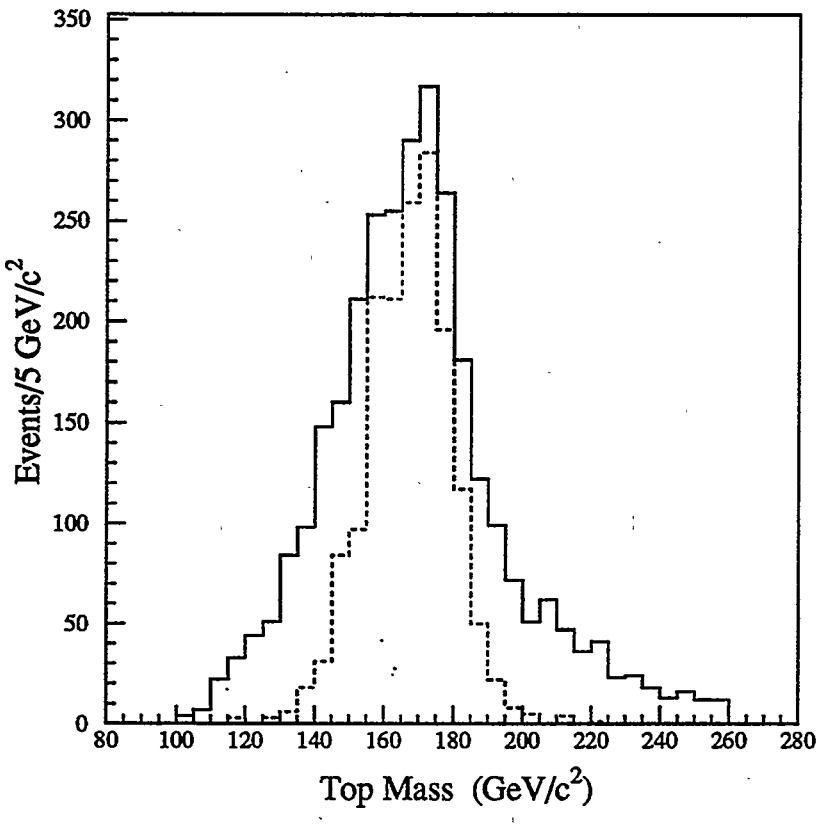

Figure 12: The fitted top quark mass in Monte Carlo events for those events in which the correct parton assignments have been made (dashed histogram) and for all events that pass the fit procedure (solid histogram). A top quark mass of 170 GeV/c^2 has been assumed.

are only allowed to be assigned to the b or $\bar{b}$ quarks. Prior to the fit all jet energies are corrected in order to account for detector inhomogeneities and the effect of energy flow into and out of the jet clustering cone. The parton assignment that produces the lowest χ^2 is selected for the subsequent analysis. The event is rejected if the minimum χ^2 is greater than 10. Parton assignments that result in a top quark mass greater than 260 GeV/c^2 are rejected as the experiment is not expected to have any sensitivity to top quark masses of that magnitude.

Monte Carlo studies have demonstrated that this procedure identifies the correct parton-jet assignment about 40% of the time. The top quark mass resulting from the fit in those cases is shown in Fig. 12 along with the mass distribution for all lepton + ≥ 4 jet events for a sample created assuming a top quark mass of 170 GeV/c^2. From a single event, we are able to measure the top quark mass to an accuracy of ~ 10 GeV/c^2 when one makes the correct assignment. One also sees that the fitting and parton assignment procedure retains much of this mass information, even in those cases where the incorrect parton assignment has been made.

Starting with the 203 $W+ \geq 3$ jet events, the CDF collaboration selects a subset of events that have at least one additional jet with $E_T > 8$ GeV and $|\eta| < 2.4$. The