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Invertibility of random matrices is now sufficiently well understood. Extending this theory to random tensors is challenging. Our initial advances on the invertibility problem for random tensors are motivated by questions about Boolean functions. A "smooth" Boolean function is obtained by taking the sign of some polynomial of low degree in n variables. Such functions are called polynomial threshold functions, and they are widely used in machine learning as classification devices. An old question of M. Saks is - how many polynomial threshold functions of a given degree are there? Answering this question, we find a tight asymptotic bound on this number. Invertibility result on random tensors plays a key role in the argument. (Received August 08, 2018)