- Let the random variables Y1 and Y2 be distributed bivariate normal with E(Y1) = μ_1, E(Y2) = μ_2, var(Y1) = σ_1^2 and σ_2^2
- Correlation coefficient $-1 < \rho < 1$.
- Of particular interest are tests of the unconditional marginal hypotheses (equal means and equal variances) and tests of the joint hypothesis (simultaneous test)
- **Casewise sums and differences:** The random variables $D = Y1 - Y2$ and $S = Y1 + Y2$ are bivariate normal with expectations E(D) = $mu_D = \mu_1$ - μ_2, and E(S) = $mu_S = \mu_1 + \mu_2$;
- We show that the test procedure for H_J advanced by Bradley and Blackwood (1989) **additively** decomposes into independent tests of H_3 and the conditional marginal hypothesis $H_2 : \mu_1 = \mu_2$; assuming the additional restriction of equal variance
- **Section 2.1 Pitman-Morgan Test**