Correlated Mutations

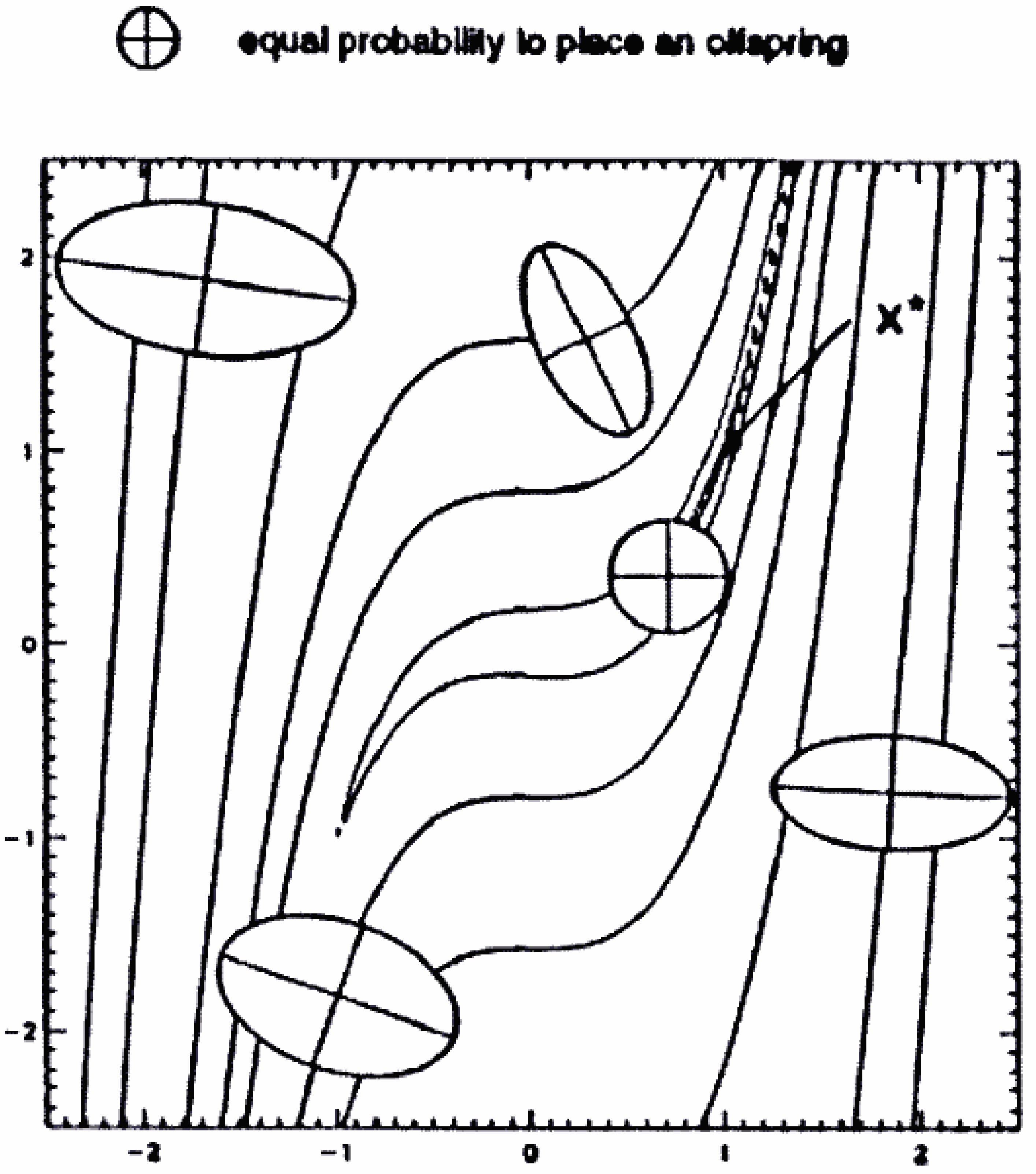

Figure 9: Correlated mutations, $n = 2$, $n_\sigma = 2$, $n_\alpha = 1$.

$$
\begin{aligned}
I &= I\!R^n \times I\!R^n_+ \times [-\pi, \pi]^{n\cdot(n-1)/2} \\
m'_{\{\tau,\tau'\beta\}}(\vec{x}, \vec{\sigma}, \vec{\alpha}) &= (\vec{x}', \vec{\sigma}', \vec{\alpha}') \\
\tau &\sim 1/\sqrt{2\sqrt{n}} \\
\tau' &\sim 1/\sqrt{2n} \\
\beta &\approx 5^\circ
\end{aligned}
$$

$$
\begin{aligned}
\sigma'_i &= \sigma_i \cdot \exp(\tau' \cdot N(0,1) + \tau \cdot N_i(0,1)) \\
\alpha'_j &= \alpha_j + \beta \cdot N_j(0,1) \\
\vec{x}' &= \vec{x} + \vec{N}(\vec{0}, \mathrm{C}')
\end{aligned}
$$

Boundary rule for keeping rotation angles feasible:

$$|\alpha'_j| > \pi \quad \Rightarrow \quad \alpha'_j := \alpha'_j - 2\pi \cdot \mathrm{sign}(\alpha'_j)$$