Mass (GeV/c^2)	DØ	CDF
150	2.4	6.2
160	2.0	4.4
170	1.6	3.0
180	1.2	2.4

Table 2: The expected number of dilepton events arising from $t\bar{t}$ production for the DØ and CDF selections as a function of top quark mass. The uncertainties on these yields are of order 25-30%. The central value for the theoretical prediction for the $t\bar{t}$ cross section is assumed.

Background	CDF	DØ
$Z \to \tau^+\tau^-$	0.38 ± 0.07	0.16 ± 0.09
Drell Yan	0.44 ± 0.28	0.26 ± 0.06
Fake $e^\pm$ or $\mu^\pm$	0.23 ± 0.15	0.16 ± 0.08
$W^+W^-/W^\pm Z^\circ$	0.38 ± 0.07	0.04 ± 0.03
Heavy quarks	0.03 ± 0.02	0.03 ± 0.03
Total	1.3 ± 0.3	0.65 ± 0.15

Table 3: The predicted number of background events expected to survive the CDF and DØ dilepton analyses. Only the WW and heavy quark rates are estimated based on Monte Carlo calculations in the CDF analysis.

tion, $b\bar{b}$ and $c\bar{c}$ production, and Drell-Yan production. Most of these are either very small (e.g., the backgrounds from WW and WZ production) or can be estimated reliably from collider data (e.g. heavy quark production). Jets misidentified as leptons are a background source that can be accurately estimated. CDF uses the strong correlation between fake lepton candidates and the larger energy flow in proximity to the candidate. DØ employs similar techniques to estimate this background.

The estimated background rates in the three channels are listed in Table 3 and total to 1.3 ± 0.3 and 0.65 ± 0.15 for the CDF and DØ analyses, respectively. In both cases, there is an excess of observed candidate events above the expected backgrounds.

The significance of this observation can be quantified in a number of ways. One method is to ask how likely this observation is in the absence of $t\bar{t}$ production (the null hypothesis). The answer to this is an exercise in classical statistics [21], where one convolutes the Poisson distribution of expected background events with the uncertainty in this expected rate. The significance of the CDF observation is then 3×10^{-3}; the significance of the DØ observation is 3×10^{-2}.

In themselves, each observation cannot rule out the possibility that the observed events may be due to background sources. Taken together, they make the background-