

Impro-Visor

Jazz Improvisation Advisor

Tutorial

Last Revised: 5 June 2006

Currently 62 Steps

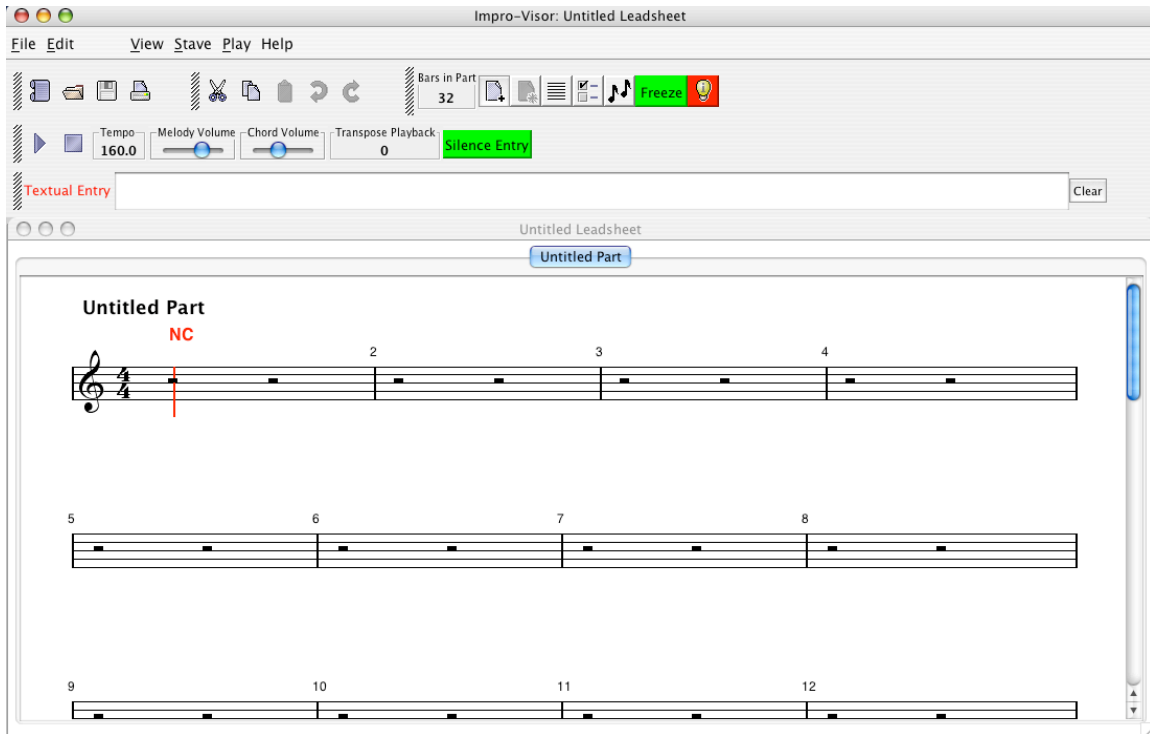
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This brief tutorial will take you through some of the basic editing features and options provided by Impro-Visor. If anything is unclear, please email to improvisor@cs.hmc.edu and we will try to correct it.

0. Assuming that Java 1.5 is already installed, open Impro-Visor by double-clicking the `improvisor.jar` file.
You should get a GUI (graphical user interface) view similar to the following:



At the top is the Menu Bar, with drop-down menus File, Edit, View, Stave, Play, and Help.

Below the Menu Bar is the Tool Bar, which consists of four separate tear-out segments (identified by the grips at the left) for File, Edit, Options, and Playback.

Below the Tool Bar is the Text Entry window, which can be used to enter chords or melody via the keyboard.

Some of the Tool Bar items may duplicate functions found in other menus.

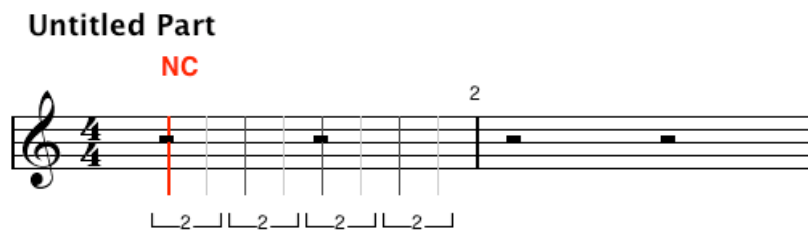
Below the text entry is the lead sheet display.

Any number of these windows can be open simultaneously, each with its own lead sheet. It is possible to cut and paste chords and melody from one window to the other.

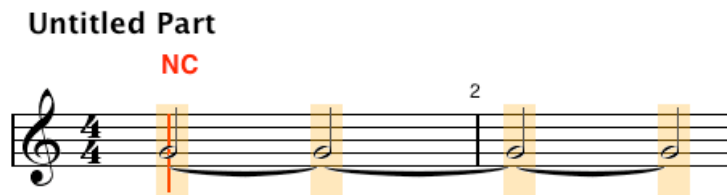
The pointing device (henceforth called the "mouse") can be used to select places for note and chord insertion. While our selection rules may be a little

different than those in other products you have used, once you learn them, it is relatively easy to enter an entire lead sheet in a short amount of time.

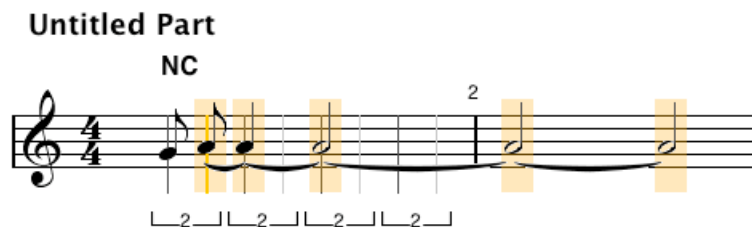
1. Move the mouse toward the first measure. You should notice some vertical *grid lines* appearing with brackets below. We call these “**slots**” and both notes and chords can be aligned to them. (There are currently 120 slots per beat, but only a few show at a time.) The slots and brackets will come and go depending on the mouse position. The first slot is highlighted at started up, and indicates the extent of the current selection.



2. Click somewhere on the red slot below the NC (no-chord) symbol. You should get some notes tied together. Impro-Visor considers these as a *single* long note, incidentally.



3. Shorten the first note by clicking on the slot to the immediate right of the first slot, which will add a new note.



4. To change the note you just added to a rest, press the **r** key.

Untitled Part
NC

5. If you don't like what you just did, you can undo it with the **z** key.

Untitled Part
NC

6. Now add more notes. Click on the third and fourth slots.

Untitled Part
NC

7. If you don't like the note you just clicked, click over it. The software ensures that there will never be more than one note on a given vertical slot.

Untitled Part
NC

8. Choose some longer note values by skipping over some slots, then clicking.

Untitled Part
NC

9. To transpose a note down a half-step, press the **d** key.

Untitled Part

NC



10. To transpose up a half-step, press the **e** key (twice in this case).

Untitled Part

NC



11. To toggle a note enharmonically (e.g. from a^\sharp to b^b), press the space bar.

Untitled Part

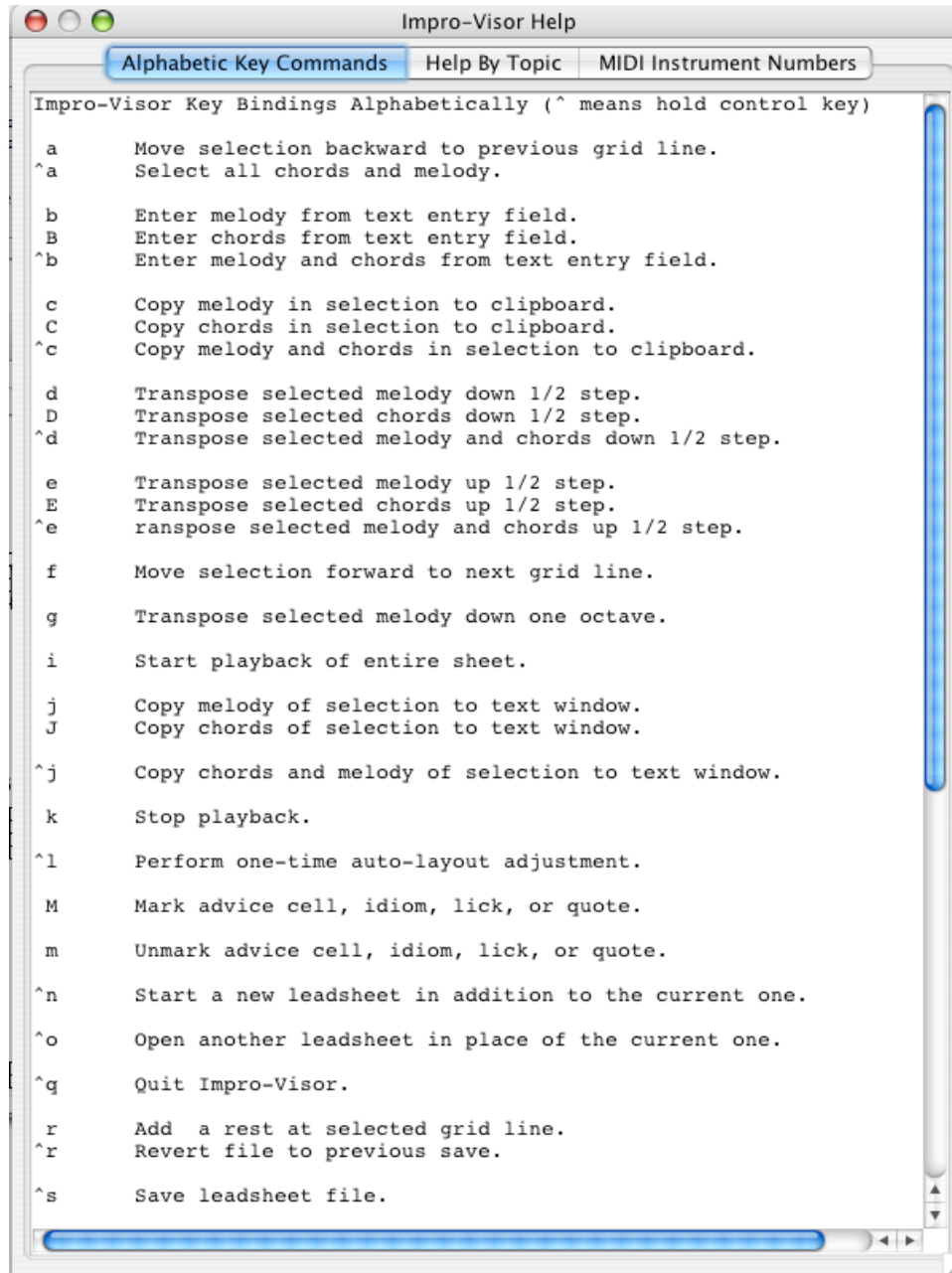
NC



12. By now you might think “How can I remember all of these key bindings?” Most keys are *accelerators* for commands that are available in one of the menus in the menu bar. Click the edit entry in the menu bar, to get a list of the editing commands and accelerators. Note that ^ stands for holding the control key, and ⌘ stands for holding the shift key. The grayed menu items are ones that are inapplicable in the current state.

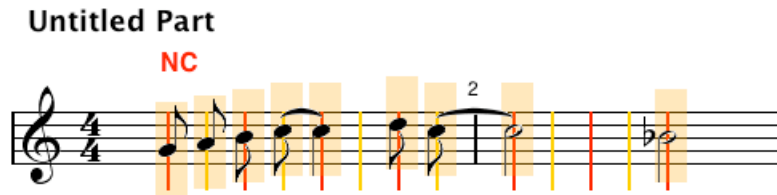
Edit	View	Stave	Play	Help
Select All				^A
Add Rest				R
Undo				Z
Redo				Y
Cut Melody				X
Cut Chords				⌘X
Cut Melody and Chords				^X
Copy Melody				C
Copy Chords				⌘C
Copy Melody and Chords				^C
Paste Melody				V
Paste Chords				⌘V
Paste Melody and Chords				^V
✓ Always Overwrite when Pasting				
Enter Melody				B
Enter Chords				⌘B
Enter Melody and Chords				^B
Transpose Melody Up Semitone				E
Transpose Chords Up Semitone				⌘E
Transpose Both Up Semitone				^E
Transpose Melody Down Semitone				D
Transpose Chords Down Semitone				⌘D
Transpose Both Down Semitone				^D
Transpose Melody Up Octave				T
Transpose Melody Down Octave				G
Reverse selected melody			Slash	
Invert selected melody			Back Slash	
Expand melody by 2				
Expand melody by 3				
Contract melody by 2				
Contract melody by 3				
Copy Melody to Text Window				J
Copy Chords to Text Window				⌘J
Copy Selection to Text Window				^J
Save Selection as Lick, Cell, Idiom, or Quote				U

13. Another source of help is through the Help menu. In contrast to the edit menu, the help menu is its own window, which will stay open so that you can view it while editing. There are different tabs for different organizations of the information.

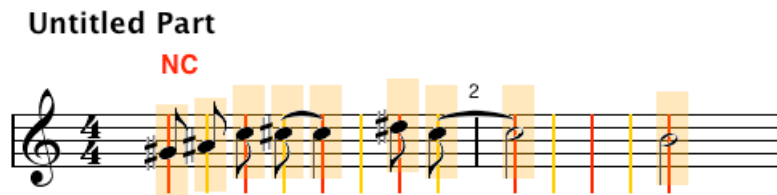


14. Here is an important operation you may need: selecting several notes at one time. For example, you might want to transpose some notes together. Beginning with one slot selected, hold the shift key and click on another slot. All of the slots between the two should also be highlighted. We call

these slots the **selection**. If you **shift-click outside** the selection, you will widen the selection to include the slot you clicked. (If there is no selection to start with, shift-clicking will just select the one slot.)



15. Many operations that can be performed on one note can also be performed on a selection. For example, pressing **e** transposes the entire selection up.



16. If you don't like the result, you can bring it back down by either pressing **d** (for down) or **z** (for undo).

17. If you **shift-click inside** a selection, the selection will revert to just the slot clicked.



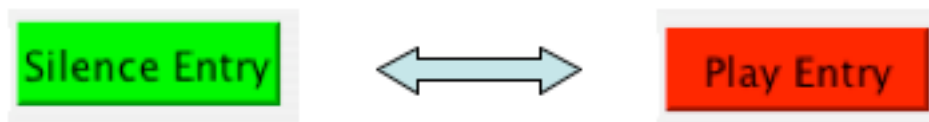
18. Sometimes we overlook that there is already a selection and shift-click some slot as if to select that slot only. What happens though is the existing selection gets extended instead of what we wanted. To get a single slot selection in this case, it is only necessary to click one more time, consistent with the rules we have already mentioned. For example, suppose that on the sheet shown above we want to select the very first slot, but have overlooked that the slot is already selected. What we will get is this:



19. If we leave the mouse in the same position and click again, we will get what we desired:



20. You've probably noticed that the selection gets played each time you change something. If you don't want to hear the results, toggle the **Silence Entry** button on the toolbar. It will turn into Play Entry, so that you can toggle it back when desired.



21. An entire selection can be moved laterally by dragging (moving the mouse while holding the button down) from one slot to another. Below we dragged the selection two slots to the right.

Untitled Part
NC

The image shows a musical staff in 4/4 time with a treble clef. The notes are: a whole rest, a quarter note G4, a quarter note A4, a quarter note B4, a quarter note C#5, a quarter note D5, a quarter note E5, a quarter note F#5, a quarter note G5, a quarter note A5, a quarter note B5, a quarter note C6, and a quarter note D6. A multi-measure rest of 2 measures is placed under the first two notes. A selection box, indicated by vertical red lines, encompasses the notes from the second C#5 to the second D6. This selection is shown being moved two slots to the right, with the new position indicated by vertical yellow lines. The notes under the new selection are the second C#5, second D5, second E5, and second F#5. The original notes under the selection are now faded. A bracket below the staff shows four groups of two measures, each labeled with a '2'.

22. To change from a multi-slot selection to a single slot inside, simply shift-click on the slot. Below we clicked on the second C#.
- (Recall that several notes tied together are treated as one note).

Untitled Part
NC

The image shows the same musical staff as in the previous example. The selection box now only encompasses the second C#5 note, which is highlighted in yellow. The other notes in the selection box are faded. The multi-measure rest and the bracket below the staff are still present.

23. To delete a note, select it, then press x. If the note was preceded by another note (rather than a rest), the value of the note deleted will be added to the preceding note, as shown.

Untitled Part
NC

The image shows the musical staff with the second C#5 note selected (highlighted in yellow). The note has been deleted, and its duration (a quarter note) has been added to the preceding note, the second D5. The second D5 is now a half note. The other notes and the multi-measure rest remain the same.

24. If you wanted a rest instead, press r, either instead of x or after x.

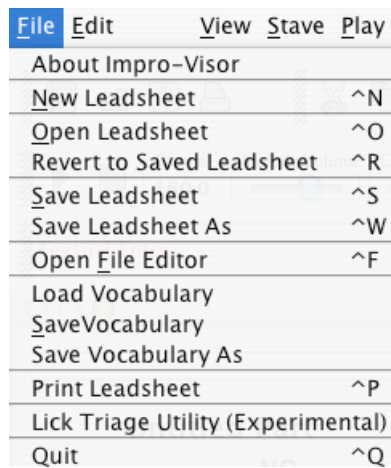
Untitled Part
NC

The image shows the musical staff with the second C#5 note selected (highlighted in yellow). The note has been replaced by a quarter rest. The other notes and the multi-measure rest remain the same.

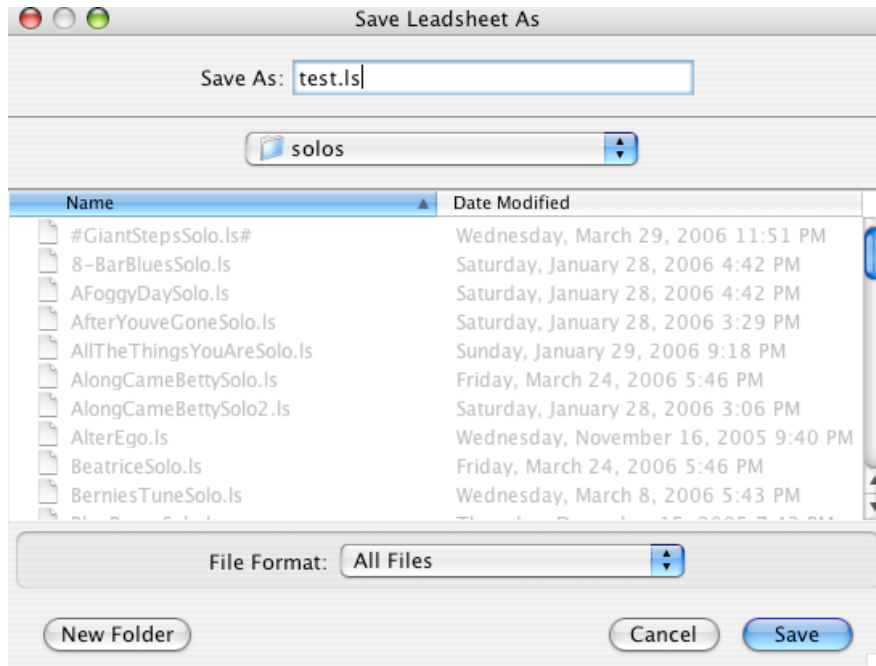
25. You can fill in other notes in place of the rests simply by clicking the corresponding slots.



26. To save your work, open the file menu and select **Save As**. You will be prompted for a directory and a file name.

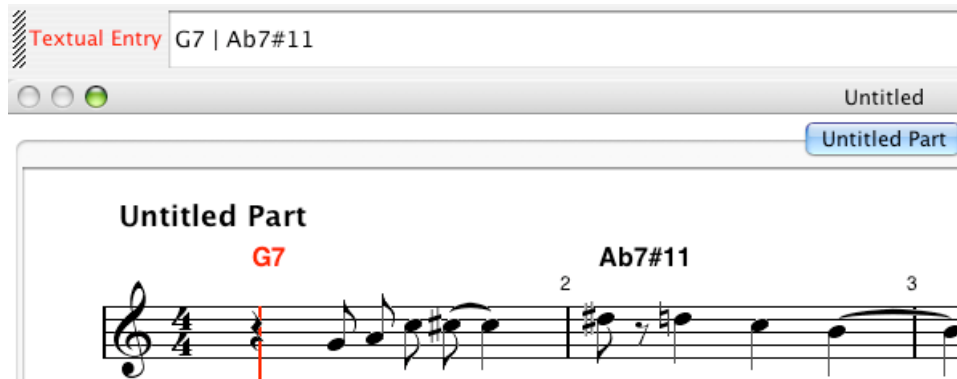


27. Files should be saved with the extension **.ls** (for leadsheet).



28. To save again, once you have named the file, use control-S.

29. One way to enter chords is to use the **textual entry** field. First select the slot where you want the chords to start. Then type the chord symbols freely. Use a vertical bar to indicate a new measure. Press return to enter the chords on the leadsheet.



30. If you don't like what you entered, press shift-Z to undo, or edit the textual entry window and press return again. Note that the slot selection does not advance when you enter chords, so you can keep adding more

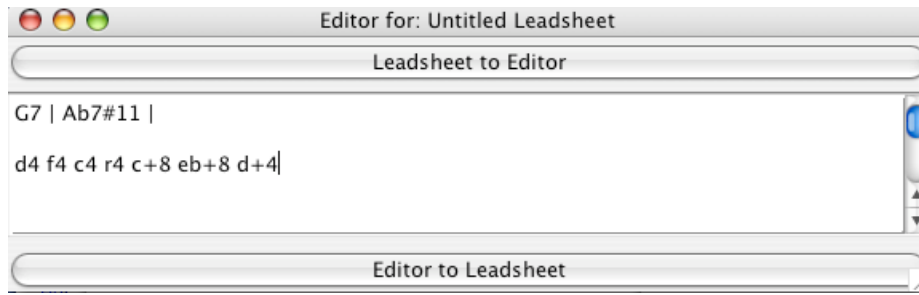
chords to the end of the text entry if you wish. The textual entry can also be edited selectively using the mouse to select characters.

31. The textual entry can also be used to enter notes in Impro-Visor's leadsheet notation described in a separate document. Here is a simple example. The notes and chords are essentially in two separate tracks that can be commingled. Notes do not observe bar slots. A note is the pitch class (a, b, ..., g, possibly followed by # or b, or r for rest), optional + to raise the octave or - to lower the octave, followed by a duration (4 for quarter note, 8 for eighth note, etc.).

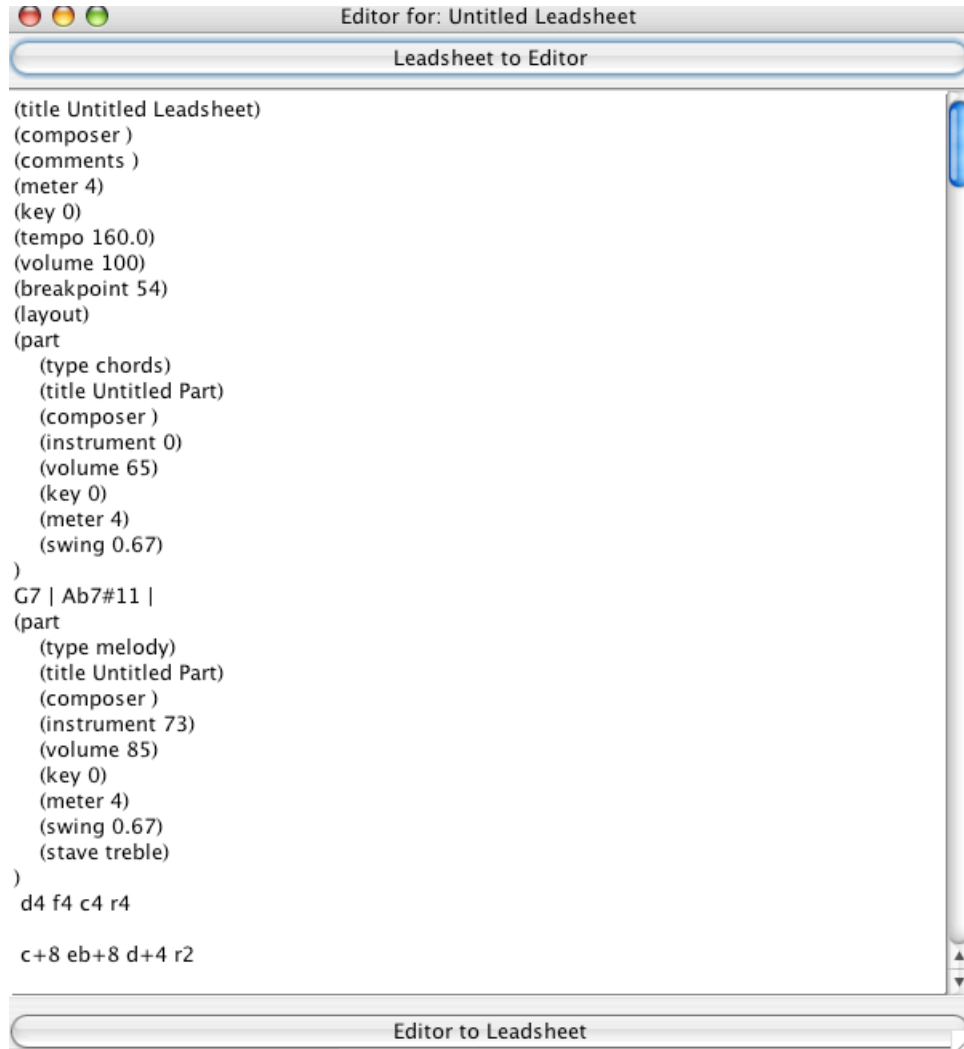
The screenshot shows a window titled "Textual Entry" with a text field containing the string: `G7 | Ab7#11 | d4 f4 c4 r4 c+8 eb+8 d+4`. Below the window is a musical score titled "Untitled Part" in 4/4 time. The score consists of two measures. The first measure has a red "G7" chord symbol above a quarter note on G4. The second measure has a red "Ab7#11" chord symbol above a quarter rest, followed by a quarter note on Ab4, a quarter note on Bb4, and a quarter note on C5. A finger number "2" is written above the Bb4 note.

32. For lengthy entries, I find it easier to edit a plain text file using my favorite text editor (Emacs), save it with extension `.ls`, then Open the file in Impro-Visor. When the file is re-saved, Impro-Visor will add various meta-data regarding key signature, formatting, etc.

33. Alternatively, Impro-Visor comes with its own text editor that you may use if you wish to edit with the mouse. This editor is opened using control-F or from the File Menu. Using it, you have a more space to lay out your chords and melody for ease in editing. You can transfer the contents to and from the lead sheet using the buttons indicated. When you save to a file, it saves from the lead sheet, not from this editor.



34. When you go from the lead sheet to the editor, meta-data will be added. This can be ignored for basic chord and melody editing. This is the format in which files are saved. Impro-Visor tries to lay out the text approximately 4-measures per line for chords and one measure per line for melody.



35. To set the key signature using the mouse, drag the mouse up or down in the area after the clef symbol. Drag upward for sharps and downward for flats.



36. Key signature and other information can also be set using the leadsheet preferences dialog, which is identified by the note symbols icon on the toolbar. Clicking this



opens the following dialog

The screenshot shows a 'Preferences' dialog box with two main sections: 'Leadsheet-Specific Preferences' and 'Part-Specific Preferences'. The 'Leadsheet-Specific Preferences' section includes fields for 'Leadsheet Title' (Untitled Leadsheet), 'Composer', 'Key Signature (+sharps, - flats):' (3), 'Tempo:' (160.0), 'Measures per Part:' (32), 'Automatic Stave Breakpoint Pitch:' (54), 'Chord Progression Volume:' (65), 'Chord Instrument MIDI Number:' (2), and 'Comments:'. The 'Part-Specific Preferences' section includes fields for 'Part Title:' (Untitled Part), 'Part Composer:', 'Part Volume:' (85), 'Swing Value:' (0.67), 'Melody Instrument MIDI Number:' (2), and 'Layout (bars per line:'. Below these is a 'Stave Type' section with radio buttons for 'auto', 'treble' (selected), 'bass', 'grand', and 'none'. At the bottom are 'Cancel' and 'OK' buttons.

A lead sheet consists of one or more "parts". The intention is that these parts are successive choruses in a solo, so they all have the same chord structure.

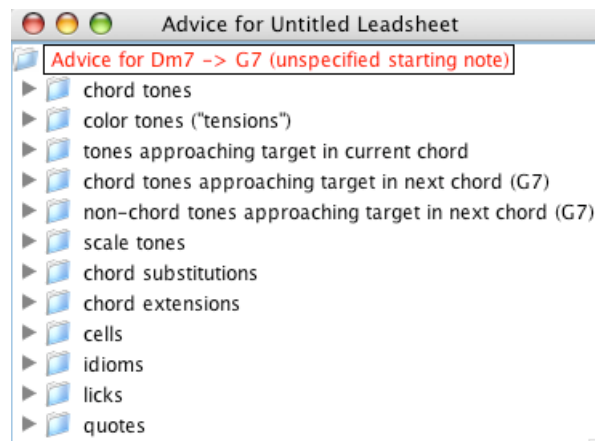
37. To get **advice** for melodies over a chord, a single slot must first be selected. *If multiple slots are selected, advice will intentionally not function.*



38. With a single slot selected, press the light bulb icon on the toolbar.

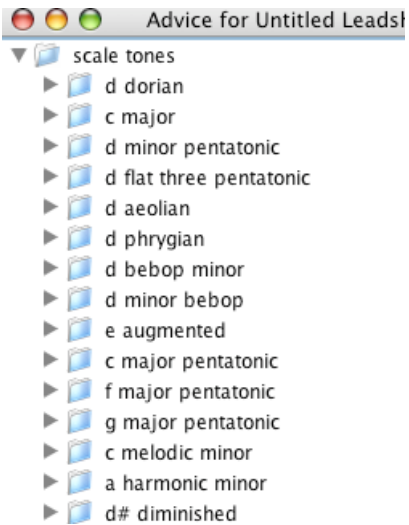


This will open the Advice menu for that slot. (**Note:** To get Advice, a *single* slot only must be selected. If there are multiple slots, nothing will happen.)

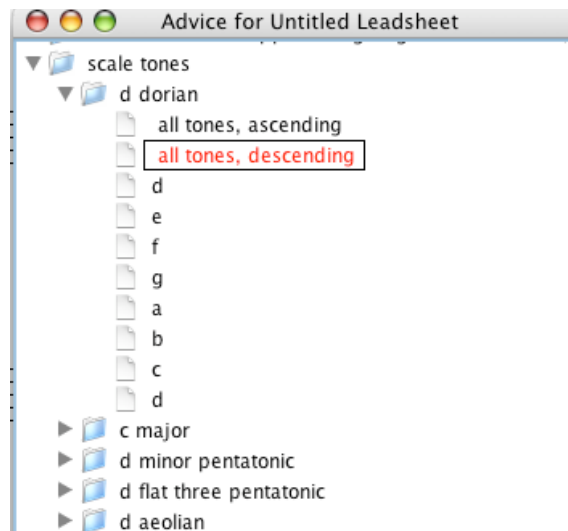


Any of the folders may have sub-folders that organize the material. Some of the folders may pertain only to the first chord, others to both chords.

39. Selecting an item that is not a folder will introduce melody notes to the lead sheet. For example, suppose we select the *scale tones* item. It lists several scales that can be used over a Dm7. (These are determined by the vocabulary file, and can be changed at the user's or instructor's discretion.)



40. Suppose we select d dorian, then "all tones descending".

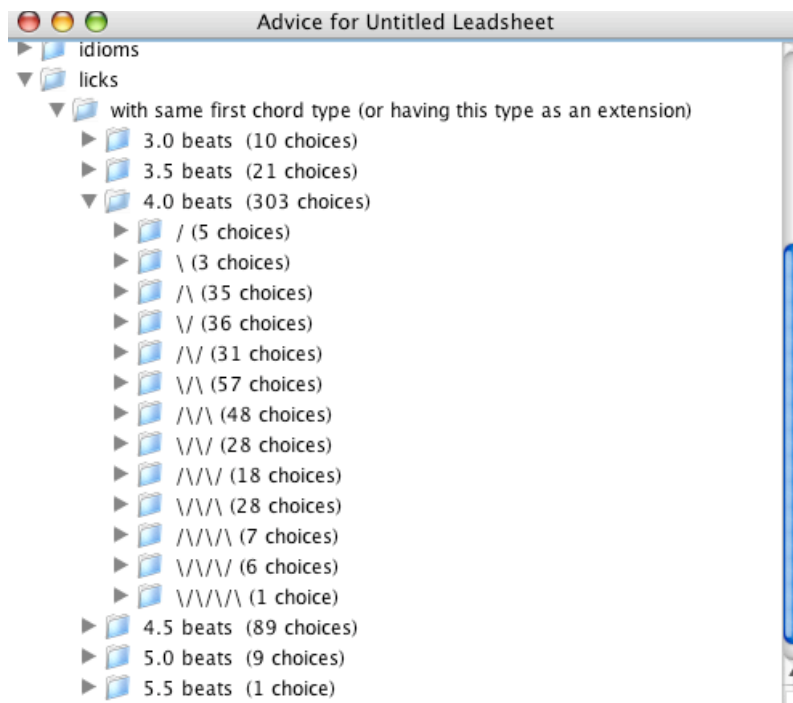


41. The descending scale will appear in the lead sheet and the notes will be selected.



42. At this point we can move on to focus on another slot, make a different choice from the menu, or press x to delete the selection. Let's assume the latter.

43. Again making sure that a single slot is selected, select the *licks* item from the Advice menu and open the sub-folder therein, then the folder showing 4.0 beats.



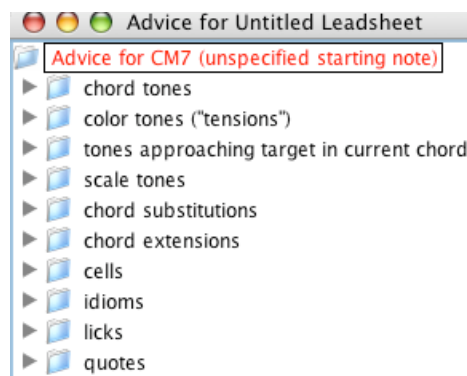
44. The slashes and back-slashes are used to indicate the *shape* of the lick, where shape is defined by the up and down sub-sequences. Let's choose the one marked \/, which stands for down-up. We get a menu of licks, any of which can be tried, until we find one we like. For example, in this particular instance the second lick looks like the following.



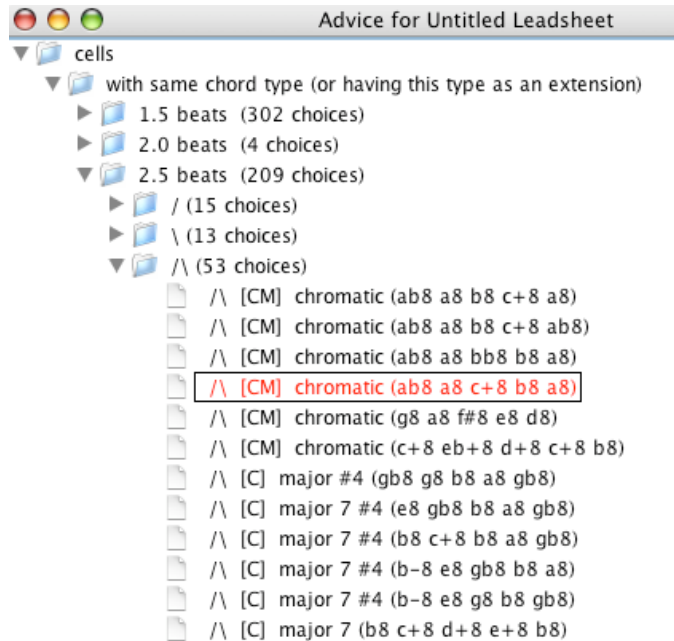
45. Once the notes of the lick have been entered on the lead sheet, we are totally free to modify them. For example, we could select the last two notes and reverse them by pressing / (for Reverse Selected Melody), giving the following.



46. Now select the first slot in measure 3, the CM7 (C major 7) chord. Notice that the Advice menu changes to indicate the new chord.



47. Open the **cells** (sequences over a single chord) folder, and select a cell with 2.5 beats, shape /\ (up-down).

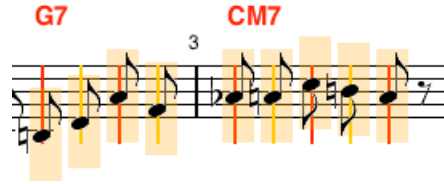


48. The overall result, after this cell has been entered, appears on the lead sheet as shown.

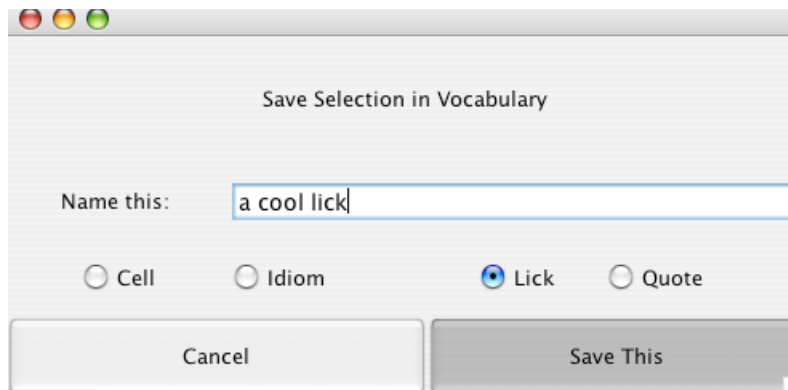


By continuing in this fashion, we can create a solo for any chord sequence. Of course, we do not have to use licks and cells at all; we can do everything with individual notes.

49. Suppose we have constructed a particularly cool sequence that we want to save as a unit for future reference. Select that sequence, then press **u**.



A dialog will open that appears something like the following, and we've typed in the name we wish to give it. Names need not be unique, and have no significance other than mnemonic or informative.



50. At this point, we can either save the sequence as a lick, or cancel. Or we can save it with any of the other attributes: cell, idiom, or quote. The following distinctions are made:

Cell: Associated with just the first chord

Idiom: Like a cell, but something well-known or clichéd

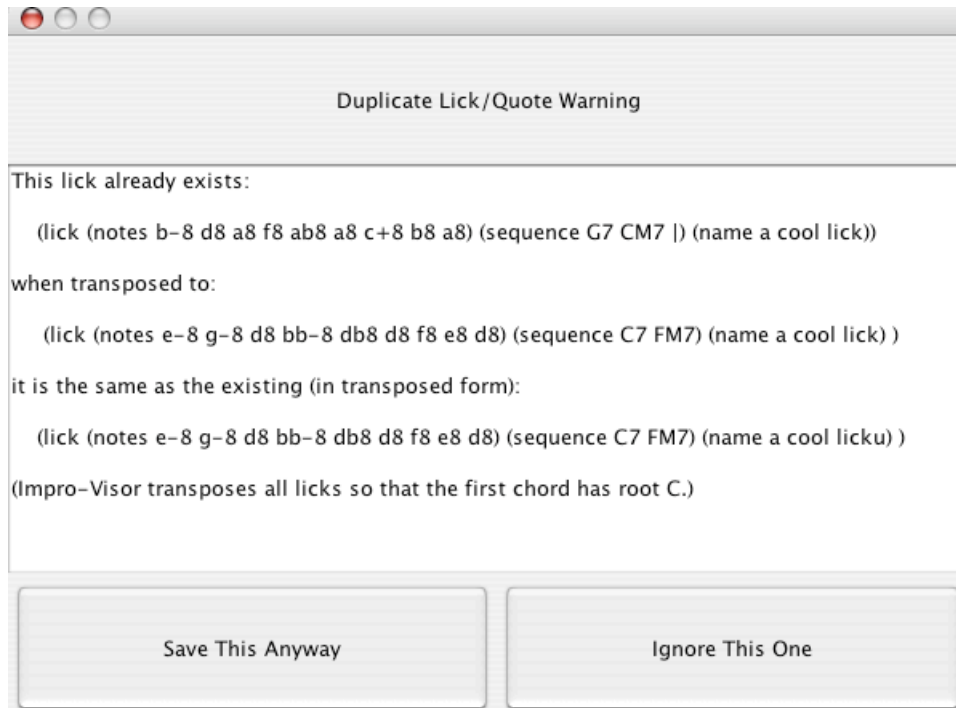
Lick: Associated with one or two chords

Quote: Like a lick, except from a known tune or solo

These categories are subjective and discretionary on the part of the user.

51. Suppose we try to save the lick again. The following dialog will appear. The reason we want to avoid saving licks more than once is that they take

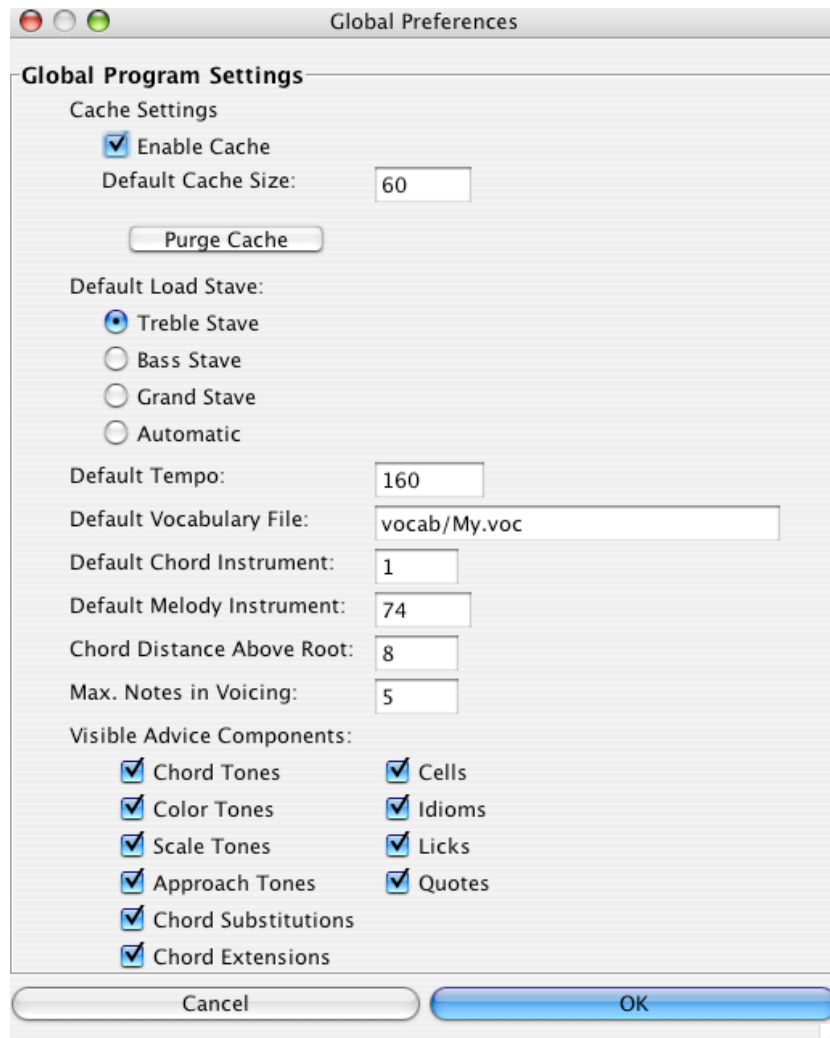
up space in the vocabulary, which can slow things down. So it is best to select ignore.



52. Once a lick has been saved, it becomes a part of the vocabulary as Advice and can be used in any key. Impro-Visor does the transposition for you. However, Impro-Visor caches the menu structures that it creates, so you might not see your lick immediately in the menu. The cache can be purged through the Global Preferences menu, which is opened by the icon with the check boxes.



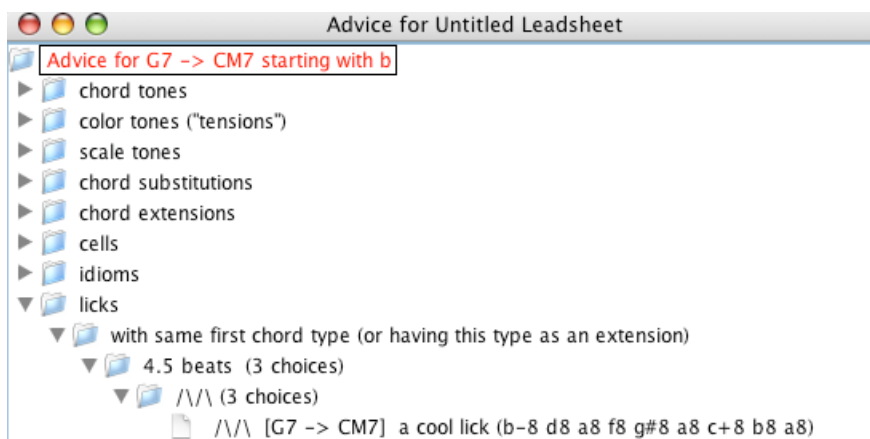
opens the dialog



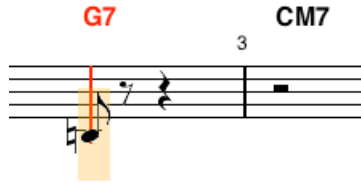
53.If we purge the cache and close the global preferences dialog, then open advice with a note b entered at the start of the G7 CM7 chord sequence:



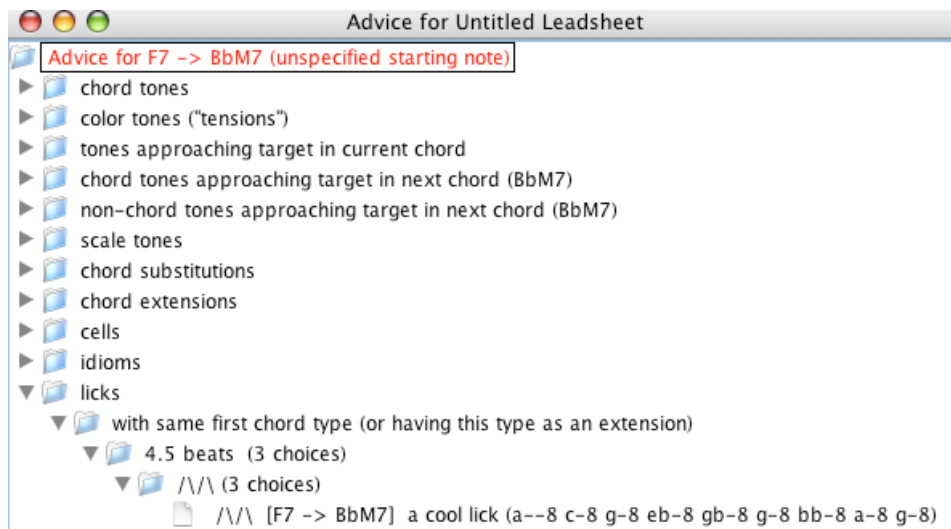
we will see our lick in all of its glory:



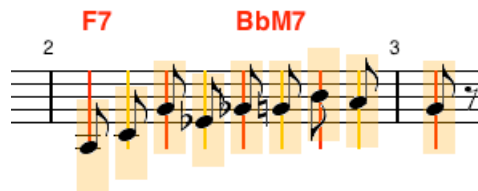
54. Selecting that lick will enter it on the sheet.



55. Suppose, on the other hand, that our chord sequence was a transposition of the original chord sequence, such as F7 BbM7. Then our lick would appear in transposed form in the menu

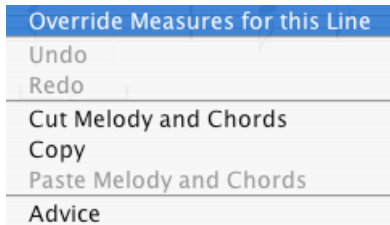


and will be entered that way on the lead sheet if we select it.

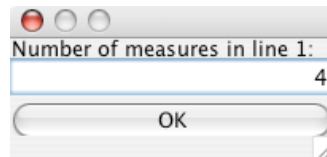


Note that it may be necessary to transpose it up or down to the proper octave, by pressing the **t** or **g** keys.

- 56.If you want to play the selection along with the chords, press return/enter. If you want play from the selection to the end of lead sheet, hold shift and press return/enter.
- 57.Impro-Visor attempts to layout the melody with reasonably uniform spacing, by controlling the number of measures on each staff.. If you wish to dictate the exact number of measures on a staff, control-click on the staff. The following menu should appear:



Select *Override Measures for this Line*, to get:



and set the number of measures you want for that staff line.

- 58.Impro-Visor may change the layout of a staff line subsequently, unless you **freeze** the layout. Click the green button marked Freeze to do this. To thaw the layout, click the same button, which has since turned red. When frozen, the layout information is saved in the leadsheet file as meta-data.



- 59.To play or stop play of the entire lead sheet, you may use the standard audio player triangle and box buttons, as shown here.



Playback constructs a MIDI sequence, then plays it. The tempo and volume controls are only effective before the sequence is constructed, not during playback.

60. To change the visible slot spacing, either drag the edge of the bracket under the staff, or type the number of slots you want to show (currently must be 1, 2, 3, 4, 5, 6, 8, or 9, but not 7). For example, use 4 if you want sixteenth notes (4 per beat), 3 if you want eighth-note triplets.
61. The playback of the entire lead sheet can be exported as a MIDI file, which can be played on a stand-alone MIDI player. Simply select from the file menu whether you want to export everything, just the chords, or just the melody.
62. Another possible reason for exporting is to import the file to another software tool, for purposes of other types of editing. If you do this, it is probably a good idea to set the swing value (in the lead sheet preferences dialog) to 0.5. Otherwise the notation will show the tune as rendered for playback, rather than as notated.

This concludes the Impro-Visor tutorial for the present. We plan to extend it to demonstrate other features in the near future. Do contact us if anything is unclear.