Impro-Visor Leadsheet Notation

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Introduction

A leadsheet is a musical composition represented by a chord progression and a melody line, usually on a single musical staff. Because of their compactness, leadsheets provide a common means of representing music for both professionals and amateurs, often in the form of large collections known as "fake books".

The Impro-Visor leadsheet notation provides a convenient way to create and communicate leadsheet content as a text file. In addition, it is used as the file notation for leadsheets for the forthcoming Impro-Visor tool, which will readily display the content in standard musical notation, as well as play the sheet and allow the user to create new melodies that go with the chord progression. The leadsheet can alternatively be entered through the point-and-click user interface of Impro-Visor and saved in the leadsheet notation.

Finally, because the notation is formal, it could be used as the medium of representation for other music notation and processing tools. However, we forewarn the reader that the purpose of the notation is more to communicate musical value and less to specify layout. For example, we view a half-note and two quarter notes tied together as equivalent in value and do not attempt to differentiate them.

A Preview

Below we show the first line of a leadsheet for the tune "Blues for Alice" by Charlie Parker.

Here is the corresponding part of a text file that produced this sheet:

```
F6 | Em7 A7 | Dm7 | Cm7 F7 |

f+4 c+8 a8 e+4 c+8 a8
```

```
d+8 e+8 cb8 d+8 db+8 bb8 g8 ab8

a4 f8 d8 g8 a8 f8 e8

eb8/3 g8/3 bb8/3 d+8 db+8 r8 f8 f8/3 g8/3 f8/3
```

This document explains how to create the notation, with hopes that the reader will begin using the notation for creating leadsheets and possibly using them in Improvisor. With a little practice, I believe that the user will enjoy creating sheets of his or her own. With a little more practice, one can get faster than a point-and-click interface will permit.

The first thing to notice, not unexpectedly, is there are two "tracks" in the leadsheet:

- a chord track
- a melody track

Above, the chord track is the first line, while the melody track is comprised of the remaining lines. However, it is not line position that determines which track it is, but rather the individual symbols. We could have also represented the same musical line in other ways, for example:

```
F6 f+4 c+8 a8 e+4 c+8 a8 |

Em7 d+8 e+8 cb8 d+8 A7 db+8 bb8 g8 ab8 |

Dm7 a4 f8 d8 g8 a8 f8 e8 |

Cm7 eb8/3 g8/3 bb8/3 d+8 db+8 F7 r8 f8 f8/3 g8/3 f8/3 |
```

As you can guess by now, strings that begin with upper-case letters go with the chord track, while strings that begin with lower-case letters go with the melody track. Also, the vertical bars go with the chord track, while slashes can be used in either track, depending on context. The position of line-breaks and interleaving of chords and melody is not significant. The notation is entirely free-form, with the only requirement being that there be whitespace of some kind separating each string (including vertical bars which must be separated as well). It is also entirely possible that one might wish to use only a chord track or only a melody track in the notation.

The Chord Track

The components of the chord track are:

- strings that begin with an upper-case letter (F6, Em7, C7/Bb, NC, etc.)
- vertical bars by themselves (|)
- slashes by themselves (/)

A **chord** symbol starts with one of the seven letters:

```
A B C D E F G
```

it may be followed by an accidental:

```
#  for sharp
```

```
b  for flat (yes, that's a letter "b")
```

 and further followed by a modifier, such as

```
M for major
```

```
m for minor
```

and some more numbers and letters. The full range of possibilities is up the user, and in Impro-Visor the user may specify the meaning of each chord symbol and even introduce new ones.

Finally, we allow "slash chords" which are often used in jazz and popular music, as a way of specifying inversions and chords with bass note that is not otherwise in the body of the chord. For example

```
C7/Bb
```

designates a C7 chord in the third inversion, with a Bb in the bass, whereas

```
C7/A
```

designates a C7 chord with an added A, which is in the bass. Another use of / described below is entirely separate from the above.

In the future, we plan to allow poly-chords, which will be designated by connecting the two chord components with a backslash, as in

```
D\C7
```

which designates a D triad extending a C7, in other words a C13#11 in a different notation. Polychords and slash chords are often notationally confused on printed sheet music, but we must make the distinction unequivocal for computer use.

Finally, the "no chord" symbol

```
NC
```

is used as if a chord symbol, to mean the absence of a chord.

A **stand-alone vertical bar** designates the end of a measure of the sheet. The chords are the strings between two vertical bars (unless in the first measure, where there is no bar on the left). The assumption is that chords are equally-spaced rhythmically, and start on the first beat of the measure. So in a measure with one chord in it that chord will be held the entire measure. If a measure has two chords in it, then each chord is held for half a measure, and so on, for four chords, eight chords, …

Obviously the actual duration of a chord depends on the meter (time signature) of the piece. At the moment, only 4/4 time is supported (others will be eventually), so putting three chords by themselves is not advised. Allowable are three chords with unequal spacing, which is designated by **slashes** standing alone. For example

```
| Dm7 G7 CM7 / |
```

would give twice the duration to the CM7 as the other chords get. Here I am using a bar at the start purely to establish context. Normally this bar would signify the end of the previous measure.

If a measure is empty or beings with a **slash**, the intention is that the last chord in the previous measure is held. For example,

```
| Dm7 G7 | /     |
```

and

```
| Dm7 G7 |       |
```

both have the same interpretation. Thus do not add extra bar lines gratuitously, for example at the beginning and ends of lines because you will be implying extra measures. On the other hand,

```
| Dm7 G7 | G7     |
```

while harmonically equivalent to the previous cases will have a different effect in playback: Each time a lettered chord string appears, the chord will be struck again. For my taste, striking the same chord many times in a row does not sound good for jazz, so I normally would notate a re-strike at most every other measure, as in

```
| G7 | C |    | C |
```

or equivalently

```
| G7 | C | / | C |
```

rather than

```
            | G7 | C | C | C |
```

On occasion, I might prefer the sparser sounding

```
            | G7 | C |    |    |
```

which will cause the C chord to be struck only once on playback. In any case, remember to keep the whitespace between each of the strings, don't run them together:

```
            | G7 | C | /| C |
```
invalid: no space between / and |

The Melody Track

The melody track pitch class items are identified by strings beginning with lower-case letters in the set:

```
        a b c d e f g
```

which, as with chords, may be followed by an accidental:

```
        #  for sharp
```

```
        b  for flat (yes, that's a letter "b")
```

These symbols represent pitches in the octave from middle-C up to the B above. To go more octaves higher, we add + for each octave, while to go more octaves below, we add – for each octave. Examples then are:

```
        a   b-   c+   db   f#   g#++  eb--
```

and so on.

A **rest** is indicated by the letter

```
        r
```

treated as if it were a pitch class. However, rests are never followed by octave symbols, only durations.

The durations of notes and rests in the melody track is an entirely different notation from the durations of chords in the chord track. In our notation, after stating the pitch of the note, there follows a numeric sequence that begins with one or more digits representing a duration which is mathematically proportional to the inverse of the value, but to which the musician can easily-relate.

```
        1        for a whole note
```

2	for a half note
4	for a quarter note
8	for an eighth note
16	for a sixteenth note
32	for a thirty-second note

The corresponding durations can be extended in various ways:

.	a dot extends the note value by half
..	a double dot extends the value by three-quarters

and so on. Alternatively, a numeral can be followed by /3 to indicate triplets. For example:

8/3	for one eighth note triplet value
16/3	for one sixteenth note triplet value

Finally, durations can be added together using the symbol +:

2+8	for a half note added to an eighth note
1+1+4	for two whole notes added to a quarter note

Some complete examples are:

a4	for a quarter note A above middle C
c+8	for an eighth note C above middle C
b-16	for a sixteenth note B below middle C
eb8.	for a dotted eight E-flat above middle C
f+2+16	a half plus a sixteenth f in the second octave above middle C

Impro-Visor allows the duration to be omitted, in which case an eighth-note duration is implied. However, relying on this convention is discouraged, because it is difficult to distinguish between an intended eighth note and an inadvertent omission.

Directives

When used with Impro-Visor, a leadsheet can be accompanied by additional directive information ("meta-data"), such as key signature, tempo, etc. These will be explained in a future version of this document. For the moment, examining actual files produced by Impro-Visor should suffice to give a feel for what is done. The Appendix below gives an example: the complete file for Blues for Alice. Items in parentheses are directives and not part of the chord or melody tracks proper.

Acknowledgment

I thank my colleagues Professor Belinda Thom, Stephen Jones, and Aaron Wolin for several fruitful discussions involving previous versions of this notation prior to its implementation. I am also grateful to them as part of the Impro-Visor team, the implementation of which provided a ready testing ground for debugging the notation.

I also was influenced by chord notation used by Bob Taylor in "The Art of Improvisation" and the similar "Vanilla Book" notation of Ralph Patt on the web and postings in Reid Kotler's justjazz.com, as well as by other song notations such as Guido.

Appendix A: File content for "Blues for Alice" as saved by Impro-Visor

```
(title Blues for Alice )
(composer Charlie Parker )
(meter 4)
(key -1)
(tempo 160.0)
(volume 100)
(breakpoint 54)
(part
    (type chords)
    (title Untitled Part )
    (instrument 0)
    (volume 65)
    (key 0)
    (meter 4)
    (swing 0.6666666666666666)
)
F6 | Em7 A7 | Dm7 | Cm7 F7 |
Bb7 | Bbm7 Eb7 | F6 | Abm7 Db7 |
Gm7 | C7 | Am7 D7 | Gm7 C7 |

(part
    (type melody)
    (title Head )
    (instrument 73)
    (volume 85)
    (key -1)
    (meter 4)
    (swing 0.6666666666666666)
)
 f+4 c+8 a8 e+4 c+8 a8

 d+8 e+8 cb8 d+8 db+8 bb8 g8 ab8

 a4 f8 d8 g8 a8 f8 e8

 eb8/3 g8/3 bb8/3 d+8 db+8 r8 f8 f8/3 g8/3 f8/3
```

```
c+4 bb8 f8 ab8 bb-8 r8 g8

eb+8 db+8 bb8 g8 c+8 f8 g8 a8+8+8

e8 c8 d4 r4

db+4 cb8 eb8 bb4 r8 ab8

g4/3 f+4/3 f+4/3 f+8 d+8 bb8 d8

a8 g8 c+8 bb8 eb+4 r8 c+8+8+8

a8 e8 g4 r8 d+8+8+8

bb8 d8 a4 r4
```

Appendix B: Chords names currently accepted by Impro-Visor

Only the C-rooted chords are shown for brevity.

C	C major
C+	C augmented
C+7	C augmented seven
C13	C thirteen
C13#11	C thirteen sharp eleven
C13#9	C thirteen sharp nine
C13b5	C thirteen flat five
C13b9	C thirteen flat nine
C13b9#11	C thirteen flat nine sharp eleven
C13sus	C thirteen sus
C13sus4	C thirteen sus four
C2	C two
C4	C four
C5	C five
C6	C six
C69	C six nine
C7	C seven
C7#11	C seven sharp eleven
C7#5	C seven sharp five
C7#5#9	C seven sharp five sharp nine
C7#5b9	C seven sharp five flat nine
C7#9	C seven sharp nine
C7+	C seven augmented
C7alt	C seven altered
C7alt	C seven sharp nine sharp five

C7aug	C seven augmented
C7b5	C seven flat five
C7b5b9	C seven flat five flat nine
C7b9	C seven flat nine
C7b9#11	C seven flat nine sharp eleven
C7b9b13	C seven flat nine flat thirteen
C7b9b13#11	C seven flat nine flat thirteen sharp eleven
C7b9sus4	C seven flat nine sus four
C7sus	C seven sus
C7sus4	C seven sus four
C7sus4b9	C seven sus four flat nine
C9	C nine
C9#11	C nine sharp eleven
C9#5	C nine sharp five
C9#5#11	C nine sharp five sharp eleven
C9+	C nine augmented
C9b5	C nine flat five
C9sus	C nine sus
C9sus4	C nine sus four
CM	C major
CM#5	C major sharp five
CM13	C major thirteen
CM13#11	C major thirteen sharp eleven
CM6	C major six
CM69	C major six nine
CM7	C major seven
CM7#11	C major seven sharp eleven
CM7#5	C major seven sharp five
CM7+	C major seven augmented
CM7add13	C major seven add 13
CM7b5	C major seven flat five
CM7b9	C major seven flat nine
CM9	C major nine
CM9#11	C major nine sharp eleven
CM9#5	C major nine sharp five
CM9b5	C major nine flat five
CMadd9	C major add nine
CMb5	C major flat five
CMsus2	C major sus two
CMsus4	C major sus four
Cadd2	C add two
Cadd9	C add nine

Caug	C augmented
Caug7	C augmented
Cbass	C bass
Cdim	C diminished
Cdim7	C diminished seven
Ch	C half-diminished
Cm	C minor
Cm#5	C minor sharp 5
Cm+	C minor sharp 5
Cm11	C minor eleven
Cm11b5	C minor eleven flat five
Cm13	C minor thirteen
Cm6	C minor six
Cm69	C minor six nine
Cm7	C minor seven
Cm7b5	C minor seven flat five
Cm9	C minor nine
Cm9b5	C minor nine flat five
CmM7	C minor major seven
CmM9	C minor major nine
Co	C diminished
Co7	C diminished seven
CoM7	C diminished major seven
Csus2	C sus two
Csus2	C sus two
Csus4	C sus four