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Subject: [FIXED] PndAnalysis::McTruthMatch always returns false, again ....

Posted by [Simone Esch](#) on Tue, 23 Jul 2013 14:25:20 GMT

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Hi all,

i have again the problem that McTruthMatch always returns false, but at another level.

Now I try to match the whole decaytree of my Lambda LambdaBar decay.

What I do:

```
RhoCandList ppbarsystem;  
  
ppbarsystem.Combine(lambda, lambdabar);  
ppbarsystem.SetType(88888);  
  
for(int b=0;b<ppbarsystem.GetLength();b++)  
{  
    if(theAnalysis->McTruthMatch(ppbarsystem[b],2,true))  
    {  
        // fill some histogram  
    }  
}
```

Output created:

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: 88888 and 2 daughters

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: 3122 and 2 daughters

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: 2212 and 0 daughters

Info in <PndMcTruthMatch::MctMatch>: accepted final state by PDG code (pdg=2212)

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: -211 and 0 daughters

Info in <PndMcTruthMatch::MctMatch>: accepted final state by PDG code (pdg=-211)

Info in <PndMcTruthMatch::MctMatch>: Particle 3122 reached level of matching, leaves, tree topology and intermediate particle types are matched

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: -3122 and 2 daughters

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: -2212 and 0 daughters

Info in <PndMcTruthMatch::MctMatch>: accepted final state by PDG code (pdg=-2212)

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: 211 and 0 daughters

Info in <PndMcTruthMatch::MctMatch>: accepted final state by PDG code (pdg=211)

Info in <PndMcTruthMatch::MctMatch>: Particle -3122 reached level of matching, leaves, tree topology and intermediate particle types are matched

Info in <PndMcTruthMatch::MctMatch>: rejected by not existing MC truth of daughter zero

This appears for all my llbar combinations.

Seems that the MCTruth tree is not build. Should this work and something is going wrong, or am I doing something wrong?

Best regards

Simone

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....

Posted by [Klaus Götzen](#) on Wed, 24 Jul 2013 06:36:45 GMT

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Hi Simone,

I observe very similar problems. I believe this it due to a mismatch of the PDG codes used by EvtGen and those in TDatabasePDG.

Could you try to run with

```
theAnalysis->SetVerbose(1);
```

I get some errors like

-W- CreateMcCandidate: strange PDG code:30443

Should be in your case 88888. Can you confirm this?

Best,  
Klaus

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....

Posted by [Simone Esch](#) on Wed, 24 Jul 2013 07:28:10 GMT

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Hello Klaus,

yes, I can confirm this. Would it help to insert the PDG code before in the files?

```
##### Begin of Event Analysis Exec
```

-W- CreateMcCandidate: strange PDG code:88888

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a2487c0) to candidate (uid=1)

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a2494d0) to candidate (uid=2)

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a24b3a0) to candidate (uid=3)

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a24bd90) to candidate (uid=4)

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a24c650) to candidate (uid=5)

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a2ba0a0) to candidate (uid=6)

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a2ba7c0) to candidate (uid=7)

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a2baa20) to candidate (uid=8)

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a2bbf80) to candidate (uid=9)

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a2bc440) to candidate (uid=10)

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a248c50) to candidate (uid=11)

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a2b6300) to candidate (uid=12)

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a2b6530) to candidate (uid=13)

Info in <PndAnalysis::BuildMcCands(>: Now setting truth (0x7f9c2a2b7710) to candidate (uid=14)

Info in <PndAnalysis::GetEvent(>: Finished loading event fEvtCount=4.

smallest chi2 263.672

filling histos

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: 88888 and 2 daughters

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: 3122 and 2 daughters

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: 2212 and 0 daughters

Info in <PndMcTruthMatch::MctMatch>: accepted final state by PDG code (pdg=2212)

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: -211 and 0 daughters

Info in <PndMcTruthMatch::MctMatch>: accepted final state by PDG code (pdg=-211)

Info in <PndMcTruthMatch::MctMatch>: Particle 3122 reached level of matching, leaves, tree topology and intermediate particle types are matched

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: -3122 and 2 daughters

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: -2212 and 0 daughters

Info in <PndMcTruthMatch::MctMatch>: accepted final state by PDG code (pdg=-2212)

Info in <PndMcTruthMatch::MctMatch>: Investigating in particle with pdg: 211 and 0 daughters

Info in <PndMcTruthMatch::MctMatch>: accepted final state by PDG code (pdg=211)

Info in <PndMcTruthMatch::MctMatch>: Particle -3122 reached level of matching, leaves, tree topology and intermediate particle types are matched

Info in <PndMcTruthMatch::MctMatch>: rejected by not existing MC truth of daughter zero

In addition I have a new problem.

In the next line my analysis task crashes with the following output :

```
*** Break *** segmentation violation
sed: RE error: illegal byte sequence
```

```
=====
There was a crash.
```

This is the entire stack trace of all threads:

```
=====
Thread 1 (process 72203):
```

```
#0 0x00007fff8bb906ac in wait4 ()
#1 0x00007fff8c34a03a in system ()
#2 0x000000010dad5f0f in TUnixSystem::StackTrace ()
#3 0x000000010dad3d67 in TUnixSystem::DispatchSignals ()
#4 <signal handler called>
#5 RhoCandidate::NDaughters (this=0x0) at
/Users/simone/fairroot/pandaroot_newest/rho/RhoBase/RhoCandidate.cxx:969
#6 0x000000011377929d in PndAnalysis::MctMatch (this=0x7f9c2a1178b0, c=0x0, mct=
0x7f9c2a117a48, level=2, verbose=true) at
/Users/simone/fairroot/pandaroot_newest/PndTools/AnalysisTools/PndAnalysis.cxx:783
#7 0x0000000113779680 in PndAnalysis::McTruthMatch (this=0x7f9c2a1178b0, list=
0x7fff521d7f40, level=2, verbose=<value temporarily unavailable, due to optimizations>) at
/Users/simone/fairroot/pandaroot_newest/PndTools/AnalysisTools/PndAnalysis.cxx:774
=====
```

The lines below might hint at the cause of the crash.

If they do not help you then please submit a bug report at <http://root.cern.ch/bugs>. Please post the ENTIRE stack trace from above as an attachment in addition to anything else that might help us fixing this issue.

```
=====
#5 RhoCandidate::NDaughters (this=0x0) at
/Users/simone/fairroot/pandaroot_newest/rho/RhoBase/RhoCandidate.cxx:969
#6 0x000000011377929d in PndAnalysis::MctMatch (this=0x7f9c2a1178b0, c=0x0, mct=
0x7f9c2a117a48, level=2, verbose=true) at
/Users/simone/fairroot/pandaroot_newest/PndTools/AnalysisTools/PndAnalysis.cxx:783
#7 0x0000000113779680 in PndAnalysis::McTruthMatch (this=0x7f9c2a1178b0, list=
0x7fff521d7f40, level=2, verbose=<value temporarily unavailable, due to optimizations>) at
/Users/simone/fairroot/pandaroot_newest/PndTools/AnalysisTools/PndAnalysis.cxx:774
=====
```

This is not correlated with the verbose level, I had this before. I cant see a correlation with my

code. Sometimes the codes runs without a crash, sometimes not

Best Regards

Simone

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....

Posted by [Klaus Götzen](#) on Wed, 24 Jul 2013 07:53:43 GMT

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Hi,

this apparently is a bug I just spotted in PndAnalysis. I'll try to fix it in trunk.

You can try as a workaround to use the method 'McTruthMatch(RhoCandidate)' instead 'McTruthMatch(RhoCandList)' for the time being.

Best,  
Klaus

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....

Posted by [StefanoSpataro](#) on Wed, 24 Jul 2013 08:02:19 GMT

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Why PndAnalysis::fVerbose is static?

[sorry, wrong topic]

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....

Posted by [Simone Esch](#) on Wed, 24 Jul 2013 08:05:30 GMT

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Hello Klaus,

I didnt recognise that I used McTruthMatch(RhoCandList), with McTruthMatch(RhoCandList) it works.

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....

Posted by [Simone Esch](#) on Wed, 24 Jul 2013 08:10:02 GMT

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Hello Stefano,

The static definition of fVerbose makes some problem for my code. Maybe you have similar problems.

I opened a new topic due to this in the Bugs forum

( <https://forum.gsi.de/index.php?t=tree&th=3938&start=0&rid=1562&S=ab06a719b66b530ae5b7a8f7a9f6cdd3>)

Best Regards

Simone

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....

Posted by [Klaus Götzen](#) on Wed, 24 Jul 2013 08:14:26 GMT

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Hi,

if you update trunk/PndTools/AnalysisTools, you get the fixed version (which works for me fine).

Why fVerbose is static, I actually either don't understand. Most likely Ralf had some reason to put it like this, but he's in vacations the rest of this week.

Best,  
Klaus

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....

Posted by [Simone Esch](#) on Wed, 24 Jul 2013 08:46:24 GMT

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The fixed for the McTruthMatch(RhoCandList) function works also fine for me.

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....

Posted by [Simone Esch](#) on Tue, 30 Jul 2013 13:04:07 GMT

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Hi Klaus, Hi all

Quote: I believe this is due to a mismatch of the PDG codes used by EvtGen and those in TDatabasePDG.

Can't I insert somehow the 88888 pdg code in the database manually so that the match works?

I saw in this post:

[https://forum.gsi.de/index.php?t=tree&goto=14689&rid=1562&S=ab06a719b66b530ae5b7a8f7a9f6cdd3&srch=TDatabasePDG#msg\\_14689](https://forum.gsi.de/index.php?t=tree&goto=14689&rid=1562&S=ab06a719b66b530ae5b7a8f7a9f6cdd3&srch=TDatabasePDG#msg_14689)  
that one can do it, but I don't know what to fill in for some of the variables.

```
virtual TParticlePDG* AddParticle(const char* Name,
                                const char* Title,
                                Double_t Mass,
                                Bool_t Stable,
                                Double_t DecayWidth,
                                Double_t Charge,
                                const char* ParticleClass,
                                Int_t PdgCode,
                                Int_t Anti=-1,
                                Int_t TrackingCode=0);
```

Does someone know?

best regards

simone

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....  
Posted by [Klaus Götzen](#) on Tue, 30 Jul 2013 13:53:07 GMT  
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Hi Simone,

you could try something like

```
TDatabasePDG::Instance()->AddParticle("pbarpSystem","pbarpSystem",1.9,kFALSE,0.1,0,"",8888)
```

I think, for the truth match only the pdg code is important anyways.

Best regards,  
Klaus

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....  
Posted by [Stefano Spataro](#) on Tue, 30 Jul 2013 19:57:50 GMT  
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Maybe it would be good to prepare some class who is doing such initialization for all our strange states (pbarpsystem, pbarpsystem012, pbardsystem...), in order to avoid possible problems (i.e. evtgen with geant4 with SetStoreTree).  
Maybe some function is gconfig folder?

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....

Posted by [Simone Esch](#) on Wed, 31 Jul 2013 08:45:10 GMT

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Hi all!

I added the line Klaus suggested to the Init() function of my analysis task.  
The warning of the strange PDG code is gone, but Match still doesnt work.

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....

Posted by [Klaus Götzen](#) on Wed, 31 Jul 2013 08:53:23 GMT

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Hi Simone,

there is still a (known) bug in the tree match.

I'm going to discuss with Ralf (who is supposed to be back from vacations tomorrow) about a fix for MC match which worked for my psi(2S), but it's some kind of preliminary.

Unfortunately we have a problem with our linux farm at the moment, when it's fixed I can send you the patched source of PndAnalysis.cxx.

Best,  
Klaus

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....

Posted by [Stefano Spataro](#) on Fri, 23 Aug 2013 15:17:53 GMT

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This should be fixed, right?

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Subject: Re: PndAnalysis::McTruthMatch always returns false, again ....

Posted by [Klaus Götzen](#) on Fri, 23 Aug 2013 15:29:23 GMT

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Yes, this is supposed to work now. At least it does for the tutorial macros.

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