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Mathematical Practices in relation to the Astral Sciences

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Progressions and ordered lists of numbers

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Difference schemes and their relation to interpolation rules in Babylonian lunar ephemerides

Abstract - Babylonian astronomical procedure texts give detailed instructions for interpolation in tables of lunar phenomena, but there is very little explanation of the underlying principles. Asger Aaboe's publication and analysis of the tablet BM 36311 provided a crucial insight into one of the major interpolation procedures in the System A lunar ephemerides. The tablet contained a large section of an astronomical table with 4 columns and 124 rows. There was no explanatory text, but the first two columns were easily recognized as truncated forms of Column *Phi* from the System A lunar ephemerides. While studying the structure of the table, Aaboe realized that the line to line increments in the third column were equal to the differences between the entries in the first two columns, which relation, expressed in a mathematical equation, becomes, $III(n+1) - III(n) = II(n) - I(n)$. We will discuss the source of this relation and properties of the tables it generates, using the examples in the tablets BM 36311 and BM 36699 as well as related fragments as studied by Aaboe and later by John Britton.