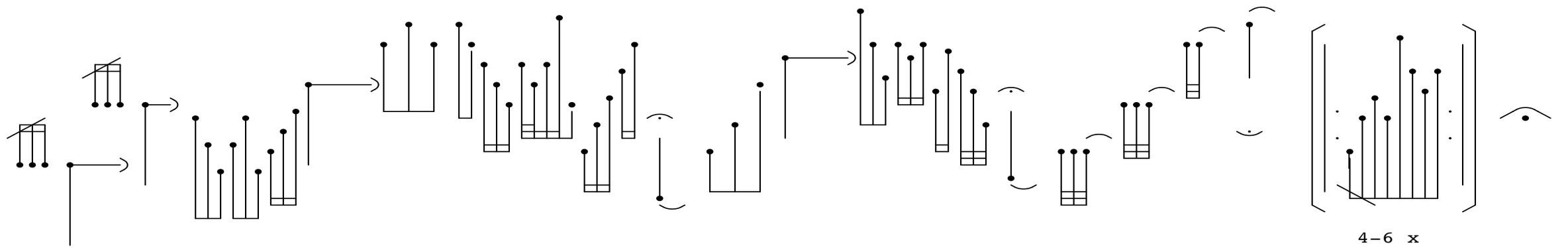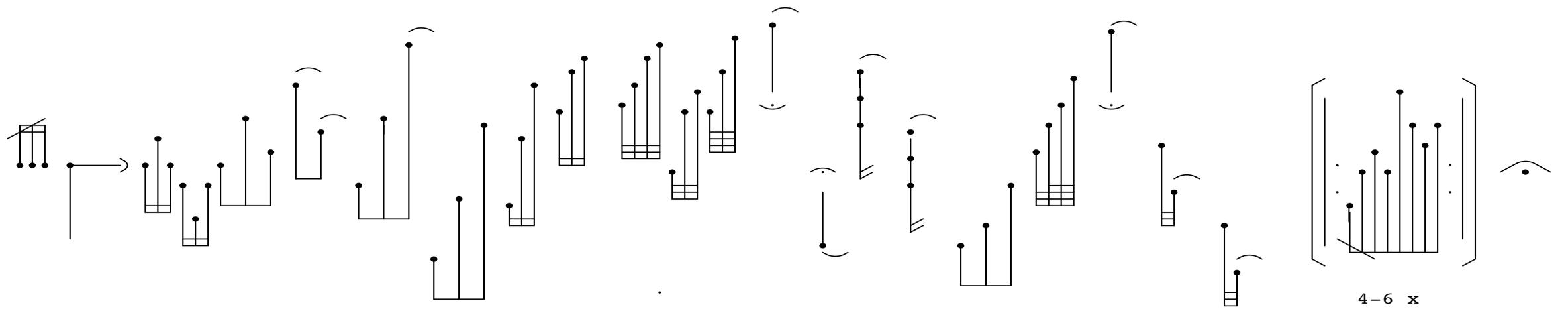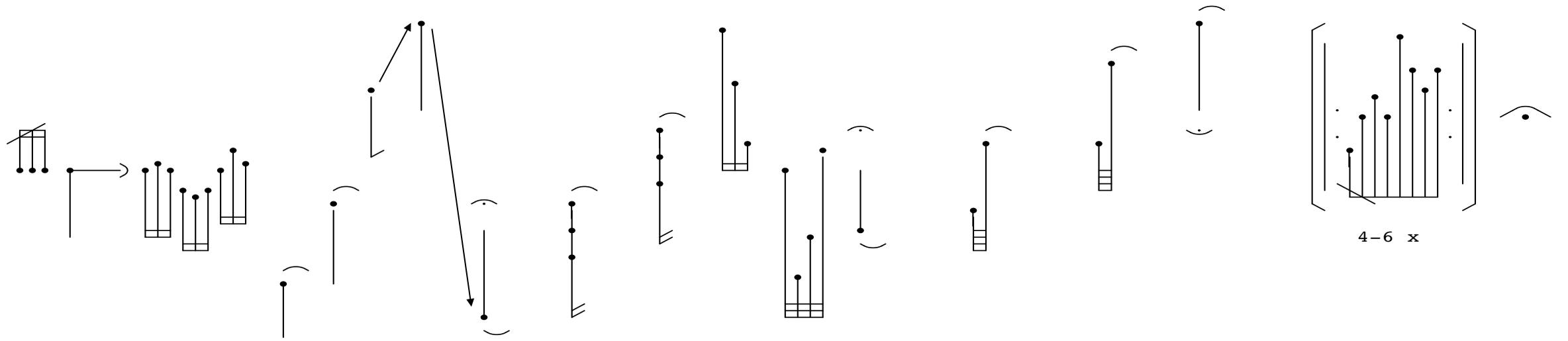I.   Fast, with energy,   2:00"

Notes

Program Notes
Goldstream Variations (2012) creates an interconnected system through live music, electronics, and machine learning algorithms. The variations are scored for one to seven musicians on undetermined acoustic instruments, together with one to seven electronic/computer artists. The selection of this grouping shapes the aural nature of performance space through the arrangement of performers and loudspeakers. Each page of the score constitutes one variation which is performed in heterophonic fashion as an ensemble. The acoustic musician's performances are engaged by various computer artists. The variations are designed for performance in either a single physical space, or distributed telematically between multiple sites on high-bandwidth Internet. *Goldstream Variations* was commissioned by Erzsébet Gaál-Rinne and is dedicated to her.

Performance Directions
Goldstream Variations (2012) is scored for one to seven musicians of open instrumentation, together with one to seven electronic/computer artists. Any combination of live musicians and computer artists is feasible. The acoustic musician's performances are interactively engaged by computer artists. The variations are designed for performance in either a single physical space, or distributed telematically between multiple sites on high-bandwidth nternet. Musicians perform the notated musical phrases using a provided pitch set, forming melodies of interest in idiomatic accordance with their instrument. Performers do not play in unison, but rather individually, in a heterophonic fashion. Musical lines should be played across the largest pitch spectrum of the instrument. Glissandi are optional, and it is also permissible to insert glissandi that are not notated. Notated phrases and melodic lines should be played as accurately as possible, with the exception of variations II and V, which are suggestive.

Pitch Set and Subsets
Set: G A Bb C D# E F#
Subsets: (CD#EF#) (CF#GA) (CEGA) (C) (F#) (CEF#A) (CGABb) (F#GABb) (CD#GA) (CEGA) (ABb)

The pitch set remains consistent throughout the entire work. Musicians apply these pitches to the phrases of each variation, except Variation III, which is scored in traditional notation and is played as written. Throughout the piece, only these pitches should be sounded, with the exception of glissandi (meaning the pitches G#, B, C#, D, and F should never be sounded). Non-pitched electronic and percussive sounds are encouraged in addition to the pitch set, except in Variation III. The pitch set is arranged into a sequence of grouped subsets that form a harmonic sequence over the specified period of time for each variation. The subset group consists of 11 groupings that are evenly distributed over the time span of each variation, in the provided sequence of groupings. For instance, in a variation of 2 minutes in length, each subset group should be focused on for approximately 11 seconds. The sequence of the subsets provides consistency for group harmonic movement. All of the notes of the main pitch set can be sounded at any time, and the subsets are the notes that should be given prominence. Variation III does not use the subset model since it is composed with traditional notes. Care should be taken to make aesthetic decisions about ensemble arrangement, placement of sounds, dynamics, phrasing, and juxtaposition of electronic and percussive sounds.

Electronics
Electronic artists are to capture the acoustic musician's sounds, apply processing, then release into each variation freely. Any sort of manipulation is permitted. Electronic sounds should play a dominant role in Variation V, and also in the large fermatas of Variation IV. A MaxMSP and Jitter software patch is supplied with the piece for performance, as is an optional photo set intended for visual manipulation in Jitter or related video software.

Variations
Variation I is comprised of a series of similar rapid passages interspersed with periods of silence. The sonic texture should not be dense, but Instead there should be ample space for lines to resonate. Each player chooses one to three of the musical lines to perform within two minutes, in any order. Phrases should be played as rapidly as possible, fluidly, and with a light touch (even when playing at fff). No attempt should be made to coordinate or match the performance of the lines between musicians, other than the fact that everyone has two minutes to perform.

Variation II should be performed very softly, and rapidly. Ensemble members should choose different parts of the score to enter, and play through all of the material within 2 minutes. For variety, the score can be turned upside down and performed by some of the players.

Variation III is a melody performed by a solo instrument, with very light/sparse tonal background from other instruments and electronics. The soloist should carefully plan the phrasing, dynamics, and pacing of the song.

Variation IV's passages should be performed as rapidly as possible, generally at a high intensity level. Ideally, players arrive at the large fermatas simultaneously, and rest together. The large fermata spaces should be void of acoustic instruments, yet filled with electronic sounds. The two lines can be performed by any combination of players, or could be performed together by a keyboard musician. Further, the two lines can be performed in precise ensemble by two musicians if desired (as shown on page IV A-B), but this is not entirely necessary.

Variation V is a series of singular passages that can be randomly selected. The intent is not for a musician to play all of the motifs, but rather to chose a series of them over two minutes. Passages should be played with a light touch, and with great speed, softly. The texture should be fairly sparse overall. Allow lots of time between playing of each motif. Electronic sounds should dominate the sonic field of this variation.