

Algorithm 2 Sensitivity Index

Two-proportion z-test, pooled for $H_0 : p_1 = p_2$

1: **function** SENSITIVITYINDEX(I, I', R, t)

Input: Set of trials when target stimulus is presented I ,
and when it is not I' , responses R , and time t

Output: Sensitivity value s

2: $r_1 \leftarrow \text{SPIKECOUNT}(I, R, t)$

3: $r_2 \leftarrow \text{SPIKECOUNT}(I', R, t)$

4: $n_1 \leftarrow |I|$

5: $n_2 \leftarrow |I'|$

6: $\hat{p}_1 \leftarrow \frac{r_1}{n_1}$

7: $\hat{p}_2 \leftarrow \frac{r_2}{n_2}$

8: $\hat{p} \leftarrow \frac{r_1 + r_2}{n_1 + n_2}$

9: $z \leftarrow \frac{(\hat{p}_1 - \hat{p}_2)}{\sqrt{\hat{p}(1 - \hat{p})\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$

10: $s \leftarrow \Phi(z) - \Phi(-z)$

11: **return** s

12: **end function**
