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Horizon Constraints and Black Hole Entropy[1] STEVEN CARLIP, UC Davis — To ask a question about a black hole in quantum gravity, one must restrict initial or boundary data to ensure that a black hole is actually present. For two-dimensional dilaton gravity, and probably a much wider class of theories, I show that the imposition of a"stretched horizon" constraint modifies the algebra of symmetries at the horizon, inducing a central term. Standard conformal field theory techniques then fix the asymptotic density of states, reproducing the Bekenstein-Hawking entropy. The states responsible for black hole entropy can thus be viewed as "would-be gauge" states that become physical because the symmetries are altered.

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Steven Carlip
UC Davis

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