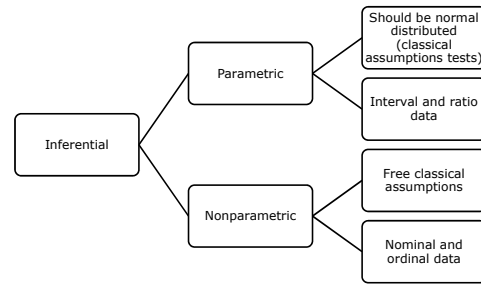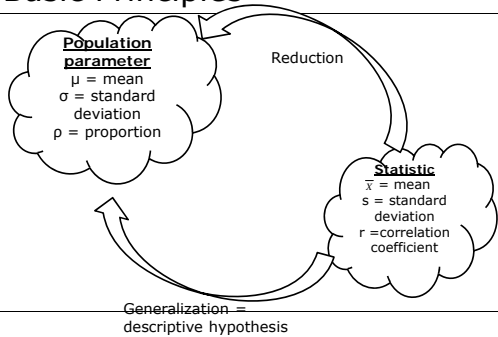## One Sample Descriptive Hypothesis Test

Presented by
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Sources:
Sugiyono, Statistika Untuk Penelitian, Alfabeta, Bandung, 2007
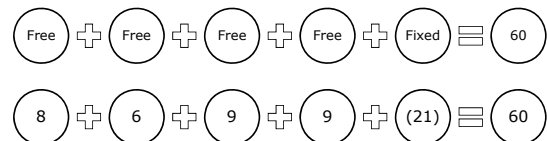Neil Burdess, Starting Statistics a Short, Clear Guide, Sage, 2010

Two main inferential statistics tests

Basic Principles

Degree of freedom Concept

The Statistics

Data type/Level	Statistics techniques
Nominal	1. Binomial test 2. On sample chi square
Ordinal	1. Run test
Interval / ratio	1. On sample t-test

Parametric Statistics

☐ Parametric statistics is used for interval or ratio data type

☐ Tested by t-test (unknown population std. dev.) or z-test (known population std. dev.)

$$t = \frac{\overline{X} - \mu_o}{\frac{s}{\sqrt{n}}}$$

Two Tailed Vs One Tail

Two tail
- ☐ Ho : Shop keeper can standing = 8 hours every day
- ☐ Ha : Shop keeper can't standing ≠ 8 hours every day
- ☐ Ho : μ = 8 hours
- ☐ Ha : μ ≠ 8 hours

One tail
Upper tail
- ☐ Ho : μ ≥ 8 hours
- ☐ Ha : μ < 8 hours
Lower tail
- ☐ Ho : μ ≤ 8 hours
- ☐ Ha : μ > 8 hours

7 Steps of Manually Test

1. Count data mean
2. Count standard deviation
3. Count t value
4. Search t table value
5. Draw distribution curve
6. Putting counted t value and t table value on the curve
7. Make decision about hypothesis test

Statistic Parametric: Binomial Test

- ☐ Nominal data
- ☐ Two class groups (man-women; poor-rich)
- ☐ Small sample size (<25)

Ho : people have same chance to choose gasoline car or diesel car, that is 50%

Ho : people haven't got same chance to choose gasoline car or diesel car, that is 50%

- ☐ Ho: $P_1 = P_2 = 0.5$
- ☐ Ha: $P_1 \neq P_2 \neq 0.5$

$$P^{(x)} = \binom{N}{x} p^x \cdot q^{N-x}$$

$$\binom{N}{x} = \frac{N!}{x!(N-x)!}$$

Statistic Parametric: Chi Square

- ☐ Nominal data
- ☐ Two or more categories
- ☐ Big sample size (>25)

Ho: Men and women have same chance to be elected as president

Ha: Men and women haven't got same chance to be elected as president

- ☐ Ho: People have same chance to choose four car color
- ☐ Ha: People haven't got same chance to choose four car color

$$\chi^2 = \sum_{i=1}^{k} \frac{(f_o - f_h)^2}{f_h}$$

Statistic Parametric: Run Test

- ☐ Ordinal data
- ☐ Sequence test
- ☐ Tested by randomize test

Ho: In an election queue is random (independent/not manipulated)

Ha: In an election queue isn't random (dependent/manipulated)

$$z = \frac{r - \mu_r}{\sigma_r}$$

$$\mu_r = \left(\frac{2n_1 n_2}{n_1 + n_2} + 1\right) - 0.5$$

$$\sigma_r = \sqrt{\frac{2n_1 n_2 (2n_1 n_2 - n_1 - n_2)}{(n_1 + n_2)^2 (n_1 + n_2 - 1)}}$$

Kita menilai diri kita sendiri dengan apa yang kita rasa mampu lakukan,
sedangkan orang lain menilai kita dengan apa yang telah kita lakukan

= = HENRY WADSWORTH LOGNFELLOW, KAVANAGH, 1849 = =