abstract:

for germs of holomorphic functions $f : \mathbb{C}^{m+1} \to \mathbb{C}$, $g : \mathbb{C}^{n+1} \to \mathbb{C}$ having an isolated critical point at 0 with value 0, the classical thom-sebastiani theorem describes the vanishing cycles group $\Phi^{m+n+1}(f \oplus g)$ (and its monodromy) as a tensor product $\Phi^m(f) \otimes \Phi^n(g)$, where $(f \oplus g)(x,y) = f(x) + g(y)$, $x = (x_0,...,x_m)$, $y = (y_0,...,y_n)$. i will discuss algebraic variants and generalizations of this result over fields of any characteristic, where the tensor product is replaced by a certain local convolution product, as suggested by deligne. the main theorem is a künneth formula for $r\Psi$ in the framework of deligne's theory of nearby cycles over general bases.