Arranging Music for Humans, Not Machines

Effective writing for real instruments and the warm, breathing musicians who play them

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Overview

- Music notation applications are great tools for arrangers, but machine-generated playback can be misleading. Computers can play back any poorly-notated rhythm, can play notes in extreme ranges, don't need to breathe, and may not play articulations the same as musicians.

- Live instrumentalists will do better if an arrangement is notated well, formatted well, leaves room to breathe, and makes effective use of instrument ranges.

- Live musicians will enjoy your arrangement more if you make the parts interesting and you consider the humans behind the parts.

Overview, continued

- We'll discuss
  - formatting and rhythmic notation guidelines for readability
  - articulations as played by humans vs. the computer
  - breathing room for wind players
  - some effective harmonizing strategies for horn sections
  - a conversational / communal approach to arranging
  - comfortable vs. extreme instrument ranges
- For good measure, we'll include
  - a few software-specific tips (Sibelius, Finale, Dorico)

Layout and rehearsal marks

- Help players understand the form. Mark the beginning of each section in your chart with a double bar or rehearsal mark, or both.

- Rehearsal marks save time during rehearsals and allow for communication on the band stand. Use bar numbers, [A] [B] [C], or [A] - [A17], etc. Pick a style, and use it.

- Automatically generated bar numbers are fine to supplement, not replace, rehearsal marks

Using multi-rests

- Use multi-rests, except when you include chord changes for an optional solo. It is easier to read a labeled multi-rest than several consecutive single bar rests.
- To help outline the form, split multi-rests between sections or phrases. This should happen automatically if you use rehearsal marks and/or double bars at the start of each section.

Multi-rests and rehearsal marks

- Good and bad examples of rehearsal marks, multi-rests and double bars

Ex. 1:
Good -
Phrases
are clear

Ex. 2:
Not good -
no phrase
indications

Notating rhythms for readability – the imaginary bar line

- Honor the imaginary bar line between beats 2 and 3.
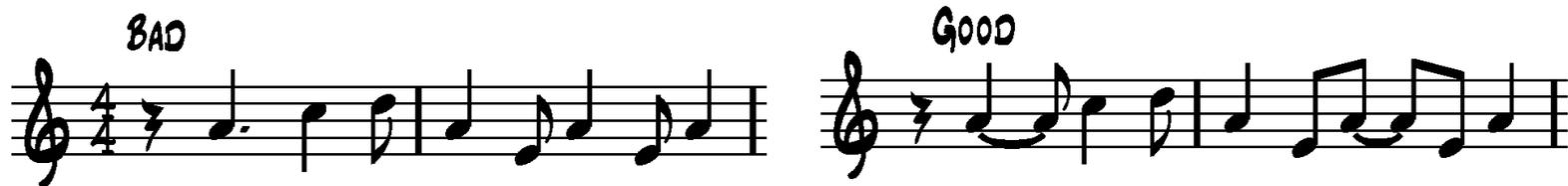
- But don't overdo it. It's OK for a half note or dotted half note to cross the imaginary bar line.
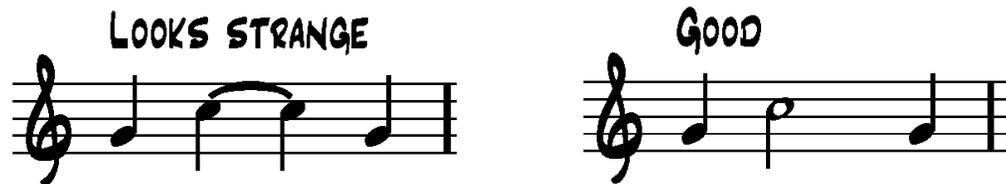
Readable rhythms – half note rule

- Do not start a half note or dotted half on an off-beat. A half note or dotted half note should only start on the beat.

Readable rhythms – sixteenth notes

- Group sixteenth notes to make it clear where each beat starts.

Readable rhythms – a suggestion for eighth note grouping

- Where there are 3 eighth notes in a row in 4/4 time, consider beaming only two of them, so they will not be misread as a triplet.

EXAMPLE 1. THIS NOTATION IS OK, BUT IT MIGHT BE MISREAD.
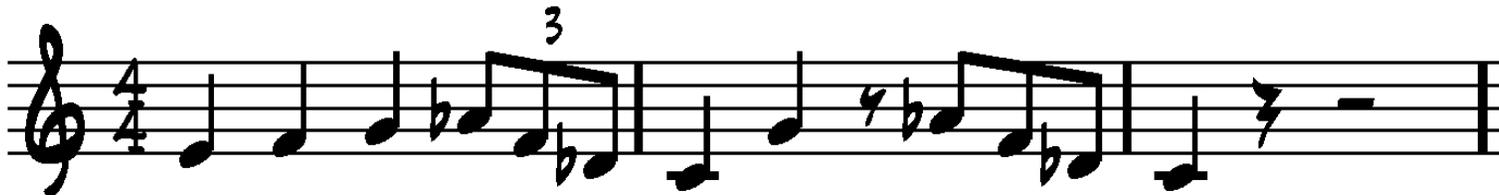
EXAMPLE 2. BETTER - LESS LIKELY TO BE MISREAD

Readable rhythms – 6/8 and 12/8

- In 6/8 or 12/8, each beat is usually a dotted quarter. Make it easy to see where each beat starts. (This also applies to 9/8 if it is divided 3+3+3.)

BAD - CONFUSING AND HARD TO READ

GOOD - EACH BEAT IS CLEAR

A suggestion for getting consistent note cut-offs

- Section players do not always cut off long notes consistently. A whole note or dotted half note may not be held for full value.

- Try tying a long note to an eighth note to emphasize when to cut off the note.

Instead of this...
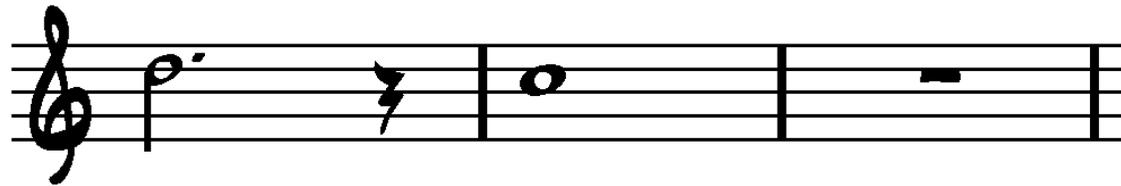
Try this instead - cut-offs on beat 4 and beat 1.
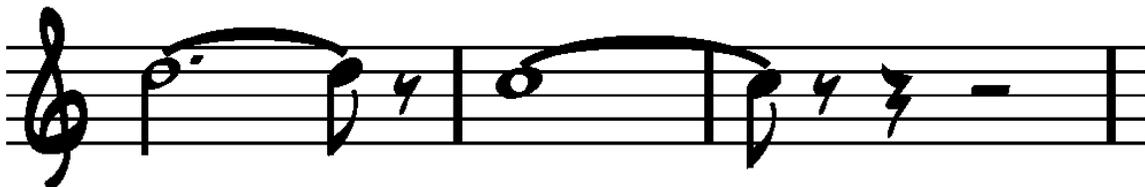
Rests – rules for placement

- In 4/4 time, follow these rules
  - Half rests should only start on beats 1 or 3
  - Quarter rests should only start on beats 1, 2, 3, 4
  - Eighth rests should only start on beats 1, 2, 3, 4 or on the "and" of 1, 2, 3 or 4.

Pick-up bar – make it clear

- For any chart with multiple parts (not just a lead sheet), if it starts with pick-up notes, use rests appropriately (not an initial whole rest).

Ex. 1: Beginning is clear for everyone

Ex. 2: Beginning is less clear for the horns

Sibelius hint – starting with pick-ups

- On Sibelius "New Score" dialog, first set time signature
- Then click "Start with bar of length"
- Fill in length of pick-ups
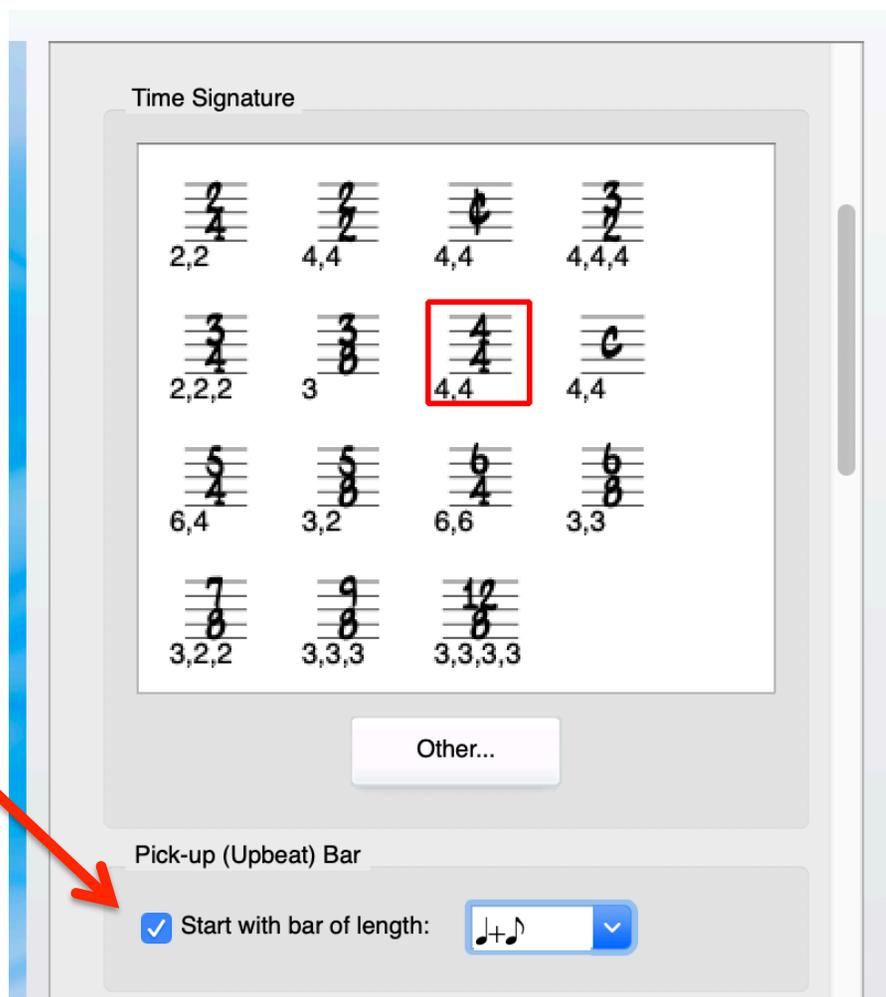
Dotted rests – use sparingly

- Old rule: Never put a dot on a rest. (It is still OK to follow the old rule.)
- New rule: Use dotted rests sparingly, only when they make it easier to read the chart.
- In 6/8 or 12/8 time, dotted quarter rests can be helpful.
- A dotted 8th rest on the beat before a 16th note can be helpful.
- Sibelius note: If you delete a dotted note, Sibelius automatically replaces it with a dotted rest – usually a bad choice. Select the dotted rest and press the period key to replace the dotted rest with a combination of two rests.

Articulations

- Write articulations to serve the human musicians playing your chart, not the computerized playback.
- Often, articulations in a computer-generated playback do not sound the same as live players. Avoid changing articulations to serve the computer playback.
- Computerized playback might put too much separation between 8th notes, unlike live jazz players reading a swing passage.
- Occasionally you might need a computer-generated MP3 file (for demonstration or practicing). If you must use non-standard articulations just for the playback, keep two separate scores – one for humans and one for the computer playback.

Marcato marks

- Marcato marks ("tents") are interpreted differently in jazz vs. classical music.
- In jazz, a note with a marcato mark is played short, but fatter than a staccato. It is usually slightly accented. Most computerized playback gets this wrong, using a classical interpretation.
- Use these marks the way humans play them
  - Avoid putting a staccato under a "tent" for just to force the desired computer playback.
  - Learn to ignore how your computer plays articulations
  - If you need to write something different to generate an MP3 file, make a separate copy of your score

How many slurs or phrase marks?
It depends…

- Good players who are familiar with the style will often interpret phrasing and articulation correctly (the way you want it), even if you include minimal and slurs or phrase markings.
  - This can be a teaching opportunity for your students
- In a lead sheet or other chart with chord changes over the melody, too many slurs or phrase markings can get in the way of the changes.
- For classical players and some students, more slurs (phrase marks) and articulations may give better results
  - Even so, players unfamiliar with the style will only approximate good jazz phrasing and articulation

Long or short quarter notes

- When sight-reading, even experienced players may differ in their interpretation of a quarter note within a passage. Is it short or long?
- To achieve a better first reading for a big band or other ensemble, for each quarter note that is not under a slur, try marking it with one of these
  - staccato – short
  - marcato mark (tent) – short but fatter than a staccato
  - tenuto mark – long

Room to breathe

- Wind players need room to breathe.
- Even though wind players can take a quick breath within an eighth rest or between staccato notes, over time this can be tiring.
- Include some half rests, whole rests or longer for wind players at least every 32 bars.
- Players of the baritone sax run out of air more quickly than smaller saxes.
- Flute players, particularly doublers, run out of air quicker than on sax or clarinet.

Wind players – resting their chops

- With a simple arrangement, e.g., a lead sheet open for solos, there is usually flexibility for wind players to find time to rest their chops.

- For larger ensembles with written sections, brass players, particularly trumpet players, need more time to rest their chops. A shout chorus or other section should be preceded and followed by several bars of rests for trumpet players, especially with high notes

- Woodwind players' chops do not usually get tired, but they also appreciate a break

Cascading lines

- A long active passage with lots of notes, played by one player may be difficult or tiring.
- Here is an example of a passage with many notes and little room to breathe.
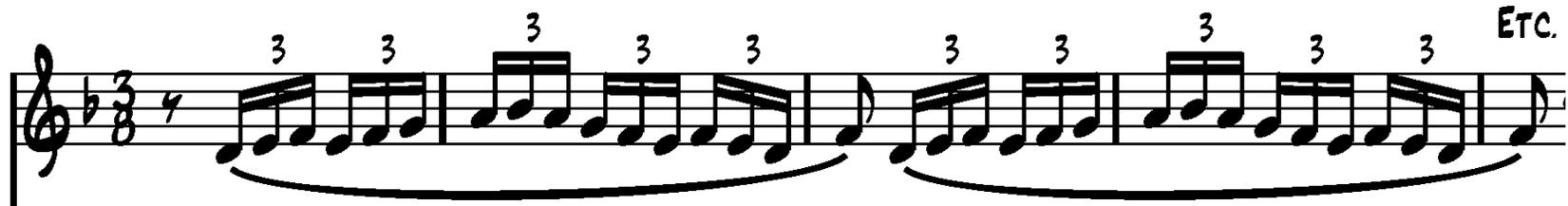
- If we split it between two sax players, there will be room to breathe, and time to "think" between phrases

Cascading lines – overlapping notes

- Here we split the line between two players.

- Overlapping the first and last notes makes it easier to sound like a continuous line. For wind players, the note at the end of a slurred phrase sounds different than a note in the middle of the phrase. *(Play the example)*

Bass parts

- Write specific notes and rhythms where you want a specific figure because it is important to the arrangement, or because you need to match other players

- If you want a walking bass line, use chord changes and slash marks. Don't write out a whole walking bass line. Good bass players can improvise a better walking line than you can write.

- If you need to generate an MP3 file with a walking bass line, write out a separate bass part with a walking bass line just for the computer's playback, but do not print this part for a live bass player.

Bass parts, continued

- In charts more detailed than a lead sheet, include dynamic markings in the bass part.

- For pieces where you want a specific bass pattern but with varied changes, try writing a few bars (showing chord changes), and after that just chord changes and slash marks with the word *simile*

- If you need to generate an MP3 file with a full bass part, write out a separate bass just for the computer's playback, but do not print this part for a live bass player.

- For small ensembles and pieces that are not too complex, bass players can use a lead sheet. Label each section, and show the form for the whole piece.

Example bass part

Walking bass – more material

- Bob Sinicrope has a series of books titled "Walking Bass Line Construction"
  - Part of the "Pathways Towards Greatness Series"
- Books are available at the Chuck Sher booth in the Exhibit Hall
- Also, see Bob's clinic tomorrow at 2 PM: "Bass-ics and Beyond" in Hanover A-B

Piano

- If the piano player is comping, there is no need for written out voicings and rhythms, except when necessary to match horn voicings

- In most cases, write chord symbols with slash marks, or chord symbols with rhythms notated with stemmed slash marks

- If you need to generate an MP3 file, use a copy of the score with a written-out piano part, but don't hand this to the piano player

- Exception: Write out exact voicings when necessary for a student or classically trained pianist who does not read chord changes. Include the chord symbols here anyway – it is a chance for the pianist to learn.

Example piano part

Drum parts

- It is usually not necessary to write out all the notes for snare, cymbal, bass drum, etc.. A few example measures should suffice. Write sparingly, showing important kicks and rhythms and enough information for the drummer to keep his or her place in the piece.
- Include instructions about overall feel (*e.g.*, "swing", "2-beat feel", "more active", etc.)
- Include dynamics
- For a "shout chorus", try writing horn cues above the staff
- For a long series of measures with repeat-measure signs or slash marks, number every 4 or 8 bars

Drum parts, continued

- Double bars, rehearsal marks, and/or line breaks between sections help the drummer keep his place.

- If you need an MP3 file with computer-generated drums, you might write every note for drums. If so, make this a separate drum part on a separate line in the score, just for the MP3 file. Do not print this part for the live drummer.

- For small ensembles and pieces that are not too complex, experienced drummers can just read a lead sheet. Label each section and make sure the whole form is represented.

Example drum part (big band chart)

Guitar parts

- Recommendations are similar to those for piano
- Write guitar parts with a treble clef. The guitar sounds an octave lower than the written notes
- In a big band or small ensemble, the guitar works well doubling a melody or countermelody line with horn players
- For students or inexperienced players: Beware of a piano player and guitarist comping at the same time and getting in each other's way. Encourage them to work out who comps where, or write the parts to indicate this.

Small ensemble writing suggestions

- For melody lines, try varying between unison and harmonized lines
- For melody line, choose unison vs. written solo line:
  - 2 or more instruments in unison or octaves sound fuller, louder
  - Solo line lets the player put more personality into the melody
- Move the melody around to different players.
- Varied textures – unison, harmony, melody + countermelody or guide tone

Digging deeper into jazz counterpoint

- Bob Pilkingon has written an excellent book on jazz counterpoint:
  - *Counterpoint in Jazz Arranging* published by Berklee Press/Hal Leonard.
  - See also Bob's Foundational Focus Events at https://www.jazzcomposerspresent.com

Harmonizing a melodic line with 3 or more horns

- If there is a rhythm section, it is not always necessary for the horns to make the chord changes obvious

- For horn parts with up-tempo, active lines, write smooth inner lines – easier for players to swing

- For a modern harmonic sound, use rich harmonies incorporating "primary dissonances" (PD) and other dissonances (explained in following slides)

- For a more traditional sound, use more triads (not necessarily the same triad as the chord changes, but ones that fit the chord scale)

Rich harmonies for a modern sound

- For richness of sound, pay attention to the intervals between the horns, not just what note each instrument is playing relative to the root of the chord
- Include some voicings that contain a "primary dissonance" (PD) which is minor 2nd, major 7th, or flat 9th between two of the horns. This gives the horns a nice shimmer or buzz. (Sounds OK from computer speakers, but richer and fuller with live horns.)
- Use flat 9ths only in dominant 7th flat 9 chords, or (in rare instances) in a major 7th chord with root on top and major 7th below. Avoid flat 9th intervals in other cases, unless you are going for a special effect or atonal sound
- Voicings that contain maj 2nd, min 7th or maj 9th interval between two horns have some richness (less than PD)
- Voicings in stacked 4ths sound good

Example – Shout chorus from "Riffin' at the Roosevelt"

- This piece is a contrafact of well-known standard. The QR code takes you to a condensed score.

- Feel free to download the parts and condensed score at http://www.jimrepa.com/riffin_at_the_roosevelt.html

Techniques to note in the shout chorus

- In horns at letter [D], there are lots of rich voicings with primary dissonances (minor 2nd, major 7th, or flat 9th), alternating with unison or octaves
  - At letter D, note the PD between top G (13th of Bb7) and bottom Ab (7th of Bb7). The two notes are a major 7th apart.
  - Note use of 13th over 7th in next measure (Eb7), and next measure after that (Ab7)
  - In measure D4, note PD between the F (7th of G7) and E (13th). The two notes are a minor 2nd apart.
- In mm. D13 – D15, notice the quote from another tune.
- In mm. D21 – D22, note "hybrid chords". This is the climax of the shout chorus.

Hybrid chords

- Example below is from bars D21 – D22 in our chart
- It uses hybrid chords - triads over dissonant bass notes
- They are effective with 3 voices & bass. Use sparingly
- The melody line would fit over straight-ahead changes, and hybrid chords are a reharmonization

More traditional harmonization

- For a more traditional sound, do not use primary dissonances, stacked 4ths, or hybrid chords

- Use mostly triadic harmony (triads may match the chord symbol, be upper structure triads, or passing chords)

- Play example from "Quintessential Blues," an original piece in 5/4 but with a New Orleans flavor

Example from "Quintessential Blues"

- More trad. sound - harmonize with mostly major & minor triads

A source of arranging ideas – think of the musicians as actors on a stage

- For some arrangements, particularly if a piece has warmth or strong emotional character, think of the various musicians as actors relating to each other on the stage
- It can be easier to write if you have in mind specific musicians on specific instruments
- Players can interact in a number of ways:
  - One player states an idea
  - Another player shows agreement by echoing the idea or joining in unison or harmony
  - Or, players could disagree – answer back in a distant key
  - Players could show consensus, everybody joins in
- Not useful for every piece, but keep it in mind if it seems right for the occasion

Musical example – "Como Hacemos"

- We'll play a short version of my 3-horn arrangement of "Como Hacemos"

- The original piece was written and recorded by the late Mili Bermejo, an excellent singer, composer, and educator at Berklee College.

- Mili's piece has a lot of warmth and humanity, and I tried to capture some of that in the instrumental arrangement

"Como Hacemos" - What to listen for

- Original vocal version of "Como Hacemos" had a rubato intro. Instrumental version is in strict time, but uses uneven, stretched phrases over an ostinato to create the illusion of rubato.
- Voices (actors)
  - Soprano sax makes first statement over ostinato
  - Alto sax agrees and joins in, an octave below
  - Bass and trombone agree – consonant harmony
  - Main melody is played over a Latin pulse. Various horn players interact, playing parts of the melody
  - After a short alto sax solo, recap of the melody
  - Coda section with ostinato in guitar
  - Original voice (soprano sax) makes final statement

Instrument ranges

- When writing for wind players, it is helpful to know more about the range than just the lowest or "highest" note
  - What parts of the instrument's range are powerful vs. weak?
  - Where does the instrument's sound get more intense, useful for the climax in a passage?
  - Where is the instrument warm and expressive vs. growly or shrill?
  - Where are there fingering or response issues that might make active rhythms too difficult for your players?
- Computerized playback will usually not reflect the characteristics of different parts of an instrument's range, even if the playback is based on samples from live instruments

Instrument range charts

- Follow the QR code to a set of detailed range charts.

- These are based on my experience, and opinions may differ.

- Of course, they are only general guidelines. Each musician's skill level, instrument, and mouthpiece effect brightness/darkness or smoothness/harshness of notes on the instrument.

http://www.jimrepa.com/instrument_range_chart.pdf   48

Portable 3-horn Arrangements

-For teachers who have combos with a different set of instruments each semester, consider writing "portable" 3-horn charts.

-The three horns could be
- 1st: Trumpet, alto sax, soprano sax, clarinet, flute, or violin
- 2nd: Alto sax, tenor sax, trombone
- 3rd: Tenor sax, baritone sax, trombone

-Here is a link to slides for my 2011 presentation on "portable arrangements" and for today's (2025) presentation.

http://www.jimrepa.com/educational_materials.html

Sibelius Tip 1

### Distinctive looking dynamics (*p, mf, f, etc.*)

- To create distinctive looking dynamic markings, e.g., *"mf"*
  - Select the note where you want the "mf"
  - Hold down command* key ⌘ and type E (for "expression")
  - Continue holding down ⌘ and type mf
    This will give you a special, italic dynamic mark
  - Optional: For a traditional look in "Inkpen 2" font, select the "mf" and in the Text menu, change the font to "Opus Text"

  * In windows use Control key instead of ⌘ key.

Sibelius Tip 2

## Avoiding problems with auto page breaks

- Sibelius' auto page break feature often puts page breaks in the wrong place or inserts them where they are not needed
- To turn off auto page breaks and do them manually

  1. Go to the Layout ribbon   3. Deselect "Use auto page breaks"

  2. Click on Auto Breaks   4. Click "Done"

      5. To create page break, select the bar line & click "Page Break"
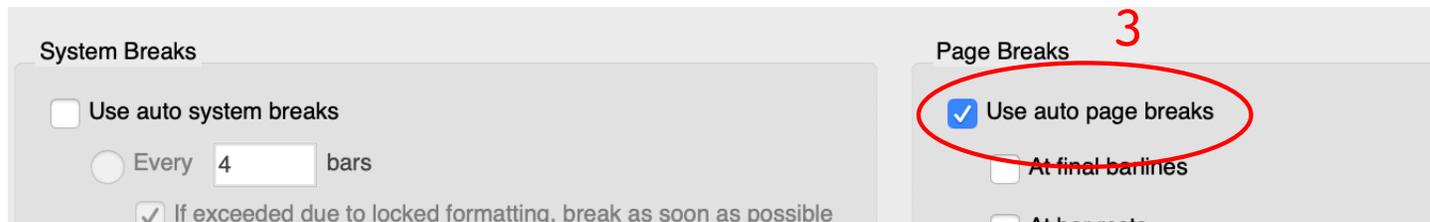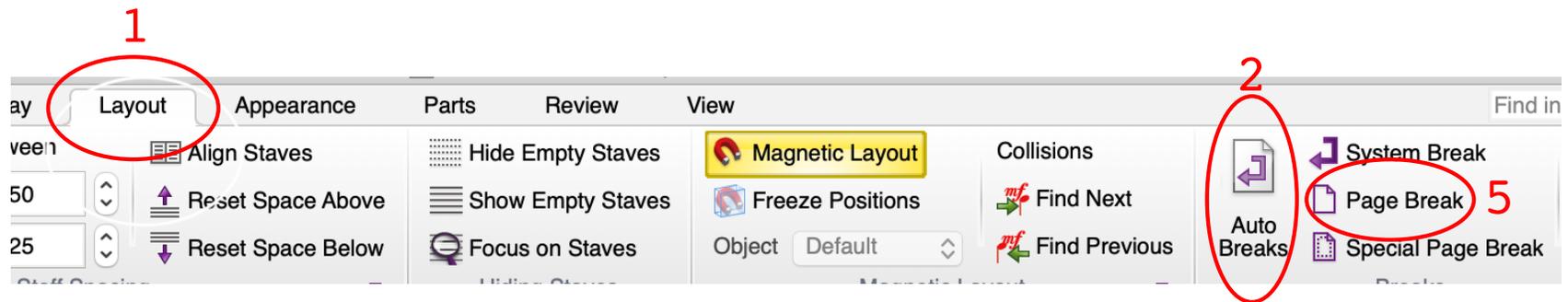
Sibelius Tip 3
Putting space between D.S. and start of Coda

- To put blank space (no staff lines) before Code do the following:

  1. Select bar line before Coda   2. From Layout ribbon, click "Split System"
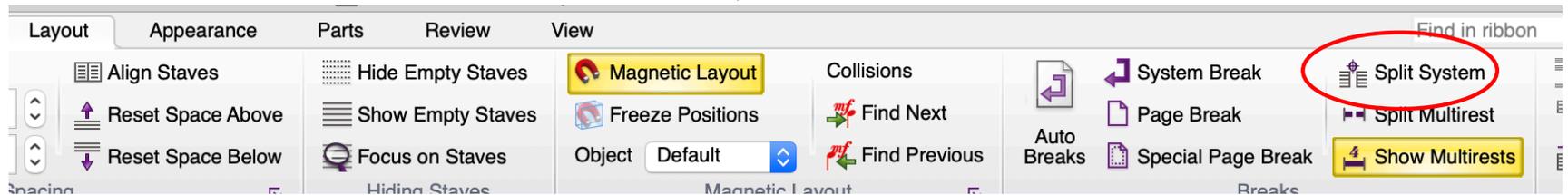
A Few Tips for Finale Users

- For Finale users, follow the link to some useful tips

http://www.jimrepa.com/finale_tips_atlanta2025.html

A few tips for Finale users converting to Dorico

- For users of Finale, follow the link to some useful Dorico tips

- Thank you to Arnold Friedman at Berklee College

http://www.jimrepa.com/DoricoTips2024.pdf