

The purpose of this thesis was to create an automatic analyzer of phonetic changes in the historical development of English, namely between Old and Middle English. The analyzer gets an OE and ME form of a word at the input and produces a suggestion of an explanatory sequence of changes connecting these two forms as the output. As sound changes operate mainly on the spoken language, three main subtasks emerge: to create a grapheme-to-phoneme convertor for Old English, the same (although structurally more complicated) for Middle English and a core algorithm that searches for possible sequences that would explain the development of the word between its OE and ME spoken forms.

There is a certain regularity in the diachronic phonetic changes, and therefore these can be translated into a set of rules. A general framework is proposed and implemented that works with these rules in a certain formalized fashion that allows their integration within standard algorithms.

The form of the rules is largely adopted from regular expressions, with some alterations and additions, the most important being the possibility of using wildcards that are based on phonetic properties. A database of phoneme representations and phonetic properties is taken from Kirshenbaum's 1992 proposal for ASCII representation of IPA symbols.

In the case of the Old English pronunciation, the set of rules describes contextdependent variants of grapheme-to-phoneme relationships. These rules are taken in an established order and each rule is applied exactly once to rewrite the input word and pass it on to the next rule. The quality of the IPA output of this deterministic orthography-to-pronunciation translator is satisfactory, because Old English had a relatively good level of standardization and regularity of writing.

In the case of Middle English, the situation is more complex, because of a lower level of standardization and regularity and thus the system for translation to IPA has to be reused in a more complex manner. The resulting string does not describe one suggested pronunciation, but rather a whole set of possible pronunciations which are ranked according to their probable feasibility.