1. “Don’t you hear the lambs a’crying?”

An arrangement of a Ruth Crawford Seeger folksong arrangement, which appears in her collection *American Christmas Songs for Children*. Dedicated to Mary Ann Haagen.

Performance Notes
The viola part has the melody throughout, and the other three instruments should take care not to cover it. All crescendi/decrescendi should be slight, about half a dynamic level.

“...lambs...” was premiered at the Spoleto Music Festival, June, 1999.

(Thanks to Mike Frengel for assistance in copying the score).

LP, May 13, 1999
rev. June 10, 1999

2. v

v is written in the computer language HMSL. The fundamental idea is that three probability distributions (a kind of Gaussian, a harmonic series, and a uniform) are cross-faded continuously over the course of the piece. *v* is dedicated to John Kennedy.

v is the fifth in a set of pieces written with this software. So far, this set includes:

all things, beings, equal (saxophone)
Approaching the azimuth... (clarinet)
two minute warning (trumpet)
cinderella (solo flute)

Performance Notes

Tempo should be as fast as possible, ♩≈120 as a target. Phrasing, accents, and bowings are left to the quartet, as are fine dynamic shadings. In general, metrical groups should guide phrasing decisions, but a great deal of liberty is give with the "raw" score in that regard (phrasings, accents, bowings).

In the middle section, only natural harmonics, up to the fifth, are used, although sometimes the harmonic symbol is used to denote an open rather than stopped note (as on the violin E string). For clarification, the harmonics on each string are as follows:

open	**2nd**	**3rd**	**4th**	**5th**
C	C	G	C	E
G	G	D	G	B
D	D	A	D	F#
A	A	E	A	C# (not used)
E	E	B	E	G# (only open is used)

Note that the second harmonic is an octave, the third an octave and a perfect fifth, the fourth two octaves, and the fifth two octaves and major third above the open string.

The piece should be played somewhat furiously, calming to the middle, and climaxing at the end.

My appreciation to composer Charles Ames, whose work and thought along these theoretical and compositional lines have been an inspiration to me.

Thanks to David Fuqua for advice concerning the notation of the score.

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3. יתגדל (Yitgadal) and 3b. יתגדל (Yitgadal) (rising)

יתגדל is a "recomposition" of the third of my *Three Cello Tunes*, (same title). It is a setting of the Hebrew mourner's kaddish (a rhythmic transcription of two different readings, my own and that of Sarah Meyers).

Each of the 202 chords are selected by computer on the basis of their "consonance," as defined by the Euler GS-function (which computes intervallic consonance based on the number of factors and the magnitude of prime factors in a ratio). The (first) piece is a progression from most dissonant chords (in the retuning) to most consonant. Each instrument only plays one note per chord. *...(rising)* goes in the opposite direction, from most consonant to most dissonant (and uses a different tuning).

Performance Notes
Only natural harmonics on retuned strings are played. The notation is a kind of tablature. The performers must:

1) retune
2) play the specified harmonics on the specified strings in unison rhythm

All dynamics should be ad. lib. between mezzo-piano and mezzo-forte. All attacks should be soft, releases resonant. Fermata at the end of each section (verse) should be as a deep breath, like reading verse. Tempi should be as spoken, probably with the quarter-note somewhere around 96 (but flexible).

The notation below each note indicates the string in roman numerals (IV is lowest, I highest) and the harmonic number in subscripted arabic numerals (0, 2, 3, 4, 5). There is no first (1) harmonic, that is the open string. For example, IV_3 means the third harmonic on the fourth (lowest string), sounding an octave and a perfect fifth higher than the open string. The second harmonic is an octave, the fourth a double octave, and the fifth a double octave plus a (just) major third. Harmonics up to the fifth are used. Third harmonics may be played at two places on the string, fourth harmonics at two places, fifth harmonics at four places.

As a simple mnemonic aid, open string pitches (0th or 1st harmonics) are notated as an open triangle. When those values are quarter-notes, a * has been placed above or below the note as a reminder that it is *not* a half-note.

#3 (tuning)

With a few exceptions (Cs and Gs), all strings are retuned slightly, to pitches which are part of the harmonic series on C (but not necessarily in the correct octave). The open strings are tuned to the primes in the harmonic series: 1, 3, 5, 7, 11, 13, 17. These intervals are the unsion (octave), perfect fifth, major third (about 14¢ flat of equal-tempered), minor seventh (about 31¢ flat of an equal-tempered minor seventh), tritone (about 49¢ flat of an equal-tempered tritone, or a quarter-tone), minor sixth (about 41¢ sharp of an equal-tempered minor sixth, or a quarter-tone), and minor second (a little sharp of an equal-tempered minor second).

Pitch Name	**Harmonic #**	**Tuning deviation from 12-ET**
C	1	0
G	3	+2 (insignificant)
E	5	-14 (< 1/7 of a semitone)
Bb	7	-31 (around 1/6 of a tone)
F#	11	-49 (1/4-tone)
Ab	13	+41 (1/4-tone)
C#	17	+5 (1/20 of a semitone)

All of these open strings can be tuned easily to the low cello C, or by ear. Note that even though the E string on the violins remains as an "E", it should be tuned flat (to the 5th harmonic of the low cello C).

Harmonics of these open strings produce a wide variety of pitches, distinct from equal-temperament. For example, the 5th harmonic on the string tuned to the 13th harmonic results in the 65th harmonic, a very small minor second below the "tonic" C (notated as Cb in the tuning chart, the 5th harmonic on the II string of the first violin: II_5). The 3rd harmonic on the string tuned to the 11th harmonic sounds a small minor second above the "tonic" (wider than the one above), about a quarter-tone higher than the unison. That pitch, notated as a C# in the tuning chart, may be sounded on the III string of the viola (as III_3), or on the III string of the cello (III_3), or on the IV string of the violin (IV_3). That C# is not the same as the C#s sounded on the III string of the violin (tuned to the 17th harmonic).

יתגדל was premiered at the Spoleto Festival, June, 1999. For that performance, the members of the quartet sat in a straight line facing the audience, which is a nice performance alternative for this piece. This piece may also be amplified slightly, depending on the concert situation.

#3b (tuning)

In ....*(rising)*, all strings are retuned to pitches which are part of the harmonic series on Gb. As in #3, the open strings are tuned to the primes in the harmonic series: 1, 3, 5, 7, 11, 13, 17. These intervals are the same as above, but now in a different "key."

Pitch Name	**Harmonic #**	**Tuning deviation from 12-ET**
Gb	1	0
Db	3	+2 (insignificant)
Bb	5	-14 (< 1/7 of a semitone)
Fb	7	-31 (around 1/6 of a tone)
C	11	-49 (1/4-tone)
Eb	13	+41 (1/4-tone)
G	17	+5 (1/20 of a semitone)

All of these open strings can be tuned easily to the low cello Gb, or by ear, as in #3. Note that C is about a quarter-tone flat, but that Eb should be tuned around a quarter-tone high of a major sixth (to avoid using the notation Ebb. This differs from #3, where the 13th harmonic is notated as a minor sixth).

(Thanks to Anne Perez for assistance in copying the score for יתגדל).

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