1056-15-394 **Junsheng Fang**, **David Larson** and **Stephen Rowe*** (srowe12@gmail.com), 1190 Main Street, Box 212, Jupiter, FL 33458. *On Property P_1 and Spaces of Operators.* Preliminary report.

A problem posed by David Larson asks whether every subspace with property P_1 is two-reflxive, or equivalently, is its preannihilator the closed span of rank ≤ 2 operators. A space of operators $S, \subseteq M_n(\mathbb{C})$, is said to have property P_1 if every element of $M_n(\mathbb{C})$ can be written as a rank-1 matrix plus an element of the preannihilator of S. The preannihilator, $S_\perp$, is the set of all operators, f, such that $Tr(fs) = 0 \ \ \forall s \in S$. We investigate the structure of spaces that have property P_1. We say an algebra A is a maximal P_1 algebra if there does not exist any algebra containing A that also has property P_1. We show that semi-simple algebras always have property P_1 and that when $A \subset M_n(\mathbb{C})$ is a semi-simple algebra with dimension n, then A is a maximal P_1 algebra. (Received September 03, 2009)