Generalized Linear Models Project
Statistical Methods Reveal What Makes University of Chicago MBA Students Happy

JUN XU
Boston University
May 8, 2015

Algorithm 1 Refine step

for i = 1 to $|X|$ **do**
    unchecked[i] = 0;
for i = 1 to p **do**
    unchecked[sorted[i]] = 1;
distance = ∞;
columns = 0;
for k = 1 to p **do**
    candidate = sorted[k];
    if (unchecked[candidate] == 0) **then**
        continue;
    j = candidate + 1;
    for $i = |Q| + 1$ to 1 **do**
        cost[i][j] = ∞;
    while (true) **do**
        $j = j - 1$;
        if (candidate - $j \geq 2 * |Q|$) **then**
            ;
        if (unchecked[j] == 1) **then**
            unchecked[j] = 0;
            candidate = j;
            cost[$|Q| + 1$][j] = 0;
            endpoint[$|Q| + 1$][j] = j;
        else
            cost[$|Q| + 1$][j] = ∞;
        for $i = |Q|$ to 1 **do**
            previous = $\{(i + 1, j), (i, j + 1), (i + 1, j + 1)\}$;
            $(p_i, p_j) = \text{argmin}_{(a,b) \in \text{previous}} \text{cost}[a][b]$;
            cost[i][j] = $|Q_i - X_j|$+ cost[p_i][p_j];
            endpoint[i][j] = endpoint[p_i][p_j];
        if (cost[1][j] < distance) **then**
            distance = cost[1][j];
            $j_{\text{start}} = j$;
            $j_{\text{end}} = endpoint[1][j]$;
        columns = columns + 1;
        if (min$\{$cost[i][j]$\}$ $\geq$ distance, $\forall i = 1, \cdots, |Q|$) **then**
            break;
start = $j_{\text{end}} - 3 * |Q|$;
end = $j_{\text{end}} + |Q|$;
Adjust j_{start} and j_{end} by running the DTW algorithm between Q and $X^{\text{start:end}}$;