A finite-state morphological analyzer using foma for Klingon, a constructed language

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Abstract

This paper presents a morphological analyzer for Klingon, constructed language, developed following the official description of the morphology in the Klingon Dictionary (Okrand, 1992).

The open-source tool *foma* for constructing finite-state automata and transducers is used for building the morphological analyzer.

1 Introduction

Klingon was created by Marc Okrand, an American Linguist, for the 1984 movie Star Trek III. Klingon is spoken by the fictional Klingons in the Star Trek universe, so Okrand designed the Klingon language to sound alien by using grammatical constructs and sound combinations infrequently used in natural language (KLI, Development; KLI, Sounds).

Klingon has a complete grammar that can be spoken and used as a real language. Marc Okrand formalized the Klingon grammar and vocabulary in The Klingon Dictionary (Okrand, 1992).

The number of fluent Klingon speakers is not known, but has been estimated between a few dozen (Okrent, 2009) to around 100 (Kelly, 2013). The Klingon Dictionary (Okrand, 1992) has sold more than 300,000 copies and has been translated into 4 languages. Klingon has entered into popular culture, and literary works such Shakespeare's Hamlet, Gilgamesh, and "A Christmas Carol" have been translated into Klingon. The Bible is currently being translated (KLI, Bible) but is a difficult task due to limited Klingon vocabulary. The current lexicon contains almost 3,000 words (Zrajm, 2012) and only grammar and words coined by Marc Okrand are considered canonical by the Klingon speaking community (KLI, Canonical).

2 Klingon Grammar

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Hello there

3 Klingon Morphology

Klingon is an agglutinative language that uses Object-Verb-Subject word order. Okrand categorizes down the Klingon word types into Nouns, Verbs, and "Left-overs".

3.1 Nouns

Nouns split into 3 types 5 ordered suffix types

3.2 Verbs

Verbs are categorized into 2 classes; stative and action. Verbs take both prefixes and suffixes.

Take prefixes Take suffixes 9 ordered suffix types

3.3 "Left-over" Words

Pronouns
Numbers
Conjunctions
Adverbials
Exclamations
Names
Questions

4 Klingon Morphophonology

Klingon completely lacks morphophonology with one exception. The endearment noun suffix *-oy* is prepended with a glottal stop ' if the noun stem ends with a vowel.

5 FST Implementation

Used lexc file. Used foma file for rewrite rule(s).

Noun Stem	Noun with Endearment Suffix -oy
jup (friend)	jupoy (dear friend)
cha (torpedo)	cha'oy (dear torpedo)

Table 1: Endearment Suffix

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