notion of a most stringent test which minimizes the maximum power loss over a class of alternatives.)

The newer idea addresses a limitation of Fisher's method when used in the presence of interference. Fisher's method yields a valid test of the null hypothesis of no effect. If a treatment effect has a simple form, say an additive constant effect or shift, then it is possible to invert Fisher's test of no effect to yield a confidence statement for the magnitude of this constant effect (e.g., Lehmann 1975); however, by its nature, interference precludes such a simple form for an effect. The newer idea is to invert the randomization test of no effect to yield a confidence interval for an attributable effect in the presence of interference that contrasts the results seen with an active treatment to the results that would have been seen in an experiment of identical design but with no active treatment, a so-called "uniformity trial" common in the early years of randomized agricultural experimentation (Rosenbaum 2007a). This newer idea is applicable with distribution-free statistics whose distribution in the uniformity trial is known without conducting the uniformity trial. The classes of distribution-free statistics and of rank statistics overlap substantially but are not the same, and it is the distribution-free property that is needed here.

The third, gradually evolving idea made a first appearance in a paper by Lehmann (1953) concerned with the power of rank tests. After showing that Wilcoxon's test was the locally most powerful rank test for a constant, additive effect in the presence of logistic errors, Lehmann went on to show that it was also locally most powerful against a very specific mixture alternative in which only a fraction of subjects respond to treatment. Conover and Salsburg (1988) generalized the mixture alternative and derived the form of the corresponding locally most powerful test; this was no longer Wilcoxon's test, but rather a test that gave greater emphasis to larger responses. Although they substantially increase power when some trials fail to elicit the intended effect, the ranks used by Conover