internet chat or other computer software systems bring communications into a non-physical terrain where the development of international Internet chat rooms allows for direct, online contact between individuals. These international chat efforts across multiple languages are becoming very popular, even in the context of entertainment (e.g., chat roulette) and enjoyment as people connect across the globe and across language barriers that have traditionally separated people and nations. However, evaluating if this type of computer translation is really appropriately translating information and is sufficiently useful for the Homeland Security needs of the nation is the focus of this study.

Much as is the case with real relationships between people and organizations, true understanding of the meaning of the intended communication is critical to build multinational solutions for Homeland Security. In cyberspace, cultural understandings of language and meaning are critical to conveying solutions, situation awareness, and collaboration for security, business development, and humanitarian assistance to name only a few aspects of life that need communication to succeed. Communication is not simply typing in chat, but is conveying ideas in appropriate ways, especially during times of extreme need and the need for near real-time sharing. The skills to cross language and cultural barriers now that the Internet has connected the world makes appropriate communication necessary to defeat adversaries, to work successfully with allies, and to perform humanitarian relief and access populations in need. Understanding foreign cultures and language has become a national priority because we need to partner in near real time with allies and even enemies to reach
critical decisions far faster than ever before needed or thought possible. Therefore the ever-increasing dependence on Machine Translation and Automatic Translation as via Google Language Tools has become a significant concern in terms of their validity in complex communication of meaning versus simple translation of words.

Despite a common consensus among national leaders on the need to include cultural awareness among the U.S. military, both military and Other Government Agencies (OGAs) involved in the Homeland Security mission have generally disregarded the role of cultural and language awareness, many times because there simply isn’t time to train or resources to bring large numbers of people to cultural and language skills that are needed. This is especially true after disasters or political events that were not foreseen (like Egyptian uprising that started on 25 January 2011), so the appropriate training was not present among the much larger group of government responders than those with cultural and language abilities. Although a more thorough explanation of cultural language awareness will be addressed during the language awareness definition, for the purposes of this document, OGAs are non-Department of Defense (DOD) agencies that include Department of Justice groups such as the Drug Enforcement Agency (DEA), the Federal Bureau of Investigation (FBI), and the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF), and agencies within the U.S. Department of Homeland Security who regularly deal with multiple languages such as Customs and Border Protection (CBP), Immigration and Customs Enforcement (ICE), and the National Cyber Security Division (NCSD).

**Purpose of This Study**

This document addresses the efficacy of the multi-linguistic and cultural capabilities of Internet tools overall but also with a specific focus on French-Arabic-English in Maghrebi counter-terrorism analysis without a language/cultural subject matter expert. The central research questions being considered are: “What happens when English or a foreign phrase is translated by computer back and forth among multiple different languages? Can Homeland Security use these tools as primary tools for translation only?” The study of these issues was conducted primarily by experience, observation, relevant scholarly literature, and participation in a two-day international virtual humanitarian assistance and disaster relief exercise (x24) (see Appendix A), and the several months of preparation and analysis.
associated with it. Because Exercise 24 (x24) involved communication between 79 nations (plus tribal nations), the international translation to exchange emergency information was tested and evaluated as a metric for Homeland Security and humanitarian assistance operations. Because such operations often involve decisions that are life threatening if made incorrectly and are often done with pressing needs to find solutions across language barriers, Machine Translations of text, chat, and reports are commonly done. However in such situations, the translations may become part of the problem rather than the solution if the validity of the translations is not considered. This thesis is focused on considering some of the efficacy of Machine Translations as used in such emergency situations and tested in x24 and related efforts.

This document can be used as a cross-cultural reference in the context of cultural and language awareness in raising the issue of communication and information security in cyber space. In much the same way as trying to test appropriate meaning in Humanitarian Assistance settings, similar concerns can be evaluated in Cybersecurity efforts where there is an intentional effort to deceive or hide the meaning. Translating in another language or with phonetic spelling as of Arabic or French can easily obscure the ability of a computer to detect inappropriate words or to decipher true meaning. Simple use of alternative spellings and symbols instead of letters, for example, is a common means by which Spam is able to cross through filters and ways that comments, such as in public newspapers, can use expletive language and still pass the filters. Even more challenging is the short-form way that people write text messages or Twitter messages where abbreviations and phrases such as LOL (Laughing Out Loud), or OMG (Oh My God), or TMI (Too Much Information) are widely used. Translating such expressions or similar short-form texting places Machine Translations in an almost impossible situation, functionally requiring a person-in-the-loop who knows the two or more languages. With more than 90 million tweets a day or 5 billion Facebook messages a day (at end of 2010)---the shear magnitude of the messages sent with this short-form expression of language and culture poses an almost impossible hurdle for Homeland Security to monitor and detect terrorist activity.

According to the DoD, unity of effort has been defined as coordination and cooperation toward common objectives, even if the participants are not necessarily part of the same command or organization. Such unity of effort obviously means that people must be
communicating appropriately and effectively with each other. As soon as different languages are introduced and computers are employed to translate from one language to another, or between multiple languages, significant unknowns occur. In an effort to evaluate this multi-language translation and its effectiveness, a major humanitarian assistance, near real-time interaction was undertaken that bridged across dozens of languages, dialects, and cultures.

**BACKGROUND EXERCISE24 (x24)**

Many advanced developments in humanitarian assistance and disaster relief are low-cost or free to the public. Therefore the Immersive Visualization Center known at the VizLab or the Viz Center at San Diego State University hosted a two-day virtual humanitarian assistance and disaster relief exercise September 24-25, 2010 called Exercise24 (x24). This was the first time a collaborative Humanitarian Assistance Disaster Relief (HADR) exercise of this magnitude had ever taken place online and integrated into real events in dozens of nations. This precedence-setting event was conducted using the Viz Center-managed, US Navy-funded, collaborative cloud computing platform "InRelief.org" as well as dozens of other software programs, social networking sites, and integration sites besides typical forms of telephone, video, satellite, Internet, and other forms of communication.

**METHODOLOGY**

X24 involved over seventy-nine nations including Mexico, Colombia, Somalia, India, Pakistan, and also additional nations within the US (Tribal Nations). Ninety US government and non-government organizations (NGOs), dozens of private sector companies, numerous military commands including US European Command, and agencies officially charged with disaster response such as FEMA were involved. In addition, DHS/Science and Technology, US Customs and Border Protection, the Red Cross, and Google collaborated in an environment using crowd sourcing (a method of gathering information or assistance from the global online community), social media, cloud computing applications, real-time international chat, visualization maps, and live streaming video. Over 12,700 individual people visited the x24 dashboard, with 46,475 page views and prolific social media participation with over 5,000 individual posts to Twitter and Facebook alone during the exercise. See Appendix B for additional organizations that were involved in the project---
including groups in dozens of countries where the languages had to be translated for chat, Twitter, Facebook, and Google Apps and Sites as displayed in InRelief.org and its content.

While there is a lead agency/government during a crisis, experience has proven governments, non-governmental organizations (NGOs), and public/private partners must work together as partners to ensure that response is rapid, coordinated, and efficient. X24 tested the ability of multiple organizations to work together in an online environment and across major barriers such as civ-mil, public-private, and language and cultural barriers. Participating organizations were able to collaborate openly through a variety of resources including multiple-user real-time document editing, chat tools with real-time language translations to breakdown language barriers during a conversation, Google Map visualizations with real-time damage assessments, casualties and SMS posts, and numerous flavors of VTC capabilities. Since the exercise took place in cloud computing applications, users were able to participate around the world from any laptop computer, smartphone, and cell phone.

All events in the x24 scenario were participant-requested. The x24 Team consulted with the National Oceanic and Atmospheric Administration (NOAA), the Pacific Disaster Center, the California Seismic Safety Commission, and other experts to determine as many scientifically based scenarios as possible to foster realism. Science as a metric of the validity of the exercise was a major focus, but science translated into multiple languages became literally impossible as native speakers who also had a science background to translate less commonly used words made it extremely difficult to translate scientific information reliably across languages, especially languages such as Arabic whose vocabulary is classically not as modern as many other languages like English.

The scenario initiated with an earthquake off the coast of Huntington Beach, California, USA, generating: a catastrophic subsurface and surface oil spill; a tsunamigenic event off the coast of Baja California, Mexico; a large inland earthquake within the first hour resulting in notional reports of deaths and injuries; and damage to the All-American Canal, roadways, power lines, and other key resources and critical infrastructure in Southern California, USA and Northern Baja California, Mexico. A series of aftershocks, fires, loss of power, loss of water, disease concerns, and other challenges continued throughout the exercise to facilitate participant objectives. If such real events had occurred, it would have
been paramount to translate the warnings in near real time, making Machine Translations attractive. However, trying to actually do this and have the warnings be accurate enough that someone could bet their life on it is actually extremely difficult. Planning a complex scenario along a border region and in an area with dozens of nationalities where many people don’t speak English was a very fruitful scenario. Simple assistance in translation of warnings, as from Somali officials in China who were able to convey information to Somali immigrants in San Diego was an example of the Internet and language combining to offer real solutions in time of disaster. In this specific case, because the Somali Ambassador to China is so highly regarded by the global Somali community (likely to be Somali President some day), his credibility with Southern California Somali community was dramatically greater than government of Southern California—showing that culture and impact are not from the words, but from the person saying the words.

The 150+ persons physically present at the Viz Center were able to connect with thousands around the world using the Internet and social-networking tools via Google, Twitter, Facebook, U-Stream and many others. Transferring from one language to another on these Social Networking tools can be done with additional tools, man of which were tried, but the details of how well they worked are difficult to evaluate, as most people were very gracious about strange translations, with most people having an English speaker at their site to help understand what was being done and said.

The broad global community adoption of social media for communication has generated the necessity for social media aggregation and filtering of two-way social communications, which can become vital for decision making during an actual event. By linking appropriate technology such as smartphones, back-end cloud computing and visualization, all for decision support to the front-line responder, x24 helped nurture and optimize solutions for complex emergencies in difficult settings. By doing this in a real-play format where the intensity of emergencies and controlled chaos takes place, this was truly an orchestrated conversation of global players to improve preparation for and even begin the response to the next major disaster.
PARTICIPANT-REQUESTED INJECTS

X24 incorporated participant-driven injects fused into a net-centric Common Relevant Picture to support a unity of effort. All injects were mapped and posted (Appendix C). This all seems very appropriate and rational, but really assumes that languages and translations are conveying the correct meaning as the words were translated across dozens of languages. The end result however, was obviously puzzling to many people, which may well be because the sequential translation of complex ideas such as were used in the exercise may well have resulted in “confusing” translations in some instances.

EXERCISE CONTROL

There were no hidden injects. All injects included the statement, “This is an exercise and not an actual event” (see Appendix D). If an actual event occurs, all registered participants will be notified, “This Is Not An Inject...All exercise activities are complete. X24 participants and observers should contact their respective commands for further instructions. The Viz Center team will begin support of response efforts...This Is Not An Inject.” This statement was made in English, then translated into numerous languages, so that various forms of this warning were what actually went out, not simply the English version. Because many of the languages had no native speaker involved on the Viz Center side where most of the messages originated, Machine Translation was used to push this message out---but its real meaning via Machine Translation was unknown in its accuracy even though it was an extremely important statement.

GLOBAL AID

Two types of global aid were explored. X24 posted two Google spreadsheets in Google’s cloud-computing environment for organizations to provide the following type of assistance, though crossing language barriers still posed a significant problem even with very structured database structures being utilized:

1. Aid Offered (Pull Logistics)
   Resource, personnel, aid available to the community in need
   Name of Organization offering aid
   Point of Contact for aid offered
   Point of Contact email and phone number
   Location of resources, personnel, and aid
   Notional method of travel, shipment, and estimated duration of travel
Aid in this category is stored in a Virtual Warehouse for Red Cross and other "responders on the ground" to request based upon their resource needs and the evolution of the crisis.

2. **Aid On the Way** (Push Logistics)
   Resource, personnel, aid responding to the community in need
   Name of Organization sending aid
   Point of Contact for aid
   Point of Contact email and phone number
   Notional method of travel, shipment, and estimated time of arrival

3. **Red Cross** (We Have-We Need)
   The Red Cross explored posting requests for aid in an openly viewable spreadsheet where only the Red Cross could input information.

**AFTER ACTION REPORT**

All participant and observer organizations were able to add comments, suggestions, and recommendations to the x24 After Action Survey upon completion of the exercise.

A repeated comment of cultural misunderstanding in translation, the reliability of the source and the content of the foreign message was listed as an issue during the After Action.

As discussed in the After Action report, the emphasis was to trust the Internet translation software as good as a cultural subject matter when an English or foreign phrase was translated by computer back and forth among different languages. But while the cultural and language awareness was a necessary tool for the exchange of information and ideas, the gap between the two of them was not taken into consideration by any of its participants during the event. The translated messages by Internet tools were interpreted as the way a person- the receiver of the messages- wanted to make sense of them and was enriched by the realities of the events. Therefore, the foreign message that was received or sent resulted in a half-English, half-foreign mish-mash that bore almost no resemblance to the original text. The original message was lost in translation. The Internet translation tools are not really equipped for many consecutive translations of the same piece of text. Translating multiple languages in different orders clearly has a significant impact on what the final content is—tools such as Google language with multiple translations can be remarkably different depending on the order and difficulty of the words. Language and culture are largely impossible to really translate so complex language, jargon, abbreviations and texting, phonetic writing, and mixing symbols with letters makes the translations nearly impossible for Machine Translations to work. Language/cultural matter and experts are needed, as are
Cybersecurity experts to see what is being communicated especially if there is an intent to deceive or hide meaning. These After Actions conclusions were largely a product of this research and testing using real messages in this disaster response exercise.
CHAPTER 2

WHY CULTURE MATTERS

While language is a necessary tool for the exchange of information and ideas, it can also be a window into the culture of a foreign people. Culture and language are two independent, but closely linked systems. Since language is closely linked to culture, language almost always is accompanied by social and cultural disruptions as well. Additionally those concerned about cultural language awareness recognize the implications and the importance of linguistic diversity in the social fabric of society and its communication internally and externally to that society. An additional community that is very concerned with this linguistic diversity and its usefulness and criticality for things like disaster response, counter-terrorism, and mass evacuations is the Homeland Security community.

CULTURE MATTERS

Cultural factors are a critical and yet a mainly unexamined aspect of major US activities such as international relationships in the Middle East stretching from the end of the Gulf War in 1991 to the protests against the building of a mosque near Ground Zero in 2010 to Humanitarian Assistance and, more recently, to x24 and increasingly to online content and social networking. Cultural and language factors have played an important but generally unacknowledged role in shaping the intention of United States operations on the ground and online and throughout humanitarian intervention in certain parts of the world. Today with much of the US working on the ground in the Middle East or virtually through the use of Internet, tools, cultural and cultural language awareness seem to be almost a fundamental requirement for successful strategic communication. This is especially vital because cultural language awareness is extremely important due to the persistence of nationalism and social practices of tradition. Culture and language are also profoundly a part of any solutions for the rising cultural, political, and religious tensions in the world.

In the village of globalization, Internet tools are easy to use by homegrown or domestic terrorists with antigovernment agendas and other actors who adhere to a radical
interpretation of Islam and aspire to connect to and play a role in the global terrorist movement. Understanding an antagonist demands more than satellite photos, electronic tools, or intelligence and language capabilities from defense and Other Government Agencies (OGA); it demands an understanding of their habits, intentions, beliefs, poetry, interests, political and non-political symbols and, most importantly, interpretation of words; in short, their culture and language.

**CULTURAL AND LANGUAGE AWARENESS IN CURRENT HOMELAND SECURITY TRAINING**

Relevant intelligence documents and taped phone conversations in Arabic were not translated until after the World Trade Center was bombed on February 26 1993.¹ A 2001 study found that more than eighty federal agencies required foreign language proficiency to fulfill their duties.² Thirty-one percent of State Department officials in language-heavy posts were not qualified for their positions in 2009, up two points from 29 percent in 2005.³ The role of foreign language and a growing recognition of the need for cultural awareness in Homeland Security have been highlighted by groups like the Government Accounting Office especially within fusion centers where language, culture, and other data sets can be put together for a more complete picture of what is occurring. However, most language ad culture training by Homeland Security that is visible to the public is far too simplistic to enable the normal DHS employee to understand the implications and importance of language and culture in Homeland Security.

The Department of Defense trains its linguists mainly at the Defense Language Institute Foreign Language Center (DLIFLC) at the Presidio of Monterey, California. The Institute also teaches foreign languages to other DoD agencies, the Federal Bureau of


Investigation, the Drug Enforcement Administration, and the US Border Patrol. Its role is to provide culturally based foreign language education, training, evaluation, and sustainment for Department of Defense personnel in order to ensure the success of the Defense Language Program and enhance the security of the nation. It began as the Fourth U.S. Army Intelligence School in November 1941 as a secret language school at Crissy Field on the Presidio of San Francisco to teach Japanese to carefully selected U.S. soldiers, most of them of Japanese ancestry. The school, renamed the Military Intelligence Service Language School in June 1942, moved during the war, first to Camp Savage, Minnesota, then to Fort Snelling, Minnesota. It was relocated to the 395-acre Presidio of Monterey after World War II and renamed the Army Language School. During the mid-1970s it became the Defense Language Institute Foreign Language Center.

As of 2010, over forty languages are taught at the DLIFLC in Monterey and in Washington, DC. Students are in class five days a week, seven hours per day, with two to three hours of homework each evening. Basic course lengths are from 26 to 64 weeks, depending upon the language taught, while a basic Romance language program lasts 26 weeks. Modern Standard Arabic, Iraqi Arabic, Chinese (Mandarin), Dari, French, German, Greek, Hebrew, Hindi, Italian, Japanese, Korean, Kurmanji, Pashto, Persian, Portuguese, Russian, Sorani Kurdish, Serbo-Croatian, Spanish, Indonesian, Thai, Turkish, Urdu, and Uzbek instruction all last eighteen months. DLIFLC uses the Federal Interagency Language Roundtable measurements scale for assessing an individual’s foreign language proficiency (0 for no proficiency to 5 for educated native proficiency) in order to measure listening, reading and speaking ability in the foreign language.

The training serves for translating language, but not to understand it and the culture behind it. Too often cultural training is unduly simplified and focused mostly on etiquette.

The training includes geographic facts, major religions, social customs and basic survival phrases of the dominant language of the region and detailed information on the security situation, military, government, history and economy of the region. This training

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5 Ibid.
may be beneficial on the ground and in fact avoid offending someone, but fails to focus on the task of the mission. It does not provide an understanding behind the instruction and it does not educate principles of tolerance, understanding cultural language nor terrorism online activism.  

**CULTURE DEFINED**

Culture describes the system of behaviors, knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, roles, religion, arts, and literacy shared by a relatively large group of people. Culture is transmitted unconsciously from generation to generation. Cultures are not contingent on popular decision; neither is culture optimistic or pessimistic. Culture “is to be.”

**CULTURAL AWARENESS DEFINED**

Cultural Awareness is communication and communication. Cultural awareness is a collective programming of the mind that distinguishes the members of one group or category of people from another. Cultural awareness is the behaviors, beliefs, and values that are accepted or not accepted. Cultural awareness depends on cultural contingency. Cultural awareness is not passed along by communication and imitation from one generation to the next. Cultural awareness “is not to be.”

For example, let’s take silence. Americans do not like silence. There are few minutes of silence that occur during a business meeting or a social conversation; someone jumps in to say something. In other cultures, however, silence can truly be the most appropriate thing to do. Among the Japanese, there may be long periods (comparing to American standards) where nothing is said. Two examples:

An American lawyer relates how he once accompanied a client to Japan for a business proposal to potential customers in Tokyo. The client presented his case to the Japanese and then waited to hear their reactions. He was met with silence. Not realizing that this was a normal Japanese custom, he interpreted it to mean disinterest and rejection.

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6 The author taught French at DLIFLC during the summer of 2010.
7 The author, in this work.
8 The author, in this work.
Therefore, the American proceeded on to his backup proposal, revealing concessions without realizing that the silence merely meant the Japanese were still contemplating the first offer.9

As another example that is the opposite of silence, when French people are carrying on a discussion, they may interrupt one another, raise their voices and use very expressive gestures. While this may sound like aggressive behavior to American people, it is the norm there.

**Cultural Consideration**

Refers to the application of the mental faculties to the acquisition of knowledge of the cultural factor of the “is to be” and “is” and locating cultural factors.

**Cultural Knowledge**

Refers to the exposure in the anthropological sense.

**Cultural Understanding**

Refers to the awareness of the particular culture that permits broad insight into the motive of particular role players and groups and other areas that support the Homeland Security decision-making process.

**Language Defined**

Language is learned instead of biologically inherited. Language serves to establish sound-meaning correlation so that words can be transmitted over acoustic signals signs such as voice sounds. Language is communication of rule, thoughts and feelings through a system of arbitrary signals, gestures, body language; kinesics or written or color symbol and arts.

**Language Awareness Defined**

Language Awareness is complicated by a number of additional parameters such as the use of metaphors, words with more than one meaning, words that have different meanings in different languages, nonverbal communication, different dialects, cultural differences, and

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illiteracy in one’s primary language. From this point of view language awareness can be divided into Natural language and Artificial language.

**NATURAL LANGUAGE (NL)**

Natural language can be translated and analyzed. Natural language is defined as a language in the ordinary sense as symbolic communication system that is infinitely flexible which is or/and has been learned and spoken as would be expected by a community, as opposed to artificial language.\(^{10}\) For example, English, French, and Arabic are natural languages. Since it is spoken in a particular society, which always possesses a language, therefore, it can be said that language and its culture are complementary to each other. Natural language can be further divided into two parts: (i) standard language and (ii) figurative language.

**STANDARD LANGUAGE (SL)**

Standard language, also known as standard dialect, standardized dialect or standardized dialect is a particular variety of a language used as in a formal speech and writing. It has developed a recognized grammar which records the forms, rules and structures of the language, and which commends some forms and penalize others, a recognized dictionary or group of dictionaries which embody a standardized spelling and vocabulary, a standard system of textbooks which is considered “educated” or “proper” that set forth per to say a correct spoken and written form, statutes or constitutions giving that language an official legal status in a country's system of law, the use of the language in public life, such as in the work of courts of law and legislatures and the selection of this particular dialect of a language as being especially appropriate to be taught to learners of foreign languages\(^{11}\).

Standard language is the beneficiary of institutional support. There may be multiple standard dialects associated with a single language. For example, Standard American English, Standard British English, Standard Indian English, Standard Australian English, and

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Standard Philippine English may all be said to be standard dialects of the English language. Linguist Harold Fasold said that, “The standard language may not even be the best possible constellation of linguistic features available. It is general social acceptance that gives us a workable arbitrary standard, not any inherent superiority of the characteristics it specifies.” Therefore the difference between languages and dialects is characteristically dependent upon words to express a social distinction than on purely linguistic ones. A standard language can be established by an accredited source, such as the Académie française or the French Academy, the pre-eminent French learned body on matters pertaining to the French language. The Académie was officially established in 1635 by Cardinal Richelieu, the chief minister to King Louis XIII. Suppressed in 1793 during the French Revolution, it was restored in 1803 by Napoleon Bonaparte. The accredited source describes the grammar and usage of a standard variety. More often, standard varieties are understood only from something unexpressed. John Algeo suggests that the standard variety in writing of Standard English “is simply what English speakers agree to regard as good.”

**DIALECT, OR LANGUAGE AWARENESS**

“Dialect” is defined by anthropological linguists as the specific form of a language used by a more or less discrete group of people who use language in a unique and mutually accepted way among themselves. Dialect is usually associated with geographical settings or social groupings (see Appendix E). Dialect is one member of a language treasured by phonology, including prosody, grammar, or vocabulary of speech different from the standard literary language or speech pattern of the culture. Different dialects have different pronunciations and different word choices. For example, *Soda* is more popular in the southwest, northeast, and St. Louis area; *pop* is used more in the northwest and Midwest; *coke* is used in the south, Canadians and the British say “pop,” Brits say “fizzy drink.” In Western Scotland, they use “ginger,” New Zealanders say “soft drink” and Australians call it

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Idiolect is very personal and is unique to a person. The words characterize their speech and writing. It is a unique way to put words together. Idiolects are unique like fingerprints and a peculiar signature of words. For example: I am originally from Paris, France but I've lived in the U.S. for many years, so I have both in my idiolect.

**FIGURATIVE LANGUAGE**

Figurative Language (FL) is used when something is described by comparing it with something else. FL crosses the literal meaning of words in order to provide new effects or fresh insights into an idea or a subject. FL can be a hyperbole, personification, paradox, symbol, assonance, onomatopoeia, apostrophe, imagery, metonymy, or understatement.

**ARTIFICIAL LANGUAGE**

Artificial Language (AL) is manmade based on a set of prescribed rules and developed for a specific purpose, such as international communication or computer programming. Therefore, the reason it is artificial is because it is developed before it is a language. Three factors determine the authenticity of an artificial language: purpose, originality, and size.\footnote{R. Isenberg, “Artificial Languages,” accessed October 15, 2010, http://folk.uib.no/hnohf/artlang.htm.} However, it is important to keep in mind, that although artificial languages are artificial, they do exist. Speakers of AL currently maintain chat-rooms, schedule conferences, and create e-mail lists for the discussion of AL. For example, the Klingon language that was invented by Marc Okrand for use in the fictional *Star Trek* movies is used in chat rooms. He invented not just a few words to make the Klingons sound alien, but a complete language, with its own vocabulary, grammar, and usage. Another example of artificial language is the languages that are used in the military and in intelligence community. The artificial language is an educational procedure design to stimulate learning by firsthand experience with a peculiar language. It plays an important part in terrorism, national security, and signal intelligence. In this case the cultural language is symbols, letters,
or words given certain arbitrary meanings and is used for transmitting messages requiring secrecy or brevity, basically a code. From this point of cultural language code is divided into an identity of signals: (i) signal code (ii) culture code.

Signal codes are appointed for personal identity, operations, and missions or to stop the information. They are employed to transmit the information from sender to the receiver. Steganography is the art and science of hiding messages in graphic files, and “dead dropping”: transmitting information through saved email drafts in an online email account accessible to anyone with the password. Signal codes are signal in which the original information is transmitted by electrical impulse. These provide a means of converting information into a matching form for communications, processing, or encryption. Common uses of signal codes include: (a) converting information adapted for communications or encryption, (b) decreasing the length of time required to transmit information, (c) distributing the instructions which control the operation of electronic tools, and (d) changing plain text to meaningless combinations of letters or numbers and vice versa.

**Cultural Codes**

Cultural codes are a mute group of interacted bodies under the influence related forces of model that members of a particular society unconsciously cultivated as within a culture. For example, there are three categories of non-verbal communication (see Figure 1).

![Figure 1. Cultural codes.](image)
Cultural codes are relevant to members of a particular culture or subculture. According to Rapaille,\textsuperscript{17} these codes vary around the world and invisibly shape how we behave in our personal lives as consumers and as nations.

Murdock was one of the first anthropologists to approach the issue of cross-cultural evaluations. He classified the 1,267 societies in his cross-cultural coded \textit{Ethnographic Atlas} into 200 distinctive world cultural provinces and language groups.\textsuperscript{18}

\section*{LANGUAGE AND TERRORISM}

If a group of people belongs to one linguistic area, they generally use their mother tongue/dialect as a means of influence and communication. But, if these people belong to different linguistic areas, they use a language that is grasped by generality of members of the group of syndicate (see Appendix F).

Potential Islamic terrorists speak many languages in addition to Arabic, including Urdu, Punjabi, Pashto, Persian, Indonesian, Malay, Turkish, Chechen, French, and English. Language awareness plays an important role in terrorism and anti-national activities. Terrorism has at least two things: an ideology and a common objective. Therefore the two partnerships on the issue are essential to terrorists’ commitment; for this purpose a language is needed to serve this motive.

Furthermore all languages can be used for the purpose of terrorism:

As a band of trained terrorists plotted to blow up the World Trade Center, clues to the devastation ahead lay under the nose of law enforcement officials. The Federal Bureau of Investigations (F.B.I.) held videotapes, manuals and notebooks on bomb making that had been seized from Ahmad Ajaj, a Palestinian serving time in federal prison for passport fraud. There were phone calls the prison had taped, in which Mr. Ajaj guardedly told another terrorist how to build the bomb. There was one problem: they were in Arabic. Nobody who understood Arabic listened to them until after the explosion at the Trade Center on February 26, 1993, which killed six people and injured more than a thousand.\textsuperscript{19}

\textsuperscript{17} C. Rapaille, \textit{The Culture Code: An Ingenious Way to Understand Why People Around the World Buy and Live the Way that They Do} (New York: Broadway Books, 2006).


MODEL TO UNDERSTAND CULTURAL LANGUAGE AWARENESS

Influences and variations explained why the culture is to be. On the other hand, manifest alludes to what is not to be. It is important to remember that these three concepts interact with each other.

Now that key definitions are established, Figures 2 and 3 show a model for understanding cultural awareness and developing cultural language awareness.

Figure 2. Taxonomy of culture.
Figure 3. Cultural and language awareness gear illustrating the interconnectedness of cultural understanding, cultural knowledge, and cultural consideration.
CHAPTER 3

IMPLICATIONS FOR MULTI-LANGUAGE TRANSLATION

This chapter presents some of the complexities of language construction and their implications for multi-language translation using English, French, and Arabic-Intercultural translation as a major example of interest to Homeland Security. Because Machine Translation is becoming widely used to take text from one language and put into another language, these three languages that are commonly spoken by entire populations in North Africa and France point out the complexity of the difference in what is occurring in the mind of the speaker or communicator versus what can be done with sequential translation as from Arabic to French to English, or any other order---then back again. This is functionally what people who are tri-lingual are doing mentally and as they type via computer. Getting the appropriate and intended meaning from many Machine Translations such as Google language tools can be extremely difficult. Similar efforts where translations are made simply from one language to another, such as English to French might seem to be extremely easy---but when meaning is extremely important as in a Humanitarian Assistance Disaster Relief setting such as Haiti, the same point of the need for people who understand the language and culture in ways that can finesse the translations to much greater effectiveness seems to be critical.

Translation is much more than the substitution of the words of one language with the words of another language, or the interpretation of the meaning of a text in one language and the creation of a same text in another language, or the essence of meaning of a text in one language into another. Translation is a bridge of understanding among people of different cultural groups. It is the means of communication among different groups of people, the means of cultural exchange, the means of preserving cultural heritage of countries, the means of forming ties and friendships among different groups of people and nations, and the means of understanding.
According to Fatima Ibrahim Ahmed Al Menoufy,\textsuperscript{20} translation is a science meaning that it needs complete knowledge of the structure, grammar, semantics, and syntax and in general the make-up of the two languages concerned. It is also an art because it requires artistic talent to reconstruct the original text in the form of a product that is presentable to the reader who is not supposed to be familiar with the original text. It is also a skill, because it requires attention to detail the meaning and a detailed understanding of the relationship between syntax and semantics, coupled with extensive cultural background and the ability to provide the translation of something that has no identical definition in the target language. See Appendix G for Indo-European languages and Appendix H for regions of the world where Indo-European language of some sort is spoken.

\textbf{ENGLISH}

English, French and Arabic are three of the six official languages adopted in The United Nations. English is a dominant international language in communications, science, business, aviation, entertainment, radio, and diplomacy\textsuperscript{21} and is widely spoken as a second language. English is classified as a member of the Indo-European language family language and the official language of Britain, the United States, and most of the commonwealth countries (see Figure 4).

The English language is full of idioms and other forms of language that can be extremely difficult to simply translate and maintain the intended meaning. Native speakers of English use idioms and similar complex expressions in most conversations, books, newspapers, magazines, TV shows, and in Internet applications because expressions add richness and color to the language. Idioms are literally ideas as expressions. According to Webster’s Online Dictionary, an idiom is “An expression whose meanings cannot be inferred from the meanings of the words that make it up.” Many idioms are difficult to understand without the contextualization of cultural understanding, including regional, sports, or other specialized activity that provides the meaning of the idiom to those familiar with the phrase


or expression. Many such expressions are really also done with voice intonation, as the
dozens of meanings of the common word “dude” depending on how and where it is said and
with what inflections, especially in groups like surfers---almost none of that is translatable
via Machine Translations. Some idioms and other similar expressions are easier to
understand when they have some association with the original meaning of the related words,
but often the words have little direct relationship to the intended meaning. Idioms are
therefore a common example of widely used language in English that cannot be translated
literally, especially with a computer simply programmed to exchange words for other words
in a language. Accordingly, translation of idioms and other such expressions that add
meaning and richness to much of English expression is not at all easy for Machine
Translation or similar computer techniques. Several examples of commonly used idioms are
as follows, with the idiom in italics and the general English meaning below it:

- Keeping your nose to the grindstone.
- Diligently working hard.
- Pay through the nose
• Pay a lot of money, more than is normal.
• *Barking up the wrong tree*
• To choose the wrong course of action.
• *Spill the beans*
• To disclose a secret.
• *Chomping at the bit*
• Anxious to begin.
• *He kicked the bucket*
• He died.

**FRENCH**

The official language of the French Republic is French. By the Ordinance of Villers-Cotterêts\(^2\) (an extensive piece of reform legislation signed into law by François I of France on August 10, 1539 in the city of Villers-Cotterêts), French was made the official language of court proceedings in France, ousting the Latin that had been used before then. The French language is now regulated by the Académie française (French Academy) and it is an official or administrative language in various communities and organizations such as the European Union (EU), the International Olympic Committee (IOC) and Universal Postal Union (UPU).

French is written using the Latin alphabet, plus five diacritics that have phonetic, semantic, and etymological significance and two ligatures (œ, œ).

- The circumflex accent (â, ê, î, ô û): Over an e or o, indicates the sound /ɜ/ or /o/, respectively. It most often indicates the historical deletion of an adjacent letter (usually an s or a vowel): château < castel, fête < feste, sûr < seur, dîner < disner.

- The acute accent (é): Over an e, indicates the sound /e/. Often indicates the historical deletion of a following consonant (usually an s): écouter < escouter. It has also come to be used to distinguish homophones: du ("of the") vs. dû (past participle of devoir "to owe"); note that dû is in fact written thus because of a dropped e: deu).

- The grave accent (à, è, ù): Over a or u, used only to distinguish homophones: &agrave ("to") vs. a ("has"), ou ("or") vs. où ("where"). Over an e, indicates the sound /3.

• The dieresis or tréma (ë, &iuml): Indicates that a vowel is to be pronounced separately from the preceding one: naïve, Noël. Dieresis on ÿ only occurs in some proper names (such as l'Haÿ-les-Roses) and in modern editions of old French texts.

• The cedilla indicates that an etymological c is pronounced /s/ when it would otherwise be pronounced /k/. Thus je lance "I throw" (with c = [s] before e), je lançai "I threw" (c would be pronounced [k] before a without the cedilla).

The majority of the French words have roots from Latin or Greek. There are often pairs of words, one form being popular (noun) and the other one savant (adjective), both originating from Latin. Example:23

- brother: frère (brother) / fraternal
- finger: doigt / digital
- faith: foi (faith) / fidèle
- cold: froid / frigide
- eye: aïl / oculaire

The geographical distribution of regional languages (see Tables 1, 2 and 3) may be summarized as follows:

Much of southern France has been home to speakers of Occitan dialects, such as Provençal, Gascon (including Béarnais), Auvergnat, Limousin, Languedocian and along the Spanish border; Catalan and the unrelated Basque language. Speakers of the Franco-Provençal can be heard in the Savoie region of eastern France. In the northeastern regions are speakers of Alsatian, a Germanic language, and Flemish, a dialect of Dutch. Across the north and west can be found speakers of the Oïl languages such as Champenois, Walloon, Picard, Norman, Gallo and Poitevin-Saintongeais. Also in the west are speakers of Breton, while in the Mediterranean island of Corsica are speakers of Corsican, a language closely related to Italian. The French Republic also includes overseas territories populated by speakers of many other autochthonous languages.24

See Appendix I for a sample of a translation from English to French by the author for a Haitian relief organization.

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<table>
<thead>
<tr>
<th>Country</th>
<th>Native speakers (rough est.)</th>
<th>Population (July 2003 est.)</th>
<th>Pop. dens. (/km²)</th>
<th>Area (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>France (Metropolitan)</td>
<td>60,000,000</td>
<td>60,180,600</td>
<td>105</td>
<td>547,030</td>
</tr>
<tr>
<td>Democratic Republic of the Congo</td>
<td>55,225,478</td>
<td>24,2,345,410</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>7,100,000</td>
<td>32,207,000</td>
<td>3</td>
<td>39,976,140</td>
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<tr>
<td>Madagascar</td>
<td>16,979,900</td>
<td>-</td>
<td></td>
<td>587,040</td>
</tr>
<tr>
<td>Côte d'Ivoire</td>
<td>16,962,500</td>
<td>-</td>
<td></td>
<td>322,460</td>
</tr>
<tr>
<td>Cameroon</td>
<td>15,746,200</td>
<td>-</td>
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<td>422,277</td>
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<tr>
<td>Burkina Faso</td>
<td>13,228,500</td>
<td>-</td>
<td></td>
<td>274,200</td>
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<tr>
<td>Mali</td>
<td>11,626,300</td>
<td>-</td>
<td>-1,240,000</td>
<td></td>
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<tr>
<td>Senegal</td>
<td>10,580,400</td>
<td>-</td>
<td>-196,190</td>
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<tr>
<td>Belgium</td>
<td>4,000,000</td>
<td>10,290,000</td>
<td>335</td>
<td>30,510</td>
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<td>Rwanda</td>
<td>7,810,100</td>
<td>-</td>
<td>-26,338</td>
<td></td>
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<tr>
<td>Haiti</td>
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<td>7,527,800</td>
<td>-27,750</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>1,400,000</td>
<td>7,318,638</td>
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<tr>
<td>Burundi</td>
<td>6,096,156</td>
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<td>Togo</td>
<td>5,429,300</td>
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<td>Central African Republic</td>
<td>3,683,600</td>
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<tr>
<td>Republic of the Congo</td>
<td>2,954,300</td>
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<td>Gabon</td>
<td>1,321,500</td>
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<td>Comoros</td>
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<tr>
<td>Djibouti</td>
<td>457,130</td>
<td>-</td>
<td>-23,000</td>
<td></td>
</tr>
<tr>
<td>Luxembourg</td>
<td>100,000</td>
<td>454,157</td>
<td>171</td>
<td>2,586</td>
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<td>Guadeloupe</td>
<td>442,200</td>
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<td>-1,780</td>
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(table continues)
Table 1. (continued)

<table>
<thead>
<tr>
<th>Country</th>
<th>Native speakers (rough est.)</th>
<th>Population (July 2003 est.)</th>
<th>Pop. dens. (/km²)</th>
<th>Area (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mauritius</td>
<td>1,000,000</td>
<td>1,210,500</td>
<td>-</td>
<td>2,040</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>200,000</td>
<td>-</td>
<td>12,200</td>
<td></td>
</tr>
<tr>
<td>Seychelles</td>
<td>80,469</td>
<td>-</td>
<td>455</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Geographic Distribution Not Official, French Is the Major Second Language in the Following Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Population (July 2003 est.)</th>
<th>Pop. dens. (/km²)</th>
<th>Area (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>32,810,500</td>
<td>-</td>
<td>2,381,440</td>
</tr>
<tr>
<td>Tunisia</td>
<td>9,924,800</td>
<td>-</td>
<td>163,610</td>
</tr>
<tr>
<td>Morocco</td>
<td>31,689,600</td>
<td>-</td>
<td>446,550</td>
</tr>
</tbody>
</table>

Table 3. Geographic Distribution of French Dialect

<table>
<thead>
<tr>
<th>Dialects of French</th>
<th>Languages derived from French</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acadian French</td>
<td>Haitian Creole</td>
</tr>
<tr>
<td>African French</td>
<td>Seychellois Creole</td>
</tr>
<tr>
<td>Belgian French</td>
<td>Michif</td>
</tr>
<tr>
<td>Cambodian French</td>
<td>Lanc-Patuá</td>
</tr>
<tr>
<td>Cajun French</td>
<td></td>
</tr>
<tr>
<td>Quebec French</td>
<td></td>
</tr>
<tr>
<td>Swiss French</td>
<td></td>
</tr>
<tr>
<td>Parisian French</td>
<td></td>
</tr>
<tr>
<td>Marseillais French</td>
<td></td>
</tr>
<tr>
<td>Lyonnais French</td>
<td></td>
</tr>
<tr>
<td>Maghrebian French</td>
<td></td>
</tr>
<tr>
<td>Vietnamese French</td>
<td></td>
</tr>
</tbody>
</table>

Like the English language, French is full of idioms; native speakers of French use idioms frequently as a means of communicating in a much richer way than simply using words, especially as emotions are added. For example, *manger le morceau* means “spill the beans” in English. *Appuyer sur le champignon* means “to drive fast,” *avoir du blé* means “to have money,” *avoir la gueule de bois* or *avoir un mal aux cheveux* means “to have a hangover.”

There are also a number of countries in Africa which speak French (see Figure 5). These countries had a population of 344 million in 2010. Their population is projected to reach between 684 million and 732 million in 2050. Figure 6 shows The Maghreb (Arabic Union Countries), which also speak French as a primary and secondary language.

**ARABIC**

Arabic was the language of Muhammad, the Messenger and Prophet of Allah, but dates back to the 8th century BC as proto-Arabic and evolved through hundreds of years in the Middle East in areas such as Syria, Iraq, and the Arabian peninsula. Arabic is the language of the Qura’an and is the official language spoken in more than fifteen countries in the Middle East.

There are two main types of written Arabic:

1. **Modern Standard Arabic** - the universal language of the Arabic-speaking world, which is understood by all Arabic speakers. It is the language of the vast majority of written material and of most TV shows, lectures, etc.

2. **Classical Arabic** - the language of the Qur'an and classical literature. It differs from Modern Standard Arabic mainly in style and vocabulary, some of which is archaic. All Muslims are expected to recite the Qur'an in the original language; however, many rely on translations in order to understand the text.

Each Arabic-speaking country or region also has its own variety of informal spoken Arabic. These informal varieties of Arabic appear in written form in some poetry, cartoons and comics, plays and personal letters. There are also translations of the Bible into most varieties of informal Arabic. Arabic has distinguished itself in its writing. The consonant alphabets (abjads) words are written in horizontal lines from right to left, numerals are written from left to right. There are 28 letters in Arabic; some additional letters are used in

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Arabic when writing place names or foreign words containing sounds that do not occur in Standard Arabic, such as /p/ or /g/. Additional letters are also used when writing other languages. Most letters change their form depending on whether they appear at the beginning, middle, or end of a word, or on their own (see below). Letters that can be joined
are always joined in both hand-written and printed Arabic. The only exceptions to this rule are crossword puzzles and signs in which the script is written vertically. The long vowels /a:/, /i:/ and /u:/ are represented by the letters ‘alif, yā’ and wāw respectively. Vowel diacritics, which are used to mark short vowels and other special symbols, appear only in the Qur’an. They are also used, though with less consistency, in other religious texts, in classical poetry, in books for children and foreign learners, and occasionally in complex texts to avoid
ambiguity. Sometimes the diacritics are used for decorative purposes in book titles, letterheads, and nameplates.

**ARABIC SCRIPT, CONSONANTS, AND VOWELS**

Tables 4 and 5 show how the letters change in different positions, with regard to consonants and vowels.

**Table 4. Shows How the Letters Change in Different Positions**

<table>
<thead>
<tr>
<th>Name</th>
<th>Isolated</th>
<th>Initial</th>
<th>Medial</th>
<th>Final</th>
<th>Transliteration</th>
<th>Sound</th>
<th>Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>'alif</td>
<td>ا</td>
<td>ا</td>
<td>ا</td>
<td>ا</td>
<td>/ ā</td>
<td>long unrounded</td>
<td>'a' as in 'father'</td>
</tr>
<tr>
<td>Bā'</td>
<td>ب</td>
<td>ب</td>
<td>ب</td>
<td>ب</td>
<td>b</td>
<td>voiced bilabial stop</td>
<td>'b' as in 'bed'</td>
</tr>
<tr>
<td>Tā'</td>
<td>ت</td>
<td>ت</td>
<td>ت</td>
<td>ت</td>
<td>t</td>
<td>voiced aspirated stop</td>
<td>'t' as in 'tent'</td>
</tr>
<tr>
<td>Thā'</td>
<td>ث</td>
<td>ث</td>
<td>ث</td>
<td>ث</td>
<td>th</td>
<td>voiceless interdental</td>
<td>'th' as in 'think'</td>
</tr>
<tr>
<td>Jīm</td>
<td>ج</td>
<td>ج</td>
<td>ج</td>
<td>ج</td>
<td>j</td>
<td>voiced palatal affricate</td>
<td>'j' as in 'jam'</td>
</tr>
<tr>
<td>Ĥā'</td>
<td>ح</td>
<td>ح</td>
<td>ح</td>
<td>ح</td>
<td>ḥ</td>
<td>pharyngeal constricted</td>
<td>only in Arabic; a</td>
</tr>
<tr>
<td>Khā'</td>
<td>خ</td>
<td>خ</td>
<td>خ</td>
<td>خ</td>
<td>kh</td>
<td>voiceless velar fricative</td>
<td>'ch' as in German 'Bach'</td>
</tr>
<tr>
<td>Dāl</td>
<td>د</td>
<td>د</td>
<td>د</td>
<td>د</td>
<td>d</td>
<td>voiced dental stop</td>
<td>'d' as in 'deer' (approx.)</td>
</tr>
<tr>
<td>Dhāl</td>
<td>ذ</td>
<td>ذ</td>
<td>ذ</td>
<td>ذ</td>
<td>dh</td>
<td>voiced interdental fricative</td>
<td>'th' as in 'there'</td>
</tr>
<tr>
<td>Rā'</td>
<td>ر</td>
<td>r</td>
<td>r</td>
<td>r</td>
<td>r</td>
<td>voiced dental trill</td>
<td>'r' as in 'run' (approx.)</td>
</tr>
<tr>
<td>Zāy</td>
<td>ز</td>
<td>z</td>
<td>z</td>
<td>z</td>
<td>z</td>
<td>voiced dental sibilant</td>
<td>'z' as in 'zoo' (approx.)</td>
</tr>
<tr>
<td>Sīn</td>
<td>س</td>
<td>س</td>
<td>س</td>
<td>س</td>
<td>s</td>
<td>voiceless dental sibilant</td>
<td>'s' as in 'sit'</td>
</tr>
<tr>
<td>Shīn</td>
<td>ش</td>
<td>ش</td>
<td>ش</td>
<td>ش</td>
<td>sh</td>
<td>voiceless palatal sibilant</td>
<td>'sh' as in 'shut'</td>
</tr>
</tbody>
</table>

*(tables continues)*
<table>
<thead>
<tr>
<th>Name</th>
<th>Isolated</th>
<th>Initial</th>
<th>Medial</th>
<th>Final</th>
<th>Transliteration</th>
<th>Sound</th>
<th>Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ص</td>
<td>ص</td>
<td>ص</td>
<td>ص</td>
<td>ص</td>
<td>ص</td>
<td>s</td>
<td>voiceless post-dental sibilant emphatic</td>
</tr>
<tr>
<td>ص</td>
<td>ص</td>
<td>ص</td>
<td>ص</td>
<td>ص</td>
<td>ص</td>
<td>s</td>
<td>the counterpart of $\ddot{S}h$; all the 'emphatics' are pronounced with the back of the tongue slightly raised</td>
</tr>
<tr>
<td>ض</td>
<td>ض</td>
<td>ض</td>
<td>ض</td>
<td>ض</td>
<td>ض</td>
<td>d</td>
<td>voiced post-dental emphatic stop</td>
</tr>
<tr>
<td>ض</td>
<td>ض</td>
<td>ض</td>
<td>ض</td>
<td>ض</td>
<td>ض</td>
<td>d</td>
<td>the counterpart of $D\ddot{a}$</td>
</tr>
<tr>
<td>ت</td>
<td>ت</td>
<td>ت</td>
<td>ت</td>
<td>ت</td>
<td>ت</td>
<td>t</td>
<td>voiced post-dental emphatic stop</td>
</tr>
<tr>
<td>ت</td>
<td>ت</td>
<td>ت</td>
<td>ت</td>
<td>ت</td>
<td>ت</td>
<td>t</td>
<td>the counterpart of $T\ddot{a}$</td>
</tr>
<tr>
<td>ز</td>
<td>ز</td>
<td>ز</td>
<td>ز</td>
<td>ز</td>
<td>ز</td>
<td>z</td>
<td>voiced post-interdental emphatic fricative</td>
</tr>
<tr>
<td>ز</td>
<td>ز</td>
<td>ز</td>
<td>ز</td>
<td>ز</td>
<td>ز</td>
<td>z</td>
<td>the counterpart of $Dh\ddot{a}$</td>
</tr>
<tr>
<td>ﻋ</td>
<td>ﻲ</td>
<td>ﻲ</td>
<td>ﻲ</td>
<td>ﻲ</td>
<td>ﻲ</td>
<td>c</td>
<td>voiced pharyngeal fricative</td>
</tr>
<tr>
<td>غ</td>
<td>غ</td>
<td>غ</td>
<td>غ</td>
<td>غ</td>
<td>غ</td>
<td>gh</td>
<td>purely Arabic -- a constriction of the throat and an expulsion of the breath with the vocal cords vibrating</td>
</tr>
<tr>
<td>ﻪ</td>
<td>ﻪ</td>
<td>ﻪ</td>
<td>ﻪ</td>
<td>ﻪ</td>
<td>ﻪ</td>
<td>f</td>
<td>voiced uvular fricative</td>
</tr>
<tr>
<td>ﻪ</td>
<td>ﻪ</td>
<td>ﻪ</td>
<td>ﻪ</td>
<td>ﻪ</td>
<td>ﻪ</td>
<td>f</td>
<td>close to a French 'r' as in 'Paris' -- like a gentle gargling</td>
</tr>
<tr>
<td>ق</td>
<td>ق</td>
<td>ق</td>
<td>ق</td>
<td>ق</td>
<td>ق</td>
<td>q</td>
<td>labio-dental voiceless fricative</td>
</tr>
<tr>
<td>ق</td>
<td>ق</td>
<td>ق</td>
<td>ق</td>
<td>ق</td>
<td>ق</td>
<td>q</td>
<td>'f' as in 'free'</td>
</tr>
<tr>
<td>ق</td>
<td>ق</td>
<td>ق</td>
<td>ق</td>
<td>ق</td>
<td>ق</td>
<td>q</td>
<td>'k' in the back of the throat; compare 'cough' with 'calf'</td>
</tr>
<tr>
<td>ك</td>
<td>ك</td>
<td>ك</td>
<td>ك</td>
<td>ك</td>
<td>ك</td>
<td>k</td>
<td>voiceless unaspirated uvular stop</td>
</tr>
<tr>
<td>ك</td>
<td>ك</td>
<td>ك</td>
<td>ك</td>
<td>ك</td>
<td>ك</td>
<td>k</td>
<td>'k' as in 'king'</td>
</tr>
<tr>
<td>ل</td>
<td>ل</td>
<td>ل</td>
<td>ل</td>
<td>ل</td>
<td>ل</td>
<td>l</td>
<td>voiced dental lateral</td>
</tr>
<tr>
<td>ل</td>
<td>ل</td>
<td>ل</td>
<td>ل</td>
<td>ل</td>
<td>ل</td>
<td>l</td>
<td>'l' as in 'lift'</td>
</tr>
<tr>
<td>م</td>
<td>م</td>
<td>م</td>
<td>م</td>
<td>م</td>
<td>م</td>
<td>m</td>
<td>voiced bilabial nasal</td>
</tr>
<tr>
<td>م</td>
<td>م</td>
<td>م</td>
<td>م</td>
<td>م</td>
<td>م</td>
<td>m</td>
<td>'m' as in 'moon'</td>
</tr>
<tr>
<td>ن</td>
<td>ن</td>
<td>ن</td>
<td>ن</td>
<td>ن</td>
<td>ن</td>
<td>n</td>
<td>voiced dental nasal</td>
</tr>
<tr>
<td>ن</td>
<td>ن</td>
<td>ن</td>
<td>ن</td>
<td>ن</td>
<td>ن</td>
<td>n</td>
<td>'n' as in 'net'</td>
</tr>
</tbody>
</table>

(table continues)
Table 4. (continued)

<table>
<thead>
<tr>
<th>Name</th>
<th>Isolated</th>
<th>Initial</th>
<th>Medial</th>
<th>Final</th>
<th>Transliteration Sound</th>
<th>Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hā'</td>
<td>ه</td>
<td>هـ</td>
<td>ـه</td>
<td>ـهـ</td>
<td>h</td>
<td>'h' as in 'house'</td>
</tr>
<tr>
<td>Wāw</td>
<td>و</td>
<td>وـ</td>
<td>ـو</td>
<td>w</td>
<td>voiced bilabial glide</td>
<td>'w' as in 'wonder'</td>
</tr>
<tr>
<td>Yā'</td>
<td>ي</td>
<td>يـ</td>
<td>ـي</td>
<td>ـيـ</td>
<td>y</td>
<td>'y' as in 'yellow'</td>
</tr>
<tr>
<td>Hamza</td>
<td>ء</td>
<td>ءـ</td>
<td>ـء</td>
<td>ءـء</td>
<td>voiceless glottal stop</td>
<td>not a phoneme in English but found in some exclamations -- e.g. 'oh-oh'</td>
</tr>
</tbody>
</table>


Table 5. Shows How the Letters Change in Different Positions for Arabic Vowels

| لَامُنُ 'ا لِفُ | شَادَدَأ | سُكُنُن | دَا مْمُ | كَا سْرَأ | فَثُح أ |
| lām | bā | bī | bāhā | bā | bā | bū | bī | ba |


ARABIC NUMERALS AND NUMBERS

These numerals are those used when writing Arabic and are written from left to right. In Arabic they are known as "Indian numbers" (ةيدنه ماقرأ arqa-m hindiyah). The term 'Arabic numerals' is also used to refer to 1, 2, 3, etc. The first set of numbers is Modern Standard Arabic (see Table 6). The second set is Egyptian Arabic and the third set is Moroccan Arabic.


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Table 6. Shows How the Letters Change in Different Positions for Arabic Numerals and Numbers

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>٠</td>
<td>١</td>
<td>٢</td>
<td>٣</td>
<td>٤</td>
<td>٥</td>
<td>٦</td>
<td>٧</td>
<td>٨</td>
<td>٩</td>
<td>١٠</td>
</tr>
<tr>
<td>شفر</td>
<td>واحيد</td>
<td>اثنان</td>
<td>ثلاثة</td>
<td>أربعة</td>
<td>خمسة</td>
<td>ستة</td>
<td>سبعه</td>
<td>ثمانية</td>
<td>تسعة</td>
<td>عشره</td>
</tr>
<tr>
<td>تلثه</td>
<td>همسه</td>
<td>سبعة</td>
<td>ثمانه</td>
<td>تسعة</td>
<td>أشرار</td>
<td>عشرة</td>
<td>ثمانئ</td>
<td>سبئ</td>
<td>إثنئ</td>
<td>واحد</td>
</tr>
<tr>
<td>صفر</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As in any language spoken in different regions of the Maghreb, (See Figure 6) variations in vocabulary, pronunciation, and even grammar are commonplace. Aside from that, French has had more of an influence, mainly on vocabulary, on Maghreb Arabic than on the classical Arabic spoken in other countries. In addition, Algerian, Moroccan, and Tunisian Arabic speakers commonly use “code-switching” with French in a sense that speakers switch seemingly randomly and without hesitation between their two languages. The result is a mix of dialectal Arabic and French that is very confusing for anyone who only speaks one of the two languages. Machine Translations of this mixture of languages are extremely difficult, especially if these two languages are then being translated into a third language such as English.

Arabic is classified as a member of the Semitic family of languages and for the most part is a synthetic language. For instance, nouns are inflected for case and verbs are inflected for mood.

Fatima Ibrahim Ahmed Al Menoufy has provided many examples and explained the importance of English-Arabic translation, mainly the translation of the two-word English idioms into Arabic. Because the English language uses so many idioms and similar forms of complex expression that Arabic does not, translating from English to Arabic is often very

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27 al Menoufy, “The Importance of English-Arabic Translation.”
challenging because the expressions really don’t translate into anything of equivalent meaning. Consequently this places a major difficulty to translators from English into Arabic.28

For example, in the Telegraph newspaper dated 19/09/2006 one of the headlines reads “Police patrols at churches stepped up in Pope Row.” The Idiom ‘step up’ is used in this article; the Idiom Connection defines the idiom ‘step up’ as follows: “rise to a higher or more important position, be promoted.” Al Mawrid dictionary translates the idiom ‘step up’ as J2J/- J6ª9A- J2’/- Jª6ª9A- JF/A9- J*B/E. In the context of the previous article, the idiom ‘step up’ can be translated as – J2’/ ., it is the translation of the meaning of the idiom.

A second example in The Sunday Times dated April 30, 2006, the Idiom ‘back down’ is used in the following articles:

Iran’s psychopath in chief, by Israel

Britain, France, Germany and America hope to pass a resolution at the United Nations Security Council this week mandating Iran to suspend its work on uranium enrichment. If Iran refuses to back down, the Security Council could impose targeted sanctions.

Also in the Mail Guardian online dated 07 November 2005 we will find the headline

Blair to back down on anti-terror laws

British Prime Minister Tony Blair reluctantly accepted on Monday that he would have to back down on proposed anti-terror laws that would enable police to hold people for up to 90 days without charging them. Home Secretary Charles Clarke, announcing what amounts to a climbdown, said, however, that the new time limit would not be as short as the 28 days sought by critics of the new Terrorism Bill, which faces a parliamentary vote on Wednesday. “We do not want to compromise on the 90 days at all. It will be a compromise with this nation’s security,” said Blair at his monthly Downing Street press conference, where he held out hope that he could yet minimize the impact.

The American Heritage Dictionary of Idioms defines the idiom ‘back down’ as “Reverse one’s upward course, descend.” For example, when she saw the wasps’ nest on the roof, she hastily backed down the ladder. This literal usage usually refers to something one has climbed, such as a ladder or mountain. (Mid-1800s).

28 Ibid.
The Al Mawrid dictionary translates the idiom ‘back down’ as –J*F2D 9F E7D
(Also 9F J*.DJ 9F – J*1’,9 is a proper translation. In the previous articles, it can be translated
as 9F J*.DJ 9F – J*1’,9, and it is the translation of the meaning of the idiom.)
CHAPTER 4

NOT TRANSLATABLE

After reading the past chapters, it seems clear that the complexity of languages and their many dialects makes direct, or machine translation extremely difficult, especially when idioms or complex forms of speech are used. Besides the language itself, cultural difference among the nations and ethnic groups who “speak the same language” are far more complex and make appropriate translation even more difficult as meaning and culture are often closely tied to each other. Because many ethnic groups such as the Maghrebi of North Africa and now widely disseminated in Europe have a complex use of language and culture where multiple languages are intermixed just as multiple cultures are intermixed, deciphering the real meaning of communication is far more difficult than translating the words.

Simple translation of text from one language to another ignores cultural factors that are often the essence of a message. Comprehension demands cultural understanding as well as linguistic proficiency. The process of translation is therefore animated instead of stationary, especially when considering complex mixes of language and culture like the Maghrebi. The focus of the true translation is the meaning of the message, not merely the vocabulary and grammar of the message; e.g., the philological elements served as functional units in the transmission of a message. This understanding leads to several relevant conclusions about the problem of translatability and the corollary “not translatable” nature of some communications. For the purposes of this paper, “not translatable” indicates the degree of difficulty of translating a particular message.

According to Qiu Ji-xin the approaches to Cultural Language awareness involved in translation may be divided into Source Language (SL)-culture oriented and Target Language (TL)-culture oriented. The SL is the original language and the TL is the language translated.

Specific linguistic features such as idioms and metaphors in the Source Language Text (SLT) directly impact linguistic translatability or not translatable and culturally not translatable. Translation is a conveyance for intercultural communication, but will not achieve communication by itself. Idioms are peculiar to a language and have meaning that
cannot be derived from the conjoint meanings of its elements. Metaphors are more a figure of speech in which a word or phrase that literally denotes one kind of object or idea is used in place of another to suggest likeness or anomaly between them. Accordingly, translation of idioms or metaphors is not at all easy because the difficulty in translating the words identified is not in finding the meaning of these words, but conveying their cultural connotations and overtones.

**LINGUISTIC NOT TRANSLATABLE**

Linguistic not translatable describes the situation where intercultural equivalence does not exist. Overcoming linguistic untranslatability demands a high degree of cultural understanding on the part of the translator. The translator must employ a degree of cognitive ability to comprehend the cultural meaning behind the original text, and then select an equivalent meaning from the target culture. Such a task suggests an artistic rather than a functional ability.

**CULTURAL UNTRANSLATABILITY**

Cultural untranslatability is a related barrier found in culture-specific expressions. With regard to translating from Arabic into English, translation must sometimes convert text containing culturally significant terms such as proverbs, verses, historical incidents long forgotten, legendary personages, names of places, animals, or plants that are characteristic only of one culture. Additionally, the translation needs to consider the normal difficulties in interpreting cultural contexts of worlds with completely different affinity and conventions such as the French and Arab world to the English-speaking world. For example:

- **Avec des si, on mettrait Paris en bouteille.**
  - Literal translation: With ifs, Paris could be put in a bottle.
  - Idiomatic translation 1: If wishes were horses, beggars would ride.
  - Idiomatic translation 2: If wishes were fishes we'd all cast nets.
  - Google translates: With exceptions, you can put Paris in a bottle.

- **Bon repas doit commencer par la faim.**
  - Idiomatic translation: Hunger is the best spice.
  - Literal meaning: A good meal must begin with hunger.
Translation Machine tasks are generally more complex than exemplified here. One of the most difficult problems in translations is the translation of expressions that cannot be translated compositionally from their parts. Such expressions include idioms, phrasal verbs, and colloquial terms and jargon-like terms (e.g., How come you look so sad (why)). In these examples, the French are literally translated by the Internet Tools Translation, but the idiomatic meaning in the English Translation is the intended target. See Figure 7 for a mechanism of machine translation, according to Wehrli.

In order for the machine translator (MT) to be successful, the MT must have knowledge of words, some sort of semantic representation, structural information, and pragmatic knowledge in both the source and the target languages in order to be successful. Even with all these knowledge components, actually getting a valid Machine Translation from many of the Internet tools is extremely difficult. The need for a person who has deep knowledge of the languages in question seems to be of paramount importance, at least in checking critical phrases and meaning before life-and-death decisions are made. One example of this is the recent cholera outbreak in Haiti where English forms to be used in Haiti were translated by Machine, but then finessed by workers including this author into more valid form, as the forms will be used to help save lives in Haiti. If the data are not correctly gathered by correct instructions in French, then the databases and decisions that are used as translated into English will likely impede the disaster response rather than aiding it. Copies of the English form, the Machine Translated form, and the person-translated form are shown in Tables 7-9.
Figure 7. A general architecture of the system of the translation process. Adapted from Figure 1 in Wehrli, E. “Translating Idioms.” In ACL ’98 Proceedings of the 36th Annual Meeting of the Association for Computational Linguistics and 17th International Conference on Computational Linguistics - Volume 2, 1388-1392. Stroudsburg, PA: ACL / Morgan Kaufmann Publishers, 1998.
Table 7. Consider the Following Translation from Machines Translates for a List of French Idioms Used as Original Text

<table>
<thead>
<tr>
<th>French Idioms</th>
<th>English Translation</th>
<th>Internet Tools Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>en faire tout un fromage</td>
<td>to make a big deal out of everything</td>
<td>Doing the whole cheese</td>
</tr>
<tr>
<td>rôtir le balai</td>
<td>live the high life</td>
<td>blade roast</td>
</tr>
</tbody>
</table>

Table 8. Consider the Following Translation from Google Translates for a List of French Idioms Used as Original Text

<table>
<thead>
<tr>
<th>French Idiom</th>
<th>English Translation</th>
<th>Google Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>triste comme un bonnet de nuit</td>
<td>as dull as dishwater</td>
<td>sad like a night-cap</td>
</tr>
<tr>
<td>manger le morceau</td>
<td>to spill the beans</td>
<td>to eat the piece</td>
</tr>
<tr>
<td>faire la queue</td>
<td>to line up</td>
<td>to make the tail</td>
</tr>
<tr>
<td>se défendre</td>
<td>stand up for</td>
<td>défendre</td>
</tr>
<tr>
<td>entre par effraction dans</td>
<td>break into</td>
<td>enter by effraction in</td>
</tr>
<tr>
<td>protester comme tous les diables</td>
<td>to storm</td>
<td>to protest like all the devils</td>
</tr>
<tr>
<td>un coup de coude</td>
<td>a poke in the ribs</td>
<td>a blow of elbow</td>
</tr>
<tr>
<td>dans le bain</td>
<td>in the know</td>
<td>in the bath</td>
</tr>
<tr>
<td>prendre parti pour</td>
<td>to side with</td>
<td>to take party for</td>
</tr>
<tr>
<td>un coup de fil</td>
<td>a ring (as in 'give a ring')</td>
<td>a phone call</td>
</tr>
<tr>
<td>a la petite semaine</td>
<td>short term</td>
<td>has the small week</td>
</tr>
<tr>
<td>laisser savoir</td>
<td>to let on</td>
<td>to let know</td>
</tr>
<tr>
<td>laisser en panne</td>
<td>to let down</td>
<td>to leave broken down</td>
</tr>
<tr>
<td>a dessein</td>
<td>on purpose</td>
<td>has intention</td>
</tr>
<tr>
<td>abattre</td>
<td>to break down</td>
<td>to cut down</td>
</tr>
<tr>
<td>se briser</td>
<td>to break up</td>
<td>to break</td>
</tr>
<tr>
<td>prendre parti pour</td>
<td>to side with</td>
<td>to take party for</td>
</tr>
<tr>
<td>du bas</td>
<td>the bottom line</td>
<td>bottom</td>
</tr>
<tr>
<td>English Google Translation</td>
<td>Arabic Google Translation</td>
<td>Back to French Google Translate</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>sad like a night-cap</td>
<td>حزين مثل كاب الليل</td>
<td>Un tel plafond triste nuit</td>
</tr>
<tr>
<td>to eat the piece</td>
<td>أكل قطعة</td>
<td>Mangez un morceau de</td>
</tr>
<tr>
<td>to make the tail</td>
<td>لجعل الذيل</td>
<td>Pour faire la queue</td>
</tr>
<tr>
<td>defendre</td>
<td>defendre</td>
<td>defendre</td>
</tr>
<tr>
<td>enter by effraction in</td>
<td>أدخل من قبل في effetration</td>
<td>Entrez par la effraction</td>
</tr>
<tr>
<td>a blow of elbow</td>
<td>ضربة من كوع</td>
<td>Grève du coude</td>
</tr>
<tr>
<td>in the bath</td>
<td>في الحمام</td>
<td>Dans la salle de bains</td>
</tr>
<tr>
<td>to take party for</td>
<td>اتخاذ الطرف عن</td>
<td>Prendre le parti</td>
</tr>
<tr>
<td>a phone call</td>
<td>مكالمة هاتفية</td>
<td>Appel téléphonique</td>
</tr>
<tr>
<td>has the small week</td>
<td>وقت الأسبوع الصغيرة</td>
<td>La semaine dans les petites</td>
</tr>
<tr>
<td>to let know</td>
<td>تعلموا تعرف على</td>
<td>Faites-leur savoir</td>
</tr>
<tr>
<td>to leave broken down</td>
<td>ترك موزعة</td>
<td>propagation gauche</td>
</tr>
<tr>
<td>has intention</td>
<td>ونية</td>
<td>Et l'intention de</td>
</tr>
<tr>
<td>to cut down</td>
<td>لخفض</td>
<td>Pour réduire</td>
</tr>
<tr>
<td>to break</td>
<td>لكسر</td>
<td>Pour rompre</td>
</tr>
<tr>
<td>to take party for</td>
<td>اتخاذ الطرف عن</td>
<td>Prendre le parti</td>
</tr>
<tr>
<td>bottom</td>
<td>أسفل</td>
<td>Down</td>
</tr>
</tbody>
</table>
Automated and computational linguistics is a major scientific field with immense resources being spent in trying to enhance Machine Translation across languages. Its applications rest between linguistics and computer science and touch many of the different disciplines in Homeland Security. The primary goal of computational linguistics is developing methods and tools for man-made or machine-enabled communication, discovery, and queries (searches). Within this functional area are two subordinate natural languages: data processing, including machine translation, and automation of linguistic research, including automatic lexicography.29

With over-the-web, free translation services so widely available, anyone can run text through machine translation (MT) and then use that translation with the assumption that it gives a correct interpretation. The significant source of concern in Homeland Security where decision makers are trying to decide what action to take, as in a disaster response, is that most online translation tools give only a glimpse of the true translation. Common reasons for this are that the online translation services generally do not permit users to select subject fields (specialties) or add user-specific terminology. In fact, most of the online translation tools do not assist in translation parameters other than the specification of the language pair and the source text. Therefore, the web free online translation can be significantly in error when the standard is saving lives or making decisions that impact the lives of people.

One of the greatest challenges for automatic translation is generating words and inflections that are obligatory in the target language, but not in the source language.

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One can easily see how difficult it is to translate culture-specific expressions. Factors influencing the successful translation of such expressions include who the translator is, his background, the process used to decode and re-encode the source text, and the choice of the translating tools. Web translation tools have been a challenging technology and will continue to be for quite a while as the immensity of information continues to grow in hundreds of languages. How this information can be joined together, searched, and utilized is clearly dramatically challenged by being in different source languages.

**IMPLICATIONS OF MT FOR HOMELAND SECURITY**

When searches are done in different languages and with different term the author observed that the source language text is not analyzed structurally beyond morphology. The translation is not done into steps which clearly differentiate source language and target language parts. The translation is based on word-by-word translation with grammatical adjustment. It is designed for a specific source and target language. It is a direct translation. The approach of the MT systems depends instead on well-developed dictionaries, morphological analysis, and text processing software. Problems of MT is that expressions as multi-word terms convey ideas that transcend the meanings of the individual words in the expression. A sentence may have unambiguous meaning, but each word in the sentence can have many different meanings.

According to Kramer and Wentz cyber influence is an ongoing source of conflict in the international security area.30 Cyberspace is worldwide without nation's frontiers: it reaches from the recesses of Mongolia to the many-varied cultures of California; it includes Shoaling Priests in Henan province, China and the Mullahs in Iraq; it gives people everywhere access to texts and digitized images such as the rare treasures in the Louvre’s museum or the British Library; it gives people in inner Versailles guided tours of its Chateau. Our children are using cyberspace to do their school projects on the lives of the golden frog off the Island of New Caledonia. Cyberspace communications have thrown open new worlds of experience, virtual worlds in which we are dealing with new forms of reality, notions of

---

truth or sense of space where geographical location is no longer important. Additionally, cyberspace is also used for “marketing” messages as a form of communication that is aimed at influencing the attitude of multiplicity of cultures and differing community toward some cause or position. From this point of view from translating communication into influence is very complex.

The translation systems available online cannot be used as the primary source of translation for Homeland Security. The multiplicity of cultures and audiences where communication is taking place, the extensiveness and significance of competing or alternative messages, and the importance of using appropriate influential messengers all make multi-lingual communication extremely complex. Improving the influence of Homeland Security in cyberspace will require a multifaceted strategy that differentiates the probability of the messages being garbled and increases the number of experts in geographic, cultural and linguistic areas. In short, the communication needs within the field of Homeland Security demands cultural experts with the cognitive ability to translate meaning from the source to the target audience. Mere reliance on Machine Translations is inadequate.

**CONCLUSION AND RECOMMENDATIONS**

The international information environment is vast and extremely complex. Millions of messages are sent and received by countless entities simultaneously and in an uncoordinated fashion. The market for attention is highly competitive. The players are diverse, ranging from individuals to private entities to all types of governments. Topics include economic, social, governmental, and sexuality. Information overload contributes to the masking of messages.

The efficacy of communication in the international arena is more difficult than communication in a familiar culture. Key factors include the understanding values and belief structures, indeed comprehending the language, and being knowledgeable about the information culture. One has a good feel for one’s own culture, but it takes tremendous work to achieve a similar feel for another culture unless one’s has leaved in multiple cultural areas.

Regardless of the method of translation, poor or inattentive translations can be the blasphemy of clear communications. Translation is a very complex problem particularly in
the international arena. It requires a full understanding of the factors that bear on the reception and interpretation of the message.

Translation remains mainly a human activity that demands skill, intelligence, and human feeling that maintains the life and spirit of the original language into the translated text. However, as demonstrated in X24, when the goal is to create a somewhat comprehensible translation in environments where human translation is not an option and when these systems are utilized by trained translation professionals or native speakers of one language, then MT may be a very powerful tool and an adequate solution. X24 demonstrated how MT such Internet tools as Google Translate could adequately perform essential translation when used by professionals with a common understanding of the problem and a common purpose.

However, as shown in Chapter 2 and in this chapter, cultural understanding is a very complex process that demands a more profound education than mere linguistic proficiency. The difficulty of translating meaning from English, to French, and then to Maghrebi Arabic illustrates how complex and important cultural understanding can become. The field of Homeland Security can leverage MT in certain circumstances, as X24 demonstrated. Despite some success, MT problems exists: outputs are often ungrammatical and the quality and accuracy of translation falls well below that of a human linguist. However, Homeland Security is also a war of ideas, and a political struggle as well as a physical battle. A nation cannot begin to engage in a war of ideas without a profound understanding of the audience it needs to reach. MT is not perfect, and may create some poor translations. MT, however limited for aiding non linguists, are nonetheless powerful tools for linguists in Homeland Security and special operations to sort through tons of not translatable information or, sorting contents by priority. Machine “gisting” (reviewing intelligence documents to determine if they contain target key words or phrases) is used to better manage their workloads and target the information that trained linguists need to review in depth. An automated translation system can be used for translation of specific terms and consistent translation of stock phrases in diplomatic and legal documents to help human translators work more efficiently.31

In general the Internet free service provided by MT products is limited in the number of characters they permit to translate. They generally should not be used as a primary source of translation if the meanings are to be used in critical tasks or decisions. The variance is actually very large in different Machine Translation tools themselves and the sequence of languages that are translated into each other. As widely used as MT is being used now, this may well create a critical vulnerability that terrorists, cartels, or others seen as adversaries in Homeland Security can exploit. Augmenting MT with insight from linguists is also not the sole answer, as there simple aren’t the resources (people and money and time) to provide all the translations needed.

In complex collaborations where translations go many different paths from one language to another as done in x24 with 79 nations collaborating, the potential scrambling of ideas and decisions appears to have extraordinary potential. Architecting systems that have some type of rational change and quality control---as going from one type of language to another in same categories and not jumping sequentially from one to another to another could be set up that would noticeably improve the MT texts. With the very large number of companies and researchers now working on MT as services for personal (free) use and business use, this difficulty of expressing meaning across language offers an extremely fruitful field of practical development for DHS and Homeland Security. As a simple example, simply translating standard DHS (FEMA) forms and documents from one language (English) into the languages of residents of the US who don’t speak English (e.g., Spanish, Russian, Pilipino, Vietnamese, many forms of Chinese, Arabic, Portuguese, and dozens of other languages) is an extraordinary problem but also opportunity to help government accomplish its job more effectively. Using standard forms with things like slider bars and menus or radio buttons for answers so that they can be automatically translated into structured databases (not really translated, but equivalent answers arrange same way, so functionally translated) is one simple way of setting up pre-disaster scripts that effectively transcend language. Using smart phone devices can help in this as well, including using icons and graphics as well as slider bars as is common on mobile devices like iPhones and Androids—and enabling people to rapidly communicate ideas across language differences.

With the extraordinary advent of Social Networking tools such as Twitter and Facebook and YouTube, the intensity of the need for translation has skyrocketed. As one
example, the Egypt uprising starting on 25 January, 2011 gave rise to Arabic pages such as El Shaheed (martyr) that was initially run by Google executive Wael Ghonim (http://www.thedailybeast.com/blogs-and-stories/2011-02-07/google-executive-wael-ghonim-admits-he-was-el-shaheed/) as well as websites like http://www.elshaheeed.co.uk/ where translations of comments are done from one language to another automatically. Facebook pages in Arabic such as http://www.facebook.com/ElShaheeed with more than 800,000 people “liking” it within three weeks speaks of an extraordinary power with these new tools, yet Machine Translations of the information across language and culture is extremely difficult with such information---particularly if significant decisions are being made during a disaster (manmade or natural). How Machine Translations and linguists can work together to develop much more effective and near real-time products remains a significant challenge, but also opportunity to assist the nation and world in its security, business, and collaboration.
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http://tastysresearch.com/2006/10/05/pop-vs-soda-vs-coke/.


WORKS CONSULTED

Helmreich, S., and D. Farwell. “Translation Differences and Pragmatics-based MT.”  


APPENDIX A

EXERCISE 24 INTRO OBJECTIVES SCENARIO
Executive Overview

Numerous advancements in humanitarian assistance and disaster relief tools and technologies were successfully utilized during the Haiti Earthquake Response, Mexicali Earthquake, and the Gulf Oil Spill Response. Many of these tools are low-cost or free to the public. Exercise24 https://sites.google.com/a/inrelief.org/24/ is a two-day international collaborative multidisciplinary exploration of these capabilities that support communication, logistics coordination, and response to a significant seismic event that generates an off shore oil spill, displaced communities requiring shelter, damage to critical infrastructure inland, and environmental impact. Exercise24 is scheduled for September 24-25, 2010.

Scenario

*Time compression is used to support completion of exercise objectives.* The scenario initiates with an earthquake off the coast of Huntington Beach, California, USA generating a catastrophic subsurface and surface oil spill. A large inland earthquake occurs within the first hour resulting in reports of deaths and injuries, damage to roadways, power lines, and other key resources and critical infrastructures in Southern California, USA and Northern Baja California, Mexico. A series of after shocks, fires, loss of power, disease concerns, and other challenges continue throughout the exercise to facilitate participant objectives.

Objective One

Utilize the computing cloud to rapidly converge geographically dispersed global experts at the onset of a simulated international incident, deploy a foundation of guidance in concert with community leaders in a manner that empowers community members through education and smart technologies to support mitigation, response, recovery, and a resumption of societal normalcy at a level of functioning an order of magnitude higher than existed before.
Objective Two

Leverage smart phones, ultra-lights (United States), and unmanned air systems (Mexico) for rapid threat/damage assessment of a simulated seismic event that generates a significant oil spill off the coast of Southern California and Northern Baja California, as well as damage to critical infrastructure inland that necessitates mass sheltering of displaced community members.

Objective Three

Leverage the power of NGOs, faith-based groups, rapidly responding government and corporate groups, international groups, social networking communities as occurred in Haiti, and other resilient networks to locate and notionally send aid to Southern California and Baja California. The layers of sub-objectives include:

• Create a cascading tidal wave of global aid
• Map and model aid, shipping methods, and time lines for arrival
• Coordinate with responders to ensure these maps and models are helpful and supportive to crisis, consequence, and recovery efforts
• Track the velocity of the response

Participant Requested Injects

Exercise 24 incorporates participant driven injects fused into a net-centric Common Relevant Picture to support a unity of effort. All injects will be mapped and posted.  
*Time compression is used to support completion of exercise objectives.*

• A 7.2 magnitude earthquake off the coast of Huntington Beach, California, USA generates a significant oil spill that impacts the fisheries, wetlands, and coastal regions of Southern California and Northern Baja California, Mexico
• 50-100 cormorants and 3-5 sea lions wash ashore, injured or dead, along a 3.5 mile area along the Southern California and Northern Baja California coast
• A series of 6.5 to 7.2-magnitude inland after shocks damages key resources and critical infrastructure displacing a large population requiring shelter and care in Southern California and Northern Baja California
• I-15 and I-8 interchange is damaged and not passable
Water, sewage, and drainage systems are damaged to the degree that alternate potable water is required for an extended time period.

- Unconfirmed eyewitness reports that cracks are appearing along the lining of the All-American canal in Calexico. Some reports are sent to local NBC affiliate Channel 7 via SMS picture messages and Twitter.
- Request for rapid sharable damage/risk assessment with UAV (Mexico) and Ultra Light (United States) 1"-6" imagery, crowd sourced (geo-located) smartphones (Mexico and United States), and Walking Papers to simulate limited or no connectivity.
- Manage global aid surge in a cloud computing environment.
- Explore Red Cross/Cruz Roja requests within a We Have We Need Google spreadsheet in a cloud computing environment.
- Explore single message from Red Cross/Cruz Roja in multi-platforms - Television News, SMS, Smartphone applications.
- A disease outbreak is reported in one or more shelters in both Mexico and the United States.
- Facilitated discussion of socio-ecologic impacts from a One Health Knowledge Management System approach.
- Tsunamigenic event off the coast of Baja California.
- Email austin.howe@inrelief.org with inject requests, edits/additions to existing injects, and questions.

**Pre-event Activities**

- Smartphone Training
- UAV imagery Awareness
- Walking Papers Training
- BGAN Satellite Training
- Integration of Injects

**Final Planning Conference**

September 7, 2010 – Viz Center, San Diego State University

**Exercise24**

September 24-25, 2010
Registered Participants
Visualization Center, Homeland Security Master's Program, San Diego State University
Chief of Police, San Diego State University
San Diego County Public Health Office
US Customs and Border Protection/San Diego Border Patrol
Blueturn Media, Inc.
Department of Homeland Security Science & Technology Directorate
US State Department/eDeplomacy
Synergy Strike Force
Koomerang, Inc.
Inmarsat Government Services, Inc.
Operation Safeguard/Thinkiture, Inc.
A.M. Fadida Consulting
Futron Corporation
TIDES Project - National Defense University
U. S. Naval War College
SMART
NJIT
A.M. Fadida Consulting
DoE-Oak Ridge National Lab
Nordic Geospatial Consulting
SDSU
US Army Veterinary Corps
Google InSTEDD
UCSD/SDSU
Maxin Consulting
County of San Diego, Vector Borne Disease Laboratory
A3 Technology, Inc.
Humanity Road, Inc
Hunter Whitney & Associates, Inc.
Direccion Estatal De Proteccion Civil, Baja California (Director)
Triggerfinger Software, Inc.
Direccion Estatal de Proteccion Civil, Baja California (Deputy Director)
DHS Office of Emergency Communications
TIDES/CTNSP/NDU
A.M. Fadida Consulting
UN Secretariat Office of IT
SECRETARIA DE MARINA, ARMADA DE MEXICO
MEXICAN NAVY, SECOND REGION NAVAL (V. Admiral)
MEXICAN NAVY, SECOND REGION NAVAL (Deputy Commander)
Near Earth Observation Systems, Ltd
U.S. Dept. of Housing and Urban Development
Pacific Disaster Center
Southern California Coastal Ocean Observing System (SCCOOS)
CA Office of Border Health/ EWIDS Program
Secretaria de Seguridad Publica del Estado
Salesforce.com
American Red Cross - San Diego/Imperial Counties Chapter
Cruz Roja - Baja California
reachback.org
Carnegie Mellon Silicon Valley Disaster Management Initiative
San Jose Water Company
BuzzMgr
Defenteect Group, Inc.
San Diego County HHSA/PHS/EISB
Magnitude 8
CERTS
www.somcare.org (Africa Team)
United Nations OCHA Colombia
United States Marine Corps
APPENDIX B

UNCLASSIFIED LIST OF ORGANIZATIONS
PARTICIPATING IN EXERCISE 24
A3 Technology, Inc.

Boss Safety Products

California Department of Public Health

California Emergency Management Agency

County of San Diego, Vector Borne Disease Laboratory

Department of Homeland Security Science & Technology Directorate

DHS Office of Emergency Communications

Direccion Estatal De Proteccion Civil, Baja California

DoE-Oak Ridge National Lab

Futron Corporation

Hughes San Diego

Inter Tribal Long Term Recovery Foundation

Koomerang, Inc.

Magnitude 8

Maxin Consulting

Michigan State University

National Center for Medical Intelligence

NJIT

Operation Safegaurd/Thinkiture, Inc.

Proteccion Civil Rosarito B.C.

reachback.org

Salesforce.com
San Diego County HHSA/PHS/EISB
San Jose Water Company
School of Public Health, University of Maryland, College Park, MD
SMART
STAR-TIDES
Televisa
U.S. Naval War College
U.S. Dept. of Housing and Urban Development, San Diego
U.S. Dept. of Housing and Urban Development
UCSD/ SDSU
UN Secretariat
U.S. Army Veterinary Corps
USAF
USAG Stuttgart
Western University of Health Sciences
Praecipio International
APPENDIX C

BOARD EXPLANATION OF DATA TRIAGE WHICH ALLOWS THE END-USERS TO HAVE THE INFORMATION THEY NEED DURING EXERCISE24 AT THE VIZ CENTER
White Board Explanation of Data Triage
APPENDIX D

EXERCISE 24 SOCIAL MEDIA INJECTS
Exercise24
Injects and Updates

Subscribe to posts

Magnitude 7.2 Earthquake/Magnitud de 7.2
posted 14 minutes ago by Brianna Hertzler

**THIS IS A TEST. THIS IS NOT REAL.**
Magnitude 7.2 Earthquake on Palos Verde Fault (PVF), Offshore Huntington Beach, CA. Significant aftershocks continue through out the remained of the exercise.

Temblores en el valle de los palos verdes de magnitud de 7.2 en las afueras de Huntington beach ca se registraron varias replicas durante el resto de tiempo del ejercicio.

| Attachments: Slide10.jpg  Slide9.jpg |

Initial Tsunami Wave Front/Inicialmente al Frente Del Tsunami
posted 17 minutes ago by Brianna Hertzler

**THIS IS A TEST. THIS IS NOT REAL.**
90 minute DART Buoys report initial tsunami wave front.

Reportan 90 minutos DART inicialmente al frente del tsunami.

**Pacific Disaster Center (PDC) report 5-10 meters swell/Centro de desastre del pacifico reporta 5-10 metros**
posted 27 minutes ago by Brianna Hertzler

**THIS IS A TEST. THIS IS NOT REAL.**
Pacific Disaster Center (PDC) report 5-10 meters amplitude swell propagation outward from earthquake epicenter.

Centro de desastre del pacifico reporta 5-10 metros de amplitud hay un temblor en el epicentro

**PTWC Issues a Tsunami Warning/PTWS dan advertencia**
posted 33 minutes ago by Brianna Hertzler

**THIS IS A TEST. THIS IS NOT REAL.**
PTWC issues a tsunami warning for the west coasts of the Canada, United States and Mexico. Further warnings issued to Northeast facing coastline of Hawaii. General warning issued to Pacific Basin.

PTWS dan advertencia a las costas de canada, estados unidos y mexico. Mas advertencias se hacen llegar a la costa de hawaii, advertencias generales se hacen llegar al pacifico basin.
**Magnitude 9.2 Earthquake/Temblor de magnitud 9.2**

posted 54 minutes ago by Brianna Hertzler

-THIS IS A TEST THIS IS NOT REAL-

Magnitude 9.2 Earthquake near Amlia Fracture Zone of the Aleutian Trench. Temblor de magnitud 9.2 cerca de la zona de fractura de aleutian

**Social Media Injects**

posted Sep 21, 2010 3:12 PM by Brianna Hertzler  [ updated 59 minutes ago ]
APPENDIX E

CULTURES IN THE STANDARD CROSS-CULTURAL SAMPLE
<p>| <strong>Africa</strong> | Nama (Hottentot) • Kung (San) • Thonga • Lozi • Mbundu • Suku • Bemba • Nyakyusa (Ngonde) • Hadza • Luguru • Kikuyu • Ganda • Mbuti (Pygmies) • Nkundo (Mongo) • Banen • Tiv • Igbo • Fon • Ashanti (Twi) • Mende • Bambara • Tallensi • Massa • Azande • Otoro Nuba • Shilluk • Mao • Maasai |
| <strong>Circum-Mediterranean</strong> | Wolof • Songhai • Wodaabe Fulani • Hausa • Fur • Kaffa • Konso • Somali • Amhara • Bogo • Kenuzi Nubian • Teda • Tuareg • Riffians • Egyptians (Fellah) • Hebrews • Babylonians • Rwala Bedouin • Turks • Gheg (Albanians) • Romans • Basques • Irish • Sami (Lapps) • Russians • Abkhaz • Armenians • Kurd |
| <strong>East Eurasia</strong> | Yurak (Samoyed) • Basseri • West Punjabi • Gond • Toda • Santal • Uttar Pradesh • Burusho • Kazak • Khalka Mongols • Lolo • Lepcha • Garo • Lakher • Burmese • Lamet • Vietnamese • Rhade • Khmer • Siamese • Semang • Nicobarese • Andamanese • Vedda • Tanala • Negeri • Sembilan • Atayal • Chinese • Manchu • Koreans • Japanese • Ainu • Gilyak • Yukaghir |
| <strong>Insular Pacific</strong> | Javanese (Miao) • Balinese • Iban • Badjau • Toraja • Tobelorese • Alorese • Tiwi • Aranda • Orokaiva • Kimam • Kapauku • Kwoma • Manus • New Ireland • Trobrianders • Siuai • Tikopia • Pentecost • Mbau Fijians • Ajie • Māori • Marquesans • Western Samoans • Gilbertese • Marshallese • Trukese • Yapese • Palauans • Ifugao • Chukchi |
| <strong>North America</strong> | Deg Hit’an • Aleut • Copper Eskimo • Montagnais |</p>
<table>
<thead>
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<th>South America</th>
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</thead>
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<tr>
<td>Mi’kmaq</td>
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<td>Saulteaux (Ojibwa)</td>
<td>Miskito (Mosquito)</td>
</tr>
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<td>Slave</td>
<td>Bribri (Talamanca)</td>
</tr>
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<td>Kaska (Nahane)</td>
<td>Cuna</td>
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<td>Calinago</td>
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<td>Twana</td>
<td>Warrau (Warao)</td>
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<td>Yañomamö</td>
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<td>Pomo</td>
<td>Carib</td>
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<tr>
<td>Yokuts</td>
<td>Saramacca</td>
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<tr>
<td>Paiute (Northern)</td>
<td>Munduruku</td>
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<td>Klamath</td>
<td>Cubeo (Tucano)</td>
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<td>Pawnee</td>
<td>Aymara</td>
</tr>
<tr>
<td>Omaha (Dhegiha)</td>
<td>Siriono</td>
</tr>
<tr>
<td>Huron</td>
<td>Nambicuara</td>
</tr>
<tr>
<td>Creek</td>
<td>Trumai</td>
</tr>
<tr>
<td>Natchez</td>
<td>Timbira</td>
</tr>
<tr>
<td>Comanche</td>
<td>Tupinamba</td>
</tr>
<tr>
<td>Chiricahua</td>
<td>Botocudo</td>
</tr>
<tr>
<td>Zuni</td>
<td>Shavante</td>
</tr>
<tr>
<td>Havasupai</td>
<td>Aweikoma</td>
</tr>
<tr>
<td>Papago</td>
<td>Cayua (Guarani)</td>
</tr>
<tr>
<td>Huichol</td>
<td>Lengua</td>
</tr>
<tr>
<td>Aztec</td>
<td>Abipon</td>
</tr>
<tr>
<td>Popoluca</td>
<td>Mapuche</td>
</tr>
<tr>
<td>Comanche</td>
<td>Tehuelche</td>
</tr>
<tr>
<td>Chiricahua</td>
<td>Yaghan</td>
</tr>
<tr>
<td>Zuni</td>
<td></td>
</tr>
<tr>
<td>Havasupai</td>
<td></td>
</tr>
<tr>
<td>Papago</td>
<td></td>
</tr>
</tbody>
</table>

APPENDIX F

OFFICIAL WEBSITE OF QAEDA
Propaganda publications of the International Islamic Resistance. Source: Americans Against Hate. “Copies of Pages from Publications of the International Islamic
APPENDIX G

INDO-EUROPEAN LANGUAGES
APPENDIX H

REGIONS OF THE WORLD WHERE INDO-EUROPEAN LANGUAGES OF SOME SORT ARE WIDELY SPEAKEN
APPENDIX I

A SAMPLE OF ENGLISH TO FRENCH TRANSLATION OF A CHOLERA QUESTIONNAIRE BY THE AUTHOR FOR THE HAITIAN RELIEF ORGANIZATION (JPHRO.ORG) IN 2010.
Facility NAME:
Nom de l’établissement

Principal Contacts (Name, Email & Phone #):
Directeur principal (nom, courrier électronique, téléphone)

On the ground contact (Name, Email & Phone#):
Directeur sur site (nom, courrier électronique, téléphone)

Languages spoken by ground contact:
Langues parlées par le directeur du site

Supporting Organization(s) (e.g., MSPP, MSF, MTI, etc.):
Organisation(s) de soutien
Facility Location:
Localisation de l’établissement
Department:
Département
Commune:
Commune
Village/Town:

______________________________________________________________________________

Village/Ville
Street Address and/or directions/GPS coordinates:

______________________________________________________________________________

Adresse / Directions / Coordonnées GPS

Days per week clinic/hospital is open?

______________________________________________________________________________

Combien de jours par semaine l’établissement est-il ouvert ?

If you have not seen any cholera patients, do you have: (circle one) YES / Oui     NO / Non

Si vous n’avez pas encore vus des patients atteints du choléra, avez-vous :

Educational Materials
des matériaux pédagogiques [ Y ] [ N ]

a) ORS or ingredients to make your own
des SRO ou les ingrédients pour en créer [ Y ] [ N ]

b) IV Ringers and supplies
Solution de Ringer lactate IV et matériaux [ Y ] [ N ]

Has your staff received any training for Cholera?
Est-ce que votre personnel a reçu une formation à propos du Choléra ? [ Y ] [ N ]

Is your community receiving education on Cholera prevention?
Votre communauté reçoit-elle une formation pour la prévention du Choléra ? [ Y ] [ N ]

If you do not have the ability to keep 24/7 surveillance on cholera patients, how will they get access to the nearest CTC?

______________________________________________________________________________

Si vous ne pouvez pas surveiller vos malades atteints de choléra 24 heures par jour, comment peuvent-ils parvenir au CTC le plus proche ?

Date began treating Cholera patients?

______________________________________________________________________________

Date à laquelle le traitement du Choléra a commencé ?
Total number of patients since that date?
_____________________________________________________
Nombre total de malades depuis cette date ?
Total number of fatalities since that date?
_____________________________________________________
Nombre total de décès depuis cette date ?
Number of Cholera patients in the last week?
_________________________________________________
Nombre atteint de choléra la semaine dernière ?
Number of fatalities in the last week?
________________________________________________
Nombre de décès dans la semaine dernière ?
Has number of Cholera patients stabilized or is it fluctuating?
_____________________________________________________
Le nombre de malades de choléra c’est il stabilisé ou fluctue t’il encore ?
Number of non-cholera patients last week?
_____________________________________________________
Nombre de malades sans choléra la semaine dernière ?
Bed Capacity for the entire hospital?
________________________________________________________
Nombre total de lits disponibles dans tout l’hôpital ?
Bed Capacity for Cholera patients?
_________________________________________________________
Nombre de lits disponibles pour ceux atteints de choléra ?
Bed Capacity for non-Cholera patients?
_________________________________________________________
Nombre de lits disponibles pour les malades sans choléra ?
Have you established an Isolation Unit for Cholera patients? Please describe it (indoor/outdoor, cots, patients on floor, etc)?
_________________________________________________________________
Avez-vous crée un centre de quarantine pour les malades de choléra ? Veuillez le décrir svp.(à l’intérieur/ à l’extérieur, litières, malades par terre, etc) ?

What is the population of the area your facility serves?
_____________________________________________________
Quelle est la population dans la région de votre établissement désert ?

How many patients did you or do you normally average in a month, BEFORE cholera became an issue?
____________________________________________________________________
Combien de malades receviez-vous par mois, en moyenne, avant la flambée du choléra ?

**Closest CTC to your facility (Please provide location)?**

_________________________________________

Quel est le plus proche CTC de votre établissement (veuillez en préciser le lieu) ?

**How far do Cholera patients have to travel to receive treatment at your facility?**

_________________

Quelle distance doivent se déplacer vos malades pour recevoir de l’aide dans votre établissement ?

**Average of Cholera patients that require inpatient treatment/IV Fluids?**

__________________________

Nombre moyen de malades du choléra qui doivent être hospitalisés / recevoir des fluides IV ?

**Medical Staffing (How many Doctors, Nurses, Non-Medical Staff on hand)?**

_____________________ 

Personnel médical disponible (nombre de docteurs, infirmières, autre personnel)

**Medical Staffing needs?**

_________________________________________

De combien de personnel médical avez-vous besoin ?

**Does your Facility provide Mobile Medical Clinics to the community?**

___________________________

Es-ce que votre établissement fournit il à la communauté des Cliniques Médicales de déplacement ?

**How often?**

_________________________________________

Combien de fois ?