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Multiplet Recombination at Large N and Holography

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We consider the coupling of a free scalar to a single-trace operator of a large N CFT in d dimensions. At leading order, the resulting RG-flow has a non-trivial fixed point where multiplets of the free scalar and the single trace operator recombine. We will show this phenomenon in field theory, and provide the dual holographic description. Free scalars correspond to singleton representations of the AdS algebra. The double-trace interaction is mapped to a boundary condition mixing the singleton with the bulk field dual to the single-trace operator. In the IR, the singleton and the bulk scalar merge, providing just one long representation of the AdS algebra.

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