Progress with Turkish Grammar

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Outline

Progress during summer school
Example codes
Sample noun inflection
Plan for further work
Progress

Almost 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:


code

```
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:


code

```
addSuffix : (base : Str) -> Harmony -> Softness -> 
  Suffix -> Str 
  Not that generic
```
Progress and Example Code

Usually stem is enough to find all forms

```haskell
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

```haskell
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