Supplementary Material for

Evaluating Eyewitness Identification Procedures Using ROC Analysis

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Current Directions in Psychological Science

There are two parts to the tutorial video and two accompanying text files (tutorial.txt and tutorial2.txt). This sheet provides you with the resources, codes, and references that are used in the videos.

To download and install the statistics program:
www.r-project.org
www.rstudio.com

```
# Load pROC package
library("pROC")

# Compute partial area under the curve for tutorial.txt
roc.default(controls = tutorial$FalseID, cases =
tutorial$CorrectID[!is.na(tutorial$CorrectID)], direction = "<", ci = T, partial.auc =
c(1, 0.83))

# Compute partial area under the curve for tutorial2.txt
roc.default(controls = tutorial2$FalseID, cases =
tutorial2$CorrectID[!is.na(tutorial2$CorrectID)], direction = "<", ci = T, partial.auc =
c(1, 0.83))

# Make ROC objects for tutorial.txt
roc1 <- roc(controls=tutorial$FalseID,
cases=tutorial$CorrectID[!is.na(tutorial$CorrectID)], direction = "<")

# Make ROC objects for tutorial2.txt
roc2 <- roc(controls=tutorial2$FalseID,
cases=tutorial2$CorrectID[!is.na(tutorial2$CorrectID)], direction = "<")

# Compare ROC curves
roc.test(roc1, roc2, reuse.auc=FALSE, paired=FALSE, partial.auc=c(1, 0.83),
partial.auc.focus="sp", method="bootstrap")
```

Important Preliminary Note about Variability:

When individual ROC data are analyzed (as in standard recognition memory experiments), variability reflects differences in memory strength values across items. In this case, the ROC represents the ability of an individual to discriminate between targets and lures using an old/new recognition test.

When group ROC data are analyzed (as in standard recognition memory experiments where the data are pooled over participants), variability reflects differences in memory strength values across people (i.e., participants) and items. In this case, the ROC represents the collective ability of a group of individuals to discriminate between targets and lures using an old/new recognition test.

The same variability occurs with lineup ROC data where each person supplies only one data point. The variability reflects variability across participants and items (e.g., if different innocent suspects are used in different lineups). In this case, the ROC represents the collective ability of a group of individuals to discriminate between innocent and guilty suspects using a particular lineup recognition test (e.g., a sequential lineup).

Important Note about Parametric Measures:

A' is often thought of as nonparametric, but it *is* a parametric measure. A' makes an implicit (and possibly misleading) assumption about the shape of the ROC. The area under the curve makes no assumption about the shape of the ROC (see Macmillan & Creelman, 1996).

References

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