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| Mahalonobis Distance |  |
| A refined measurement of a test point’s distance from the distribution. Takes into account the shape of the distribution. | |

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|  | Where is the cost of taking action 1 when the state of nature is | Decide if |
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|  |  |  |  |
|  |  |  | (2) |
|  |  |  | (2) |
|  |  | (2) |
|  |  | (2) |

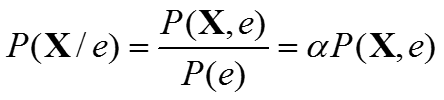
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| Bayesian Networks | |
| Arcs represent causal influence |  |
| If missing information, use the sum of all possible values in place of that term: | |
| Naïve Bayesian Network: Assume that all features are conditionally independent given the class: | |

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| Decision Boundary: | Case 1: | | Case 2: | |
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| Case 1: | Diagonal, equal covariances | linear |
| Case 2: | Equal, not diagonal |
| Case 3: | Anything goes | quadratic |

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| Adjust to adjust ROC/FAR and FRR |

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| Chernoff Bound |  |  |  | Both distributions must be Gaussian for meaningful results |
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| Special: Battacharyya (β=0.5), |  |  |  |
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| MLE mu |  |  |
| MLE sigma |  | ||| |

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| --- | --- |
| MLE | Maximize |
| MAP | Maximize |
| BE |  |

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| BE |  |
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| where |  |
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