The Structural β Condition

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Problem Determine the image of the map

$$\partial_2^*: t_i \wedge t_j \longmapsto c_i t_j - c_j t_i$$

which goes

$$S(C) \otimes \wedge^2 T \xrightarrow{\partial_2^*} S(C) \otimes T$$

where $T = \langle t_i \rangle$, $C = \langle c_i \rangle$.

$$S(C) \otimes \wedge^2 T \underset{\partial}{\overset{\partial_2^*}{\rightleftarrows}} S(C) \otimes T \underset{\partial}{\overset{\partial_1^* = (t_i \to c_j)}{\rightleftarrows}} S(C)$$

$$\partial\partial^* + \partial^*\partial = E$$

$$ccccc\,t \xrightarrow{\partial^*\partial} cc\overset{t}{\not c}cc$$

$$ccccc\,t \xrightarrow{\partial} cc\overset{t}{\not c}ct \xrightarrow{\partial^*} ccccc\,t - cc\,t\,cc$$

$$\Rightarrow \operatorname{im} \partial^* = \ker \partial_1^*$$