



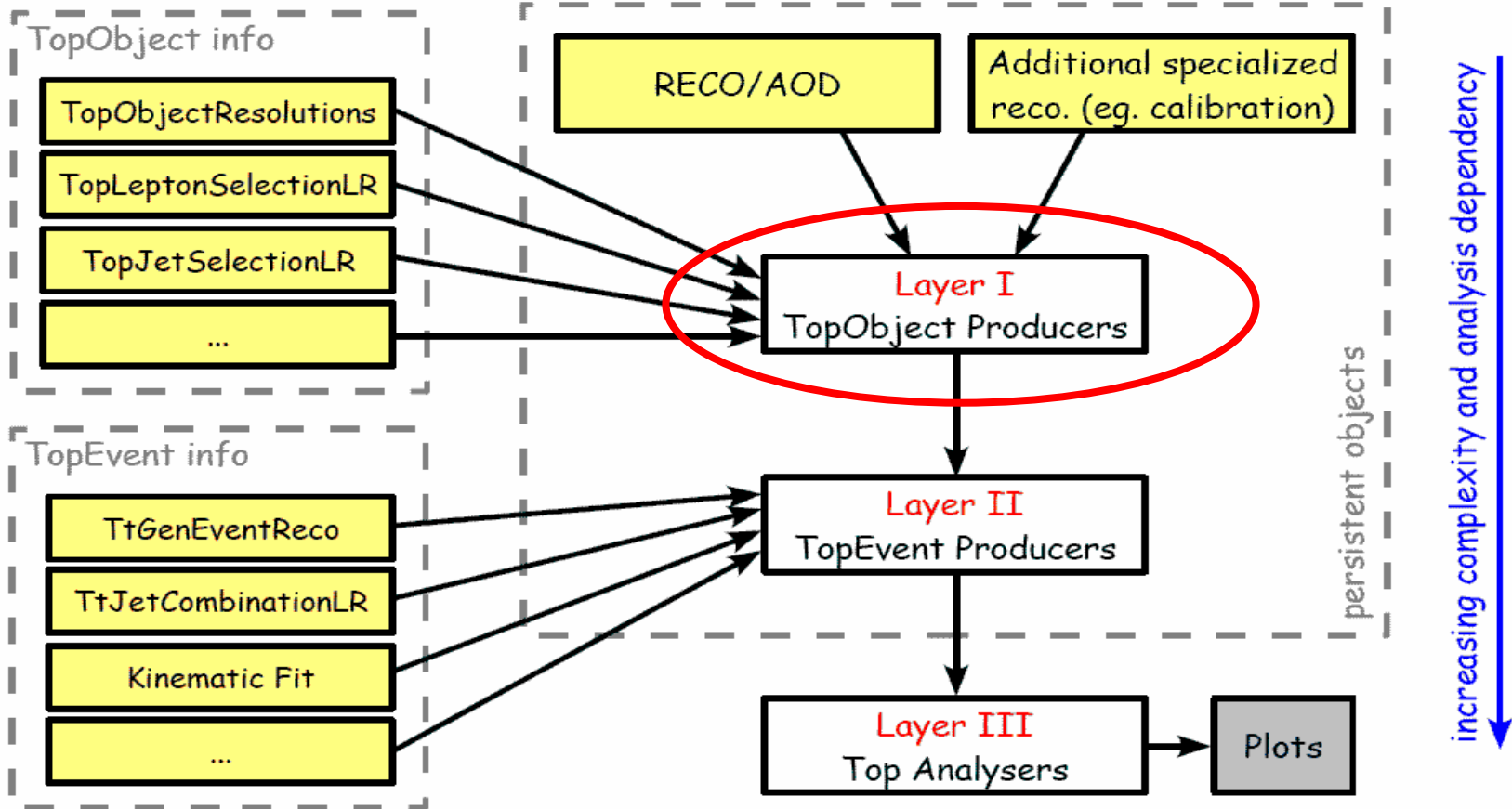
Une “courte” introduction au TQAF

- Qu’est ce que TQAF?
- Comment récupérer le code?
- Comment l’exécuter?
- Un exemple d’utilisation (simple...).



TQAF (2)

- Présentation en bref, reste à explorer:





TQAF (3)

- `/opt/sbg/cms/ui2_data1/SoftSauve/PackTQAF.tgz`
 - Contient TQAF + un exemple d'EDAnalyzer
- En utilisant `cvs`, la dernière version:
 - `cvs co -r TQAF_131_070703 AnalysisDataFormats TopQuarkAnalysis`
 - `cvs co PhysicsTools/KinFitter`
 - `cvs co -r V00-00-01 PhysicsTools/JetCharge`
- **AnalysisDataFormats** contient la définition des différents objets (**TopObjects**)
 - **TopElectron** et **TopMuon** contenant les leptons reconstruits et les leptons générés associés (pas d'identification pour l'instant)
 - **TopJet** (calojet + saveur + info btagging), **TopMET**
 - **TopEventSolution**, **TopGenEvent**...
- **TopObjectProducers** contient les producteurs correspondant. Je vous laisse les explorer par vous-même...



TQAF (4)

- Parenthèse : comment lire les données stockées sur le SE à partir de CMSSW (et de root)?
 - export DPNS_HOST=sbgse1.in2p3.fr
 - export DPM_HOST=sbgse1.in2p3.fr
 - voms-proxy-init -voms cms
- A faire la première fois:
 - mkdir lib
 - cd lib/
 - ln -s /opt/lcg/lib/libdpm.so.1.6.3 libshift.so.2
- Faire eval `scramv1 runtime -sh`
- export LD_LIBRARY_PATH=/opt/sbg/cms/ui2_data1/jandrea/lib:\$LD_LIBRARY_PATH



TQAF (5)

- Production des TopObjects, les **fichiers de configurations**
 - /TopQuarkAnalysis/TopObjectProducers/data/
 - TopBTagging.cfi, TopElectronProducer_default.cfi
- Le **fichier de configuration** pour CMSRUN .cfg
 - TopQuarkAnalysis/TopObjectProducers/test
 - RecoInput.cfi (fichiers d'entrée)
 - TopObjectReconstruction.cfg
- Un **exemple** d'analyzer
 - /TopQuarkObjectAnalyzer/TopQuarkObjectAnalyzer/src/TopQuarkObjectAnalyzer.cc



Configuration files

TopBTagging.cfi

```
#  
# b-tagging algorithms to be executed  
#
```

```
# TrackCounting b-Tagging method applied on default calibrated IC jets  
include "RecoBTau/JetTracksAssociator/data/jetTracksAssociator.cfi"  
include "RecoBTag/TrackCounting/data/trackCounting.cff"  
include "RecoBTag/TrackProbability/data/trackProbability.cff"  
include "RecoBTag/SoftLepton/data/softElectronJetTags.cff"  
include "RecoBTag/SoftLepton/data/softMuonJetTags.cff"
```

} Standard definition of modules

```
module trackCountingJetTags3rd = TrackCounting {  
  string jetTracks = "jetTracksAssociator"  
  string primaryVertex = "offlinePrimaryVerticesFromCTFTracks"  
  Pset AlgorithmPset = {  
    int32   NthTrack = 3  
    int32   ImpactParameterType = 0  
    int32   MinimumNumberOfPixelHits = 2  
    int32   MinimumNumberOfHits = 8  
    double  MaximumTransverseImpactParameter = 0.2  
    double  MinimumTransverseMomentum = 1.0  
    double  MaximumDecayLength = 5.0  
    double  MaximumChisquared = 5.0  
    double  MaximumLongitudinalImpactParameter = 17.0  
    double  MaximumDistanceToJetAxis = 0.07  
  }  
}
```

} My own label (changing parameters)

Will be put Automatically in TopJet

```
sequence TopBTagging = {jetTracksAssociator, trackCountingJetTags3rd, trackProbabilityJetTags }  
#sequence TopBTagging = {jetTracksAssociator, trackCountingJetTags, trackCountingJetTags3th, trackProbabilityJetTags, softMuonJetTags}
```



Configuration files (2)

TopBJetProducer_default.cfi

```
# module to create TopJets, treating them as b-jets  
# it is possible add resolutions
```

```
module allTopBJets = TopJetProducer {  
  Pset jetIdParameters = {  
    string mcSource = "vtXSmeared"  
    bool fillPartons = true  
    bool fillHeavyHadrons = false  
    bool fillLeptons = false  
    double coneSizeToAssociate = 0.3  
    bool physicsDefinition = false  
    bool rejectBCSplitting = false  
    vstring vetoFlavour = { }  
    bool fillTrackProbabilityQuantities = true  
  }  
  InputTag recJetInput = selectedCaloJets  
  InputTag caliJetInput = MCJetCorJetIcne5  
  string jetTagInput = "trackCountingJetTags"  
  bool addResolutions = true  
  bool storeBDiscriminants = true  
  string caliJetResoFile = "$CMSSW_BASE/src/TopQuarkAnalysis/TopobjectResolutions/data/Resolutions_bJets_MCJetCorJetIcne5.root"  
  bool dropTrackCountingFromAOD = false  
  bool dropTrackProbabilityFromAOD = false  
  bool dropSoftMuonFromAOD = false  
  bool dropSoftElectronFromAOD = false  
  bool keepdiscriminators = true  
  bool keepjettagref = true  
}
```



Necessary to set flavour of jet from MC truth



If you want to drop taggers coming from AOD



Choose to keep discriminators or JetTagRefs



TQAF (6)

- Le b-tagging dans TQAF:
- `getRecJet()` const;
- `getPartonFlavour()` const;
- `getBDiscriminator(std::string theLabel)`
`getBJetTagRef(std::string theLabel)`
- `dumpBTagLabels()` const;
- Regarder l'exemple (EDAnalyzer)



Lien

- <https://twiki.cern.ch/twiki/bin/view/CMS/TWikiTopQuarkFramework>