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that it has no poles at all and hence is constant. Thus the character of  $S^1$  given by its action on  $\text{Index}(d_S \otimes R(q))$  is constant, and so the action must be trivial as claimed. They then give separate arguments to extend this result to  $D^+ \otimes R'_n$ .

These results all extend in a straight forward way to  $S^1$  actions preserving a foliation (see [HL 2]).

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