

EXERCISE 4 IN D-MODULES I

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- (1) Let A, B be rings. Let $F : \mathcal{M}(A) \rightarrow \mathcal{M}(B)$ be a strongly right-exact functor. Then $F(A)$ has a natural structure of a $B-A$ -bimodule and F is isomorphic to the functor $M \mapsto F(A) \otimes_A M$.
- (2) (P) Let $M \in \mathcal{M}^r(\mathcal{D}_V)$ and let $\mathcal{F}(M) \in \mathcal{M}^l(\mathcal{D}_{V^*})$ denote the module obtained from M by swapping the actions of x_i and ∂_i . Let $T : V \rightarrow W$ be a linear map, and let $T^* : W^* \rightarrow V^*$ denote the dual map. Then $\mathcal{F}(T_0 M) = (T^*)^0(\mathcal{F}(M))$.
- (3) For an isomorphism ν , $\nu_0 = (\nu^{-1})^0$.

URL: http://www.wisdom.weizmann.ac.il/~dimagur/Dmod1_3.html