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INVARIANT CONFIDENCE SETS WITH SMALLEST EXPECTED MEASURE

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I am grateful to Professor R. A. Wijsman for pointing out the following errors. At the bottom of page 1289, in both the numerator and denominator of the expression for the probability ratio, the term da should be replaced by $a^{n-1}\,da$. Then in the expression for $W(T(x, \beta))$ on page 1290 the terms a^{-2} and a^{-3} should be replaced by, respectively, a^{-n-1} and a^{-n-2}. At the end of the sentence following (7.4) the term c/p should be replaced by $c + (p-1)(\nu + k)\{\ln(\nu + k) - 1\}$.

I am also grateful to Professor J. T. Hwang for noting that the statement on page 1291 following (5.6) is not correct when $p = 1$ and that further argument is needed to justify the statement for $p \geq 2$. In fact the optimal G-invariant confidence sets are minimax if and only if $p = 1$. This statement can be proved by noting that the optimal G- and G_1-invariant confidence sets are uniquely determined up to sets of measure zero. This follows from the proof of Theorem 1, from the fact that the ratio of densities of the maximal invariant is independent of the functional form for the maximal invariant (Wijsman, 1967, Theorem 4), and from the necessary condition for a most powerful test in the Neyman-Pearson Lemma (Lehmann, 1959, page 65, Theorem 1 (iii)). Thus if the optimal G- and G_1-invariant level $1 - \alpha$ confidence sets are not equal, then the latter must have constant expected measure strictly smaller than that of the former. A comparison of (5.4) with (5.7) and of (5.6) with (5.8) shows that the optimal G- and G_1-invariant confidence sets are the same if and only if $p = 1$. A similar argument shows that the confidence set determined by (6.1) is minimax if and only if $p = 1$.

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