To-do List for Top 2016

* Finish synchronisation:
  + Confirm that data and non-tZq MC and tZq results with SFs applied are consistent. Nobody else has filled these out yet, except for VUB for WZ MC.
* Following bug fixes, ~~fairly~~ confident that amc@nlo reweighting has worked properly – especially as it’s improved the data/MC yield.
* Systematics:
  + ~~Check generator level weight reweighting for Matrix Element and Parton Shower scale variations works as intended.~~
  + Update systematic variations for lepton triggers from our own studies.
  + Understand how to calculate systematic uncertainties for the trigger scale factors we have calculated.
* Use single lepton datasets to recover efficiency? Worth the extra work for slight improvement? Thinking we should, but not a high priority as getting everything working with the dilepton datasets.
* Understand why the mumu channel an offset:
  + After the jet cuts are applied, data/MC yields don’t exceed 10% difference (+10% for bTagging, ~1-3% after jet and W mass cuts).
  + Check the trigger and lepton scale factors.
* Establish control regions.
* Establish which variables should be fed into the BDT.
  + Looking at the variables spat out by the analysis tool.
  + Throw everything in (blindly of course) and see what the BDT thinks has the most significant impact?
* Have the Higgs Combine Tool setup to take in BDT input asap.
  + Potentially the most time consuming element.
* How will the background estimations be done?
  + Similar to trilepton or are other approaches needed?
  + WZ background is much less significant than trilepton.
  + Z+ Jets are more problematic – definitely need these.
  + Fake leptons?
* Any additional systematics to be considered?
* Do any Scale Factors require a different treatment?
* FCNC:
  + Some relevant Fast-Sim samples are ready. Full-Sim in production soon – these won’t be ready in time for Top2016 I suspect.
  + Need to setup code to perform FCNC search – i.e. traditional excess yield comparison – as currently it is only setup for c-tagging, which is currently not actively being pursued or expected to be so before Top2016 (i.e. the short-medium term).