Section 9.2 - Two Means: Independent Samples (Part 1)

Two samples are **independent** if the sample values from one population are not related to or naturally associated with the sample values from the other population.

Two samples are **dependent**, consisting of **matched pairs**, if the sample values are paired, matched, or somehow inherently related.

In part 1, we have independent samples with σ_1 and σ_2 unknown and not assumed equal. The goal is to

1. Test a claim about two population means where $H_0: \mu_1 = \mu_2$
2. Construct a confidence interval estimate for the difference between two population means: $\mu_1 - \mu_2$

For the assumptions and formulas, see the table on pages 430-431. In part 1, we use an **unpooled** estimate for σ^2.

Example

The results of a study of words spoken in a day by men and women are given in the following table.

Men	**Women**
$n_1 = 186$	$n_2 = 210$
$\bar{x}_1 = 15668.5$	$\bar{x}_2 = 16215.0$
$s_1 = 8632.5$	$s_2 = 7301.2$

At the level $\alpha = 0.01$, test the claim that men talk less than women.

Section 9.2 (Part 2)

In part 2, we have independent samples with σ_1 and σ_2 unknown and ***assumed equal***.

We use a **pooled** estimate for σ^2. See page 434.