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Tim D Cochran* (cochran@rice.edu), MS-136 Math. department, PO Box 1892, Houston, TX 77251-1892, and **Bridget D Franklin, Matthew Hedden** and **Peter D Horn**. *Knot Concordance and Homology Cobordism*.

We consider the question: “If the zero-framed surgeries on two oriented knots in the 3-sphere are integral homology cobordant, preserving the homology class of the positive meridians, are the knots themselves concordant?” We show that this question has a negative answer in the smooth category, even for topologically slice knots. To show this we first prove that the zero-framed surgery on K is \mathbb{Z} -homology cobordant to the zero-framed surgery on many of its winding number one satellites $P(K)$. Then we prove that in many cases the tau and s-invariants of K and $P(K)$ differ. Consequently neither tau nor s is an invariant of the smooth homology cobordism class of the zero-framed surgery. We also show, that a natural rational version of this question has a negative answer in both the topological and smooth categories, by proving similar results for K and its $(p,1)$ -cables. (Received March 07, 2011)