The minimal variety problem is NP-hard

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The minimal variety problem is the problem of determining whether a given finite algebra of finite signature generates a minimal variety. In the 1950's Dana Scott observed that there is an algorithm for the minimal variety problem. This brute force algorithm, on its face, is very expensive in computational resources. Keith Kearnes and Ágnes Szendrei have greatly refined Scott's brute force algorithm. The result is an algorithm in 2EXPTIME. Here we show that the minimal variety problem itself is at least NP-hard. Our proof combines ideas from Zoltan Székely and Don Pigozzi.

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