A VARIANCE-COMPONENTS ANALYSIS
FOR THE LONGITUDE-NETWORK ADJUSTMENT

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Due to technical problems a number of formulae and notation have been erroneously printed.

\[
\begin{align*}
\text{(a) Linear: } & \quad v = Ax + Bt + f, \quad f = l_0 + 1 \\
\text{(b) Stochastic: } & \quad M[v] = 0, \quad M[vv^T] = K = \sigma^2P^{-1} = \sigma^2\text{diag}\{P_i^{-1}\}.
\end{align*}
\]

where: \( v \) – vector of measurement corrections; \( l \) – vector of measurements; \( l_0 \) – vector of approximate values of measured quantities; \( x \) – vector of basic parameters; \( t \) – vector of additional parameters; \( A \) and \( B \) – matrices of known coefficients; \( \sigma^2 \) – variance coefficient, (in calculations assumed \( \sigma^2 = 1 \)); \( K \) – variance-covariance matrix of measurements and \( P \) – matrix of measurement weights.

\[
v = Ax + Bt + f, \quad f = l_0 - 1
\]

where we study the influences of \( Bt \) in the observations which can be described with the vector of additional parameters \( t \), whereas the vector of basic parameters \( x \) is the same in all the functional models.

The vector of basic parameters \( x \) is the

respect to the term \( Bt \) representing the effects of individual

the vector \( t \) has 8 components: variation with time of latitude

night (23 observing nights). Therefore, the \( t \) vector

Model FM1 the \( t \) vector is extended with additional