

From “Larry Austin’s *Second Fantasy on Ives’ ‘Universe Symphony’*” [read at ASUC Convention, University of Illinois [March 1977]

“...Austin decided at an early stage in the composition of the *Second Fantasy* to reflect Ives’ apparent fascination with prime numbers---sequences of which may be found in the margins of some sketch pages---through the syntax of his own contributions to the complete texture of the work. In the final section of *Second Fantasy*, where, for example, a floating, trailing-off effect is desired, Austin decided to use nothing more than the sequence of 24 chords specified by Ives for Section C of *A Universe Symphony* with durations determined by diminishing prime number multiples of a quarter note pulse. Thus, the final chord has a duration of one quarter note, the penultimate chord has a duration of two quarter notes and so on.

Throughout the first two sections of the *Fantasy*, where a freer rhythmic effect is desired, Austin has evolved a much more elaborate compositional approach which, however, still maintains the importance of prime numbers in the completed work. This approach involves a specially-weighted random number program which he designed for the PDP 11/10 computer.

Austin first “ran” information for one hundred events, for each of four instruments, designated as: clarinet, viola, keyboards (piano, celesta), and percussion (including vibraphone and marimba). This information was expressed in terms of four control parameters: sound or silence (including pitch, where applicable), duration, dynamics and timbre. Data for each instrument’s range and timbral potential was correlated with a series of integers. The quarter note was selected as the basic pulse unit and assigned the value of “1.” Pianissimo was selected as the softest dynamic level and also assigned the value of “1.” Dynamics were Expressed in the printout in a special three-place chart, where 1-1-1 would indicate a continuous pianissimo and 1-2-3 would be equal to a crescendo from pianissimo to mezzopiano.

Austin decided that sound events would be called up exclusively by prime numbers. All other integers occurring in the sound or silence column of the print-out would signify silence.

For the introductory pitch material, the number “1” was assigned to the lowest possible pitch for viola, clarinet, celesta and marimba and to the C below middle C for piano. From this point, ascending scales of integers were equated with ascending chromatic scales moving through the range of each instrument to a maximum limit of 43 semitones. Since only prime numbers were to signify sound in the print-out, and since many chromatic pitches in the total range of each instrument were not represented by prime numbers, it was fairly easy for Austin to explore the entire pitch world he had stipulated before running his program. The composer reports that he was quite pleased at how well the synthetic prime

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number “scales,” with their strong whole-tone flavor, fit in with the emotional quality of his “heavenly” instrumentation.

The “color” number series associated with keyboard percussion instruments was even more intimately bound up with Ives’ material, since Austin decided to associate various integers in this set with the five “Earth Formation Chords” from the upper strata of Ives’ Section A. Austin designated these chords as follows: Chord A=E3-B3-F4-Bb4-D5-F#5; Chord B=C#4-E4-A4-D5-F5; Chord C=D4-G#4-B4-D#5; Chord D=D#4-A4-D5; Chord E=D#4-A4-C5-E5; Chord F=E4-G4-C5-F5-Ab5.

The timbral integer set for piano and celesta reads:

0-3	piano	normal, single note
4-5	piano	plucked, single note
6-7	piano	chord A
8-9	piano	chord B
10-11	piano	chord C
12-13	celesta	single note
14-15	celesta	chord A
16-17	celesta	chord B
18-19	celesta	chord C
20-21	piano	plucked, chord D
22-23	piano	normal, chord D
24-25	celesta	chord D

Viola and clarinet were assigned a broad range of colors, including, for viola: harmonics, tremolando and pizzicato; and, for clarinet: fluttertongue, multiphonics and vibrato. As with piano and celesta. A sequence of twenty-five integers was used, but the color probabilities were weighted somewhat differently. The clarinet, for example, was asked to play with normal tone for numbers 0 through 15; while the viola was permitted seven normal arco possibilities, four at one end of the series and three at the other....

In general, Austin has sought to assign Ives’ pitch aggregates to similar instruments in his own score. Thus Ives’ harp, piano and celesta aggregates are given in *Second Fantasy* to piano and celesta, while most alto and treble wind aggregates are assigned to the clarinet. Austin’s vibraphone and marimba, which have no precise equivalents in Ives’ sketches, are assigned collections which are idiomatically appropriate to those instruments---notably, the Ives clarinet aggregate, which consists of alternating minor 9ths and major 3rds....”