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Approaching a twelve-tone technique in big band composing

Bachelor's Programme in Music, Arrangement/Composition - Jazz

Supervisor: Kent Olofsson

Abstract

Title: Approaching a twelve-tone technique in big band composing

Author: Christian Waite

This report contains an analysis of the process of composing a contemporary twelve-tone piece for big band. I start off by constructing my tone material, presenting the different rows and how they relate to each other. The composition is then finished before finally arranging the piece for big band. I relate my process to the work of Arnold Schoenberg, who is known as the founder of twelve-tone music, aiming to find my own use and advantages of a similar method. The report seeks to respond to three questions: To what extent will there be capacity of creativity working with a twelve-tone technique? Can the method clarify or erase my own style of composing? How will the sounding result correlate to my vision of making music? My conclusion is that this process has evoked creativity and is now a useful addition to me as a composer.

Keywords: big band, contemporary composing, composition, serial music, twelve-tone technique

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Introduction

My previous interest in using a twelve-tone technique was often manifested in compositions with single rows linked to free chord progressions. These first attempts can be related to Bill Evans' T.T.T (Twelve Tone Tune), released in 1971, which contains one twelve-tone row and a free chord progression. I also made retrogrades and multiple rows for polyphony, but never took the concept all the way. In this piece, a twelve-tone system must be constantly present and all notes will be part of a row, with exception for a solo part.

Problem statements

To what extent will there be capacity of creativity working with a twelve-tone technique?
Can the method clarify or erase my own style of composing?
How will the sounding result correlate to my vision of making music?

Purpose

The purpose, beyond expanding my possibilities as a composer, is to search for my own artistic characteristics inside a strict, musical system. I want to explore creativity within boundaries to free myself from the more common situation of a staring, empty notepaper that figuratively does not really scream out in need of me. In the twelve-tone technique, I am given a problem to solve before even starting composing, which appeals to me. I am curious about the struggle between rules and musical motion, and to what extent the music will sound like me or just another twelve-tone piece. Perhaps the system is to imperative to make room for whatever ideas I am hoping to actualize.

Background

Schoenberg (1984, p. 216) says the method of composing with twelve tones grew out of a necessity. The system is a necessity to erase tonality which could not be fully achieved through free-tonal composing, where tonal structures could still be perceived (whether they purposely existed or not). Avoiding the creation of a tonic or a tonal centre allowed Schoenberg to break free from conventional music forms, where different parts demanded certain treatments. Although, as he carefully mentions, his music is rather non-tonal than atonal, an expression he finds "most unfortunate" (p. 210).

> Formerly the harmony had served not only as a source of beauty, but, more important, as a means of distinguishing the features of the form. For instance, only a consonance was considered suitable for an ending. Establishing functions demanded different successions of harmonies than roving functions; a bridge, a transition, demanded other successions than a codetta; harmonic variation could be executed intelligently and logically only with due consideration of the fundamental meaning of the harmonies. (Schoenberg, 1984, p. 217)

The liberation of tonality gave him the possibility of creating movement not limited by needs of dissonant or consonant treatment. Schoenberg (p. 226) finds the possibilities of evolving the formal elements of music out of a basic set to be unlimited. Since there is no tonal centre, there is no need to move towards or away from it.

> At the root of all this is the unconscious urge to try out the new resources independently, to wrest from them possibilities of constructing forms, to produce with them alone all the effects of a clear style, of a compact, lucid and comprehensive presentation of the musical idea. (p. 207)

Schoenberg's *Wind Quintet* is one of his earliest pieces working with his twelve-tone technique. It is written for flute, oboe, clarinet, horn and bassoon, consisting of four movements and has an estimated duration of 40 minutes. This piece is especially interesting to study since Schoenberg himself has given a detailed analysis of the scores.

Method

The method used in this report to approach a twelve-tone technique is composing a finished piece and the work will be presented as an analysis of every step of the process, through a journal I kept from start to finish. In this way, I can state what choices I made and how they affect the results. I will briefly present Schoenberg's method and goals with using his technique, which I studied before designing my own version.

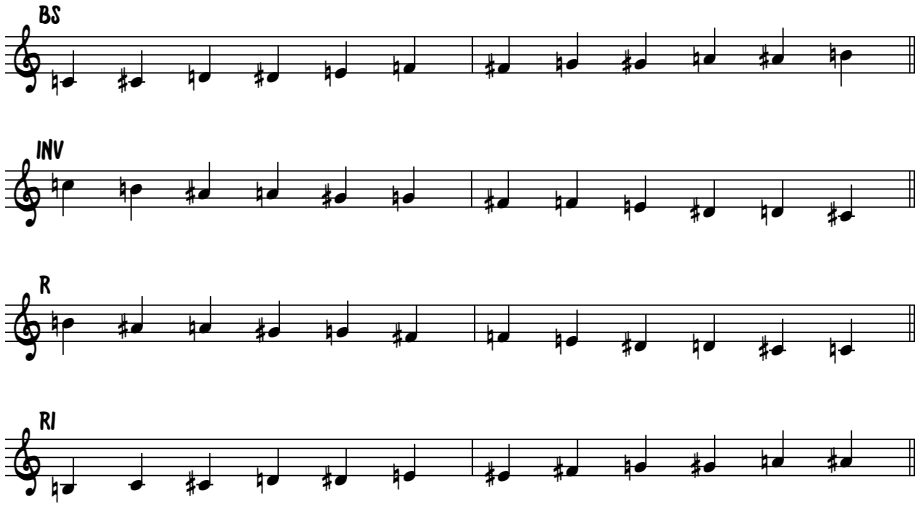
Schoenberg's twelve-tone technique

Schoenberg starts off with a basic set (BS) and all the twelve notes of an octave is used once. The set is to be seen as a motive which is given an inversion (INV), retrograde (R) and an inversion of the retrograde (RI).

> "The use of more than one set was excluded because in every following set one or more tones would have been repeated too soon. Again there would arise the danger of interpreting the repeated tone as a tonic." (Schoenberg, 1984 p. 219-220)

In the simplest case, a basic set and its derivatives, the inversion, the retrograde and the retrograde inversion, given rhythm and phrasing becomes the theme. A piece usually begins with the basic set and the mirror forms are applied later (p. 227). The basic four forms can have eleven transpositions each, leaving us with the theoretical possibility of maximum 44 sets.

Let's look at an example where 44 individual sets cannot be achieved, and why:



First, we have our basic set (BS), then the inversion (INV), retrograde (R) and an inversion of the retrograde (RI). As you can see the basic set matches the retrograde inversion once transposed a half step down, and the inversion matches the retrograde once transposed half step down. In this sense, a basic set can be valued for its possibilities to create individual sets of derivatives. However, Schoenberg doesn't mention any need for 44 sets. He mainly uses transpositions a third or fifth from the basic forms, and all sets do not have to be transposed.

The reason for using mirror forms instead of just creating multiple, independent sets beyond the basic set is that "in every following set one or more tones would have been repeated too soon" (p. 219).

The next example is from Schoenberg's *Wind Quintet*, Op. 26, written in 1923-24. Here we can see some transpositions being used as the inversions appears in the octave and fifth.

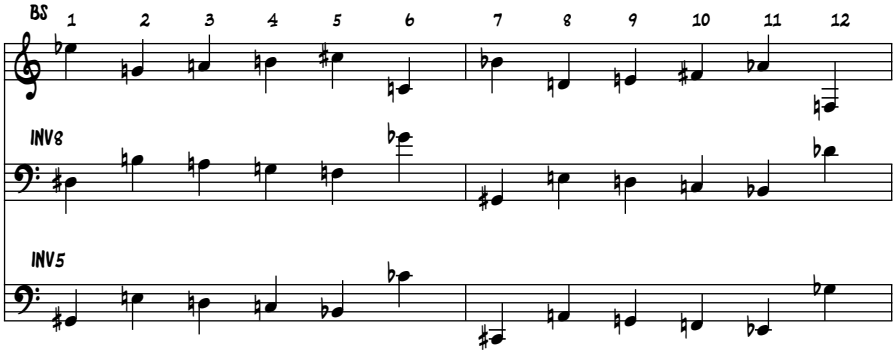


Fig 2: Schoenberg, 1984 p. 227.

The *Wind Quintet* also lets us know that once a note is activated, it may be repeated. In the following example, from the fourth movement, a repeated note even overlaps the inversions as the seventh note of INV8 keeps going and becomes the first of INV5.

Two voices share the same inversion and the set may be divided between them. One voice is repeating a note while the other moves forward in the set. Schoenberg also allows the sets to change octave.

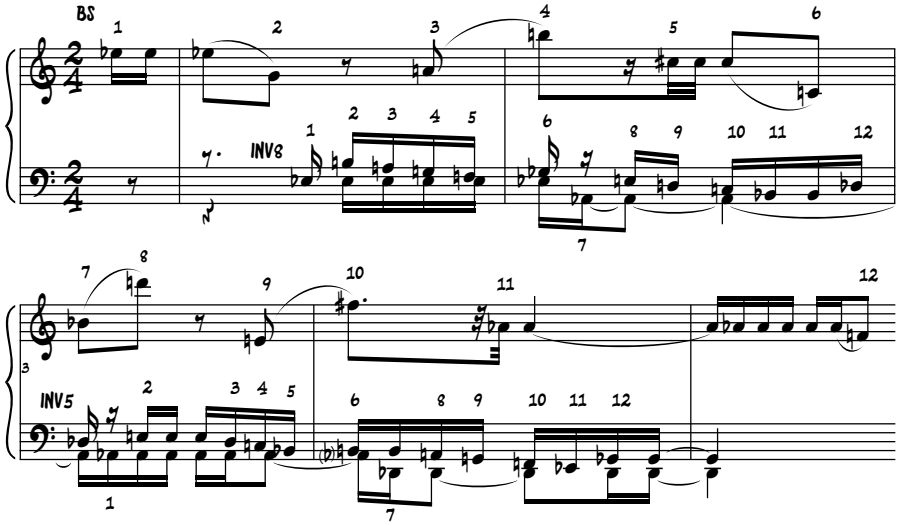


Fig 3: Schoenberg, 1925. Measures 1-5 of the fourth movement.

A set does not have to start with the first note. In the opening bars of the Wind quintet, Schoenberg only uses the basic set and avoids doubling notes by starting one voice from the seventh note. Schoenberg says, "to double is to emphasize, and an emphasized tone could be interpreted as a root, or even a tonic" (p. 219).

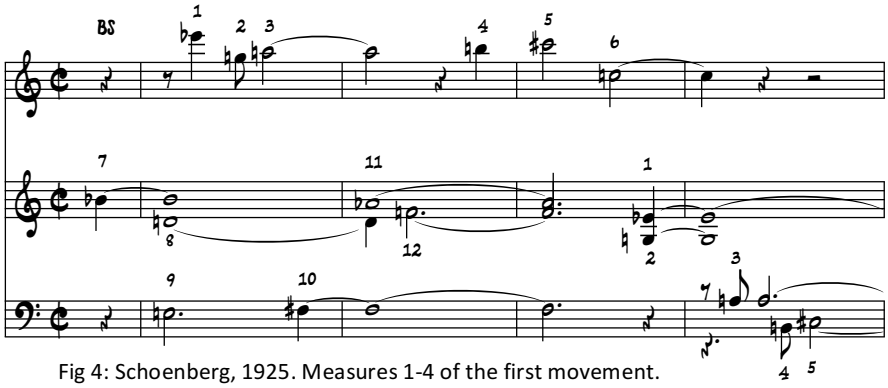
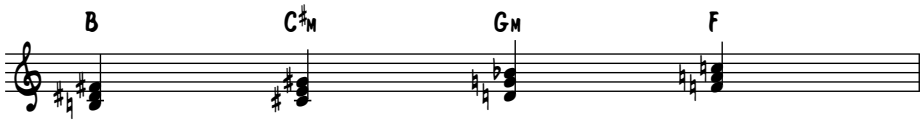


Fig 4: Schoenberg, 1925. Measures 1-4 of the first movement.

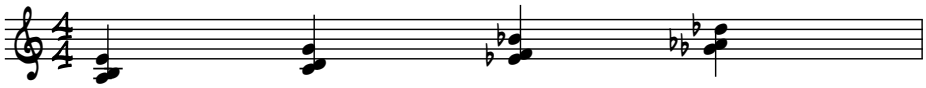
My twelve-tone technique

I want to work beyond conventional tonality and harmony, but unlike Schoenberg I do not feel the need of erasing it. The use of repeated motives and ideas will work as a substitute for a tonic or tonality. The process of creating my tone material starts off with the idea of presenting a twelve-tone system divided into groups. At first I made triads which later could be used over different bass notes to create different chords, but the sound felt too tonal and the idea was discarded.

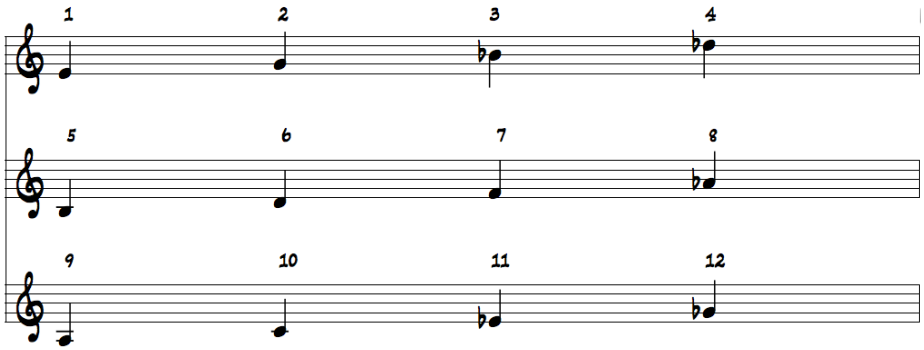
In this report, the letter M stands for minor when used in chords.



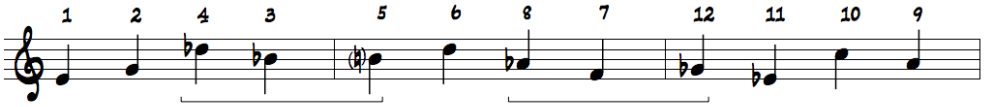
Instead of triads, I choose to use quartal triads. The only way to fit this forth voicings into a twelve-tone system is by putting them a minor third from each other. This is my basic set.



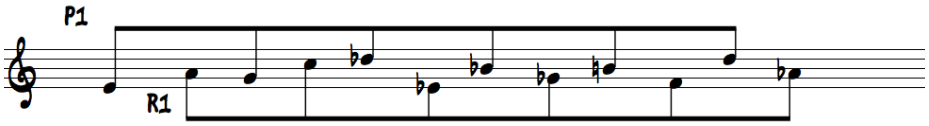
When I make the BS into this row, the diminished structure is very prominent.



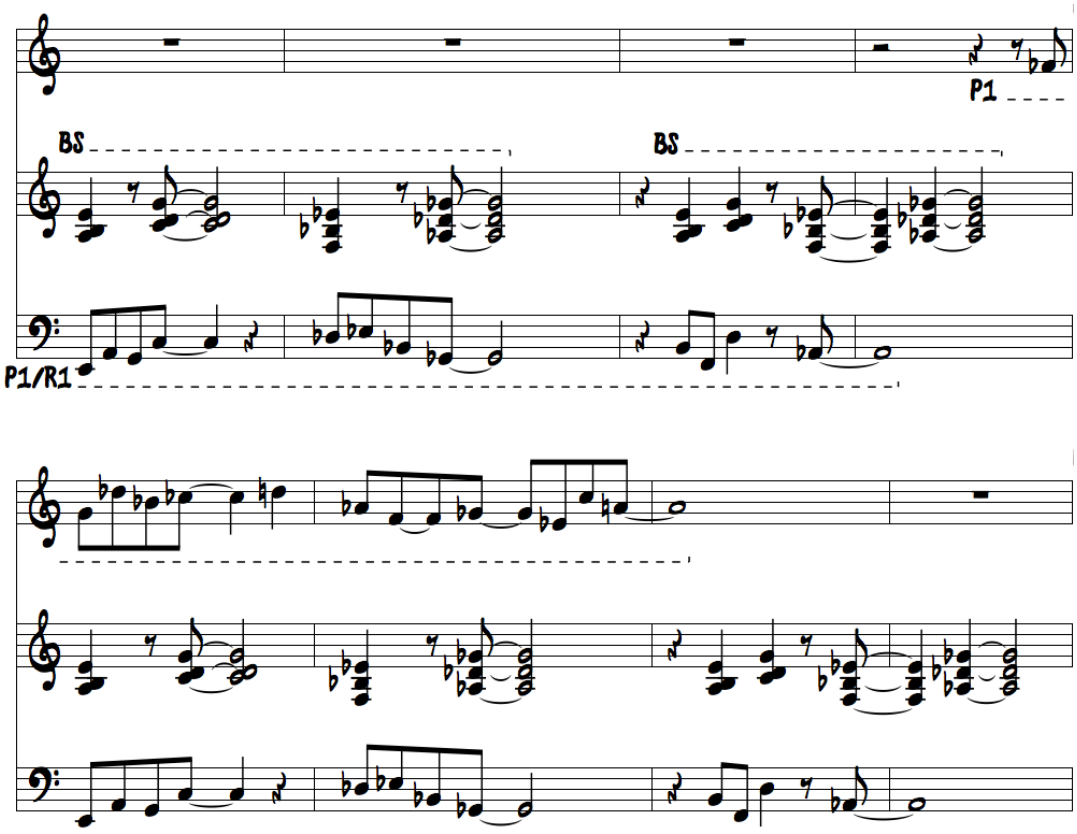
I need to find ways to connect the groups of four to create a row and I need to slightly disguise the constant pattern of minor thirds. I change the order to circle target notes, giving the melody almost a bebop approach. This set is named P1, primary one.



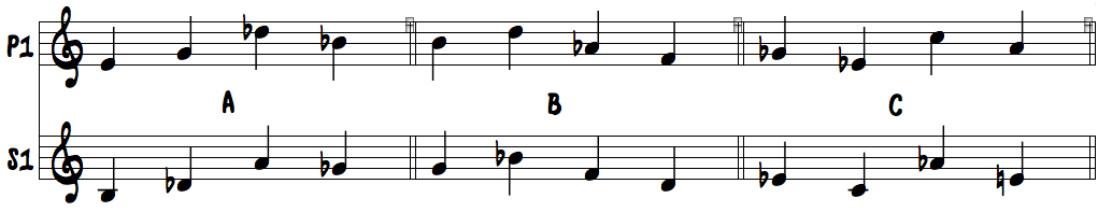
As for now, my row only consists of four different intervals. Creating mirror forms will not solve this until I start composing and putting different sets together. The problem, derived from my starting point of quartal triads, is the emphasis of intervals. To access more intervals, I make a new row out of every other step from the first six notes of P1 and R1. This set is named P1/R1.



At this point I start composing a few bars with the material to get a better perception of musical possibilities. I decide to use P1 as melody, the BS as chords and P1/R1 becomes a bass line. When putting the parts together, I am considerate about two things; avoiding clusters of minor seconds, and keeping diminished nine intervals to the minimum. This can be achieved by careful use of rhythm and phrasing. I am allowing myself, like Schoenberg, to move notes in octave.

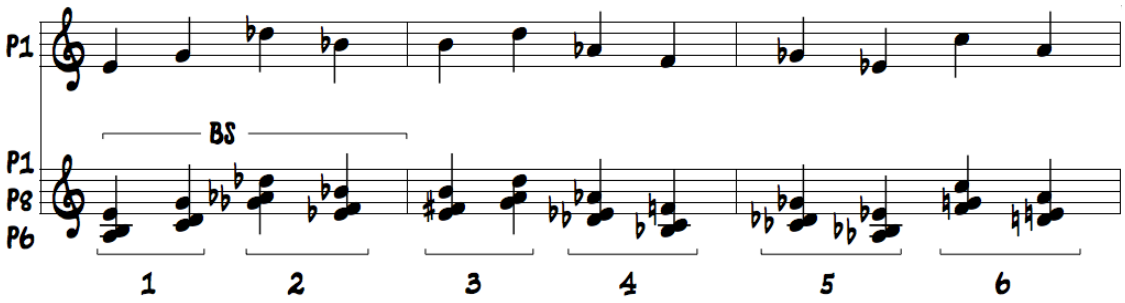


Some additional sets have not yet been used. I have tried two transpositions, P8 and P6 (the numbers indicate half steps up from the original form), as parallel voices to P1, but the need for the fourth voicings those sets add is already filled by the basic set in these bars. Another unused set is P6/R6. Instead, I make a new row with the same considerations as before, working as a voice to P1, called S1 (secondary one). There is also a S1/SR1, built in the same way as P1/R1, providing me with a major sixth interval.

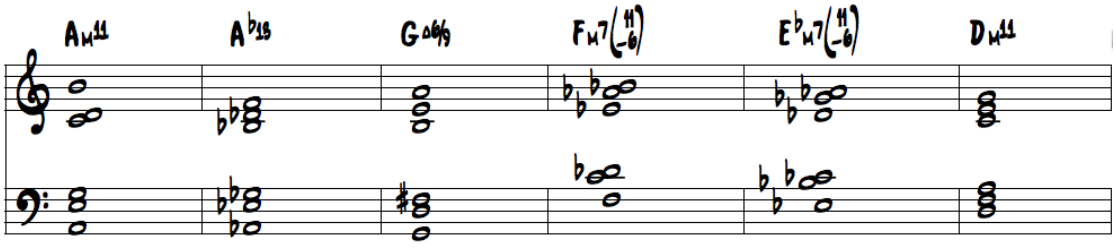


To develop my first bars, I will start the following rows from the fifth and then the ninth note. My new form for continuing this part of the piece after using ABC will be BCA, and then CBA.

Before composing any further I want material for a second part which can also hold a solo, and I am looking at ways to create chords out of the basic set.



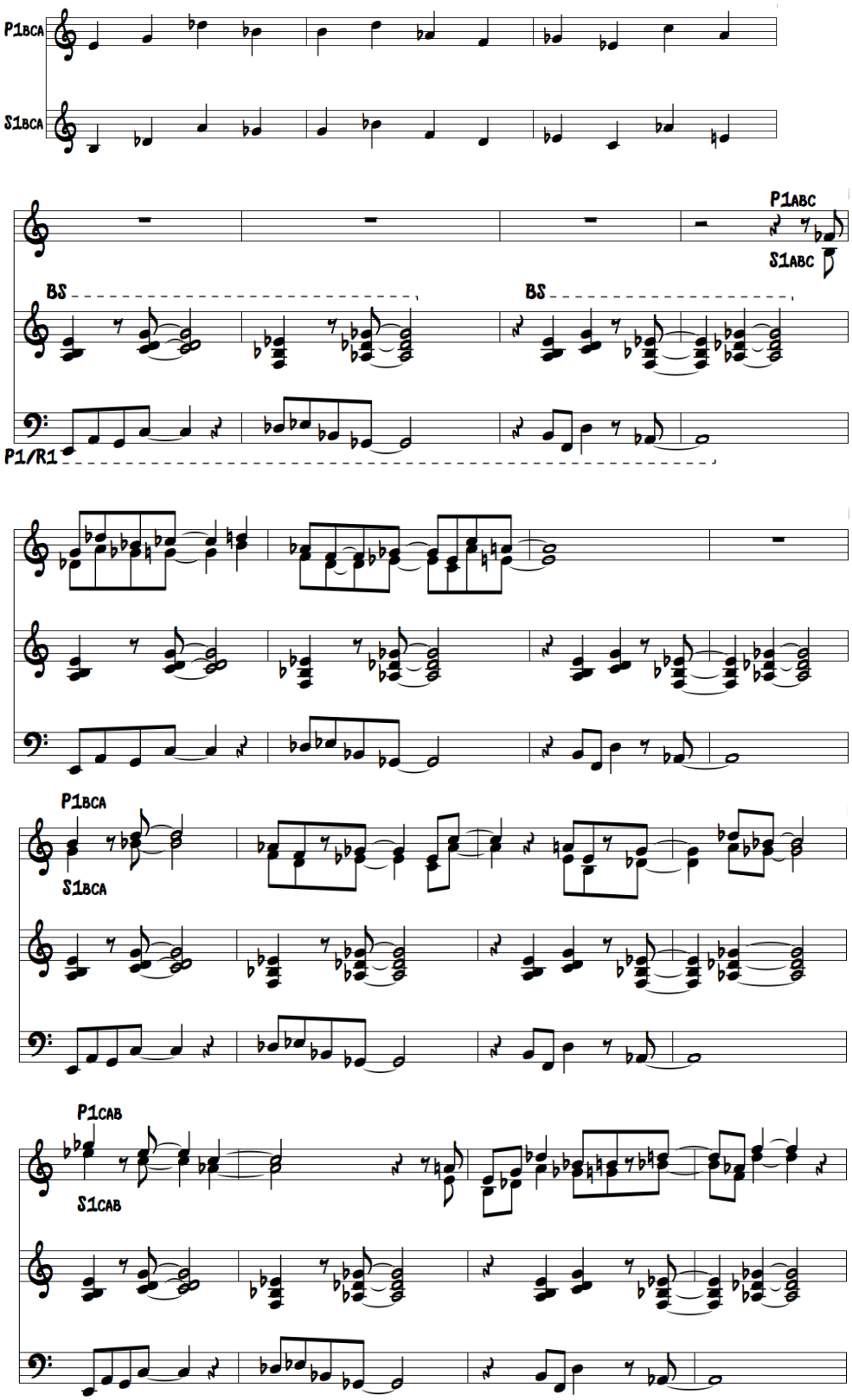
The quartal triads are joined together in pairs to create hexachords and I make a matrix over possible ways to voice them. I choose to use these voicings:



Every second bar completes a twelve-tone set and I will draw notes from the chords to create new rows. This part of the piece is expected to sound tonal in a multi-modal way, contrasting the other part. I am aiming for three voices of individual twelve-tone rows to be drawn from each set, giving me nine new rows to work with. Since the melodies will be made from notes out of the chords, there is no concern about clusters, and diminished nines is easily avoided.

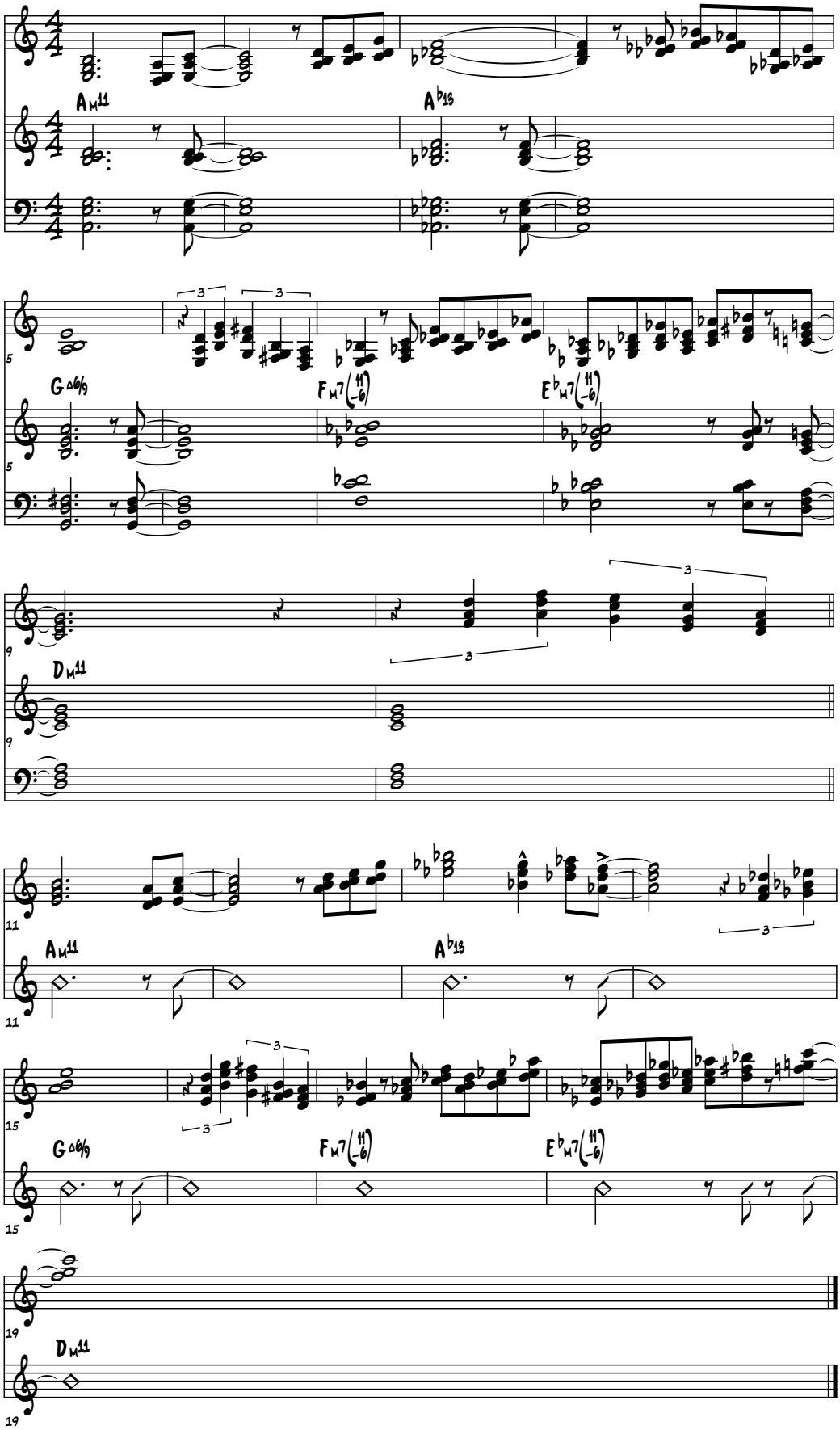
Composing the piece

As I move forward after my first eight bars, I am using my rows P1BCA and S1BCA:

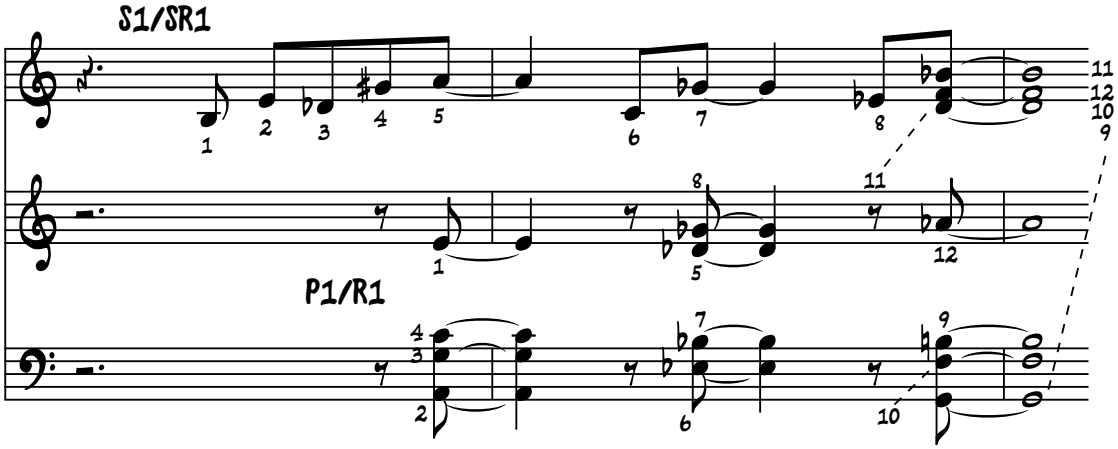


After P1CAB, S1CAB, the first phrase will be repeated as a hook. At this stage I transpose all my material to facilitate playability for the instruments of a big band. To make this analysis easier to read I have shown you the final transposition right from start.

I make three voices for the second part of the piece with tone material from the hexachords, leaving us with nine new twelve tone rows in the first ten measures. Bar 12-13 contains a slight change compared to 3-4, same goes for bar 18 compared to 7. I intend to repeat this part, starting off with a single voice and then keep adding until all rows are activated. Measure 11 and forth is an octave above the first part and my thoughts are to present this octave with trumpets in the end.



When putting the two parts together I decide to make a short ending of part one, using S1/SR1 and P1/R1.



The chords contain notes from both rows. Two notes in the third chord, F and D, have a function in both rows. The ninth note of S1/SR1 is transposed two octaves to become the root of the third chord. This vertical involvement between the rows is inspired by Schoenberg's distribution of notes in his *Wind Quintet*.

Form

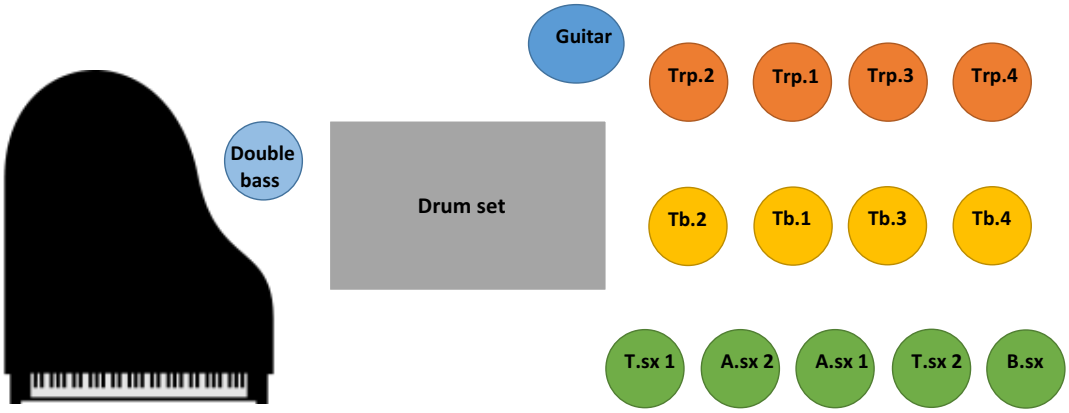
When all the parts I intend to use are done I'm choosing a quite conventional form. Some elements to notice is that the solo is placed before the B part is presented. A more idiomatic form in big band writing would have been to present a B part before a solo. In the end, I will be building up a crescendo to what supposedly could be another A2, but instead I just use the first phrase from part A, which has become a recurring hook of the piece, followed by the ending phrase shown at the top of this page as the final ending. This way, I'm hoping to avoid too much repetition of the material.

The chart is showing the form of the piece I intend to use.

Intro	A1	Short interlude	A2	Solo	B	Second intro	A1	Longer interlude	First phrase from A, ending phrase of A2 as final ending.

Instrumentation

Usually, in big band arranging, I am used to being able to write four or five voices for a theme. In the first part of this piece, I am left with a two-voice theme with the possibility of doubling. I will present the theme with mixed sections and divide phrases between different players. The overall structure of my mixed sections is to pair up instruments vertically and using a standard big band placement.
I am hoping vertical pairs will facilitate playing in mixed sections, keeping rhythm and phrasing cohesive.



The chart is showing the instrumentation of the first part of the piece. The primary 1 row is dominant in this first presentation.

Phrase	Twelve-tone row	Instrument
First phrase	P1ABC	Alto 1, trumpet 3 and 4
	S1ABC	Tenor 2
Second phrase	P1BCA	Alto 2 plays the whole phrase. Trumpet 1, 2 and trombone 1 plays the first seven notes. Alto 1 and tenor 2 completes the row.
	S1BCA	Tenor 1 plays the whole row. Baritone doubles the last five notes.
Third phrase	P1CAB	Trumpet 1 and 2. Trombone 1 and 2 an octave below.
	S1CAB	Trumpet 3 and 4.
First phrase repeated	P1ABC	Alto 1 and 2. Baritone an octave below.
	S1ABC	Tenor 1 and 2.

This first part is then repeated with new instrumentation, this time with more equal balance between primary and secondary 1.

The rhythm section is presenting the riff drawn from the basic set in piano and guitar. This role is also given trombones in A2. Double bass is playing P1/R1. Baritone doubles this function in A2.

The solo runs over the chords of the B part. As part B starts, I have the possibility of ending the solo or continuing in addition to the theme. The B part starts off with mixed sections presenting the top row in unison. For every repeat a second voice is added, leading to a tutti with all voices, including a guitar melody. When returning to part A again, the instrumentation is once again slightly different. More instruments are engaged to put new energy into the theme, but the idea of mixed sections remains throughout the whole piece. The idea of never presenting the same material without a new instrumentation given is also a constant treatment.

Results

The result is presented in direct relation to the problem statements.

To what extent will there be capacity of creativity working with a twelve-tone technique?

I started out writing small details for the piece and was forced to create solutions which played by the rules of my twelve-tone technique. At these stages, creativity was forced, but very present. My musical choices were sometimes limited to simply finding out what is possible and what is not. The closer I zoomed in on details, the more this musical system controlled my choices. At the same time, creating the form or instrumentation felt more as a free task. The rules still affected the form and instrumentation, but in a way more related to my own vision of the outcome. I would say the capacity of creativity was very high and in some cases even forced, and therefore in a way given to me freely.

Can the method clarify or erase my own style of composing?

Comparing this piece to my previous work I would say my own style is very present. My taste of how to present a theme or creating the overall structure of music is little affected by this technique. At some stages, I have been forced to harmonize chords in ways I would not usually do, but I cannot go as far as saying it changes the sound of me as a composer. It has rather challenged me and expanded my appreciation for some of the tone material in this piece. In a way, the technique clarifies me as a contemporary composer, since the technique seems to wash away some of the more idiomatic jazz phrasing my previous pieces can be related to.

How will the sounding result correlate to my vision of making music?

The finished composition has an estimated duration of five minutes. Considering range and instrumentation, the piece can be performed by a semi-professional ensemble with a conventional big band line up. However, the twelve-tone material sometimes demands good sight-reading and the mixed sections needs to be rehearsed. The playability of my music is an important factor to me and in the end of this process I was not sure how the piece would be received by an ensemble. Fortunately, it turned out to be a useful addition to my previous work for big band and blends in nicely in a concert with my former pieces.

My vision of making music is very much affected by this piece and I intend to work with some sort of twelve-tone system again in the future. After finishing this composition, which is named *Cynocephali,* I immediately started writing a new piece using serial structures. This time I composed more freely, but I noticed that working with the twelve-tone system developed my thoughts on phrasing, musical movement and tonality in a satisfying direction. Satisfying in the meaning of ability to see new kinds of solutions when creating music.

Discussion

In this discussion, I relate my results to the background of this report. My process of creating a twelve-tone technique, and the finished piece is compared to Arnold Schoenberg's work.

As quoted in the background, Schoenberg says his method grew out of a necessity. I share a similar experience, even though our goals are different. My vision of the sounding result as I started this process may be what drifts the furthest away from Schoenberg's work. Most of the rules I am applying are derived from Schoenberg. An activated row is, for example, always finished and there is no material used in the piece that is not part of a twelve-tone system. At the same time, my overall composing style seems to aim towards a multi-modal approach to tonality. There are elements used that Schoenberg expressly would not recommend, for instance multiple rows with no mirror forms in the second part. As Schoenberg mentions, this means repetitions of tones which evokes tonality.

Mirror forms are being used to create the first part of the piece, where I made retrogrades of my primary and secondary row. These retrogrades are not used in their basic form, as Schoenberg would have done, but processed once more as they were mashed together with the primary or secondary row to evoke more intervals. I never tried out any inversions of my rows, which would be an interesting continuing of this style in the future.

At the first performance of the piece, some of the audience mentioned that the piece "doesn't sound like twelve-tone". Since I have not taken an idiomatic approach to the work of Schoenberg, this is not really a problem. Perhaps this observation contributes to answering the question from the problem statements: *Can the method clarify or erase my own style of composing?*
My method simply clarifies my own style since I have allowed it to develop without the requirements of achieving Schoenberg's goals.

If I were to compose in a more idiomatic relation to Schoenberg's music, I would have to devote myself more strictly to his method. Only engaging different twelve-tone rows does not bring forward the sound of Schoenberg's music, the use of mirror forms is a necessity to recreate his tone language. Only using one basic row also seems to be preferably in that case.

One of my purposes mentioned in this report was to explore creativity within boundaries, and of course this can be achieved working with other systems than the twelve-tone. For example, every time I work inside musical idioms there are boundaries to some extent, but working with serial structures as musical rules can evoke the same, or even more, need for creativity for me as a contemporary composer.

References

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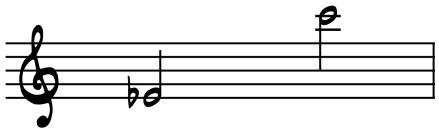
Schoenberg, A. (1925) *Wind Quintet, Opus 26.* Vienna: Universal Edition, U.E 7668.

Cynocephali

Twelve-tone composition for big band

- Christian Waite

Lead trumpet range (concert pitch)



Solo: Guitar

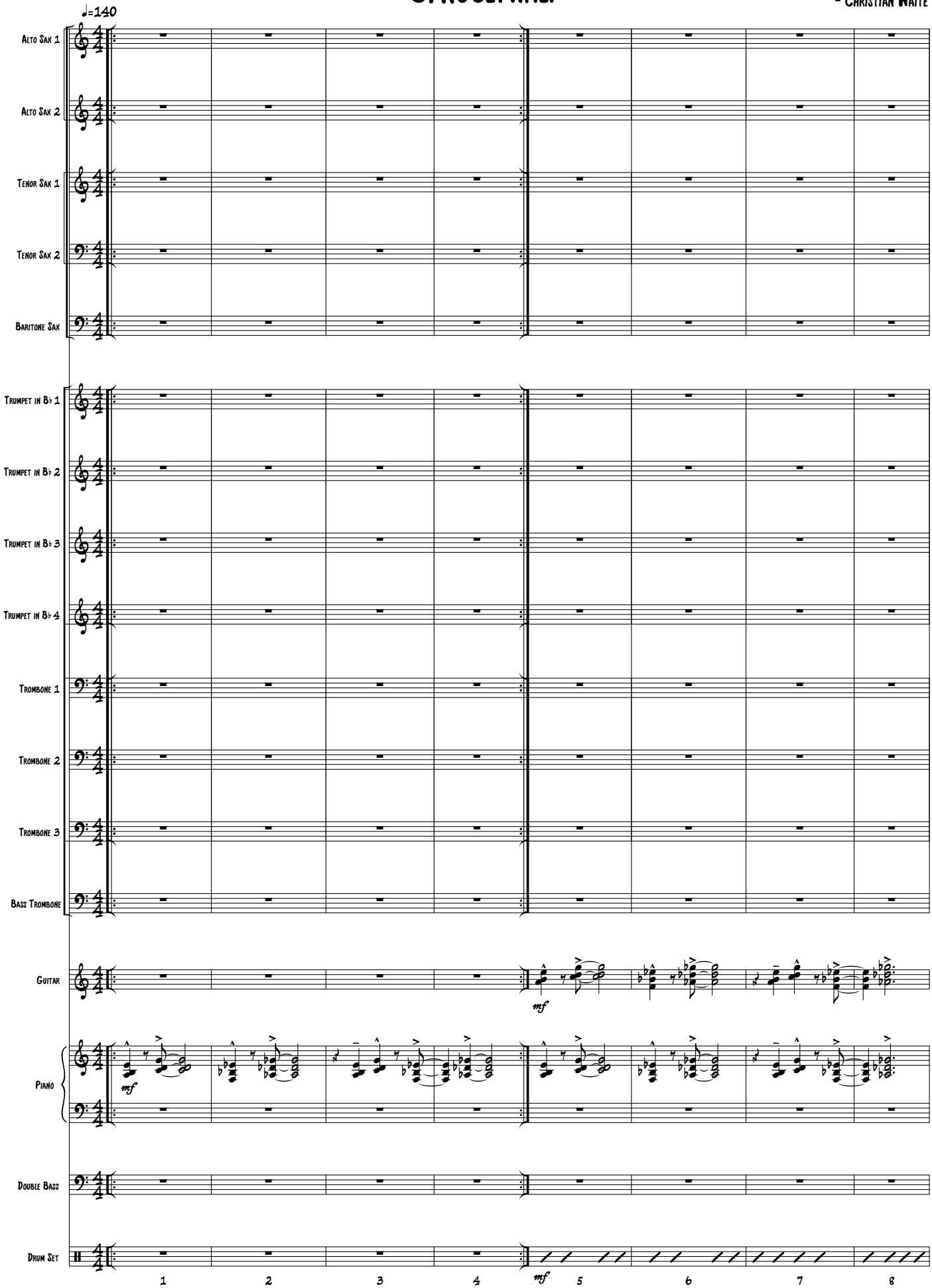
Trp 2-3: Harmon

Est. 5 min

Malmö, 2017

Cynocephali

- Christian Waite



Cynocephali

A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
Drums

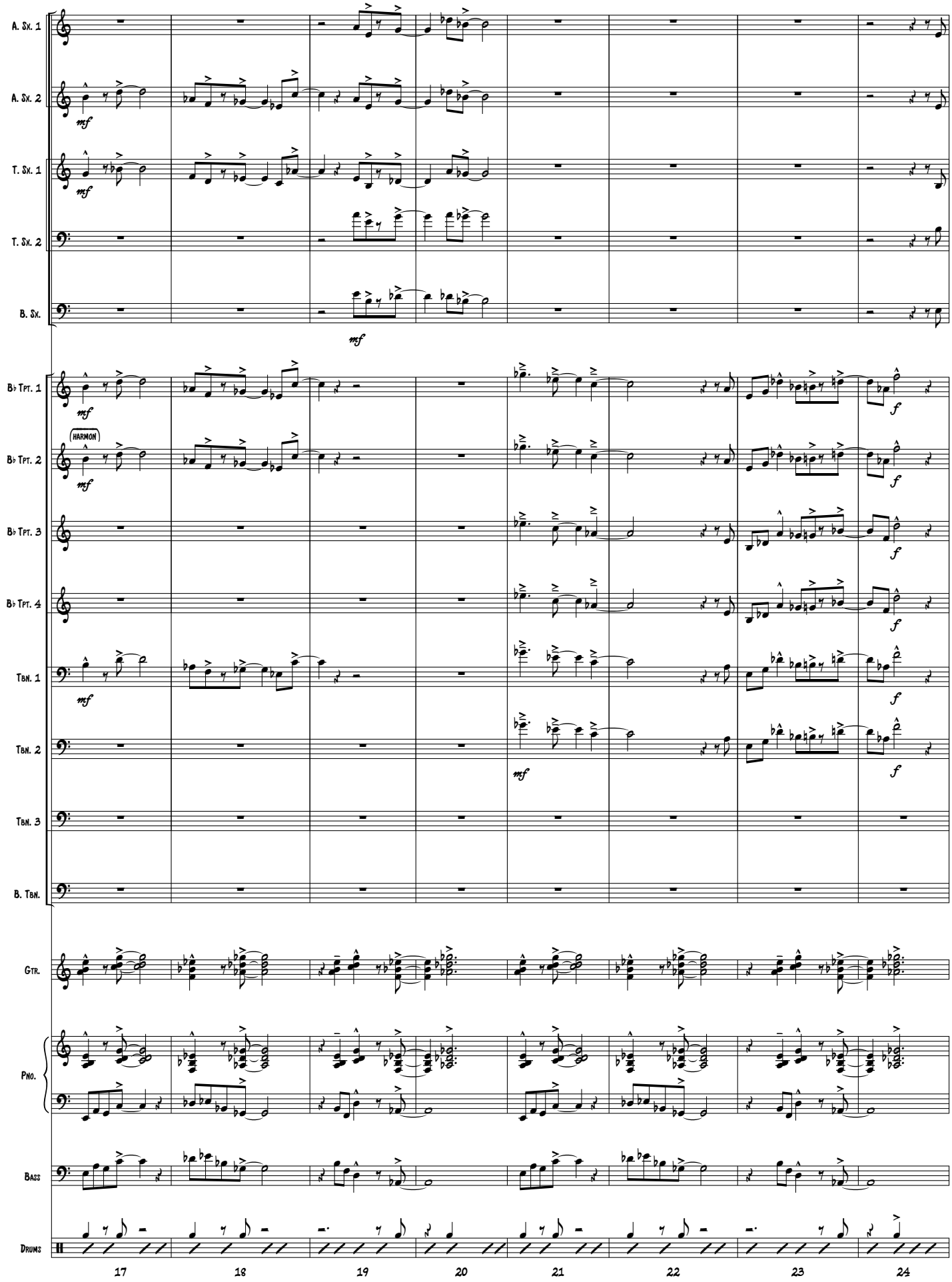
A

mf

HARMON

FILL

9 10 11 12 13 14 15 16


A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
Drums
HARMON
mf
f
17
18
19
20
21
22
23
24

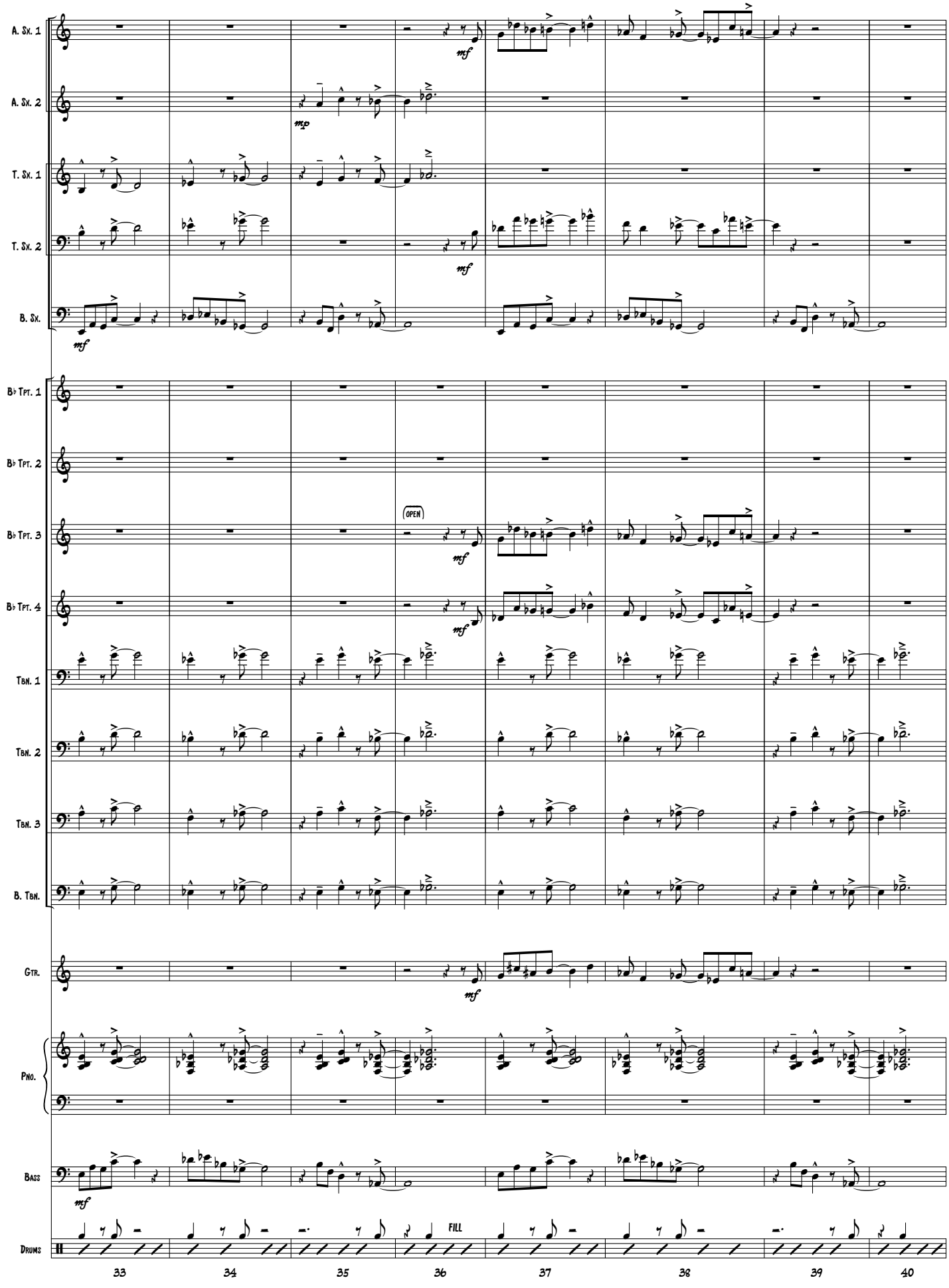
Cynocephali

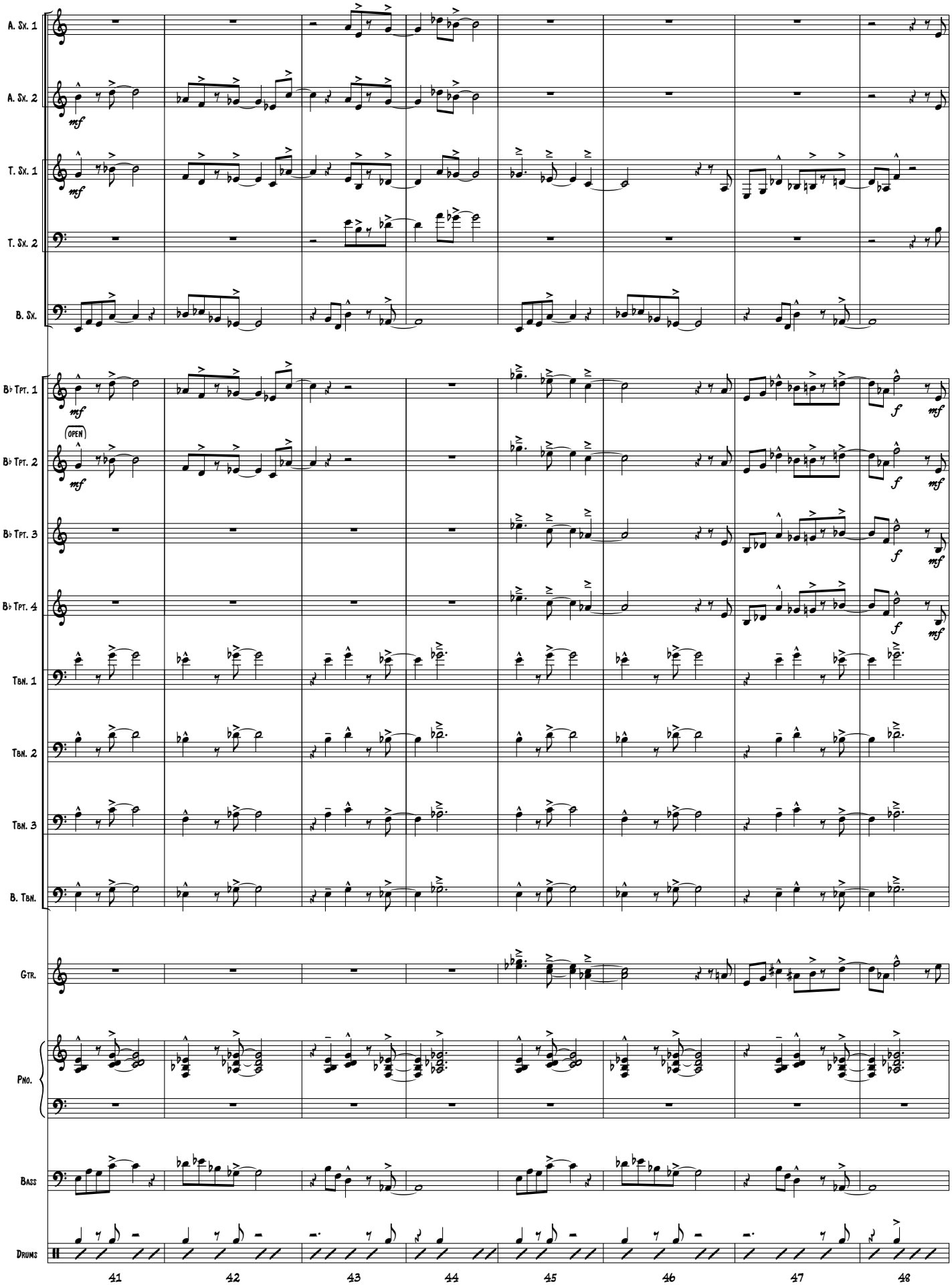
B

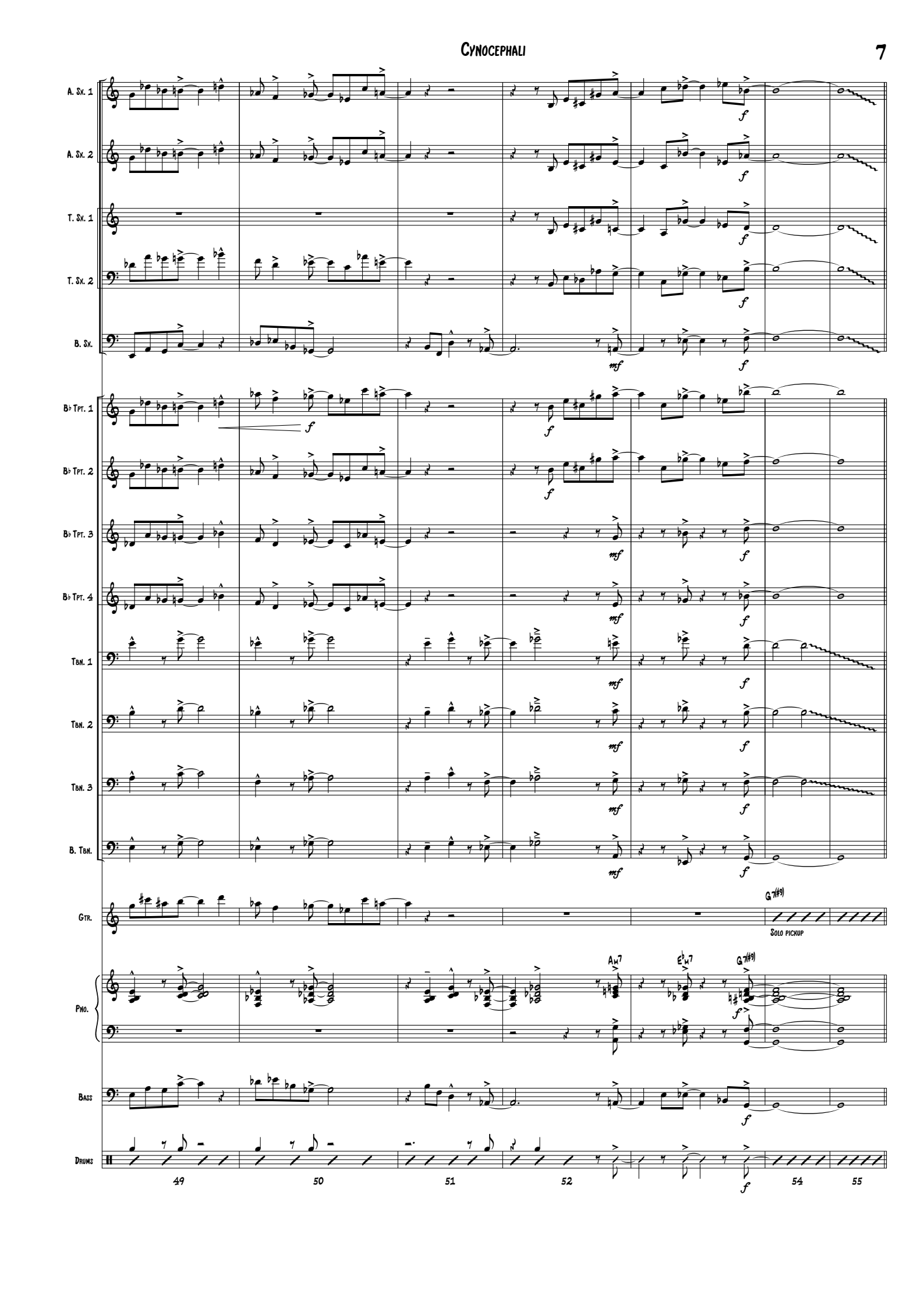
A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
Drums

mp
mf

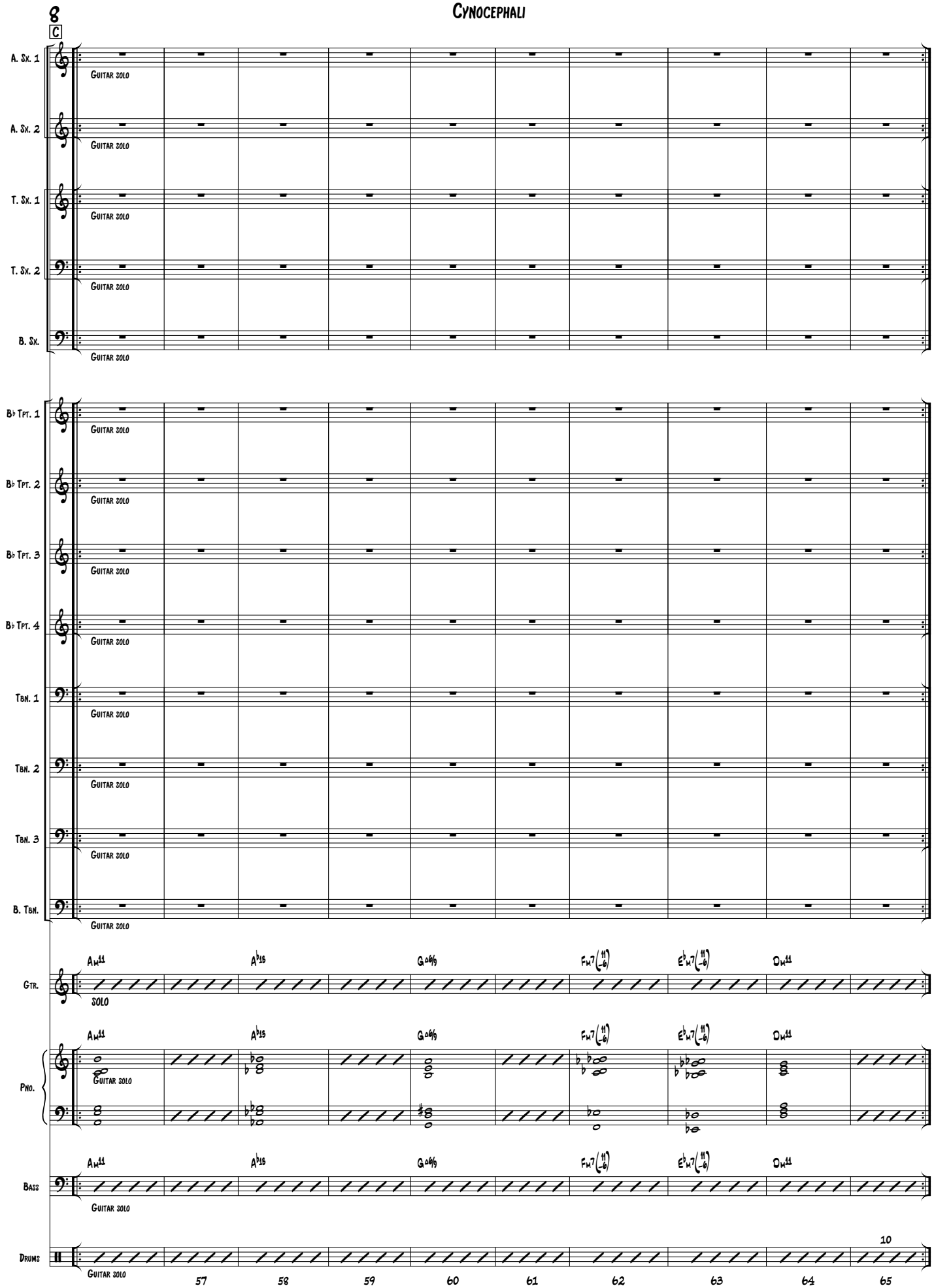
25 26 27 28 mf 29 30 31 32

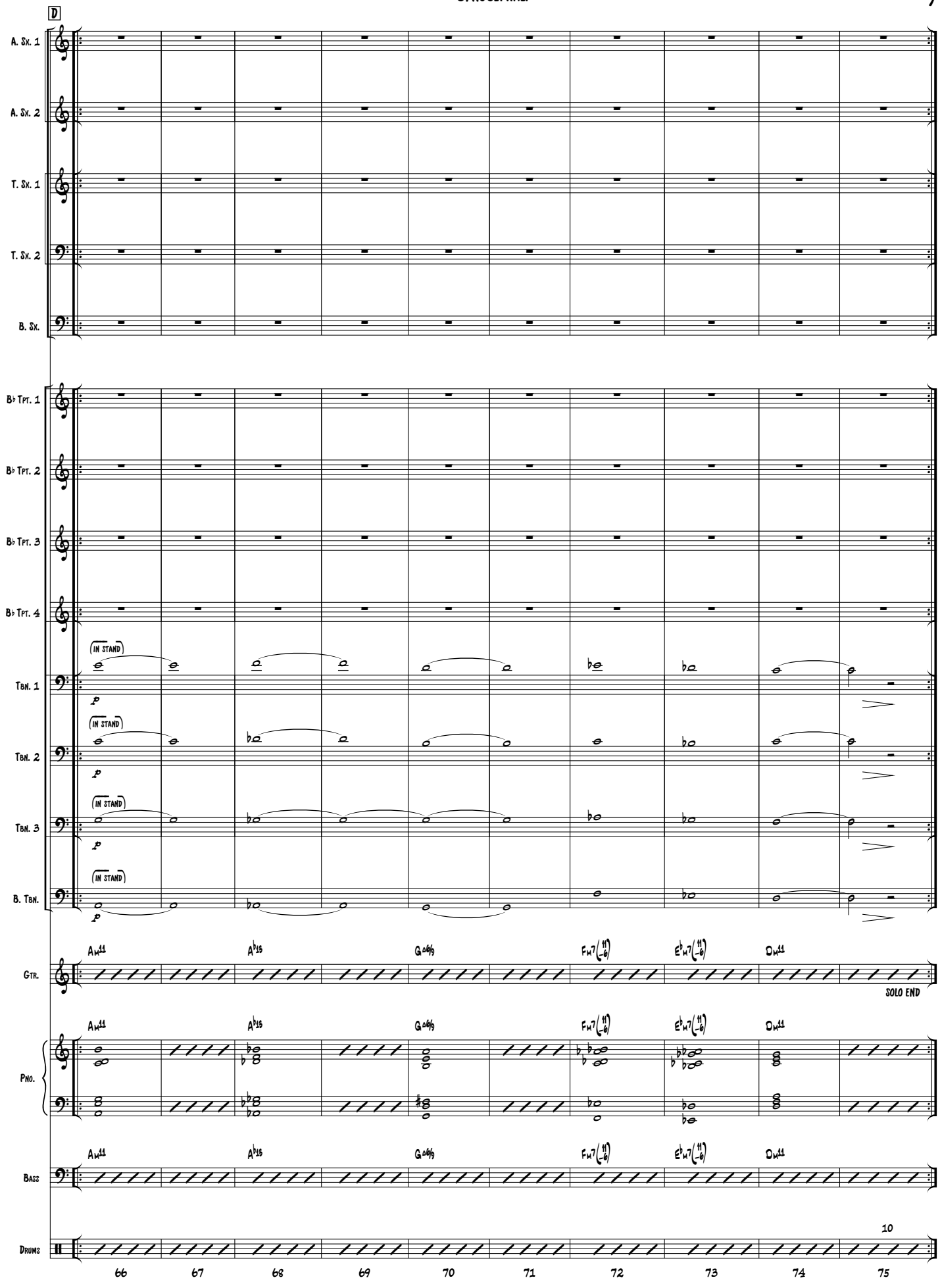

A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
Drums
mf
mp
(OPEN)
FILL
33
34
35
36
37
38
39
40


A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
Drums
mf
f
OPEN
41
42
43
44
45
46
47
48


A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
G7(♯9)
Solo pickup
Pno.
Am7
E♭m7
G7(♯9)
Bass
Drums
49
50
51
52
54
55

Cynocephali




D
A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
(in stand)
p
Gtr.
Am11
A♭13
Gadd9
Fm7(11)
E♭m7(11)
Dm11
SOLO END
Pno.
Bass
Drums
10
66
67
68
69
70
71
72
73
74
75

Cynocephali

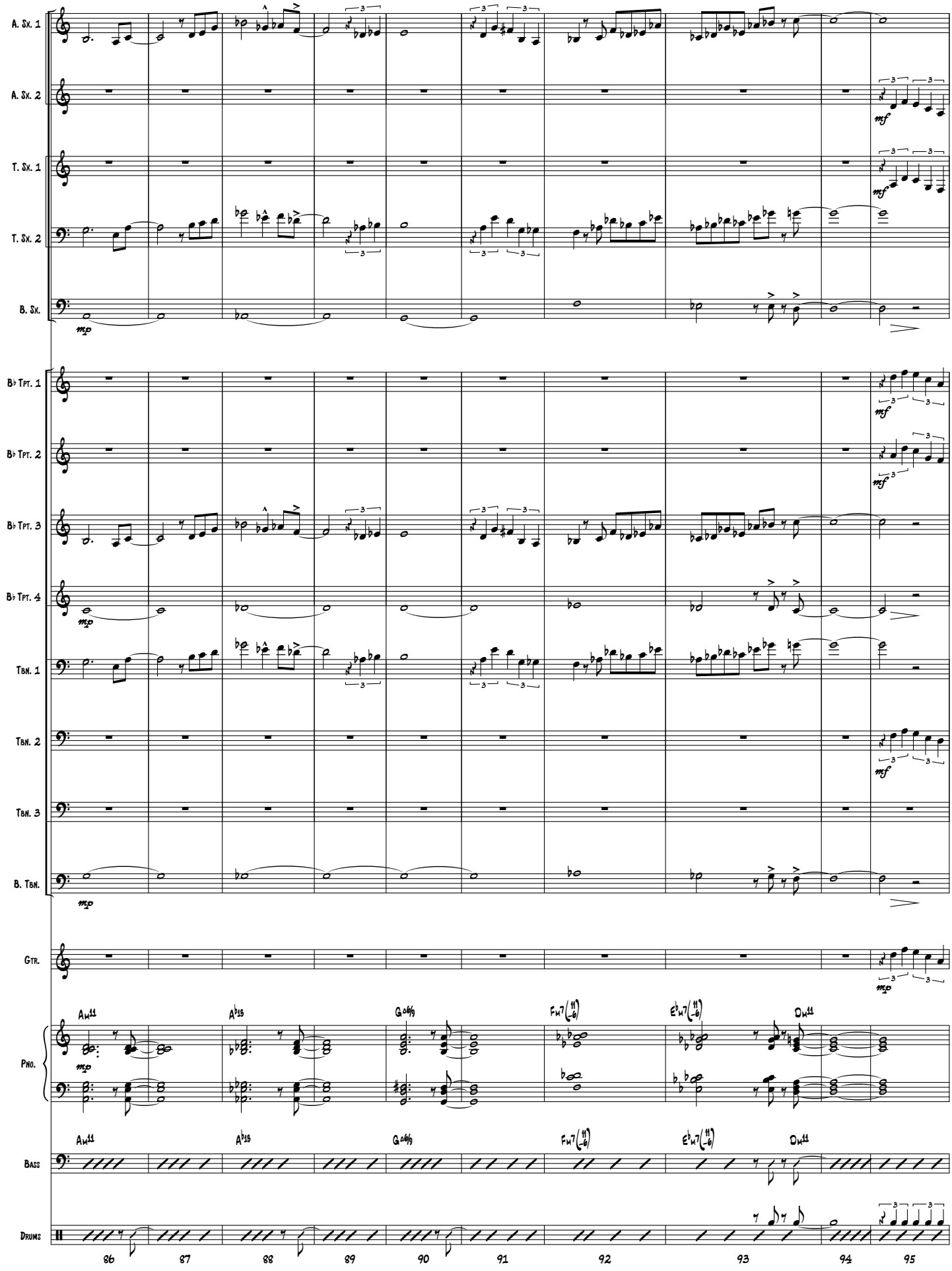
E

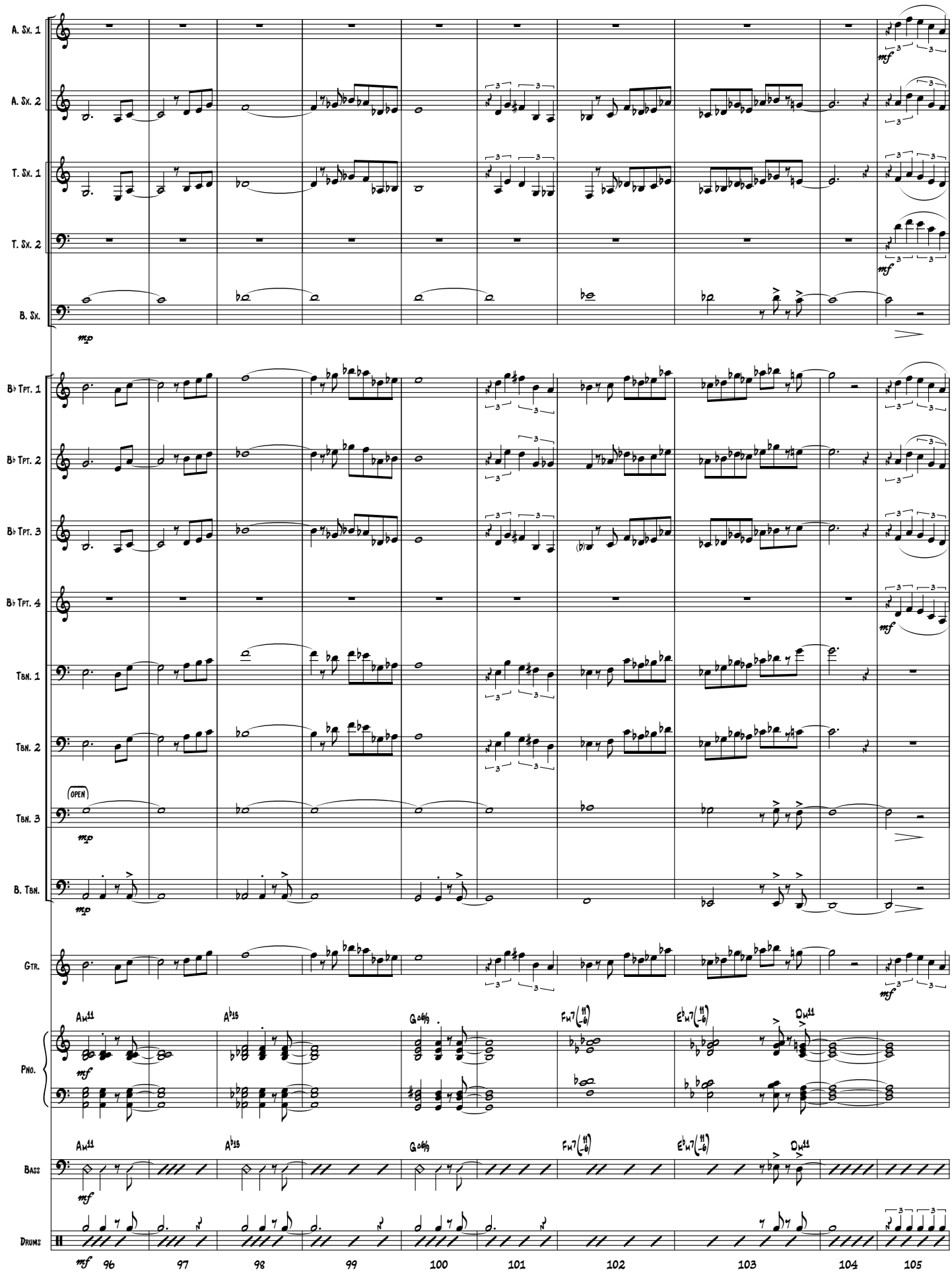
A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
Drums

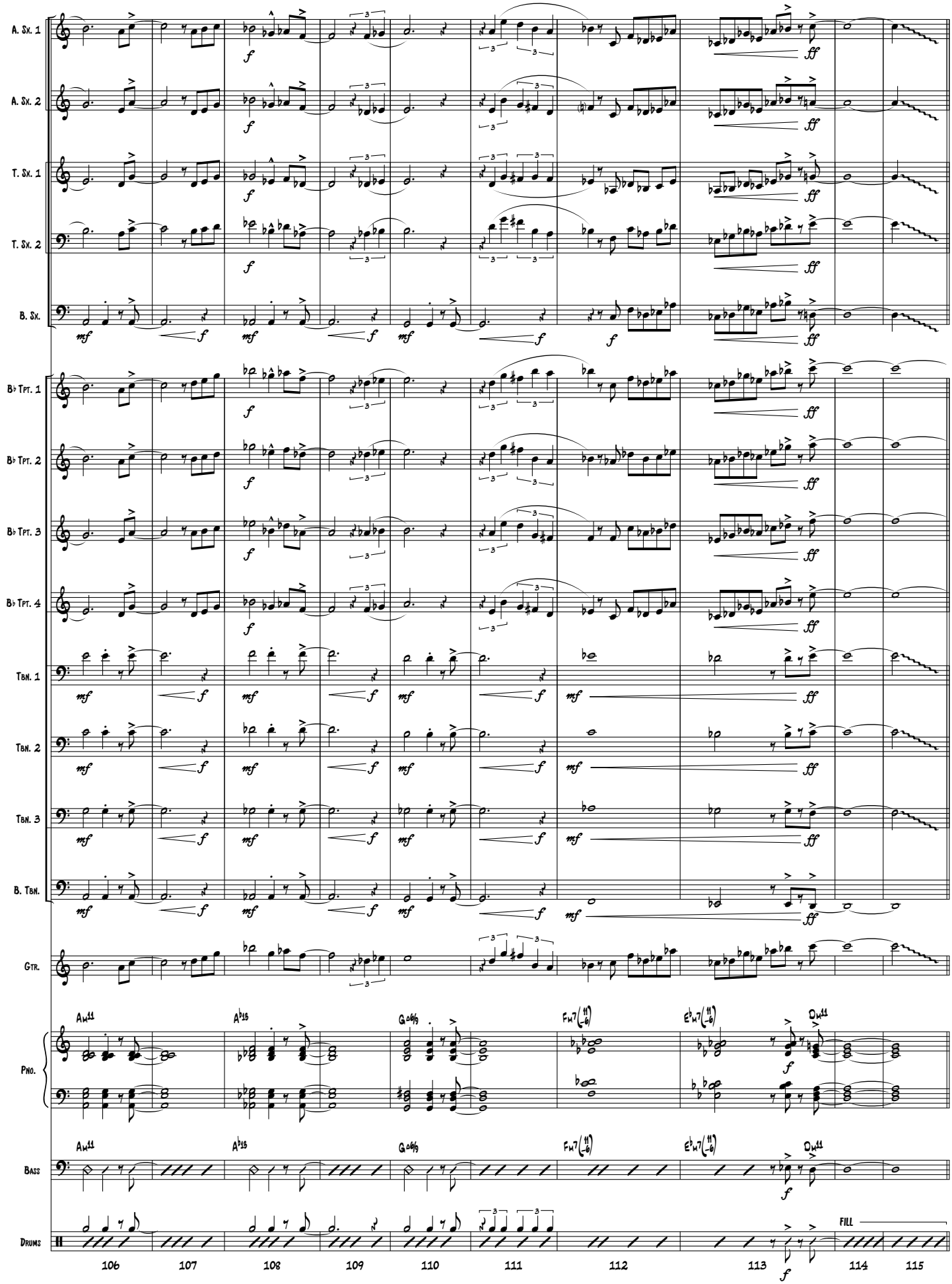
AM11 A♭13 GM9/9 FM7(11) E♭M7(11) DM11

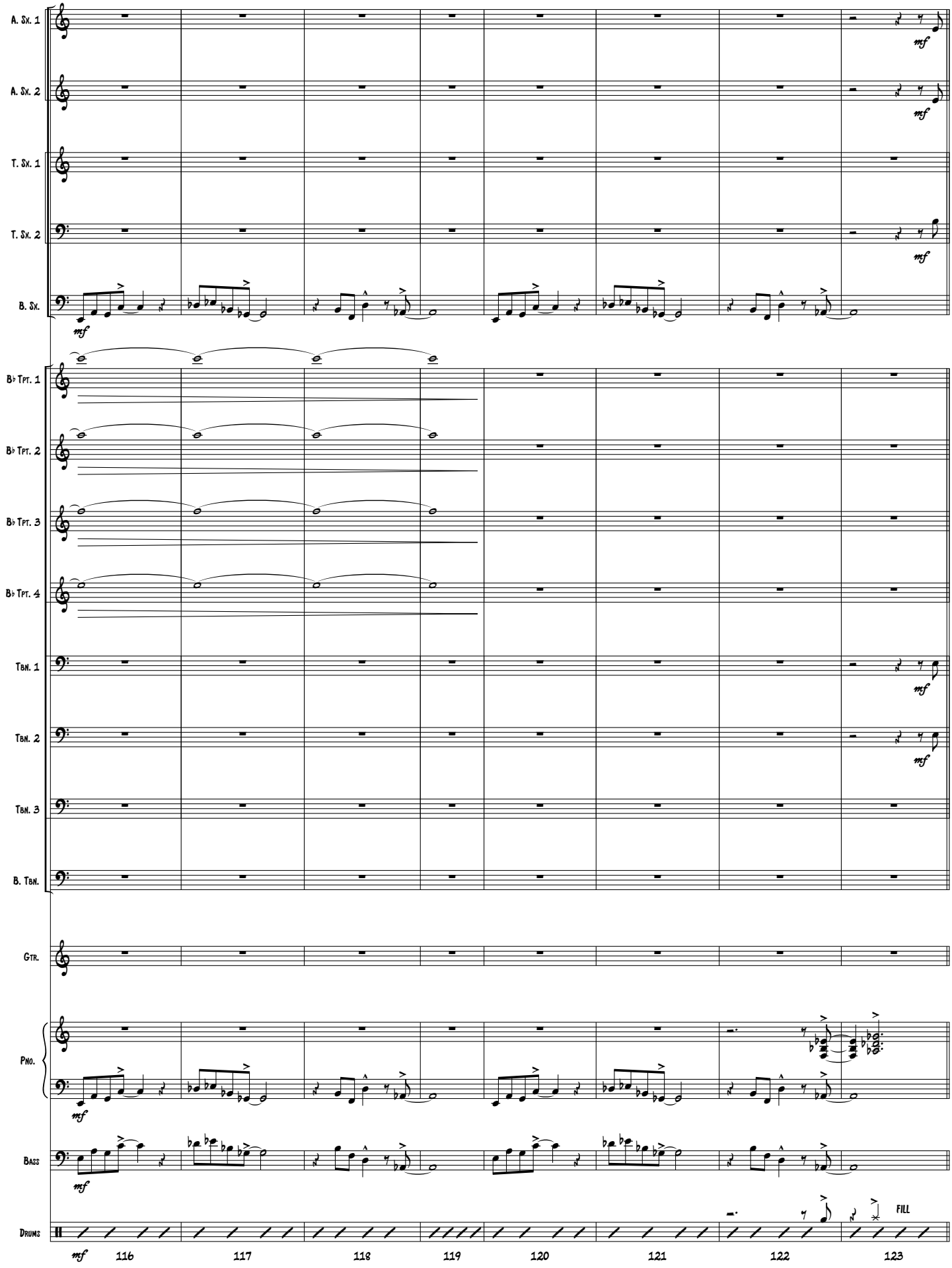
mp mf p OPEN

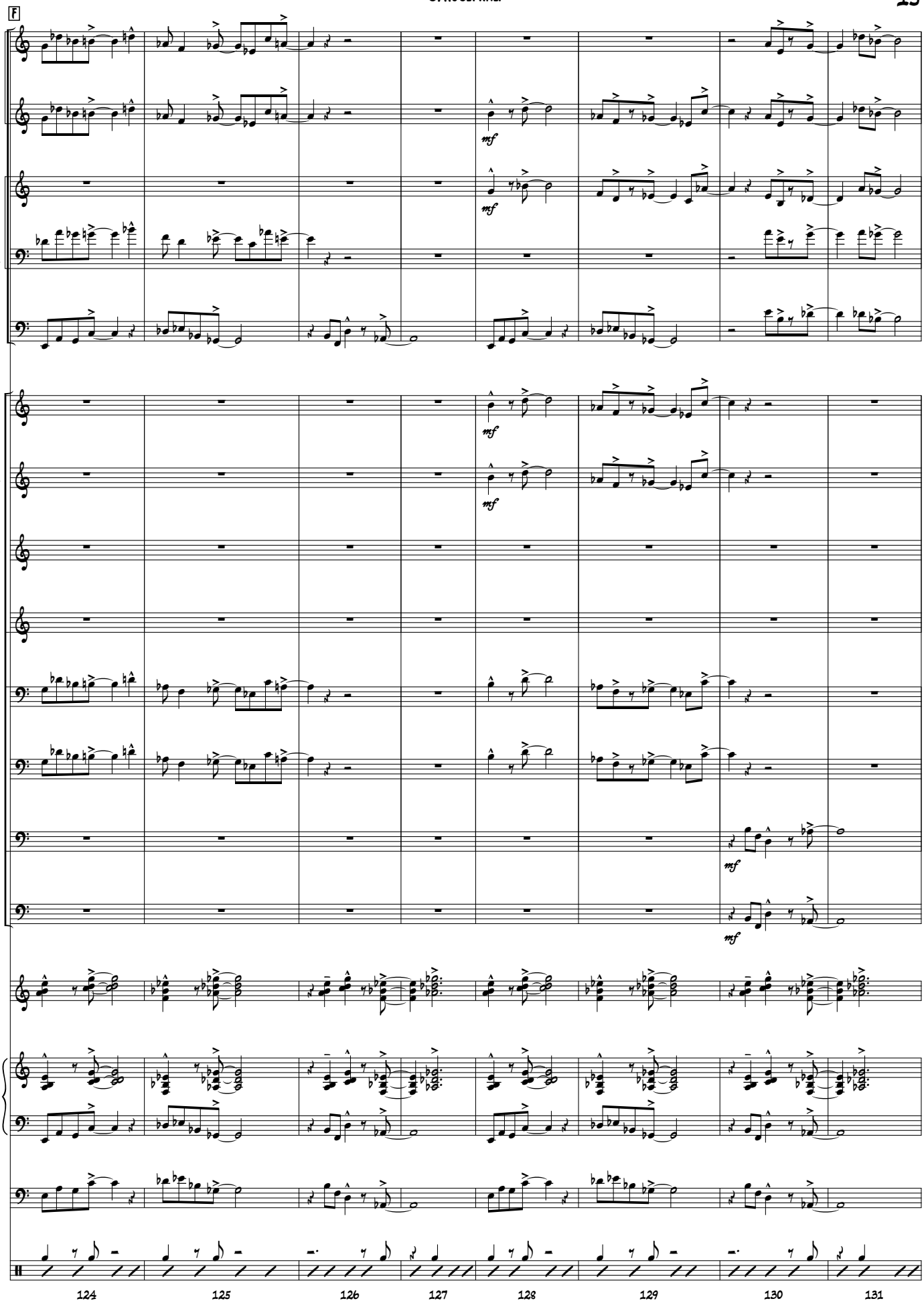
76 77 78 79 80 81 82 83 84 85

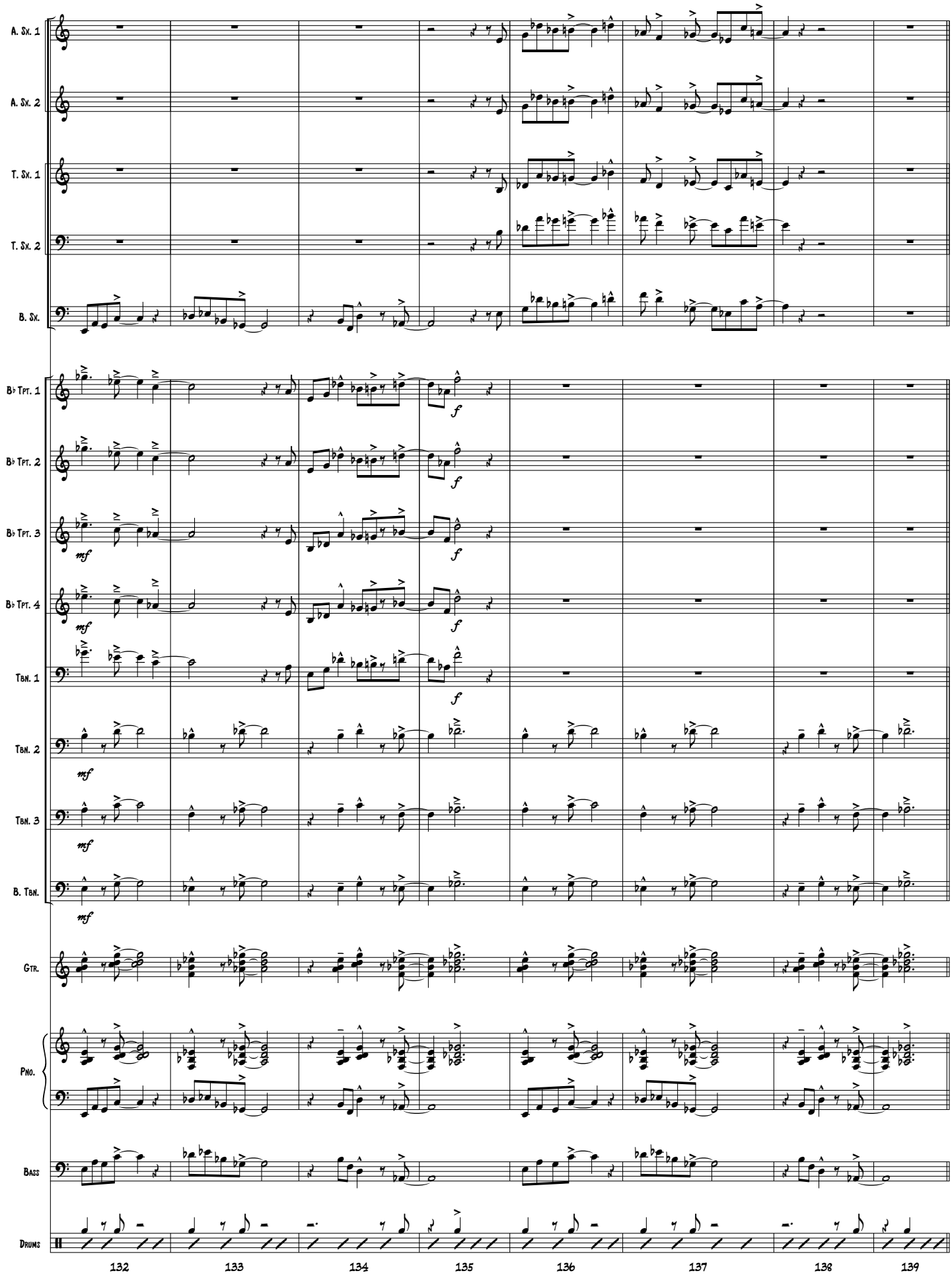

A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
Drums
Am11
A♭13
Gadd9
Fm7(♭6)
E♭m7(♭6)
Dm11
mp
mf
86
87
88
89
90
91
92
93
94
95

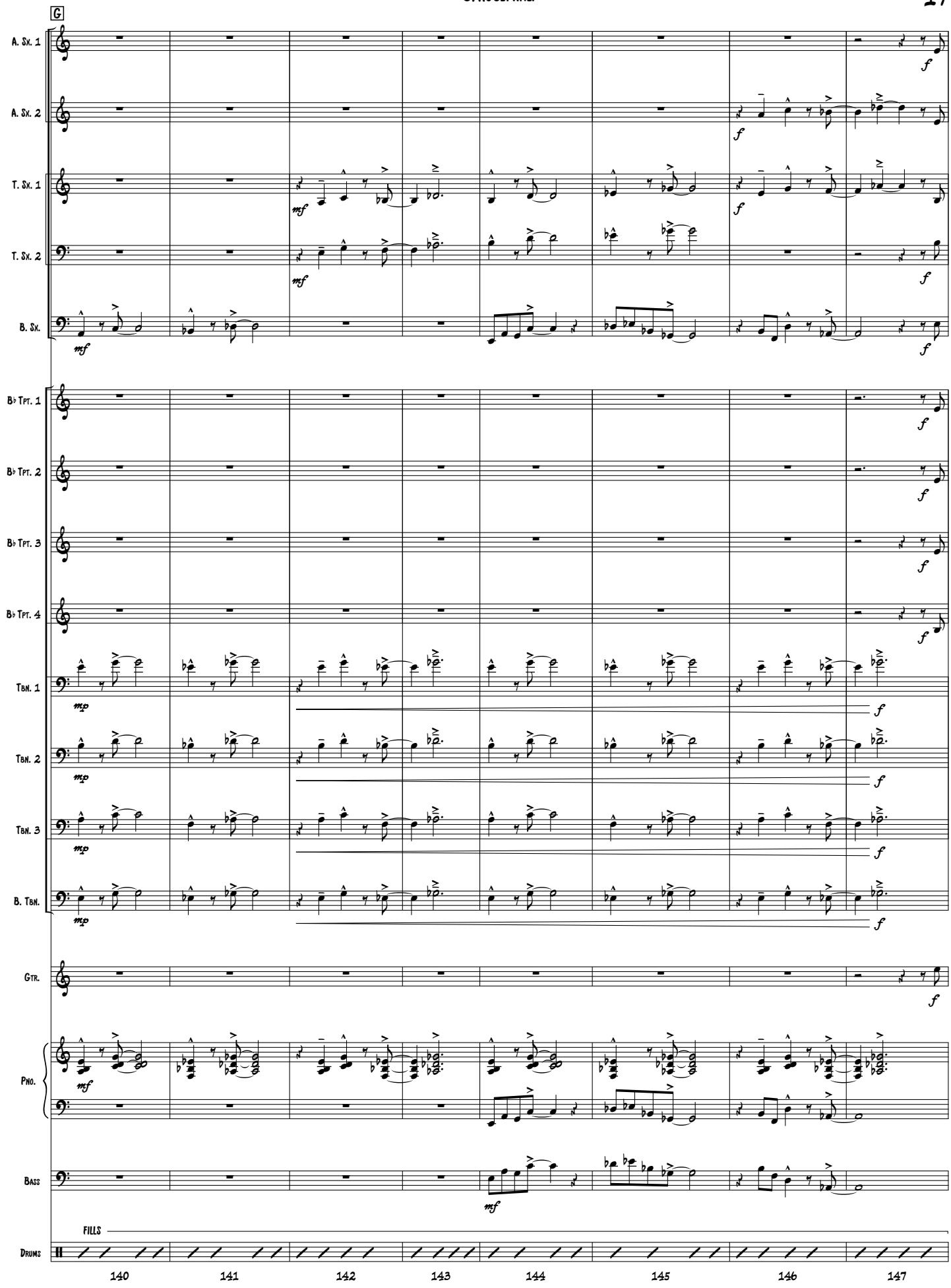

A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
Drums
(OPEN)
Am11
A♭13
Gadd9
Fm7(11)
E♭m7(11)
Dm11
mp
mf
96
97
98
99
100
101
102
103
104
105

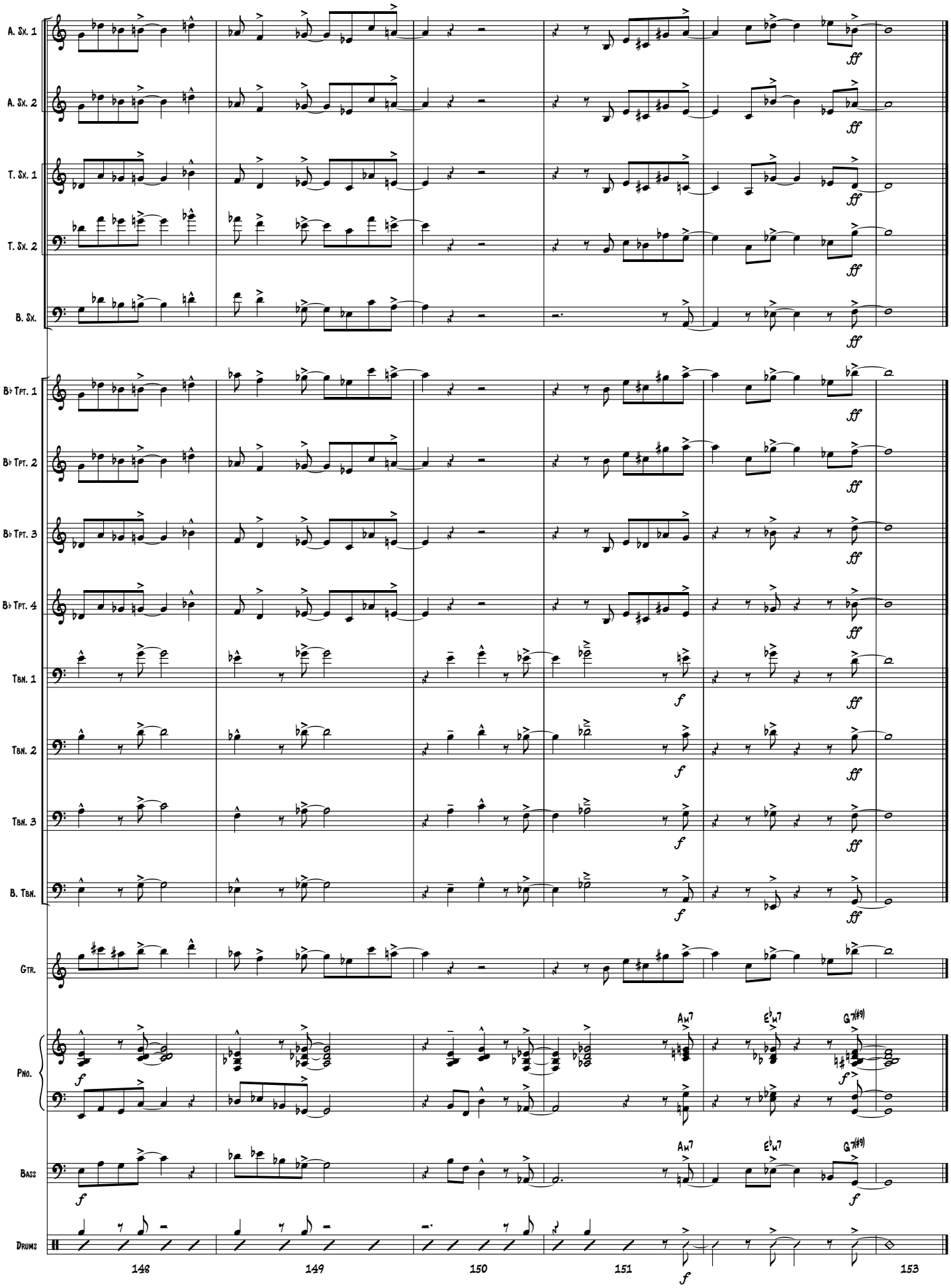

A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
Drums
Am11
A♭13
Gadd9
Fm7(11)
E♭m7(11)
Dm11
FILL
106
107
108
109
110
111
112
113
114
115


A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
Drums
mf
FILL
116
117
118
119
120
121
122
123


F
A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
Drums
mf
124
125
126
127
128
129
130
131


A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
Drums
f
mf
132
133
134
135
136
137
138
139


G
A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
FILLS
Drums
140
141
142
143
144
145
146
147


A. Sx. 1
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
B. Tbn.
Gtr.
Pno.
Bass
Drums
ff
f
Aᵐ7
E♭ᵐ7
G7(♯9)
148
149
150
151
153