

Review of: "Intersections of Statistical and Substantive Significance Under a True and False Null Hypothesis"

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Potential competing interests: No potential competing interests to declare.

The objectives provide an interesting approach to the topic, particularly for the target audience. The results conceptually hold for all hypothesis testing problems, although the simplicity of the approach given here is the important aspect for achieving the objectives. The general results given here are not new, but don't claim to be. Similar results were presented in Royall, RM. (1986). The Effect of Sample Size on the Meaning of Significance Tests, *The American Statistician* 40:4, 313-315, and discussed in subsequent editions, especially *The American Statistician*, 1987: 41 (3), 245-247. However, the presentations given there typically use mathematical notation, far more complicated than that used here.

There is an error occurring twice, but it does not interfere with achieving the objectives. On Page 4 in the section entitled "Statistical Significance" and on Page 20, the null hypothesis erroneously includes the difference in the sample means, whereas it should only be that the difference in the population means is zero.

In the second paragraph, there is reference to the ASA Policy which has been repeatedly discussed because it appears that the ASA is discouraging the use of p-values. However, the use and misuse of p-values was discussed in the 1980s, as indicated in Evans SJW, Mills P, Dawson J. (1988). The End of the P-value, *British Heart Journal* 60: 177-180. In that article, it is noted that at that time many medical journals were encouraging (or requiring) confidence intervals, instead of p-values (or both). The confidence intervals provide both estimation and testing. There is no discussion of confidence intervals in this article, but, although it would be consistent with the topic, it would not be consistent with the objectives.