Japanese Context Free Grammar w/ Java Speech Grammar Format

Sample Use Case: Voice Command Natural Language Processing for Music Automation Artificial Intelligence

@author Jon Reyes © All Rights Reserved.

```
#JSGF V1.0 utf-8 en;
grammar music_play;

public <music_play> =
<filter> <action> <request>;
```

STRUCTURE

English is structured by subject verb object

> *I want to listen to the beatles (music object noun)*

> *english usage*

In contrast, Japanese is structured by subject object verb.

SAMPLE UTTERANCE

EXAMPLE 1

Japanese: □□□□□□□□□!

> □□□□ *Kenshi Yonezu* □□□ *play action verb* □□ *command verb : do this*

English: Play Kenshi Yonezu!

EXAMPLE 2

Japanese: □□□□□□□□! Japanese: □□□□□□□□□□□□

> □□□ *Gen Hoshino* □ *Koi (Love)* □ | □□ *listen action verb* □□□ | □□□□□ *desire verb : i want to do this*

English: I want to listen to Gen Hoshino's Koi!

```
<request> =
(can you | (□□ | □□□□□ | □□□□□) |
(i want | □□□ | □□ | □□□□ | □□□□□  | □□□□;
```

LIMITATIONS / SCALABILITY

The scalability limitations that could be improved upon specifically for the Japanese Language includes consideration for intermediate particles (subject: ga | □, possession/description: no | □) and different suffixes for different modes of speech (i.e. casual: □□□, polite / honorific: □□□ □□, □□□, □□□)

We will mostly assume casual in the use case context of the simplest voice commands for Google Assistant, Microsoft Cortana, Apple Siri, etc. in auto starting a music

player like Spotify.

```
<action> =
(put on | □□) | (play | □□□□ | (listen | □□ | □);

<filter> =
<artist> | <song> | <genre> | <album>;

<artist> =
beatles |
radio head |
cake |
pink floyd |
(□□□□ | Kenshi Yonezu) |
(□□□□□□ | Frederic) |
(□□□ | Gen Hoshino);

<song> =
confortably numb |
paranoid android |
let it be |
hey jude |
(□□□ | Lemon) |
(□□□□□ | oddloop) |
(□ | Koi);

<genre> =
(jazz | □□□) | (rock | □□□) | (pop | □□□);

<album> =
ummagumma |
the wall |
ok computer |
let it be |
hey jude |
(□□□ | Lemon) |
(□□□□□ | oddloop) |
(□ | Koi);
```

Transliteration

For Japanese, English songs are mostly taken as is, but could be converted to Katakana as transliteration of foreign words (i.e cake -> □□□ kekki). Other Japanese music examples were also added.