5/3/16 Lecture 10 outline / summary

• Proton and neutron masses. Neutron decays. $SU(2)_I$ is only approximate. Emphasize global vs gauge symmetry.

• Proton and neutron in terms of u and d quarks. $SU(2)_I$ again. Mention $SU(2)_W$ gauge symmetry and emphasize it's different.

• Full list of known quarks and approximate $SU(3)_F$ symmetry. Eightfold way plots of mesons and baryons, listing their masses.

• $\mathcal{L}_{Dirac}$ for N Fermion flavors and the $SU(N) \times U(1)$ symmetry if the masses are the same. $SU(N)_L \times SU(N)_R \times U(1)_V \times U(1)_A$ symmetry if $m = 0$. Mention that $U(1)_A$ is anomalous and no corresponding light meson (the η' is much heavier) in response to a good question.

• Parameterize $SU(2)$ rotations for $I = 1/2$ representations.