Algorithm: MAP model construction

Initialisation:
\[ S_0 = 0, \quad M_{L+1} = 0. \]

Recurrence: for \( j = 1, \ldots, L + 1 \):
\[
S_j = \max_{0 \leq i < j} S_i + T_{ij} + M_j + I_{i+1,j-1} + \lambda;
\]
\[
\sigma_j = \arg\max_{0 \leq i < j} S_i + T_{ij} + M_j + I_{i+1,j-1} + \lambda.
\]

Traceback: From \( j = \sigma_{L+1} \), while \( j > 0 \):
Mark column \( j \) as a match column;
\[ j = \sigma_j. \]