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New Framework Overview

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Overview

- Summarise current framework
- Introduce new framework
- Compare W background estimates from both frameworks
- Twiki with instructions to have a go yourself can be found here

Current framework

- Current framework runs one batch job per sample
  - Job performs cuts, calculates weights and makes variations for systematics
  - Jobs take O(hours) to complete
  - With skimming on trigger this changes to O(minutes)
- Macros are then used to extract information from the output of these jobs and combine into results
- Changing cuts requires resending jobs
- Information about correlations between variables is hard to access

New framework

- Use current framework to output a light ntuple
- Correlation information is kept in the light ntuple so it can be used for TMVA
- Use an analyser which runs modules over all the samples to produce results
- Light ntuples take O(minutes) to run over

Content of ntuples

- Current FW ntuples contain full objects
  - Very flexible don't have to be rerun very often
  - Example can be found by following steps on twiki
- New light ntuples just contain variables of interest for analysis and optimisation, without cuts
  - Can be remade in O(hours)
  - Current list of variables can be found in header file of light tree maker here
  - Will be changed as and when required

Checks of framework

- A module that performs the $W \to \mu/e\nu$ background estimates has been written
- Unweighted results are identical to old framework
- Weighted results are as below:
  - Note these numbers are different from those in our AN as they use the re-reco data

Result	Old FW munu	New FW munu	Old FW enu	New FW enu
NSMC	123.0	121.9	124.2	122.3
NCMC	371.0	370.0	113.4	116.0
NCData−NCBkg	196.0	195.9	62.4	62.2
Result	65.1	64.5	68.3	65.6

Conclusions

- New framework reproduces to couple of % level results of old framework
  - difference from weighting, will investigate
- Instruction to try it out can be found here

Backup