How to run the TFitter Code (v002_systematics)

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1 Ntuple Setup

1.1 Structure

- The Ntuple is made up of trees and histogram folders. In order to read these, and store them correctly in the objects used by TFitter, we need to agree in an ntuple format.
- TFitter will not work if you use any other format. (Naming convention matters!) Please look at Figure 1.

1.2 Naming Convention

- For each process in your channel, you must have a Tree and a Histogram Folder
- Trees
  - The tree name for the signal must be "ZprimeTree." The names for the background processes do not matter.
  - The tree leaves are:
    - Float_t branchingFraction;
    - Float_t FilterEfficiency;
    - Float_t xsection;
    - Float_t acceptanceEfficiency;
    - Float_t electronIDEfficiency;
    - Float_t muonIDEfficiency;
    - Float_t tauIDEfficiency;

        * Float_t topologyEfficiency;
        * vector<float>* systematics //this is where your cumulative systematics are stored. if you do not have values, just set it to 0.0
        * Float_t branchingFractionStatError;
        * Float_t acceptanceEfficiencyStatError;
        * Float_t electronIDEfficiencyStatError;
        * Float_t muonIDEfficiencyStatError;
        * Float_t tauIDEfficiencyStatError;
        * Float_t topologyEfficiencyStatError;
        * Float_t branchingFractionSystError;
        * Float_t acceptanceEfficiencySystError;
        * Float_t electronIDEfficiencySystError;
        * Float_t muonIDEfficiencySystError;
        * Float_t tauIDEfficiencySystError;
        * Float_t topologyEfficiencySystError;

- Folders
    - The Folder Name for the signal Folder must be "ZprimeTemplateDirectory." The names for the background folders do not matter.
    - Inside your Template Folder you must store:
        * Default mass distribution whose name should be "Template"
        * Shifted mass distributions whose names do not matter. If you do not have systematics, add the default histogram again and give it another title.

2 Running TFitter

- Input your settings in runFitter.C
- Input the location of ntuple in channels.dat. ex: /home/user/TFitter/ntuples/ntuple.root
- make sure you set your root environment so that the makefile can find the root libraries
- compile code: > make
- run code: > ./runFitter

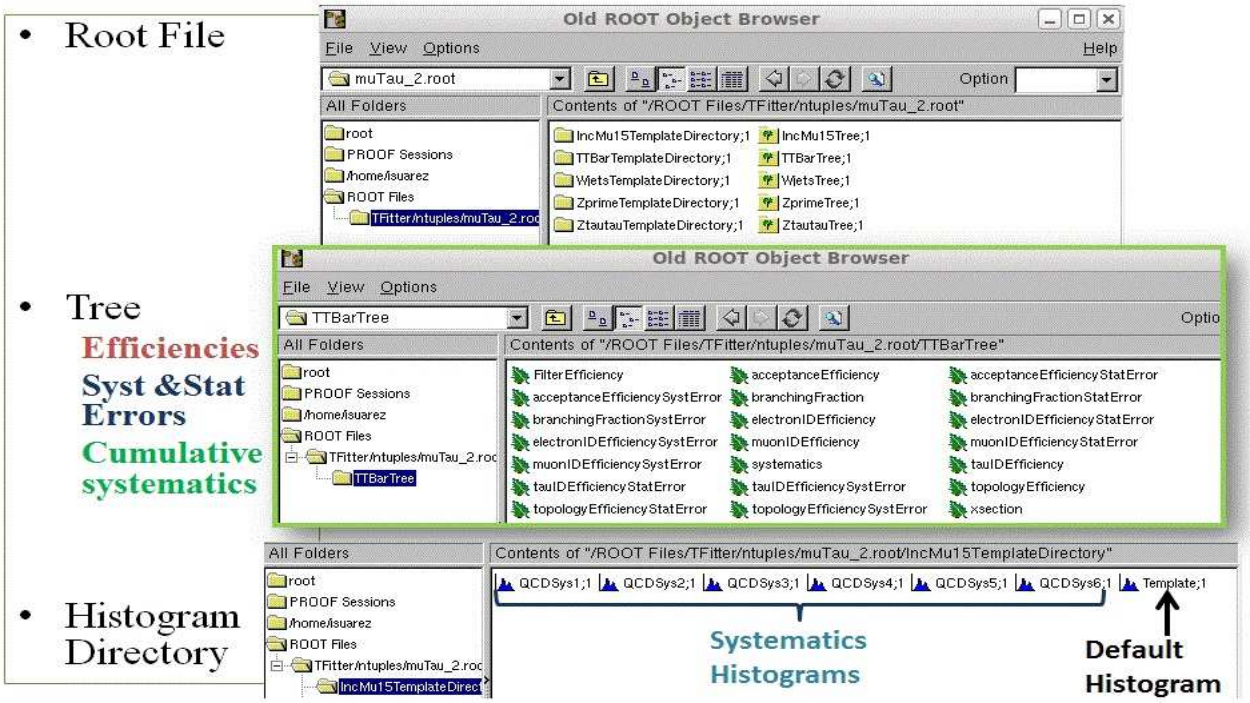

Figure 1: Ntuple Structure for tag "v002_systematics"