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Selcuk Koyuncu* (skoyuncu@ung.edu), University of North Georgia, and **Lei Cao** (leicaomath@gmail.com), Georgian Court University. *Sub-defect of Product of Doubly Substochastic Matrices*. Preliminary report.

The sub-defect of an $n \times n$ doubly substochastic matrix S , denoted by $sd(S)$, is defined to be the smallest integer k such that there exists an $(n + k) \times (n + k)$ doubly stochastic matrix containing S as a submatrix. Let A and B be arbitrary doubly substochastic matrices. We show that AB is also a doubly substochastic matrix and $\max\{sd(A), sd(B)\} \leq sd(AB) \leq \min\{n, sd(A) + sd(B)\}$. (Received January 23, 2019)