Title: MATERIAL Swahili-English Language Pack

Author(s): Nicola Amott, Aric Bills, Judith Bishop, Anne Boyle, Sarra Chouder, Nathaniel Clair, Tom Conners, Cassian Corey, Eyal Dubinski, Corinna Ellis, Paul Gibby, Simon Hammond, Luke Hartwig, Maxime Hubert, Alice Kaiser-Schatzlein, Dagmara Kalnins, Michael Kazi, Julie Lam, Hanh Le, Vivian Lusweti, Tina Semiti Magembe, Nicolas Malyska, Jennifer Melot, Alyssa Mensch, Michelle Morrison, Valerie Novak, Maureen Oluoch, Cynthia Onyango, Shelley Paget, Frederick Richardson, Carl Rubino, Gregory Sanders, Stephanie Soh, Tania Strahan, Jonathan Taylor, Brian Thompson, Audrey Tong, Richard Tong , Bella Yahuma, Julie Yelle, Jennifer Yu, Ilya Zavorin

Languages:

- speech files and transcriptions: Swahili (SWA)
- translations of speech transcriptions: English (ENG)
- queries: English (ENG)

Introduction

Collected to support the MATERIAL (Machine Translation for English Retrieval of Information in Any Language) program, the MATERIAL Swahili dataset contains Swahili speech files and text documents of several genres, English queries, and various annotations that can be used for ASR (Automatic Speech Recognition), MT (Machine Translation), and CLIR (Cross Language Information Retrieval) research. This pack includes Swahili conversational telephone speech (CS) files. These files have different partitions (e.g., BUILD, ANALYSIS, DEV, EVAL, etc.) to indicate their use in the MATERIAL program. This pack also includes transcriptions and English translations for the ANALYSIS files, domain annotations for the ANALYSIS/DEV/EVAL files, English queries and their relevance annotations, and distraction files (non-Swahili files that were used in the MATERIAL evaluation as system confusers).

For information regarding how the Swahili files were transcribed and translated as well as annotated for domain and query relevance please refer to, respectively, MATERIALTranscriptionAndTranslationConventions.pdf, MATERIALDomainAnnotation.pdf, and MATERIALQueryAnnotation.pdf. Query syntax is described in detail in MATERIALQueryLanguageSpecification.pdf also in the **docs/** directory. This directory also contains metadata information for the speech files.

The size for text documents and speech files are:

- data/build-asr approximately 50 hours
- data/speech approximately 62 hours

This pack is organized as follows:

```
data/
    build-asr/
        speech/                     speech source and its transcriptions
            dev/                    recommended dev partition
                src/
                transcription/
            training/               recommended training partition
                src/
                transcription/
    speech/                         speech files (CS)
        src/
        transcription/
        translation/
```

query/

query_list.tsv	contains queries that have relevant files in this pack
query_annotation.tsv	contains query relevance annotations

docs/

README.pdf	this file
MATERIALTranscriptionAndTranslationConventions.pdf	describes the transcription and translation conventions
MATERIALDomainAnnotation.pdf	describes the domain relevance annotation
MATERIALQueryAnnotation.pdf	describes query relevance annotation
MATERIALQueryLanguageSpecification.pdf	describes the syntax of MATERIAL queries
doc_info.tsv	indicates ID of the language, genre, partition, domain, and type (distraction or normal)
domain_map.tsv	indicates the domain mapping
genre_map.tsv	indicates the genre mapping
LSDD_1A.pdf	language specific design document
LSP_1A.pdf	language specific peculiarities document
analysis_lexicon.txt	lexicon for the ANALYSIS speech files
build_lexicon.txt	lexicon for the speech files in build-asr
metadata_speech.tsv	speech file metadata

Recommended/Expected use of corpus

- Speech files and their transcriptions can be used to train, develop and/or evaluate Automatic Speech Recognition models, or for similar purposes that require speech recordings accompanied with corresponding transcriptions.
- Queries and speech files with the corresponding relevance annotations can be used to train, develop and/or evaluate Cross Lingual Information Retrieval models, or for similar purposes that require English queries marked for relevance against foreign language speech recordings.

Collection Procedure - format, method, and timespan

The conversational telephone speech (CS) files are natural conversations between two speakers over the telephone. The speakers involved in the collection were required to be native language speakers. They were recruited with the goal of obtaining broad coverage of age, gender, and dialect. They were encouraged to talk about topics they felt most comfortable discussing such as family, friends, sports, movies, etc. These topics were not fixed and varied across languages. Speakers showing distinctive speech disorders were excluded from collection or removed if identified later in the transcription process. All speakers were 18 or older. Dialect regions were defined prior to collection for each language. The number of chosen dialects varied across languages with no dialect representing less than 10% of the collection. There were no restrictions on the acoustic environment (such as whether or not the speaker was indoors, outdoors, driving, etc.), and this information was provided by the speakers. There were also no restrictions on network specifications or telephone models and these values were also noted in the accompanying metadata. Audio was recorded via telephone over an ISDN connection with a terrestrial telephone network. Each speaker was recorded on a separate channel. No post-processing steps were taken to reduce noise or other artifacts of the recording medium at any stage.

Data format specific details

Speech files are in WAV or SPHERE format while text documents are in UTF-8 encoding. Available metadata information is included in the **docs/** directory.