

## Closing remarks

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## Base rate fallacy



The base rate fallacy is an error that occurs when the conditional probability of some hypothesis given some evidence is assessed without taking into account the prior probability of hypothesis and the total probability of evidence. [\(Wiki\)](#)

Kahneman D, Tversky A. On prediction and judgement. Oregon Res Inst Bull 1972;371:100.

Tversky A, Kahneman D. Evidential Impact of Base Rates". In: Judgment Under Uncertainty: Heuristics and Biases, Kahneman, Paul Slovic, and Tversky, ed. 1985; pp. 153-160.

<http://www.fallacyfiles.org/baserate.html>



## Diagnostic procedure

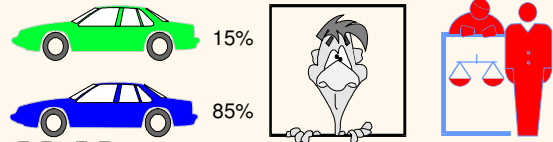
Sensitivity =  $TP / (TP + FN)$   
 Specificity =  $TN / (FP + TN)$   
 Positive predictive value =  $TP / (TP + FP)$   
 Negative predictive value =  $TN / (FN + TN)$

Test	Status	
	Exists (e.g. disease)	Does not exist
positive	true positive (TP)	false positive (FP)
negative	false negative (FN)	true negative (TN)



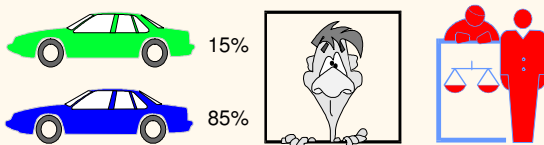
## P (green) = ?

1. Hit-and-run accident, night... 0,15
2. Witness: "It was green!" 1,0
3. Statement opposed: night vision...



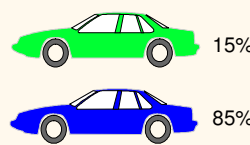
## P (green) = ?

1. Hit-and-run accident, night... 0,15
2. Witness: "It was green!" 1,0
3. Statement opposed: night vision...
  - colour resolution: 80% valid, 20% wrong (both) 0,80



## P (green) = ?


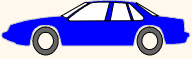
1. Hit-and-run accident, night... 0,15
2. Witness: "It was green!" 1,0
3. Statement opposed: night vision...
  - colour resolution: 80% valid, 20% wrong (both) 0,80



Sensitivity =  $80\% = TP / (TP + FN)$   
 Specificity =  $80\% = TN / (FP + TN)$



$P(\text{green}) = ?$

Witness statement	Real colour of the car	
		
green	12	17
blue	03	68
total	15	85



Positive predictive value =  $TP / (TP + FP)$



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$P(\text{green}) = ?$

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green	12	17
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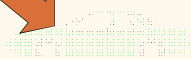
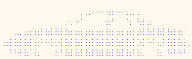
Positive predictive value =  $TP / (TP + FP) = 12/29 = 0,41$



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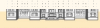


Wise reasoning

Witness statement	Real colour of the car	
		
green	12	17
blue	03	68
total	15	85

**Science**

0,41



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Thank you

**Science**

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