

page 93, lines 12-14

Comparison of simplicial and singular cup products.

Assertion (a) can be interpreted as saying that Proposition 3 also holds for simplicial cup products. The formal definition of the latter is $[f \cup g](v_0 \dots v_{p+q}) = f(v_0 \dots v_p) \cdot g(v_p \dots v_{p+q})$ and one can apply the arguments in the singular case provided we replace

$T | e_i \dots e_j$ (singular) with $v_i \dots v_j$ (simplicial).

To prove assertion (b), let $\theta: C_*(K) \rightarrow S_*(P)$ be the map from simplicial to singular chains, and let $\psi: S^*(P) \rightarrow C^*(P)$ be the dual cochain map.

$$\begin{aligned} \text{Then } \psi(f \cup g)(v_0 \dots v_{p+q}) &= f \cup g(\theta(v_0 \dots v_{p+q})) = \\ &= f(\theta(v_0 \dots v_p)) \cdot g(\theta(v_p \dots v_{p+q})) = \\ &= \psi f(v_0 \dots v_p) \cdot \psi g(v_p \dots v_{p+q}) = [\psi f \cup \psi g](v_0 \dots v_{p+q}). \end{aligned}$$