

20 If  $v$  is the largest so far then

21  $\bar{y}^* \leftarrow (y'_1, \dots, y'_n)$

22 End if

23 End for

24 End for

25  $\bar{y}' \leftarrow \bar{y}^*$

26 If  $\frac{a^*}{a^* + b^*} \gg P$  then

27  $\Delta \leftarrow 100 \left( 1 - \frac{a^*}{a^* + c^*} \right)$

$\left[ \begin{array}{l} a^*, b^*, c^* \text{ are} \\ \text{contingency table values} \\ \text{corresponding to } \bar{y}^* \end{array} \right]$

28 Else

29  $\Delta \leftarrow 100$

30 End if.

31  $\xi \leftarrow \max_{\bar{y}' \in \mathcal{C}} \left\{ \max \left\{ 0, \Delta - \bar{w}^T \left[ \sum_{i=1}^n y_i \bar{x}_i - \sum_{i=1}^n y'_i \bar{x}_i \right] \right\} \right\}$

32 If  $\Delta - \bar{w}^T \left[ \sum_{i=1}^n y_i \bar{x}_i - \sum_{i=1}^n y'_i \bar{x}_i \right] > \xi + \epsilon$  then

33  $\mathcal{C} \leftarrow \mathcal{C} \cup \{\bar{y}'\}$

34  $\bar{w} \leftarrow \text{Call SVM-light subject to set of constraints } \mathcal{C}$

35 End if

36 Until  $\mathcal{C}$  has not changed from previous iteration

37 Classifier is then  $h(\bar{x}) = \text{sign}[\bar{w}^T \bar{x}]$