The automation of the isiZulu noun prefix and its subject concord for the purposes of pedagogy

Mthuli Buthelezi

Abstract
The isiZulu noun is constituted by two entities, namely the pre-prefix and the prefix proper. The pre-prefix is the initial vowel in nouns and thus precedes the (basic) prefix (Canonici, 1996); hence, the (basic) prefix immediately follows the pre-prefix. In this work, the pre-prefix is referred to as the augment, and the (basic) prefix or the prefix proper is the prefix. The isiZulu prefix has a *concord* that marks agreement, hence the automation of the prefix simultaneous with its *concord*. Automation in this study refers to the ability of a computer – or a software *application program* – to *automatically* produce that which has been programed into the selected *system.* Important, the definition of 'automation' in this study is external to *automata theory.*

In this study, the augment is automated first, and then followed by the automation of the prefix and the subject concord. From the described canonical rules of the isiZulu nominal classification grammar, the patterns for the emergence of the augment and the prefix are relatively convenient to predict. The convenience in the relative ease of the prediction of the appearance of the augment and the prefix is brought about by the fact that these nominal constituencies are delimited by the rigid nominal classification numbers and the somewhat rigid (or predictable) nominal stems. The automation of the isiZulu noun prefix in this context is programed using Python 3.8.5 in the backdrop of the Ubuntu operating system. The Tkinter library within Python is used for the creation of the General User Interface (GUI) for the program of the isiZulu noun prefixes. The code for the automatic production of the prefixes and concords is that of the GUI from Tkinter. Further, the GUI code from Tkinter overseers the intended work on the isiZulu monolingual GUIs.

This work seeks to contribute to the much needed work on the development of the elementary teaching and learning of isiZulu. For teaching and learning, this work is contextualised both in Human Language Technology and pedagogy, with extensive reference to formal language grammar. The program that is written for the automation of the isiZulu noun prefix functions as a software tool that is ancillary to teaching and learning for both students and teachers.

Keywords: isiZulu; augment; prefix; concord; noun classification; automation