**CSE 654/484**

**NATURAL IMAGE PROCESSING**

**TURKISH MORPHOLOGY WORK**

Creating Words with Plural and Possessive Suffixes

ENES AYSU

1901042671

**Goal of the Homework**

In this homework two major suffixes of Turkish Language (plural and possessive suffixes) implemented obtaining finite state transducers.

While obtaining these finite state transducers, the OpenFST library was used for creating states, arcs and implementations.

**Finite State Transducer (FST)**

- FST can read only one letter at a time.

- Every step read letters adds previous letter.

- When the word finishes, the FST decides which plural suffix will be added to end of the word according to last vowel of the word.

taslak, çizgi, diyagram, beyaz içeren bir resim

Açıklama otomatik olarak oluşturuldu

**Examples**

For testing step 10 words were chosen.

(Kalem - Kitap - Okul - Aile - Tren - Kravat - Kiler - Duvar - Hayvan - Kolajen)

Outputs:

['k', 'a', 'l', 'e', 'm', 'l', 'e', 'r']

['k', 'i', 't', 'a', 'p', 'l', 'a', 'r']

['o', 'k', 'u', 'l', 'l', 'a', 'r']

['a', 'i', 'l', 'e', 'l', 'e', 'r']

['t', 'r', 'e', 'n', 'l', 'e', 'r']

['k', 'r', 'a', 'v', 'a', 't', 'l', 'a', 'r']

['k', 'i', 'l', 'e', 'r', 'l', 'e', 'r']

['d', 'u', 'v', 'a', 'r', 'l', 'a', 'r']

['h', 'a', 'y', 'v', 'a', 'n', 'l', 'a', 'r']

['k', 'o', 'l', 'a', 'j', 'e', 'n', 'l', 'e', 'r']

**Conclusion**

Turkish morphologic rules are systematic. In building new word suffixes come from according to the vowels or some special consonants. Thanks to this rules Finite State Transducers are greatly works for Turkish morphology works.