Figure 123. Empirical distribution functions for Tycho Brahe's star catalogue

10.2. Hevelius' catalogue. The version of Hevelius' catalogue used here is that of Baily [324]. The traditionally accepted date for this catalogue is the second part of the 17th century. We consider the information kernel of this catalogue to be almost the same as that of Tycho Brahe's catalogue, namely the twelve stars: Arcturus (110), Spica (510), Lyra [Vega] (149), Aselli (452), Antares (553), Castor (424), Sirius (818), Pollux (425), Procyon (848), Capella (222), Regulus (469), and Previndemiatrix [Vindemiatrix] (509).

Our calculations show that the optimal values for β and γ are $\beta = 0$ and $\gamma = 0$, meaning that *Hevelius' catalogue does not contain any systematic errors.* The graphs of individual latitudinal deviations in the time interval $1 \leqslant t \leqslant 4$ are shown in Fig. 124. It is obvious that the actual accuracy of the latitudes in this catalogue is about 2', and not the 1'' claimed by Hevelius. The scale unit in this catalogue is also said to be 1''. Apparently Hevelius made an incorrect estimate of the accuracy of his catalogue (i.e., of his observations). The dating time interval becomes stable (relative to changes in Δ) when $\Delta \geqslant 2.2'$. For example, if $\Delta = 2.5'$, then $T_2 = (2.5 \leqslant t \leqslant 3.0)$, i.e., from 1540 to 1650 A.D. If $\Delta = 3'$, then $T_2 = (2.35 \leqslant t \leqslant 3.85)$, i.e., from 1515 to 1650 A.D.

The method of dating, which is based on the distribution function of the errors (see formula (10)), gives us $t^* = 3 \pm 0.5$, i.e., from 1550 to 1650 A.D.