

Minsky 创造了线性可分(不可分)的概念

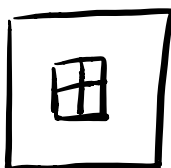
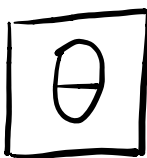
1969. <<Perceptron>>

日常生活中很多分类问题是非线性可分的

非线性可分的例子: 识别一个二值图是否全连通

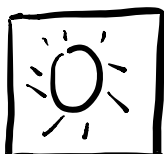
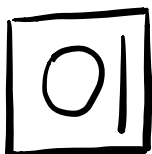
全连通

Class 1

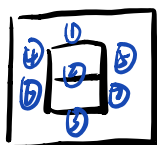


非全连通

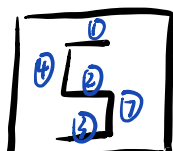
Class 2



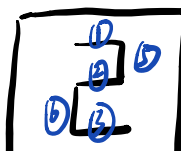
证明:



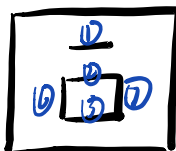
输入



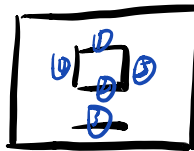
A



B



C



D

Class 2

$$\begin{aligned}
 & \left. \begin{aligned}
 A: & 10 + 10 + 10 + 10 + 10 + b \geq 0 \\
 B: & 10 + 10 + 10 + 10 + 10 + b \geq 0 \\
 C: & 10 + 10 + 10 + 10 + 10 + b < 0 \\
 D: & 10 + 10 + 10 + 10 + 10 + b < 0
 \end{aligned} \right\} \begin{aligned}
 & 2[10 + 10 + 10] + 10 + 10 + 10 + 10 + 2b \geq 0 \\
 & 2[10 + 10 + 10] + 10 + 10 + 10 + 10 + 2b < 0
 \end{aligned}
 \end{aligned}$$

.. 非线性可分