

First Draft of Design

ABC Grammar to be implemented:

abcFile ::= abcHeader abcBody

abcHeader ::= fieldNum title comment* optionalFields* key

fieldNum ::= "X:" [0-9]+ end

title ::= "T:" text end

key ::= "K:" baseNote ('#' | 'b')? ('m')? end

optionalFields ::= composer | noteLength | meter | tempo | voice | comment

composer ::= "C:" text end

noteLength ::= "L:" fraction end

meter ::= "M:" ("C" | "C|" | fraction) end

tempo ::= "Q:" [0-9]+ end

voice ::= "V:" text end

abcBody ::= line+

line ::= (element+ newLine) | voice | comment

element ::= noteRep | tuplet | barline | repeat | space

noteRep ::= note | chord

chord ::= "[" note+ "]"

note ::= noteType (noteMultiplier)?

noteType ::= pitch | rest

noteMultiplier ::= ([0-9]+)? ("/" [0-9]+)?

rest ::= "z"

pitch ::= (accidental)? baseNote (octave)?

accidental ::= "^" | ^^ | "_" | __ | "="

baseNote ::= "C" | "D" | "E" | "F" | "G" | "A" | "B" | "c" | "d" | "e" | "f" | "g" | "a" | "b"

octave ::= ""+ | ","+

tuplet ::= "(" [0-9] noteRep+

barline ::= "|" | "||" | "[|" | "|]" | ":|" | "|:"

repeat ::= "[" (1|2)

text ::= [.]

fraction ::= [0-9]+ "/" [0-9]+

newLine ::= "\n"

space ::= " " | "\t"

comment ::= "%" text newLine

end ::= newLine | comment

Datatypes, Classes and Interfaces:

Accidental:

```
/*      '^','=','_','^^','__' */  
Enum Type {  
    Sharp, Neutral, Flat, DoubleSharp, DoubleFlat}
```

Voice:

Attributes:

Identifier, ArrayList<musicSequences> musicSequences

Interface musicSequence // we will enforce each implementer to have a play function that will handle how each
// type is handled

Chord extends musicSequences:

Attributes:

ArrayList<Note> notes

Tuplet extends musicSequences:

Attributes:

ArrayList<Note> notes

Repeat extends musicSequences:

Attributes:

ArrayList<Note> notes, type

Interface Note extends musicSequences:

Attributes:

baseNote, octave, accidental, length

Pitch extends Note:

Attributes:

baseNote, octave, accidental, length

Rest extends Note:

Attributes:

baseNote=z, octave = null, accidental = null, length

Player:

Attributes:

musicSequence body, Header header

Header:

Attributes:

composer, title, Key key, meter, tempo, noteLength,

Key:

Attributes:

baseNote, accidental, minor