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Subject: Re: Different results for same information extracted in different ways  
Posted by [Mamen](#) on Mon, 10 Nov 2014 15:41:04 GMT

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Dear All,

I'm getting more and more confuse about the behavior of root. In order to clarify how a histogram is filled using "->Project()" or looping over a TTree and using "->Fill()" I created a small macro:

```
// c/c++
#include <stdlib.h>
#include <iostream>

//root

#include "TFile.h"
#include "TTree.h"
#include "TH1D.h"
#include "TH1F.h"

void FillHisto_test(){
  char Filename[256];
  char *directionName;
  char *Pi0FW;

  double W2=5.;
  int FW=1;
  int NBINS=100;
  int BINMIN=-2;
  int BINMAX=2;

  if(FW==0)
  {
    Pi0FW="bw";
    directionName="backward";
  }
  else if (FW==1)
  {
    Pi0FW="fw";
    directionName="forward";
  }
  sprintf(Filename,
"/home/moraespi/VariableCosThetaGammaStar/Rootfiles/SimuJan2014/electrons/epempi0-W2
-%.0f-Delta0-%s-LargeQ2-Merged.root", W2, Pi0FW);

  cout << "File: " << Filename << endl;

  // TCanvas *myCanvas;
  // myCanvas=new TCanvas("C", "C", 1);
```

```

TFile *t=new TFile(Filename);

TTree *epempi0Tuple = (TTree*)t->Get("epempi0Tuple");

// // Project method
TH1D *Reco;
Reco = new TH1D ("Reco", "Reco", NBINS, BINMIN, BINMAX);
epempi0Tuple->Project("Reco", "feppx");//, "eppid>3");
// Reco->Draw();

double Total_int=0;
double Integral=0;
double GetEntries=0;
for (int i=0; i<NBINS+2; i++ )
{
    Total_int=Total_int+Reco->GetBinContent(i);
}

for (int j=1; j<NBINS+1; j++ )
{
    Integral=Integral+Reco->GetBinContent(j);
}
GetEntries=Reco->GetEntries();
cout << "Number of events in the Histogram using Project: "<<endl;
cout << " Total_int (0-9)\t Integral (1-8)\t\t GetEntries"<<endl;
cout << Total_int <<"\t\t"<<Integral<<"\t\t"<<GetEntries<<endl;
t->Close();

```

```
// // Branch Addresses method
```

```

TFile *t2=new TFile(Filename);

TTree *epempi0TupleReco = (TTree*)t2->Get("epempi0Tuple");

float feppx;
int eppid;

epempi0TupleReco->SetBranchAddress("feppx", &feppx);
epempi0TupleReco->SetBranchAddress("eppid", &eppid);

TH1F *Reco2;
Reco2 = new TH1F("Fill", "Fill", NBINS, BINMIN, BINMAX);

long NEntriesReco=(long)epempi0TupleReco->GetEntries();

double value=0;
for (int k=0; k<NEntriesReco; k++)
{
    epempi0TupleReco->GetEntry(k);
    if (k % 100000 == 0 && k != 0)
}

```

```

cout<<"*** Reco Loop *** Getting Entry: "<<k<<endl;
}

// if (eppid>3)
// {
value=feppx;
Reco2->Fill(value);
// }
}

double Total_intFill=0;
double IntegralFill=0;
double GetEntriesFill=0;
for (int i=0; i<NBINS+2; i++ )
{
Total_intFill=Total_intFill+Reco2->GetBinContent(i);
}

for (int j=1; j<NBINS+1; j++ )
{
IntegralFill=IntegralFill+Reco2->GetBinContent(j);
}
GetEntriesFill=Reco2->GetEntries();

cout << "Number of events in the Histogram looping over TTree: "<<endl;
cout << " Total_intF (0-9)\t IntegralF (1-8)\t\t GetEntriesF"<<endl;
cout << Total_intFill <<"\t\t\t"<<IntegralFill<<"\t\t\t"<<GetEntriesFill<<endl;

// //myCanvas->cd();
// Reco2->SetLineColor(kRed);
// Reco2->Draw();
// //myCanvas->SaveAs("Test_Canvas.eps");

t2->Close();
}

```

As you can see, changing the value of "W2" and "FW" I can select which of the four root files to read:

```

epempi0-W2-10-Delta0-bw-LargeQ2-Merged.root
epempi0-W2-10-Delta0-fw-LargeQ2-Merged.root
epempi0-W2-5-Delta0-bw-LargeQ2-Merged.root
epempi0-W2-5-Delta0-fw-LargeQ2-Merged.root

```

I have many problems with this little macro:

1.- If I run

```
> root FillHisto_test.C+
```

it crashes for all four root files.

2.- If I run:

```
> root FillHisto_test.C
```

it runs only for the file epempi0-W2-5-Delta0-fw-LargeQ2-Merged.root.

3.- I don't get the same number of events in the Histograms using `->Project()` or looping over the TTree and doing `->Fill()`.  
(I principally want to understand why, but problems 1.- and 2.- are difficulting me the process).

I am using the following root version:

```
*****  
*                               *  
*   W E L C O M E to R O O T   *  
*                               *  
* Version  5.34/05 14 February 2013 *  
*                               *  
* You are welcome to visit our Web site *  
*   http://root.cern.ch               *  
*                               *  
*****
```

ROOT 5.34/05 (tags/v5-34-05@48582, Nov 05 2013, 17:07:52 on linuxx8664gcc)

CINT/ROOT C/C++ Interpreter version 5.18.00, July 2, 2010  
Type ? for help. Commands must be C++ statements.  
Enclose multiple statements between { }.

and I attach to this post:

a.- The macro FillHisto\_test.C

b.- The four root files I want to read, can be found under:  
<https://fileshare.zdv.uni-mainz.de/7IGNaukAXiRNxqfPERB7yw.repo>  
Username: PandaRoot  
Password: v3UyxFX8

c.- A file Output.txt with the outputs of the macro run with the four files, compiled and not compiled.

If somebody has any ideas, or can help me in some way, I would be very, very thankful.

Thanks a lot in advance.  
Mamen

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## File Attachments

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- 1) [FillHisto\\_test.C](#), downloaded 454 times
  - 2) [Output.txt](#), downloaded 479 times
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