

# ***Angel Ascending***

In memoriam James Tenney and Miranda Grace Redcorn Miller

For Cello and live electronics

By Steven M. Miller

March 10, 2008 – Santa Fe NM

## **Cello:**

Senza vibrato throughout

Pitch-set improvisation with general instructions for dynamic level, rate of activity, etc. over the course of the piece's duration

Swell (rising, falling, rising/falling, etc.) shapes - pitch set, dynamic level, degree of live/electronic interaction, etc.

Decreasing note duration

Increasing activity rate

Rising/falling dynamic level

Expanding (and rising) pitch set

Increasing/decreasing vertical dimension (multiple stops)

Increasing use of harmonics vs. stopped notes

Just/harmonic series-based tuning based on open C string = 65.4 Hz

I - A = 220.725 Hz (3/2 above D-147.15 Hz)

II - D = 147.15 Hz (3/2 above G-98.1 Hz)

III - G = 98.1 Hz (3/2 above C-65.4 Hz)

IV - C = 65.4 Hz

As opposed to the standard tuning for cello, based on A-440 Hz:

I - A = 220Hz

II - D = 146.8 Hz

III - G = 97.9 Hz

IV - C = 65.4 Hz

## **Live electronics:**

'Infinite' delay

Sawtooth waves as 'guide tones' with filter modulation

Increasing degree of real-time control over filtering of synthetic tones

Patch programmed in MaxMSP for performance

## Performance Notes

Play sections 1-5 without pause

### Time

Section	1	2	3	4	5
Duration	0:15	0:45	1:15	2:15	4:15
Elapsed	0:00-0:15	0:15-1:00	1:00-2:15	2:15-4:30	4:30-8:45

*Total Duration – 8:45*

### Dynamics

Section	1	2	3	4	5
Dynamics	pp-mp	mp-mf	mf-f	f-ff	ff-mp

(During each section, gradually change dynamics as indicated)

### Note Selection

You may freely choose from any of the available pitches in each section to construct phrases and/or melodic lines. In general, *within* each section there is also a progression from lower to higher (earlier to later) pitches. The five octaves of pitch C form a sort of backbone for the piece.

### Note Duration

From section to section, and within each section, note (and silence) durations decrease so that by the end the piece has reached maximum temporal density.

### Multiple Stops

In sections 1 through 4 there is an increasing use of multiple stops. In section 5 there is a decreasing use of multiple stops.

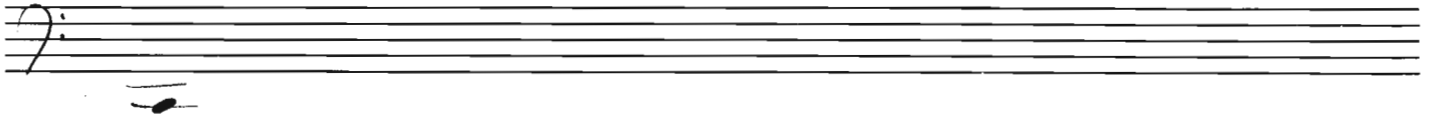
### Octave Transpositions

From section 1-5 there is an increasing use of octave transpositions of notes/phrases.

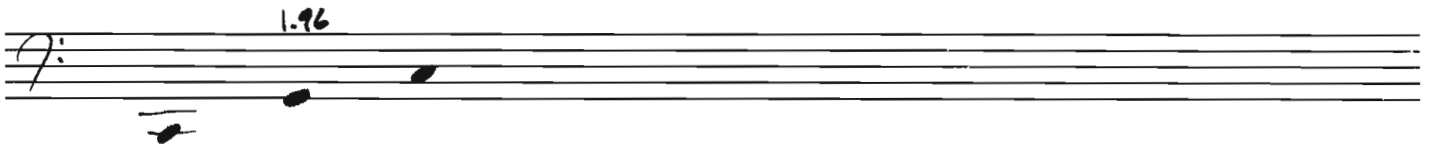
### Harmonics

In conjunction with octave transpositions, from section 1-5 there is an increasing use of harmonics rather than stopped notes.

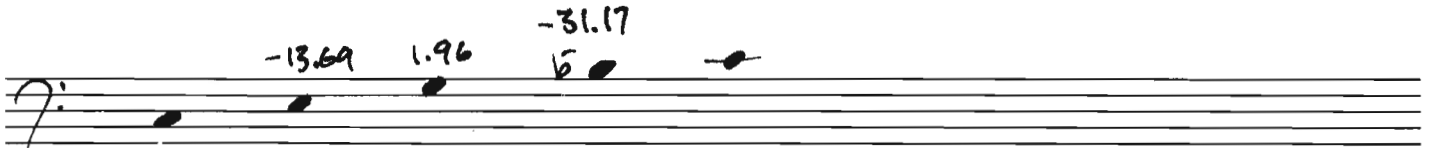
# Angel Ascending



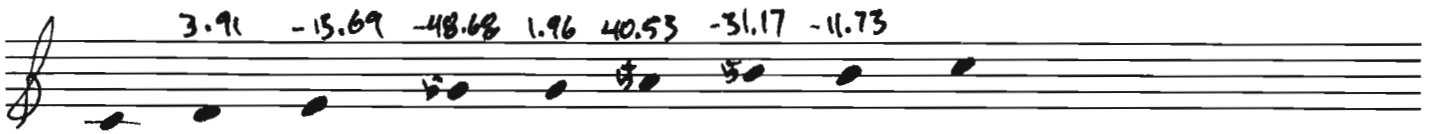
duration: 0:15 elapsed: 0:00 - 0:15



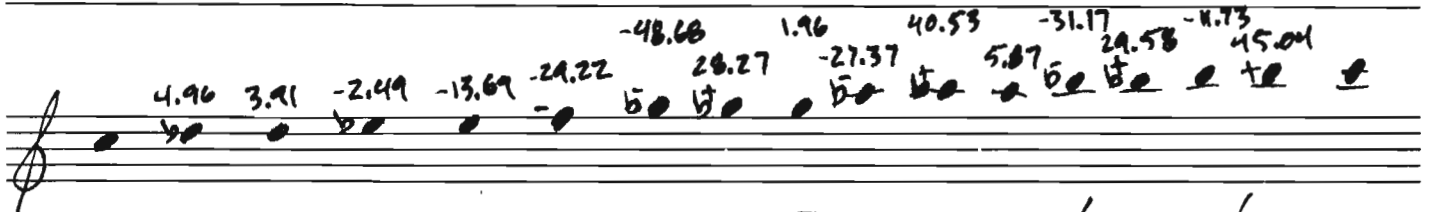
duration: 0:45 elapsed: 0:15 - 1:00



duration: 1:15 elapsed: 1:00 - 2:15



duration: 2:15 elapsed: 2:15 - 4:30



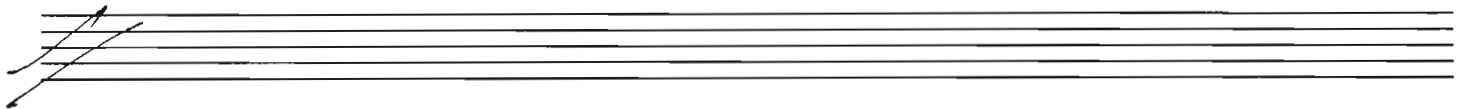
duration: 4:15 elapsed: 4:30 - 8:45

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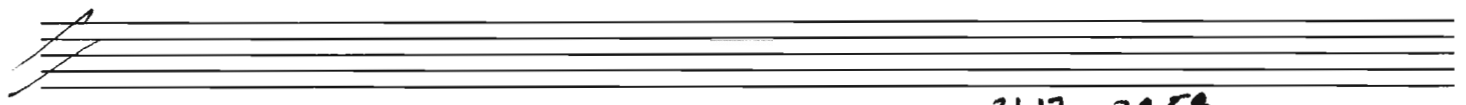
# Ingel Ascending - available pitches

3.91 -13.69 -48.68 1.96

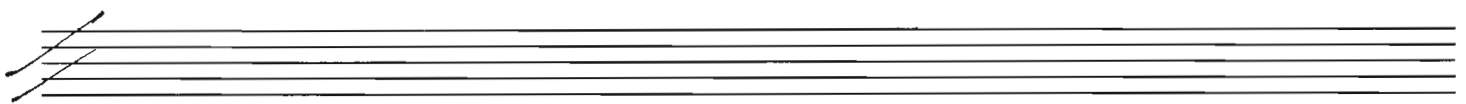
1.96 -13.69 1.96 -31.17



40.53 -31.17 -11.73 4.96 3.91 -2.49 -13.69 -29.22



-48.68 28.27 1.96 -27.37 40.53 5.87 -31.17 29.58



-11.73 45.04

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Harmonic Number	Frequency in Hz	Note	Cents Deviation from 12-tet	Interval above nearest C
32	1046.4	C	0.00	2/1 - octave
31	1013.7	B+	45.04	31/16 - large M7th
30	981	B	-11.73	15/8 - just M7th
29	948.3	Bb+	29.58	29/16 - large m7th
28	915.6	Bb-	-31.17	7/4 - septimal m7th
27	882.9	A	5.87	27/16 - M6th
26	850.2	Ab+	40.53	13/8 - large m6th
25	817.5	Ab-	-27.37	25/16 - small m6th
24	784.8	G	1.96	3/2 - just P5th
23	752.1	Gb+	28.27	23/16 - large tritone
22	719.4	Gb-	-48.68	11/8 - undecimal tritone
21	686.7	F-	-29.22	21/16 - septimal P4th
20	654	E	-13.69	5/4 - just M3rd
19	621.3	Eb	-2.49	19/16 - small m3rd
18	588.6	D	3.91	9/8 - just M2nd
17	555.9	Db	4.96	17/16 - overtone m2nd
16	523.2	C	0.00	2/1 - octave
15	490.5	B	-11.73	15/8 - just M7th
14	457.8	Bb-	-31.17	7/4 - septimal m7th
13	425.1	Ab+	40.53	13/8 - large m6th
12	392.4	G	1.96	3/2 - just P5th
11	359.7	Gb-	-48.68	11/8 - undecimal tritone
10	327	E	-13.69	5/4 - just M3rd
9	294.3	D	3.91	9/8 - just M2nd
8	261.6	C	0.00	2/1 - octave
7	228.9	Bb-	-31.17	7/4 - septimal m7th
6	196.2	G	1.96	3/2 - just P5th
5	163.5	E	-13.69	5/4 - just M3rd
4	130.8	C	0.00	2/1 - octave
3	98.1	G	1.96	3/2 - just P5th
2	65.4	C	0.00	2/1 - octave
1	32.7	C	0.00	1/1 - unison

Note: Compound accidentals denote alterations greater than 25 cents (an eighth tone) flat (-) or sharp (+).