A Language-Ready Force

The world's first

by Benjamin Nagy

Computer translation technology continues to advance at a steady pace and has already surpassed the capabilities of much of the functionality provided by DOD-trained linguists. If the United States Government plans for, invests in, and implements that technology, we could create the world's first true language-ready military.

This argument is based on several assumptions about the future. First, the average military linguist will continue to speak at approximately the same level, knowing the same quantity and breadth of words, and with the same quality of grammar and pronunciation. Individual capabilities may fluctuate, but the aggregated average will remain relatively consistent as new linguists join the military and old linguists depart. The second assumption is that computer-translation will increase in capabilities indefinitely. There has never been a time in recent history where one could reasonably expect that the average computer translation tool would know fewer words tomorrow than today, become rusty in the art, or perform slower as technology becomes continually smaller and more powerful. The third assumption is that commercial superpowers, such as Google and Facebook, will continue to lead the way with automated translation so customers in any part of the world can use their services.

The Federal Government spends tens of millions of dollars each year on training and testing linguists. After a year or more of training, most of these linguists are capable of basic communication in the language they were taught and will likely struggle with normal conversation with a native speaker, especially when dealing with dialects and slang.

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The Defense Language Aptitude Battery (DLAB) assesses whether a person is likely to be able to learn a foreign language because not everyone is wired for it. Most Federal employees will never be trained as linguists and will never be able to communicate directly with foreign language speakers.

Most Federal employees trained in a foreign language will only learn one language during their entire career. Out of those who manage to learn a foreign language, relatively few will achieve a 3/3 or higher proficiency. When not regularly engaged in training or actively using their learned language, many linguist will decrease in proficiency. Many of the more-qualified linguists, especially those working in intelligence fields, will leave the Service to work in higher-paying contractor jobs.

Commercial translation capabilities are advancing at a rapid pace. Apps such as Google Translate are capable of instantly translating text found in images while retaining the appearance and formatting of the source.[1] The Google Translate phone app now supports conversational translation, where two speakers can take turns with a single mi-

Most linguists are capable of basic communications. *(Photo by LCpl Christopher Mendoza.)*

crophone. The app detects the language of the speaker, translates automatically, and then speaks the translation.With the aid of Google Translate, most people are currently capable of communicating better in Chinese than most military Chinese linguists are capable of doing after a full year of language training. They can then instantly switch to German, Norwegian, French, Korean, or any one of the other 51 languages Google supported as of early 2018. This number increases to over 80 with add-on app packs, although accuracy normally decreases with less-common languages.

The translation earpieces seen in classic science fiction films such as *Star Trek* are now a reality. Several translation earpieces are already available for purchase, including Google Pixel Buds and the Waverly Labs Pilot Speech Translator. Cellphone apps and Internet-connected earpieces will likely remain the translation tool of choice for the general public, but disconnected translators, such as the "ili Hand-Held Translator," prove how uncomplicated it is to download language libraries to an offline device that could be carried into the deepest cave in Afghanistan and still enable communications with the Turkish refugee living there.[2]

Future vignette: A Russian, an Israeli, and a Swede are all sitting a bar in Colombia having a conversation using their respective native languages with their instant-translation earpieces installed. An English-speaking DOD linguist approaches. How will he communicate, and in which language will he communicate? If the DOD starts moving in the right direction now, he will simply join the conversation using his translation earpiece.

The DOD normally prioritizes language training based on probability of need but was surprised by a decade in Afghanistan with too-few U.S. citizens with security clearances who could speak Pashtu. The Pashtu linguists were of no use with Persians. Once the military had some linguists proficient in in Pashtu, attention shifted to activities in North Korea with guaranteed involvement from China. The DOD could start training more Korean and

We can graduate linguists from formal schools and provide Marines with translation-capable technology. *(Photo by GySgt Alexis Mulero.)*

Chinese linguists now who would be capable of basic communication within a year or two; or, in a year or two, we could issue translation devices to an entire military division so every single one of them, regardless of Armed Services Vocational Aptitude Battery or DLAB scores or MOS, would be capable of basic communication with nearly every joint military partner, local-national, or tourist they meet during deployment.

Many of the concerns against pursuing computer translation over human linguists are based on lack of knowledge about current off-the-shelf capabilities or are based on the way things were yesterday rather than how things will be in the foreseeable future. Other concerns can easily be resolved during planning and procurement. Common objections and their answers include:

- Computer translations are not always perfect, but they are significantly better than many, if not most, DOD linguists' translation abilities and have more extensive vocabularies.
- Translation software can get confused by dialects and slang, so can military linguists.
- Translation software is less effective with low-density languages, and military linguists are less available for low-density languages.
- Network and electro-magnetic pulse attacks could disable translation tools, but shielding and offline libraries could prevent either from being a significant impact.
- Speaking with a translation device feels awkward and could intimidate people today, but when the majority of the world's civilian population is using Pixel Buds for translation, the awkward conversations will be with the heavily-accented military linguists, many of whom will likely resort to their Internet-connected translation apps if the DOD doesn't provide them with a more-secure alternative.

It is no longer a question of if; it's a question of when.

While a linguist can forget the language over time if not regularly used, the translation services will continue to improve until they achieve true fluency. Teaching a military linguist one new phrase improves his capability slightly and teaching a translation library one new phrase improves communication capability for the entire force. As machine-learning capabilities improve, translation software will pass a threshold where it is no longer necessary for system administrators to manually enter words or phrases. The software will begin to learn directly from Internet-connect smart-device users in every corner of the world.

It is unlikely there will never be a time when computer translation capabilities are less capable, less available, or less used than the previous year. Voice-synthesis software could eventually allow translation to be heard as the voice of the speaker, rather than the voice of a human translator recorded for the app. The recorded human voices currently heard in translation software will eventually become obsolete in favor of software that generates the speaker's voice on the fly. As algorithms and processing power improve, software could enable realtime separation of audio streams so multiple foreign-language speakers could be heard by the recipient in his native language and in the voice of the original speakers.[3]

The DOD is increasing emphasis on readiness and the ability to deploy ready units at a moment's notice. None of these units are currently capable of providing linguist support outside of their current language capabilities. Furthermore, none of these units are 100 percent manned with dual-language capable personnel. Instant translation devices will remove this limitation and result in a true language-ready force.

Recommendations

1. Reduce uncertainty by meeting with industry translation leaders such as Google to determine when they plan to deliver automatic translation products capable of replacing various levels of Defense Language Proficiency Test-qualified military translators for each language. If they predict five to ten years, update long-term strategies so we are ready when it happens. If they predict two years, then we are already late because students enrolling in the Defense Language Institute this year will be superseded by technology by the time they graduate.
2. Reduce allocation of money and time toward training a fraction of the military to perform basic communications in a single language. Invest the savings into improving DOD software language libraries intended for disconnected devices.
3. Retain native-speaking and exceptionally proficient linguists for non-face-to-face translation activities such as signals intelligence and for reach-back support.
4. For human intelligence collectors, increase emphasis on non-verbal indicators (body language) and cultural knowledge, allowing them to better focus their attention on the speaker rather than dividing their attention between analyzing and translating.
5. Establish a virtual language center where cleared native speakers can be easily reached over secure lines by deployed personnel for translation assistance. When the native speakers are not actively providing support to deployed personnel, they will review actual recorded translations from deployed instant translation devices and improve the translation libraries, capabilities and readiness improving daily. These disconnected devices would require no more encryption or security that the digital voice recorders currently used by human intelligence collectors.
6. Begin the contract process to develop or procure disconnected instant translation devices. No training should be needed other than telling people to speak clearly into the device. These will be out-of-the-box ready except for basic maintenance such as charging and downloading updated dictionaries.

Computer translation has advanced to a point where the DOD can confidently evaluate, plan for, and implement technology that will make us the world's first true language-ready military. This will ultimately save money and reduce training times while expanding current capabilities and agility.

During combined operations, linguists capability enhances unit coordination. *(Photo by LCpl Christopher Mendoza.)*

Notes

1. Google, "Google Translate vs. 'La Bamba,'" YouTube video, 1:40, (Online: July 2015), available at https://www.youtube.com.

2. Geoffrey Morrison, "ili Hand-held Translator—First Look," YouTube video, 2:53, (Online: November 2018), available at https://youtube.com; similar products can be viewed at the following websites: https://support.google.com, https://www.engadget.com, and https://www.waverlylabs.com.

3. Additional information on translation devices mentioned in this paragraph can be viewed at https://www.theverge.com, https://audionamix.com, and https://manual.audacit/team.org.