

# Assignment 5

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## Exercise 1

Continue with the Molitor (1989) television-viewing behavior data in HW4.

- (1) Suppose we are interested in the hypothesis of equal dispersions versus the alternative that there is more variability in the time spent in the room after witnessing the violent behavior for those children who had previously watched the Karate Kid than for those children who had previously watched parts of the 1984 Summer Olympic Games. Conduct the Ansari-Bradley test based on permutation and make conclusion.
- (2) What is the conclusion from Wilcoxon rank sum test in HW4. What does this result imply about the appropriateness of the Ansari-Bradley test. Comment on the importance of the results of Wilcoxon rank sum test in relationship to this dispersion test.
- (3) Suppose we are interested in whether there are either location or dispersion differences in the time spent in the room after witnessing the violent behavior of those children who had previously watched the Karate Kid versus those children who had previously watched parts of the 1984 Summer Olympic Games. Conduct an appropriate test and make conclusion.
- (4) Comment on your finding in part (3), considering the results of Wilcoxon rank sum test from HW4 and Ansari-Bradley test from (1).
- (5) Suppose we are interested in whether there is any difference between the probability distributions of toleration of violence between Olympics watchers and Karate Kid watchers. Conduct an appropriate test and make conclusion.
- (6) Summarise your findings from Wilcoxon rank sum test from HW4, (1), (3), and (5), and make substantive conclusions as if you were the study statistician.
- (7) Pretend we only have the first three rows of data, repeat the tests in (1), (3) and (5) with calculation by hand. (No need to interpret)