Progress with Turkish Grammar

Server Çimen

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Outline

Progress during summer school

Example codes

Sample noun inflection

Plan for further work

Progress

Allmost all noun morphology and

All N's at Lexicon is implemented.

Verb morphology improved.

Rules implemented

Vowel Harmony

Rounded / Unrounded u,ü,o,ö vs. ı,i,a,e

Front / Back e,i,ü,ö vs. a,ı,o,u

Consonant Harmony

If stem ends with f,s,t,k,ç,ş,h,p and first letter of suffix is one of the letters b,c,d,g then it turns into p,ç,t,k respectively

If stem ends with p,ç,t,k and suffix begins with a vowel then p,ç,t,k turns to b,c,d,ğ,g

Rules implemented

Previously:

```
harmony4 : Str -> Str -> Str -> Str =
  \base0,suffixC,suffixV -> ...
harmony2 : Str -> Str -> Str -> Str =
  \base0,suffixC,suffixV -> ...
```

- Difficult to handle exceptional cases
- Long compilation time

Currently:

```
addSuffix : (base : Str) -> Harmony -> Softness ->
  Suffix -> Str
```

- Not that generic

Progress and Example Code

Usually stem is enough to find all forms

regN : Str -> Noun ;

Exceptions:

Almost in all exceptional cases, it is enough to have two forms of noun, therefore I needed a Param type to indicate type of irregularity

Vowel Harmony

saat + (-ı) → saati

irregN_h : (saat, saat : Str) -> IrregTypeNoun -> Harmony -> Noun

Exceptions (contd.)

Consonant Harmony

- Keep unvoiced consonant
  - süt + (-ı) → sütü
- Double the last consonant
  - hak + (-ı) → hakkı
- Drop the last vowel
  - burun + (-ı) → burnu
- Irregular buffer consonant
  - su + (-ı) → suYu instead of suSu
- Again two forms are enough.
- IrregN: (burun, burn : Str) -> IrregTypeNoun -> Noun

Sample Noun

```
Case = Nom | Acc | Dat | Gen | Loc | Ablat |
   Abess Polarity ;

Agr = {n : Number ; p : Person} ;

Harmony = {h4 : Harmony4 ; h2 : Harmony2} ;

Noun = {
        s : Number => Case => Str;
        gen : Number => Agr => Str;
        h : Number => Harmony
} ;
```

Plan for further work

- Planning to complete verb morphology by the end of next week
- Import Zemberek's lexicon for nouns, adjectives and verbs
- Then proceed with syntax rules