Addendum to "An asymptotically distribution-free test of symmetry" [Journal of Statistical Planning and Inference 137 (2007) 799-810]

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The authors note that the symbols which appear in the key to Fig. 6 are not the ones used within its panels, and that the scales used on the vertical axes of Figs. 5 and 6 are not the same. The corrected versions of Figs. 5 and 6 are given here.

Since the classical test is not the best performing test of symmetry about an unknown value, it is worth comparing our test to the S_K-based test by Cabilio and Masaro (1996) and the test of Boos (1982).

The results of the simulation study of the test by Cabilio and Masaro are presented in Table 3 and Fig. 7. From the simulations we note that our test T is more powerful than the test S_K for the close to Cauchy alternatives (except when $n = 20$ and a is large). Moreover, for the Cauchy distribution the actual

level of the S_K-based test appears to increase with sample size, and the actual level is about twice the nominal level when $n = 500$. For the other alternatives considered in the simulation study, the test S_K is the more powerful test of the two.

The test suggested by Boos (1982) cannot be recommended for the Cauchy case, because the true level of the test is as high as 0.33 when the nominal level is 0.05 (and $n = 20$ or 50). Therefore, we decided not to include the test by Boos in the simulation study.

Table 3

Estimates of the actual level of the test S_K

n	Distribution			
	Cauchy	Double exponential	Logistic	Normal
20	0.039	0.026	0.023	0.029
50	0.067	0.034	0.036	0.039
100	0.087	0.035	0.044	0.045
500	0.099	0.035	0.043	0.051

The conclusions of this paper remain correct and the authors would like to thank Dr. Arthur Pewsey for noticing the labeling discrepancies and for suggesting further comparisons with alternative tests.

References

Boos, D.D., 1982. A test for asymmetry associated with the HodgesLehmann estimator. J. Amer. Statist. Assoc. 77, 647651.

Cabilio, P., Masaro, J., 1996. A simple test of symmetry about an unknown median. Can. J. Statist. 24, 349-361.

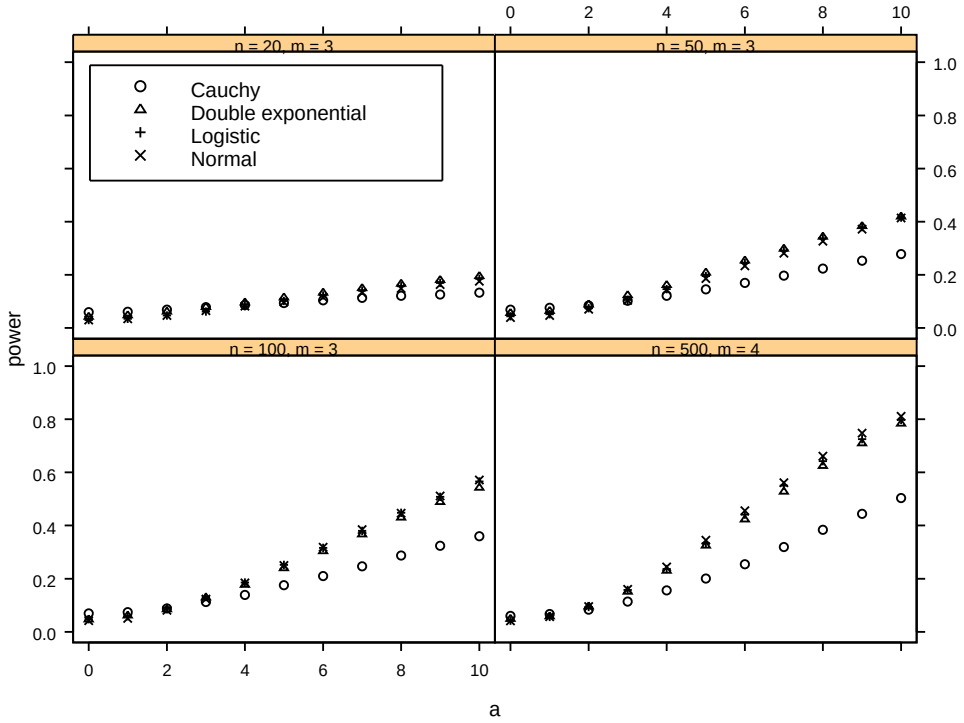

Fig. 5. The power of the test T as a function of a. Here $\alpha = 0.05$.

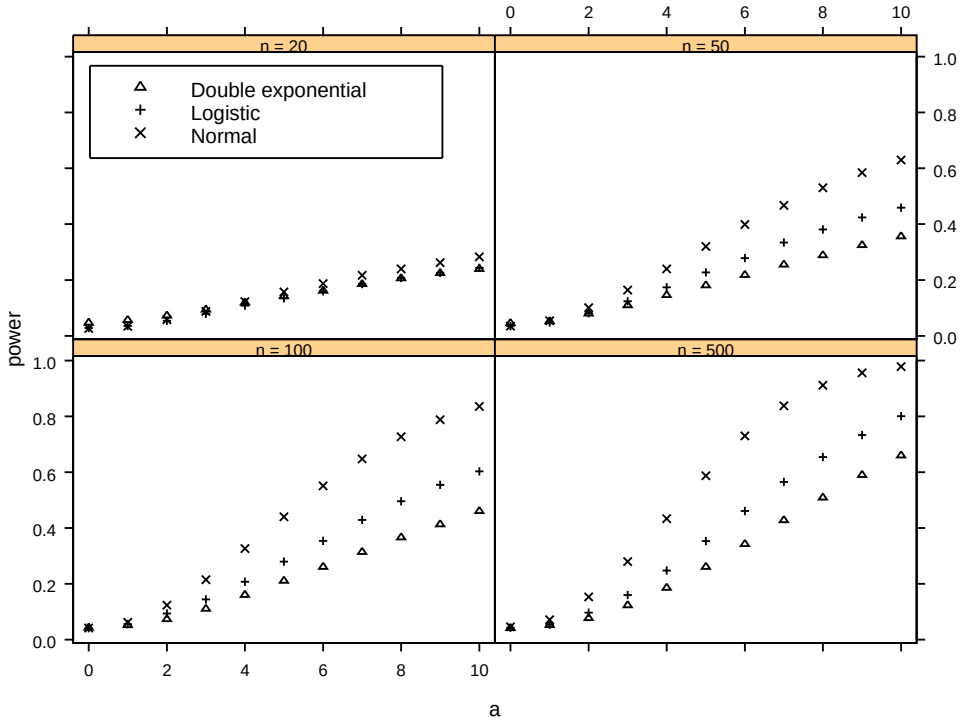

Fig. 6. The power of the classical test of skewness as a function of a. Here $\alpha = 0.05$.

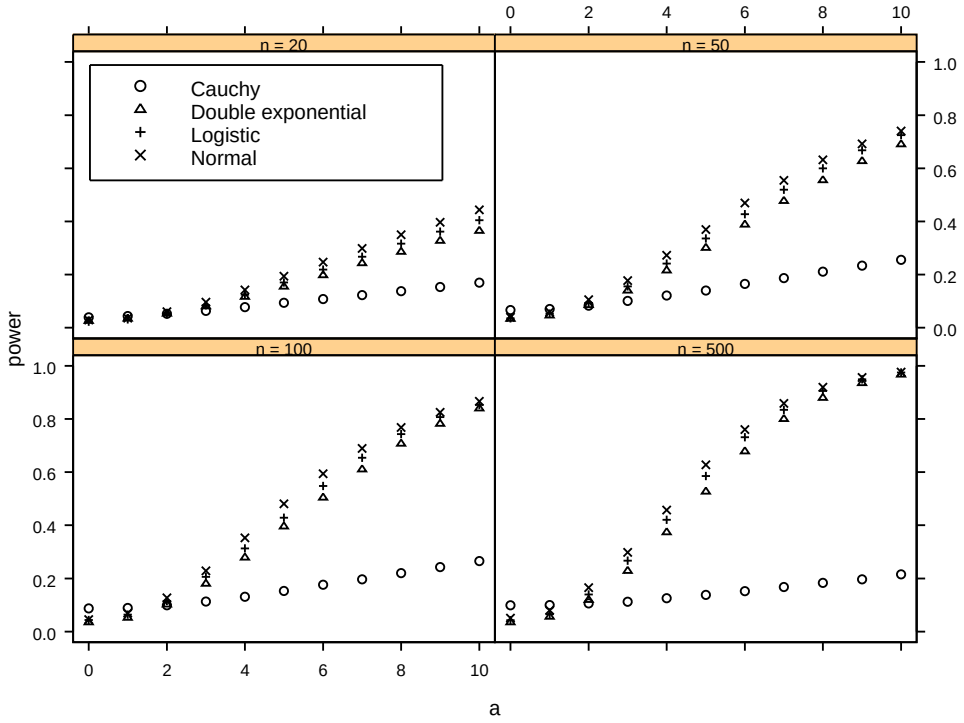

Fig. 7. The power of the test S_K as a function of a. Here $\alpha = 0.05$.