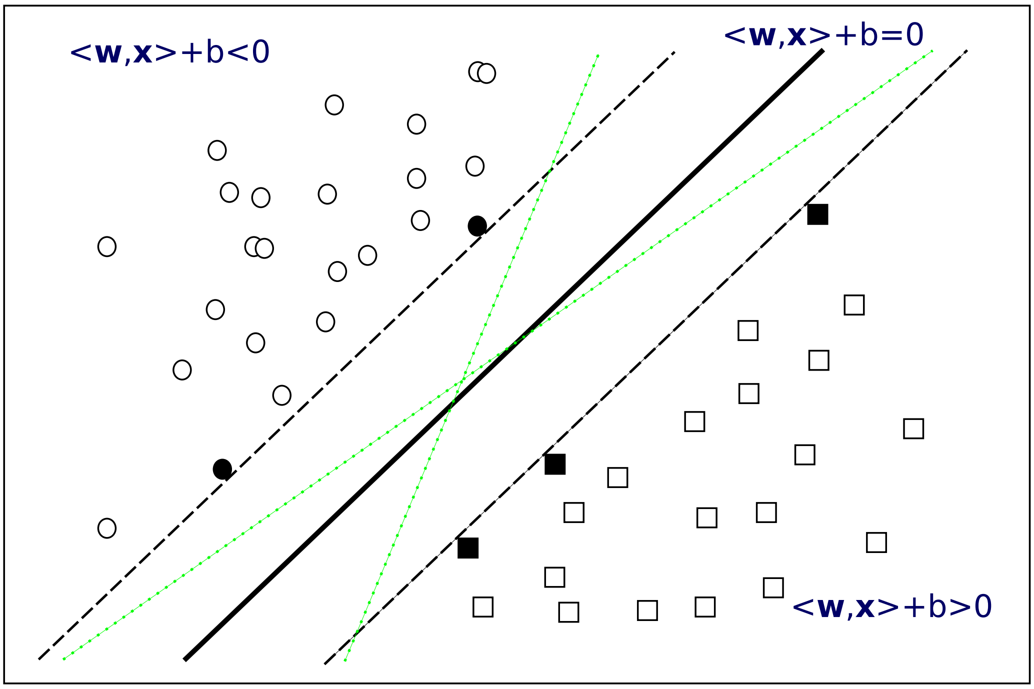


$$\underset{\mathbf{w}\in\mathbb{R}^p, b\in\mathbb{R}}{\operatorname{argmax}} \ \min\{\|\mathbf{x}-\mathbf{x}_i\| \mid \mathbf{x}\in\mathbb{R}^p, \langle\mathbf{w},\mathbf{x}\rangle + b = 0, \quad i = 1\ldots,n\}. \tag{1}$$

$$|\langle\mathbf{w},\mathbf{x}_i\rangle + b| = 1 \tag{2}$$

$$d_1 = \frac{|1-b|}{\|\mathbf{w}\|} \tag{3}$$

$$d_2 = \frac{|-1-b|}{\|\mathbf{w}\|} \tag{4}$$

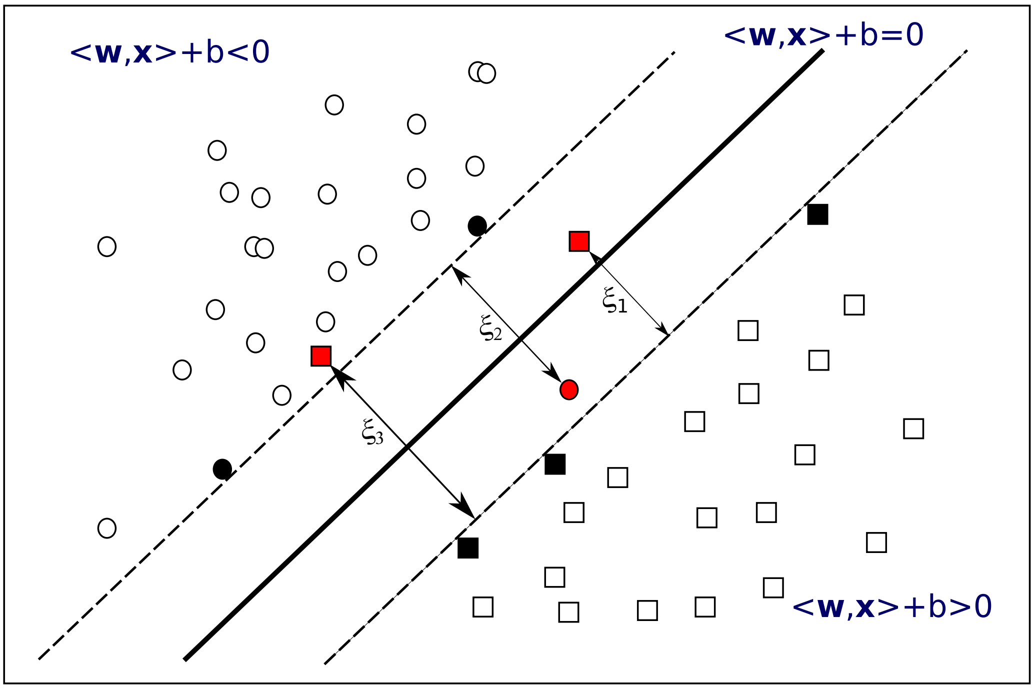
$$\gamma = d_1 - d_2 = \frac{2}{\|\mathbf{w}\|} \tag{5}$$

$$y_i\left(\langle\mathbf{w},\mathbf{x}_i\rangle + b\right) \geqslant 1, \quad i = 1,\ldots,n \tag{6}$$

$$\frac{1}{2}\|\mathbf{w}\|^2 \tag{7}$$

$$\mathbf{w}^* = \sum_{i=1}^{n} y_i \alpha_i^* \mathbf{x}_i \tag{8}$$

$$f(\mathbf{x}) = \operatorname{sgn}\Big(\sum_{\alpha_i^* \neq 0} y_i \alpha_i^* \langle \mathbf{x}_i, \mathbf{x} \rangle + b^*\Big) \tag{9}$$



$$y_i(\langle \mathbf{w}, \mathbf{x}_i \rangle + b) \geqslant 1 - \xi_i, \quad i = 1, \ldots, n \tag{10}$$

$$\xi_i \geqslant 0, \quad i = 1, \ldots, n \tag{11}$$

$$\frac{1}{2}\|\mathbf{w}\|^2 + C\sum_{i=1}^{n} \xi_i \tag{12}$$

$$\Phi : \mathbb{R}^p \mapsto \mathcal{H} \tag{13}$$

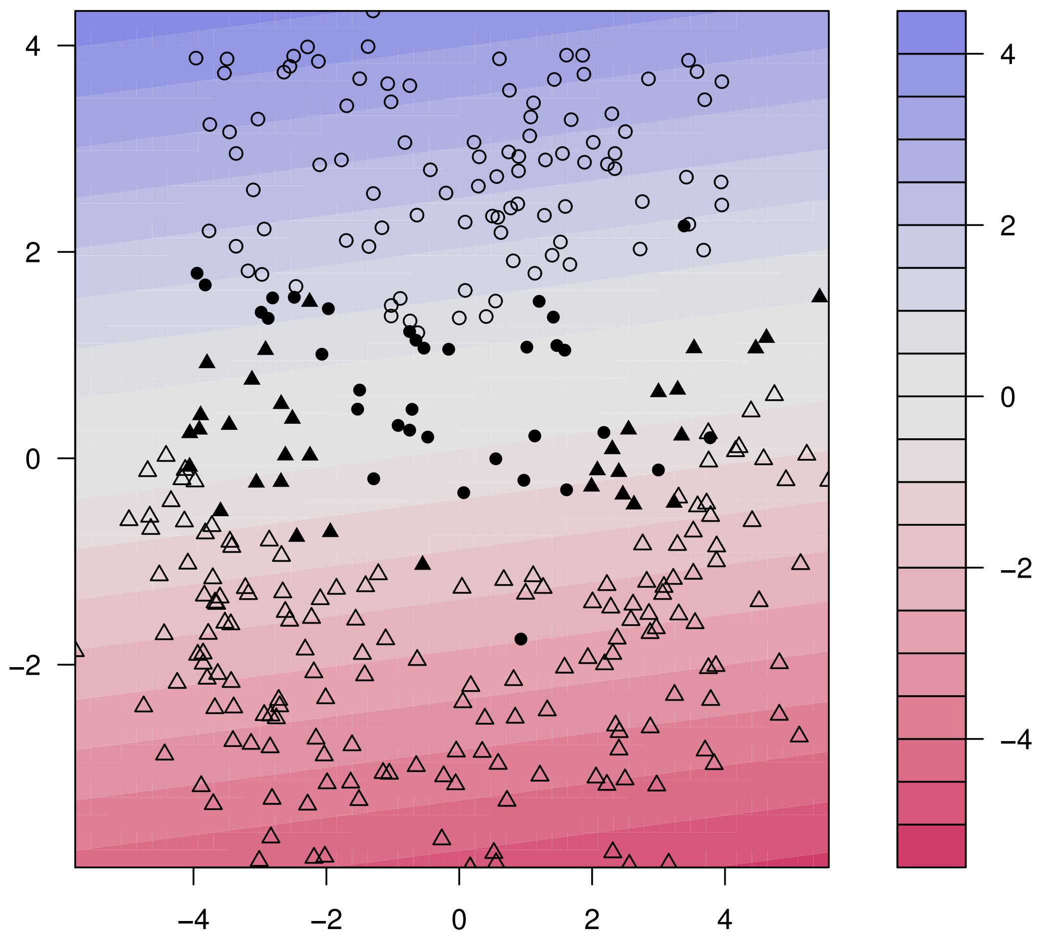
$$f(\mathbf{x}) = \operatorname{sgn}\Big(\sum_{\alpha_i^* \neq 0} y_i \alpha_i^* \langle \Phi(\mathbf{x}), \Phi(\mathbf{x}') \rangle + b^* \Big) \tag{14}$$

$$f(\mathbf{x}) = \operatorname{sgn}\Big(\sum_{\alpha_i^* \neq 0} y_i \alpha_i^* k(\mathbf{x}_i, \mathbf{x}) + b^* \Big) \tag{15}$$

$$k(\mathbf{x}_i, \mathbf{x}_j) = (s\langle \mathbf{x}_i, \mathbf{x}_j \rangle + c)^d \tag{16}$$

$$k(\mathbf{x}_i, \mathbf{x}_j) = \exp\big(-\sigma\|\mathbf{x}_i - \mathbf{x}_j\|^2\big) \tag{17}$$

$$k(\mathbf{x}_i, \mathbf{x}_j) = \tanh(\kappa\langle \mathbf{x}_i, \mathbf{x}_j \rangle + c) \tag{18}$$



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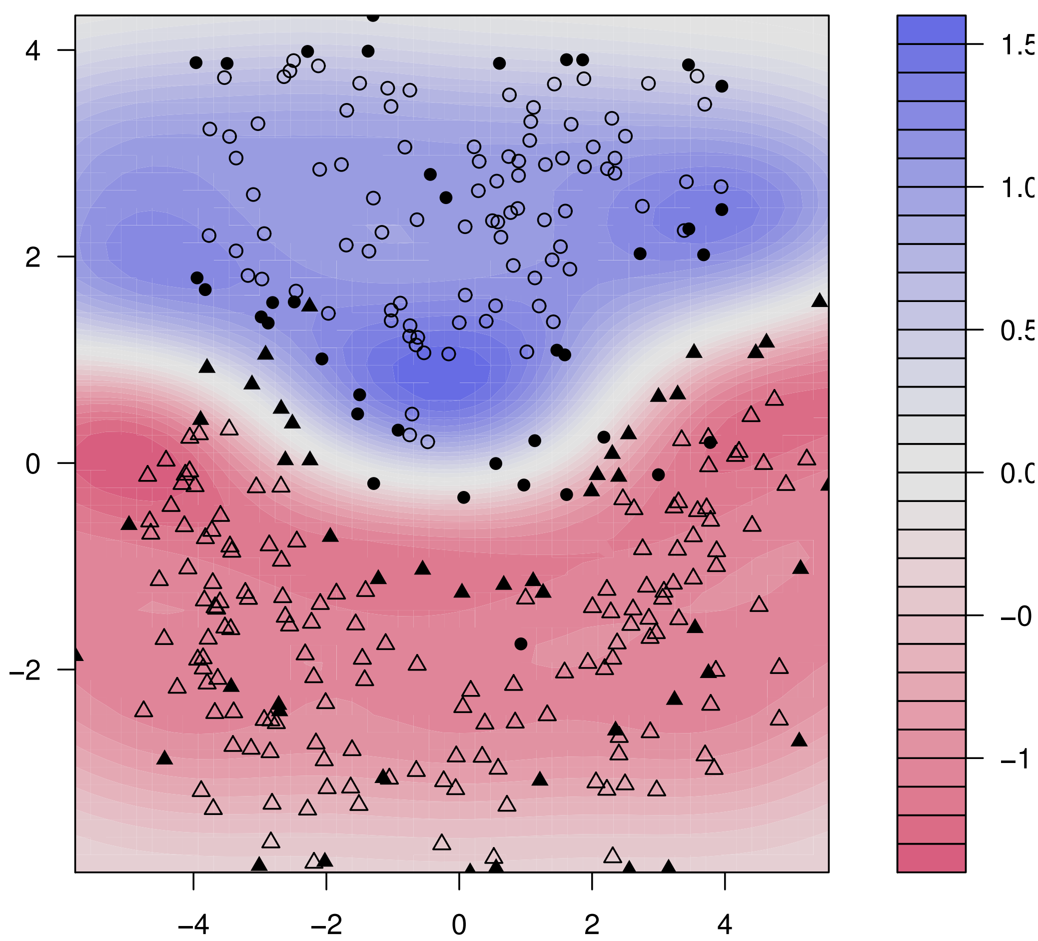
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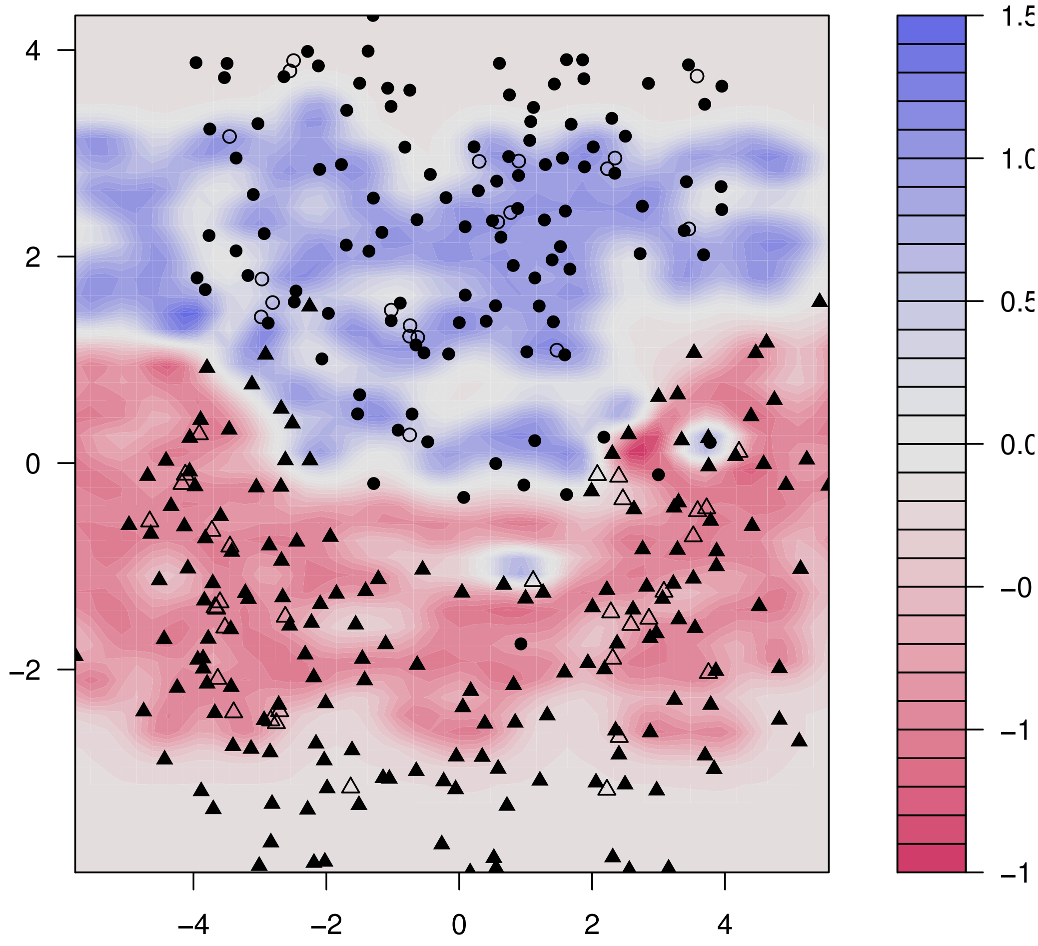

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