

## Final Project Report

My final project is to develop patterns on how a dictionary verb form word can be transformed into other verb forms in Japanese. The basic form is dictionary form, and the forms transformed from it are verb stem, te-form, potential form, causative passive form and extra modest form where extra modest form follows no rules. Therefore, extra modest form is a special case.

### Dictionary form

My dictionary form is stored in the file “dictionaryForm.swipl.” I picked 50 words while 20 are ru-verbs, 20 are u-verbs and 10 are irregular verbs. The function in dictionaryForm.swipl is called dictionary(A,B,C). A is the word in dictionary form except its last syllable. B is its last syllable, and C is its category of ru-verb, u-verb, or irregular verb. For instance a u-verb あう will be stored as  $A = [a]$ ,  $B = [u]$ , and  $C = [uverb]$ .

I decided not to write a function to find out if a word is a u-verb because all ru-verbs are ended by る, while some u-verb can also be ended by る. Moreover, there is no patterns.

### Verb Stem

it's in the verbStem.swipl, the function is verbStem(A,B) where A is the word in dictionary form except its last syllable. B is its last syllable.

The verb stem form of a verb is actually its masu-form without its ます at the end of the word. This form is very important because many grammar will use it such as ーたい or ーに行く.

The transformation from a dictionary verb form into a verb stem follows several rules:

- 1) When a word is a ru-verb, it simply drops the る, which is the last syllable of a ru-verb.
- 2) When a word is a u-verb, it has 4 rules:
  - a) When a u-verb is ended by a syllable う, it drops う and adds い at the end of the word
  - b) When a u-verb is ended by a syllable す, it changes す to し.
  - c) When a u-verb is ended by a syllable つ, it changes つ to ち.
  - d) For other u-verbs, it simply drops the う in last syllable and adds い to its last syllable
- 3) When a word is an irregular verb form, it has two rules:
  - a) When an irregular word is する or ended by する, the する will be changed to し
  - b) When an irregular word is くる or ended by くる, the くる will be changed to き.

## Te-Form

it's in the teForm.swipl, the function is teForm(A,B) where A is the word in dictionary form except its last syllable. B is its last syllable.

The te-form of a verb is a form that every verb ended by either て or で. The change from dictionary verb form to te-form follows following rules:

- 1) When a verb is a ru-verb, it changes る to て
- 2) When a verb is a u-verbs, it has 5 rules:
  - a) When the u-verb is ended by う, つ, る, it drops う, つ, る and adds って
  - b) When the u-verb is ended by む, ぶ, ぬ, it drops the last syllable and adds んで
  - c) When the u-verb is ended by く, it drops く, and adds いて
    - i. A special case for this rule is that when it comes to いく, it

should be いて rather than いいて

- d) when a u-verb is ended by ぐ, it drops ぐ and adds いで
  - e) when a u-verb is ended by す, it changes from す to して
- 3) When a verb is an irregular verb, it has two rules
- a) When an irregular word is する or ended by する, the する will be changed to して
  - b) When an irregular word is くる or ended by くる, the くる will be changed to きて.

## Potential Form

it's in the potential.swipl, the function is potential(A,B) where A is the word in dictionary form except its last syllable. B is its last syllable.

The potential verb form is a form to indicate the ability to do something. The change from a dictionary verb form to a potential verb form follows simple rule:

- 1) When a verb is a ru-verb, it drops the う in the last syllable and adds あれる
- 2) When a verb is a u-verb, it drops the う in the last syllable and adds える
- 3) When a verb is an irregular verb, it has two rules
  - a) When an irregular word is する or ended by する, the する will be changed to できる
  - b) When an irregular word is くる or ended by くる, the くる will be changed to こられる.

## Causative Passive Form

it's in the causativePassive.swipl, the function is causativePassive(A,B)

where A is the word in dictionary form except its last syllable. B is its last syllable.

Causative passive verb form is used to indicate someone is forced to do something. The change from a dictionary verb form to a causative passive verb form follows simple rule:

- 1) When a verb is a ru-verb, it drops る at the end and adds させられる
- 2) When a verb is a u-verb, there are 4 rules:
  - a) When the last syllable of a u-verb is う, it drops う and adds わされる
  - b) When the last syllable of a u-verb is つ, it drops つ and adds たされる
  - c) When the last syllable of a u-verb is す, it drops す and adds させられる
  - d) For other cases, it simply drops う in the last syllable and adds あされる
- 3) When a verb is an irregular verb, it has two rules
  - a) When an irregular word is する or ended by する, the する will be changed to させられる
  - b) When an irregular word is くる or ended by くる, the くる will be changed to こさせられる.

### **Extra Modest Form**

it's in the extraModest.swipl, the function is extraModest(A,B) where A is the word in dictionary form except its last syllable. B is its last syllable.

The extra modest verb form is used in 敬語 which is honorific expressions. This verb form does not follow any special rules, I wrote this to talk about special cases in verb form transformation. The chart to indicate the change from dictionary verb form to extra modest form is:

いる ▶ おります (おる)

行く and くる ▶ まいります (まいる)

言う ▶ もうします (もうす)

する ▶ いたします (いたす)

食べる and のむ ▶ いただきます (いただく)

ある ▶ ございます (ござる)

～ている ▶ ～ております (～ておる)

～です ▶ ～でございます (～でござる)

## Final Project File

This file is to summary all forms. It has two functions:

- 1) showDictionaryForm(A,B,C)
- 2) and runAll(A,B) to generate all verb forms except dictionary verb form

## removeLast File

this file contains a function called remove\_last(A,B) to remove the last element is list A and store it in list B.

## Conclusion

Although most verb form transformations in Japanese do follow strict rules, there are specials verb forms, like extra modest form, that follow no rules. Moreover, the rule of every form is different from each other. Thus, there is no general pattern in Japanese to change a verb from a dictionary form to other verb forms.