Laminar boundary layers in Navier-slip Rayleigh-Bnard convection JARED WHITEHEAD, Brigham Young Univ - Provo — We investigate the structure of the boundary layers for turbulent Rayleigh-Bnard convection with Navier-slip velocity and fixed flux temperature boundary conditions. Careful, rigorous analysis shows that the Prandtl boundary layer equations are effectively linear in the inviscid and/or zero diffusive limit. This demonstrates that no matter how strongly forced the system is, for these boundary conditions the boundary layers will always remain laminar. Implications of these results on the non-appearance of the ultimate regime of turbulent convection for these boundary conditions is discussed.

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