“Anomalies for 4d SCFTs from M5-branes”

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Many interesting, generically strongly-coupled 4d superconformal field theories can be obtained by compactifying the 6d (2,0) theories on a punctured Riemann surface. As we review, various amounts of supersymmetry can be preserved in 4d depending on the partial topological twist over the surface. We consider the structure of 't Hooft anomalies in these theories when the Riemann surface has punctures that preserve N=2 supersymmetry, and explain how these anomalies can be derived from the parent 6d theory. When the 6d (2,0) theory has a description in terms of M5-branes, we explain how anomaly inflow for the M5-branes in the presence of a puncture on the Riemann surface leads to new terms in the M5-brane anomaly polynomial, which then contributes to the anomalies of the low energy 4d theory.