

Agenda

1. Inference for a single numerical mean
2. Paired-samples t-test

Gifted Children An investigator is interested in understanding the relationship, if any, between the analytical skills of young gifted children and the following variables: father's IQ, mother's IQ, average number of hours per week the child watched an educational program on TV during the past three months, average number of hours per week the child watched cartoons on TV during the past three months. The analytical skills are evaluated using a standard testing procedure. Data were collected from schools in a large city on a set of 36 children who were identified as gifted children soon after they reached the age of four.

For 25 of the 36 children, the child's mother's IQ was higher than that of the father. Find a 95% confidence interval for the true proportion of gifted children whose mothers have higher IQs than their fathers.

Inference for a Mean We know how to make inferences about the value of a population proportion p , for a binary variable. The critical step was to construct an approximation of the sampling distribution of the sample proportion, \hat{p} . What if the the variable that we want to make inferences about is *numerical*? In this case we need to approximate the sampling distribution of the sample mean, \bar{x} . How can we do this?

Gifted Children's scores Use the information presented below to construct a 95% confidence interval for the mean analytical score among gifted children.

```
require(openintro)
require(mosaic)
favstats(~score, data = gifted)

##   min  Q1 median  Q3 max    mean    sd  n missing
##  150 155   159 162 169 159.1389 4.630043 36     0
```

1. Compute the standard error of the mean.

