



Settling the Oldest Scores: Idiom and Design in the Hurrian Pieces, ca. 1350 BCE

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From an analytical viewpoint, the earliest musical scores are quite unusual. On one hand, important aspects of their indigenous cognition are unambiguous. In particular, the earliest musical scores specify i) a heptatonic scale that, perceptually, is a well-formed cycle of 4^{ths} (or their generic complements, 5^{ths}) and ii) an unambiguous temporal ordering of dyads: specifically, 3^{rds} and 4^{ths} whose tones belong to the heptatonic well-formed cycle.

On the other hand, the earliest scores do not indicate the durations of these successive dyads. As well, one can only speculate whether the octaves in this heptatonic scale are close in specific size to the 2:1 fundamental-frequency ratio formulated a thousand years later. Further, there is no explicit basis for concluding that the 4^{ths} in this well-formed scale are larger or smaller than they would be in a corresponding equiheptatonic cycle. As well, although the cycle's tones are registrally ordered in a sevenfold scale, there is no unambiguous evidence that degrees 1, 2, 3, 4, 5, 6, and 7 are to be understood as arranged from low to high or from high to low.

Compounding such challenges the extant notations present to musical analysis, only 3 of the 35 earliest scores specify the actual pair of degrees that form the discrepant 4th of the well-formed heptatonic scale (which, in a diatonic tuning, would be an augmented 4th of ~600 cents, and in a *pélog* tuning, a 'diminished' 4th of ~400 cents). Further, only one of the 35 earliest scores survives as an unbroken, continuous succession of dyads. In the remaining 34 scores, relatively few dyads are now unambiguously legible, and in any of these 34 discontinuous scores no more than 3 legible dyads survive in immediate, unbroken temporal succession. Indeed, the surviving cuneiform tablets on which the earliest musical scores are inscribed are archaeologically rather analogous to a single relatively intact pot and 34 broken pots that survive as sherds.

Despite considerable uncertainty concerning features of the scores that would usually be taken for granted in musical analysis and despite the discontinuity of all but one of the scores, one can pose and answer quite detailed analytical questions about the pieces they convey. The main analytic questions addressed in this study are as follow: What sense can one make of the piece notated in the most continuous score, which is known by its Assyriological siglum h.6? And to what extent are the remaining pieces, whose extant scores are highly discontinuous, similar to h.6? In order to answer these questions, the following components of the 35 pieces are considered:

- a) individual degrees, numbered 1 to 7;
- b) individual 3^{rds} and 4^{ths};
- d) immediate and non-immediate successions of 3^{rds} and 4^{ths};
- e) augmented/diminished 4^{ths}, especially with regard to *nid qabli*, the well-formed tuning of h.6 as well as h.7 and h.12;
- f) small and large 3^{rds}, which are a consequence of well-formed tuning.

To characterize all 35 pieces and to compare h.6 and the other two, discontinuous pieces in *nid qabli* tuning with the other 32 discontinuous pieces, certain things are shown to happen or not to happen within and among these pieces. Between these extremes, certain things tend to happen or tend not to happen; more precisely, certain tendencies are or are not statistically significant (at the .05 level) or are or are not highly correlated.

It is assumed that the dyads in the fragments are a sample of a larger number of dyads in the original, undamaged scores. Assuming as much, certain statistical measures are calculated: in particular, binomial probability, χ^2 (chi-squared), and r^2 . To 'make sense' of the analytical results, two very general music-theoretical notions are developed: 'sameness' and 'analogy.' Further, it is conjectured that sameness and analogy correspond directly to the Gestalt Grouping Principles of Similarity and Common Fate. As well, since certain relationships might be quite prominent in individual pieces like h.6 but not in all the pieces, a distinction is made between the 'design' of individual pieces and more general features of what are termed the pieces' 'idiom.' Moreover, and quite tentatively, it is speculated that two of the pieces identified as in *nid qabli* tuning, namely, h.6 and h.7, are variants of a single piece.