

1/24/08 Lecture outline

- More on spinors, and vectors as bi-spinors.
- Dirac fermions, Majorana fermions and masses, in terms of Weyl fermions.
- $SU(N_c)$  gauge theory with  $N_f$  left-handed Weyl fermions  $Q$  in  $\mathbf{N}_c$ , and  $\bar{N}_f$  left handed Weyl fermions  $\tilde{Q}$  in  $\bar{\mathbf{N}}_c$ . Write out Lagrangian, discuss global symmetries, for massless and massive case.
- Chiral symmetry breaking of vacuum, Goldstone bosons. The  $U(1)$  problem. Mention anomalies (more next time).