Since $\sum c_i = a + \sum b_i$, it follows that $a \geq c_1$; and so there are three cases:

1. If $c_i > b_{i-1}$ for some i, then $a > c_1$ and so $\delta(a, b; c) = 0$.

$\ulcorner$ $\dim \sigma_a = k(n-k) - a$, $\dim \sigma_b = k(n-k) - \sum b_i$
$\dim \sigma_c = k(n-k) - \sum c_i$
$\Rightarrow$ $\dim(\sigma_a \cdot \sigma_b) = k(n-k) - \sum b_i + k(n-k) - a$
$- k(n-k) = k(n-k) - a - \sum b_i = k(n-k) - \sum c_i$
$\Rightarrow$ $\sum c_i = a + \sum b_i$
$\Rightarrow$ $c_1 + c_2 + \cdots + c_k = a + b_1 + \cdots + b_k$
But since $c_2 \geq b_1$, $c_3 \geq b_2$, $\cdots$ $c_k \geq b_{k-1} \cdots b_k = 0$.
$c_1 \leq a$ the equality to be valid.
Note that $b_l = 0$ for some l.
If $c_i > b_{i-1}$ for some i, a can not be equal to c_1, since $c_1 + c_2 + \cdots + c_k = a + b_1 + \cdots + b_k$.
$\Rightarrow$ By P200. (*). 1, since $(a_1 =) a > c_1$,
$\delta(a, b; c) = 0$ $\lrcorner$

2. If $c_i < b_i$ for any i, then $c_i \geq b_{i-1}$ implies that $b_i > b_{i-1}$, i.e., the sequence b is not nonincreasing and σ_b is taken to be null; so $\delta(a, b; c) = 0$.

$\ulcorner$ $c_i < b_i$ $\Rightarrow$ Since $c_i \geq b_{i-1}$, $b_{i-1} \leq c_i < b_i$.
$\Rightarrow$ b is not nonincreasing. $\lrcorner$

3. If $b_i \leq c_i \leq b_{i-1}$ for all i, it follows that $c_i = b_{i-1}$ for all i, hence $a = c_1$, $b_k = 0$, and applying