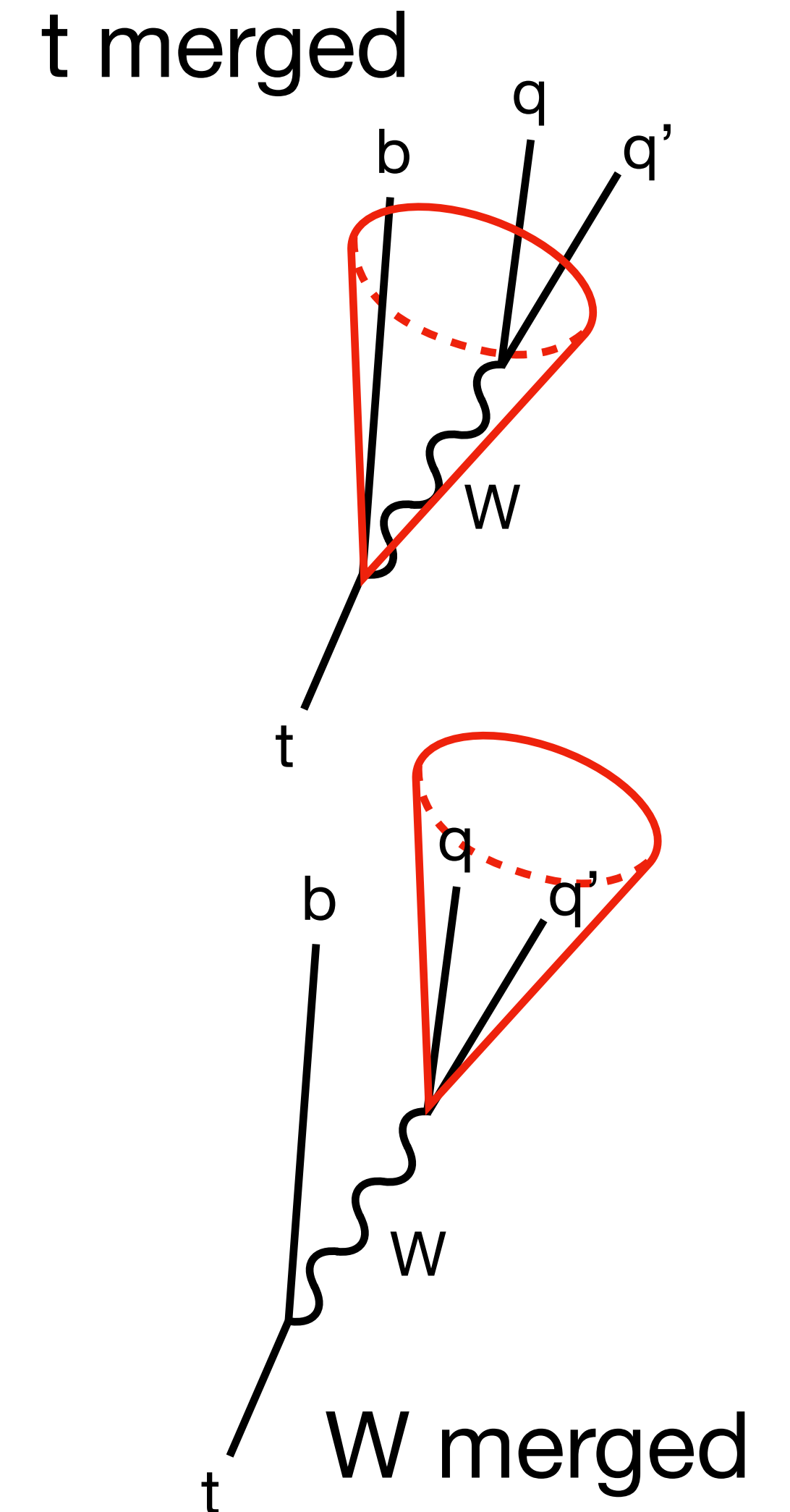
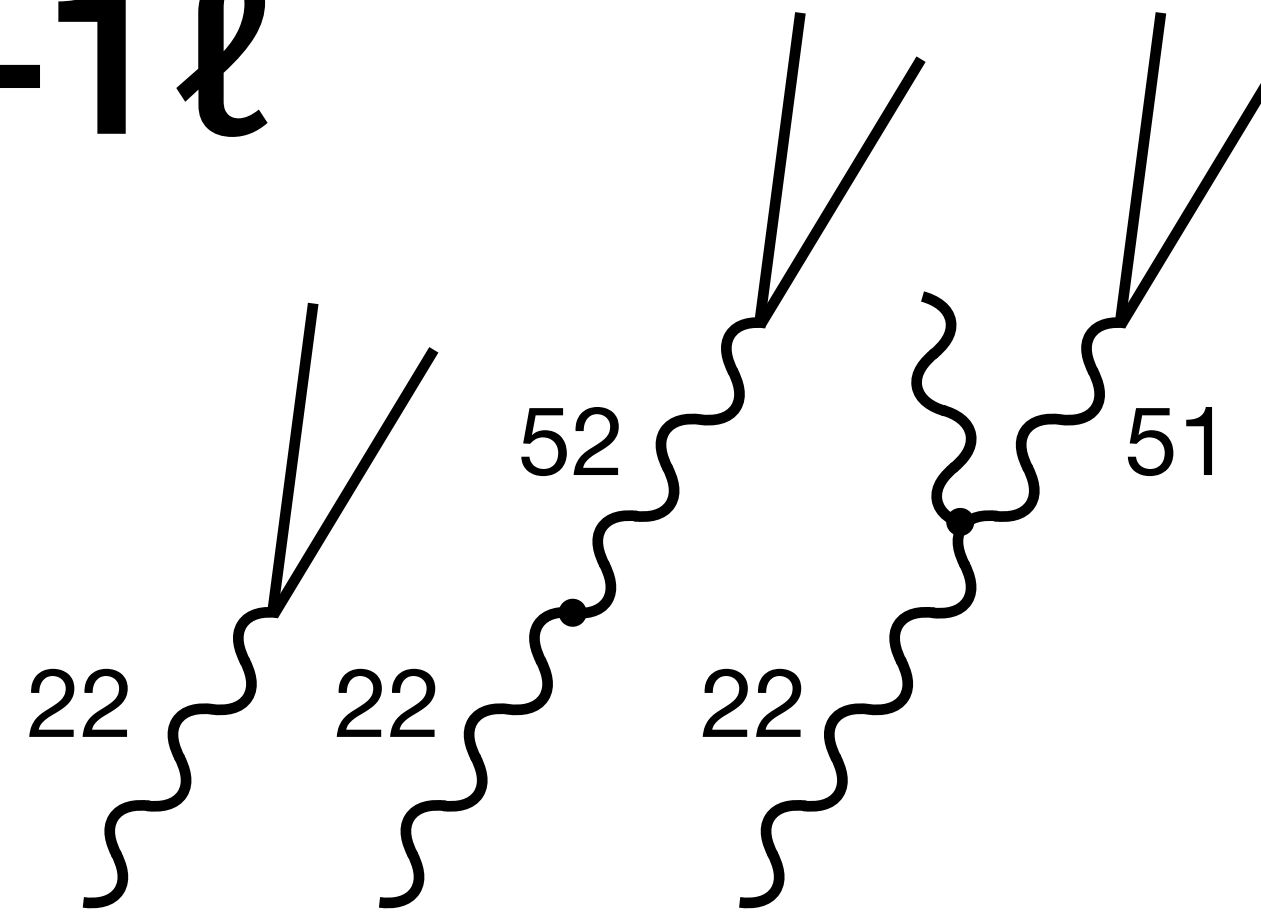
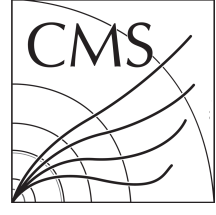


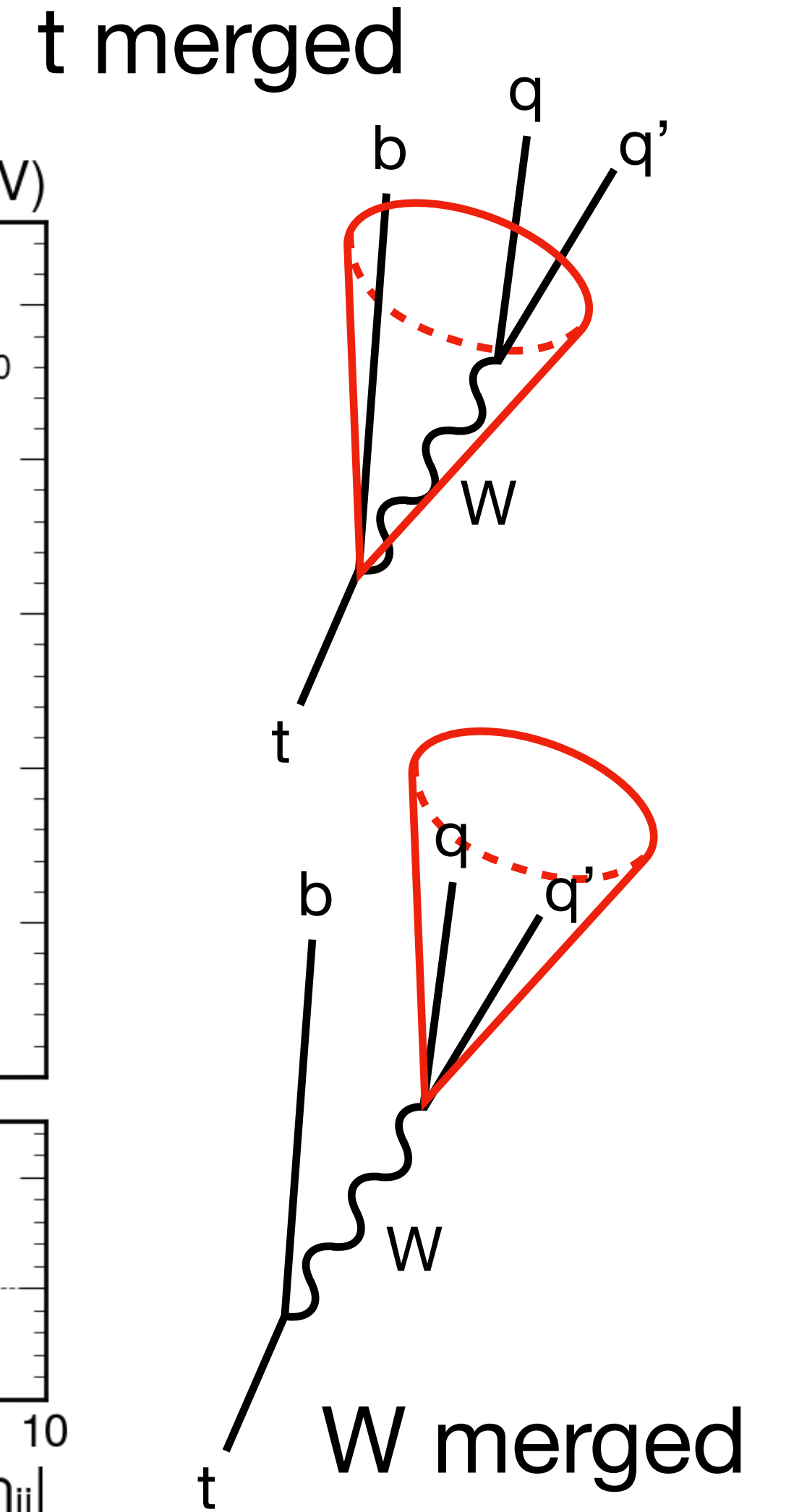
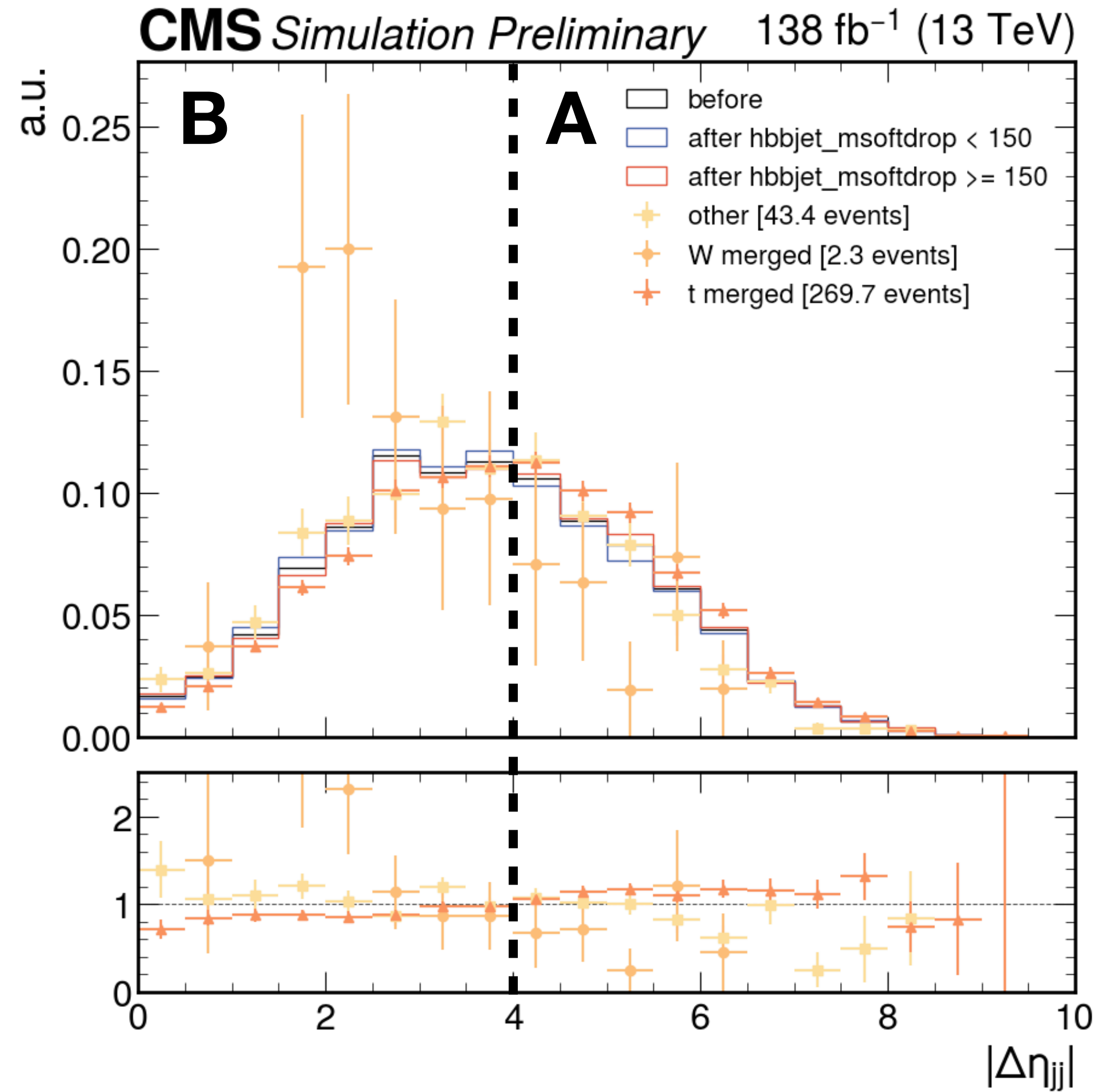
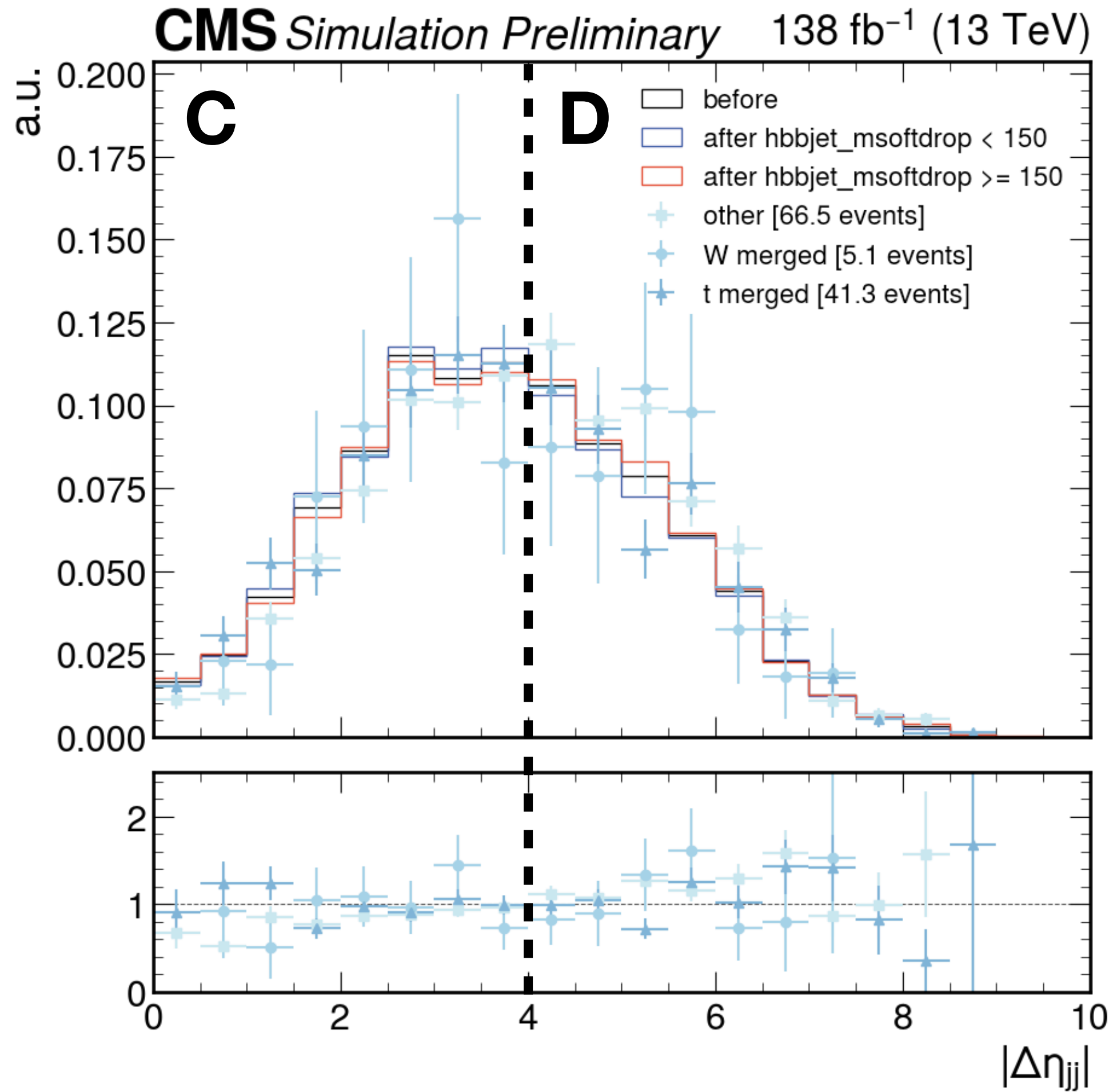
# ABCD: Splitting $t\bar{t} + 1\ell$

- First find top quarks:
  - Status == 62
- Next, find W bosons from top quarks:
  - Mother == one of the top quarks, status == 22
  - OR Mother == W boson, status == 52 or 51
- Finally, look at outgoing quarks: (status == 23)
  - Find b quarks from one of the top quarks
  - Find q, q' from  $W \rightarrow \text{hadrons}$





# ABCD: Splitting $t\bar{t}+1\ell$



**Some difference across B→A for W-merged  $t\bar{t}+1\ell$  events (only 2 events)**