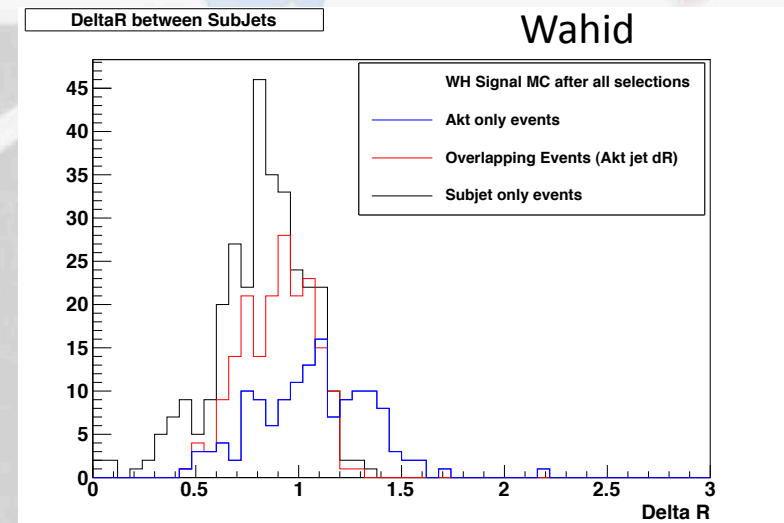# Introduction

Ricardo Gonçalo (RHUL)
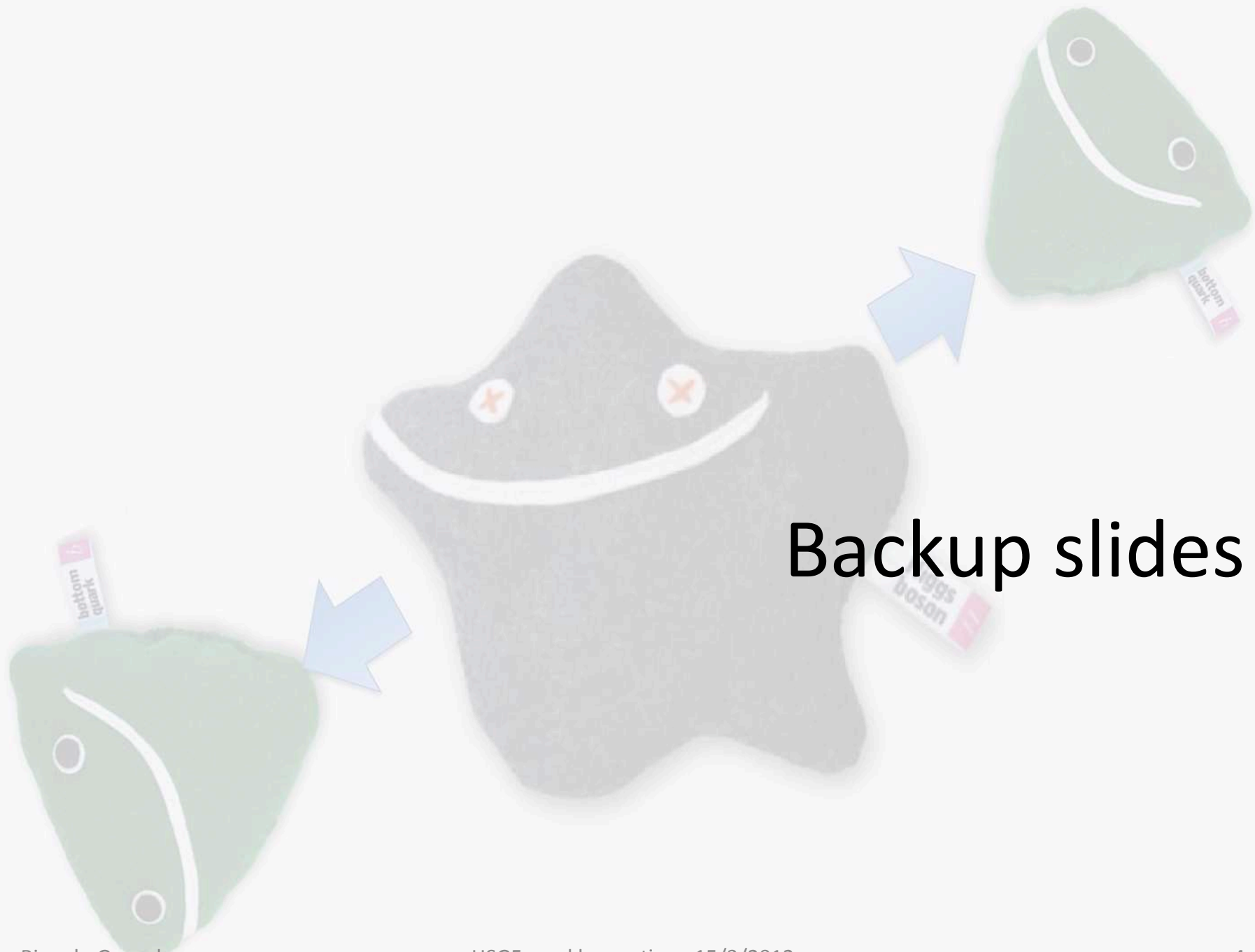Higgs Weekly Meeting – 15 March 2012

To do list for paper

- Time scale: end of March/beginning of April (discussion on detailed schedule ongoing)
- b-tagging scale factors: waiting for final b-tagging scale factors
    - Delay due to changes after a bug corrected in one of the b-tagging analysis
    - Discussion ongoing with conveners on what to do for H->bb paper
- METUtility: will move to new version for final analysis run
- Jet pileup correction: to be applied for final run – see Jike's talk today
- Di-b-jet mass scale: will apply 5% correction to m(b,b)
- Top normalization scale factors:
    - Changing to new method to improve consistency with W+jets and with ZH->lvbb analysis
- ΔR_{jj} study: look again at low ΔR_{jj} region to answer EB questions
- Limits:
    - Small problems found in H->bb combined limits – cross checks ongoing with Lianliang, Silje and Giacinto
    - Lianliang running toys
- Smoothing of backgrounds:
    - Previously done in llbb/lvbb but not on vvbb – discussion ongoing with stats forum
- Theory uncertainties should be revisited slightly: to do
    - We used LO (Pythia) signal MC and assigned a flat 10% theory uncertainty (acceptance modeled at LO)
    - Apply uncertainty equal to difference between the LO and NLO QCD cross sections
    - Apply EW NLO corrections as a multiplicative factor to cross section in each bin (no effect on acceptance)
    - Cross-check size of uncertainties on pT(W/Z) and Njets distributions
- Variation of single-top, Wc and Zc backgrounds in vvbb analysis: to do for final results
- Update text:
    - Explain better the methods used in analyses, especially concerning multiple scale factors and fits to data etc
    - Should we aim for longer paper or to remove much of the information and aim for a shorter paper?
    - Smoothing of the backgrounds in llbb/lvbb: should be mentioned in support note

Plans for Summer

- Detailed schedule under discussion...
- Boosted H->bb
  - Add to WH analysis (maybe ZH) at highest $p_T^{W/Z}$
- Multivariate analyses
  - Already started, should go to higher priority
- More interaction with CP groups:
  - Jets and MET
    - New corrections and uncertainties coming LC jets?
  - Interaction with b-tagging
    - Improved H->bb b-tagging uncertainty
  - nteraction with Trigger:
    - vvbb, VBF H->bb, b(b)H, boosted Z->bb trigger
- ttH activity ramping up
- Z->bb having difficulties:
  - Bug found in g->bb samples – being re-generated
  - Re-produced AFII g->bb – bad description of data
- Other channels to continue pushing the boundaries: VBF H->bb, b(b)H

Wahid

Backup slides