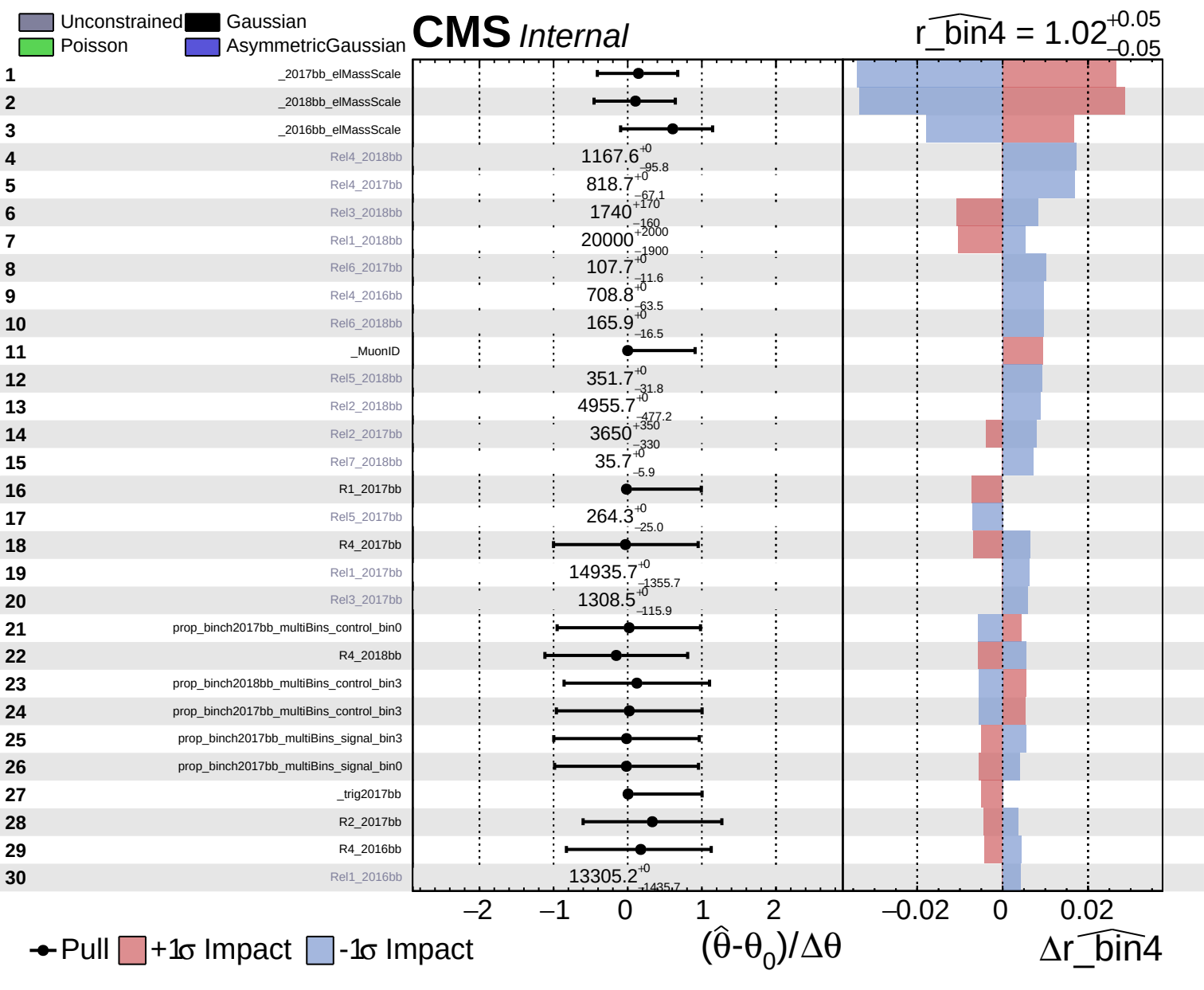
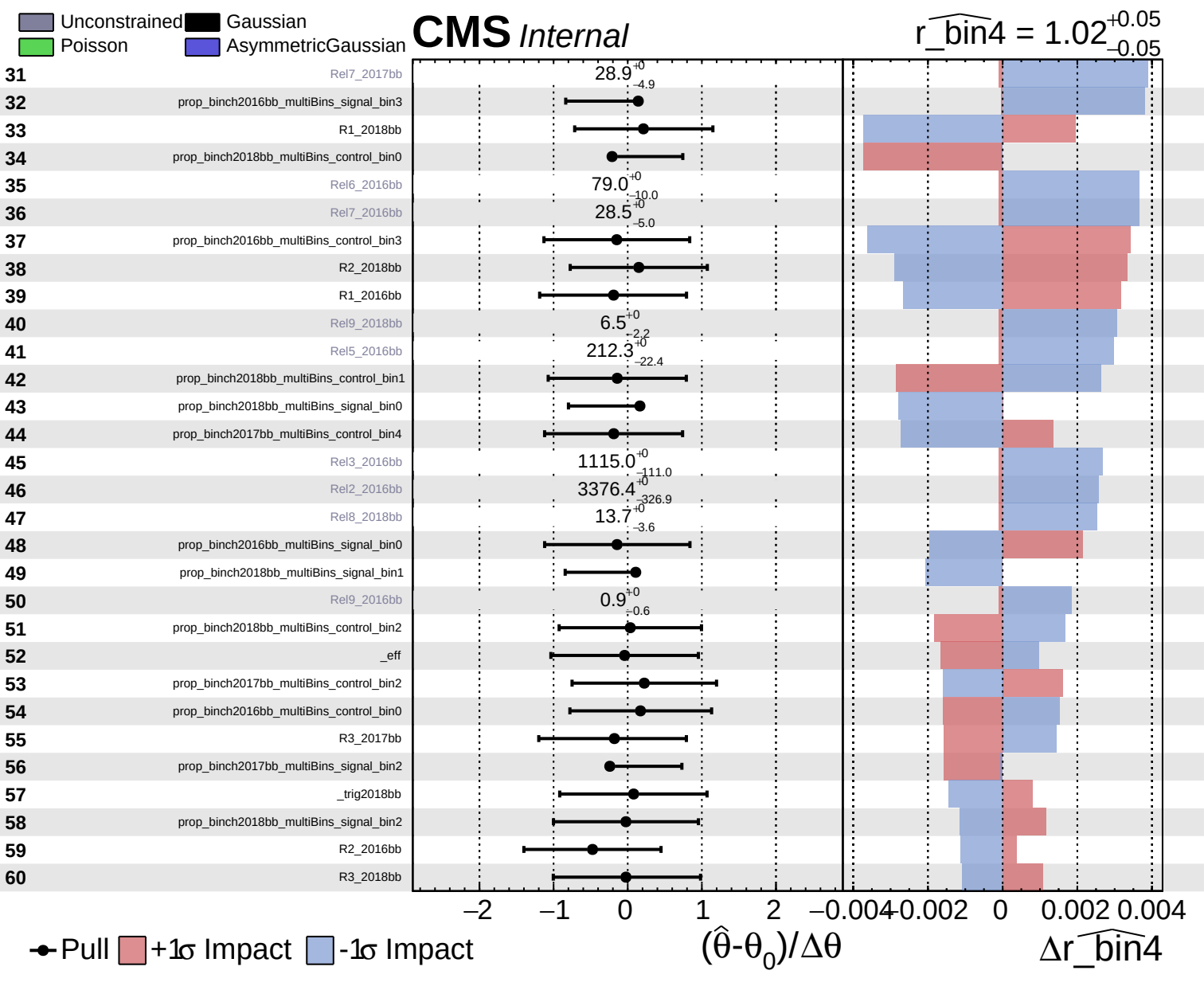
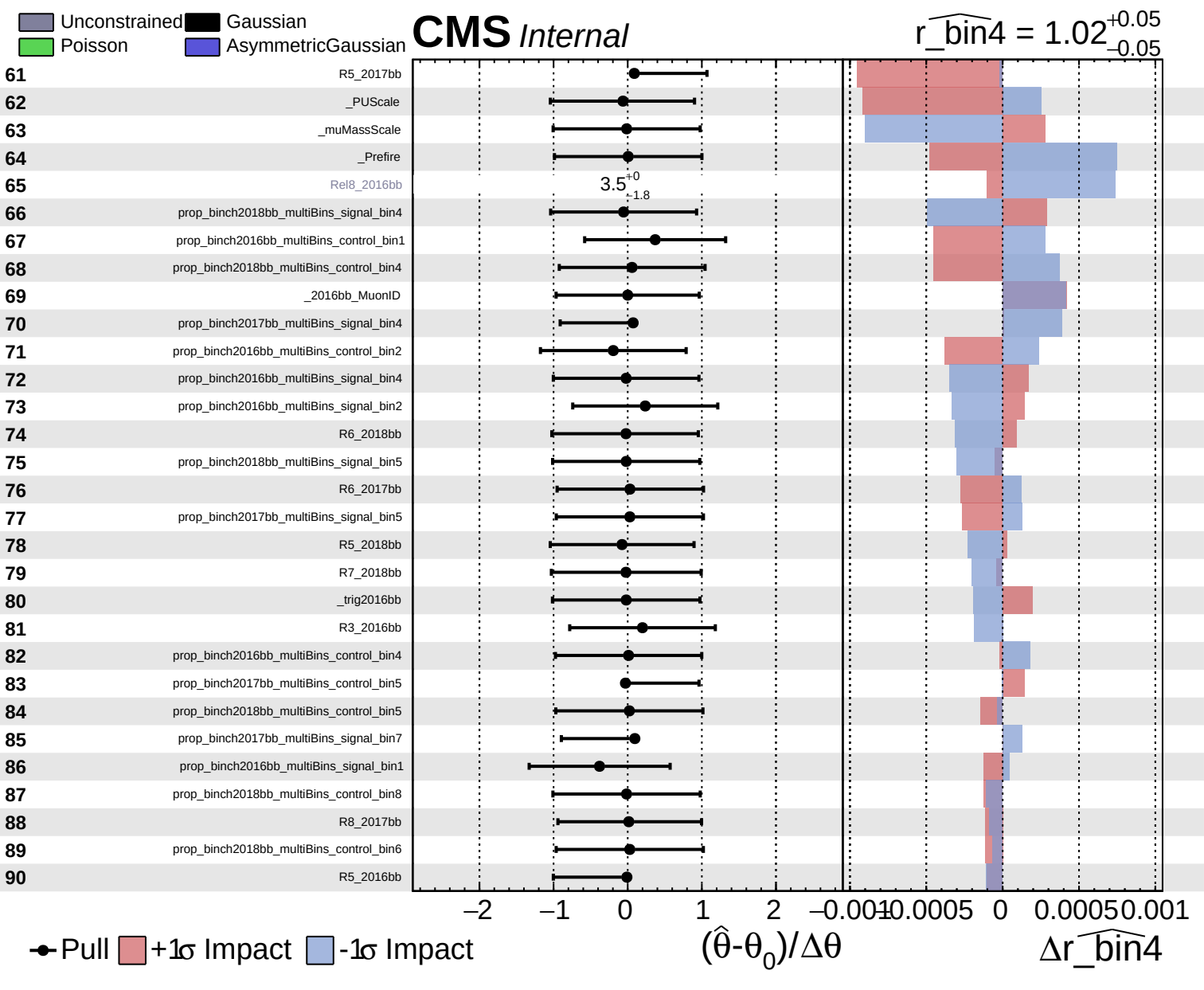
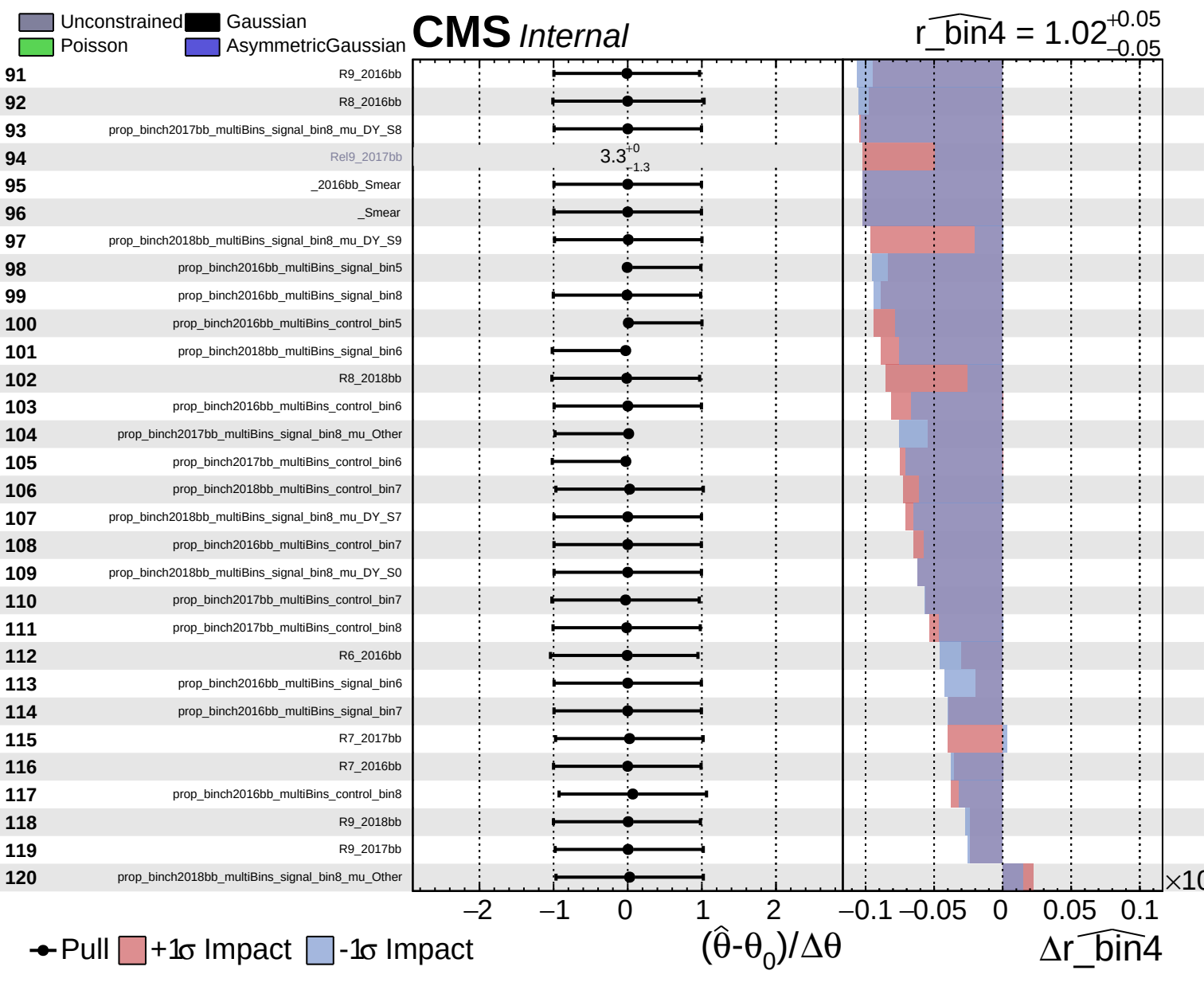
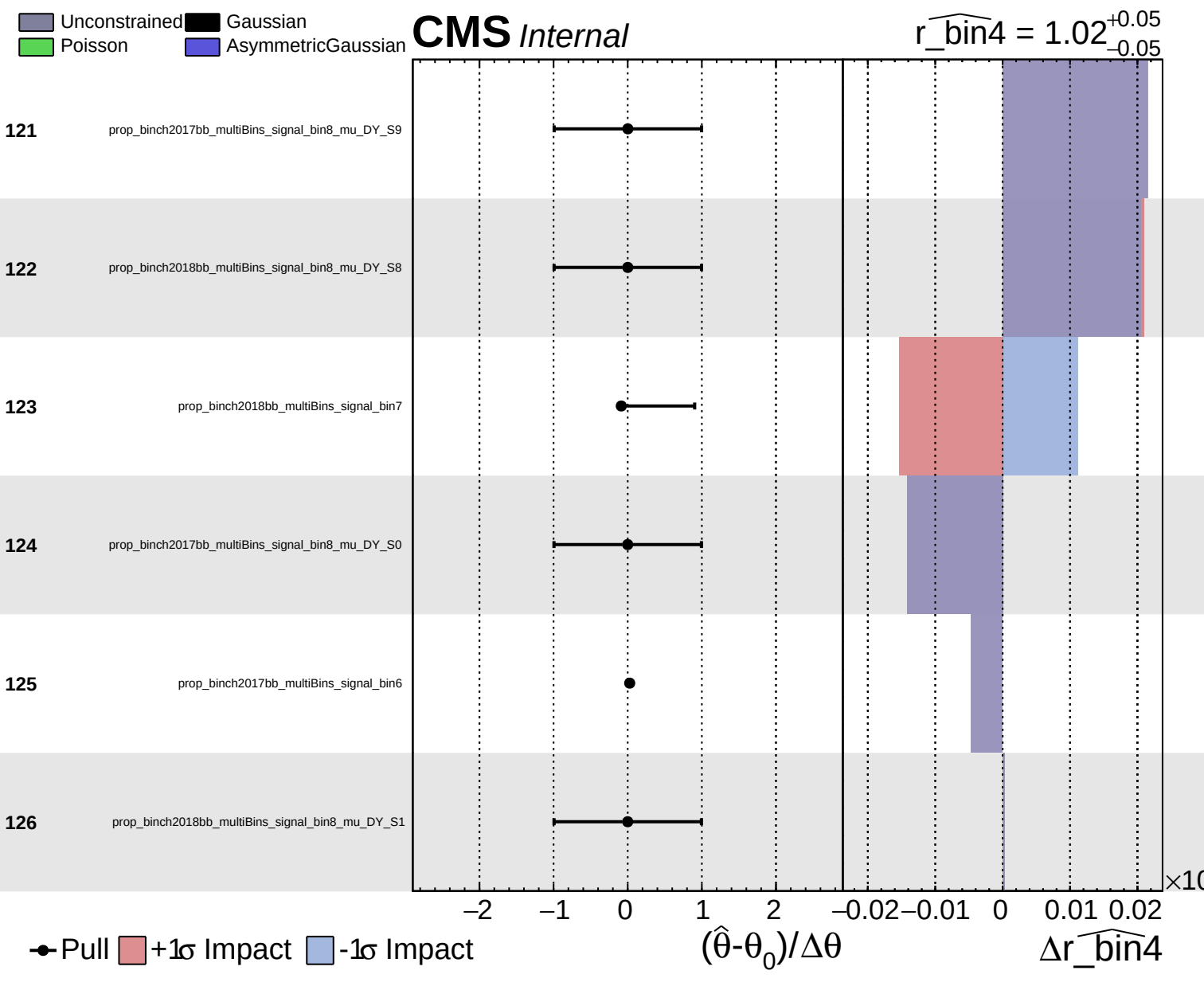

Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin4 = 1.02 +0.05 −0.05
1 _2017bb_elMassScale
2 _2018bb_elMassScale
3 _2016bb_elMassScale
4 Rel4_2018bb 1167.6 +0 −95.8
5 Rel4_2017bb 818.7 +0 −67.1
6 Rel3_2018bb 1740 +170 −160
7 Rel1_2018bb 20000 +2000 −1900
8 Rel6_2017bb 107.7 +0 −11.6
9 Rel4_2016bb 708.8 +0 −63.5
10 Rel6_2018bb 165.9 +0 −16.5
11 _MuonID
12 Rel5_2018bb 351.7 +0 −31.8
13 Rel2_2018bb 4955.7 +0 −477.2
14 Rel2_2017bb 3650 +350 −330
15 Rel7_2018bb 35.7 +0 −5.9
16 R1_2017bb
17 Rel5_2017bb 264.3 +0 −25.0
18 R4_2017bb
19 Rel1_2017bb 14935.7 +0 −1355.7
20 Rel3_2017bb 1308.5 +0 −115.9
21 prop_binch2017bb_multiBins_control_bin0
22 R4_2018bb
23 prop_binch2018bb_multiBins_control_bin3
24 prop_binch2017bb_multiBins_control_bin3
25 prop_binch2017bb_multiBins_signal_bin3
26 prop_binch2017bb_multiBins_signal_bin0
27 _trig2017bb
28 R2_2017bb
29 R4_2016bb
30 Rel1_2016bb 13305.2 +0 −1435.7
−2 −1 0 1 2
−0.02 0 0.02
Pull +1σ Impact -1σ Impact
(θ̂-θ0)/Δθ
Δr_bin4


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin4 = 1.02 +0.05 −0.05
31 Rel7_2017bb 28.9 +0 −4.9
32 prop_binch2016bb_multiBins_signal_bin3
33 R1_2018bb
34 prop_binch2018bb_multiBins_control_bin0
35 Rel6_2016bb 79.0 +0 −10.0
36 Rel7_2016bb 28.5 +0 −5.0
37 prop_binch2016bb_multiBins_control_bin3
38 R2_2018bb
39 R1_2016bb
40 Rel9_2018bb 6.5 +0 −2.2
41 Rel5_2016bb 212.3 +0 −22.4
42 prop_binch2018bb_multiBins_control_bin1
43 prop_binch2018bb_multiBins_signal_bin0
44 prop_binch2017bb_multiBins_control_bin4
45 Rel3_2016bb 1115.0 +0 −111.0
46 Rel2_2016bb 3376.4 +0 −326.9
47 Rel8_2018bb 13.7 +0 −3.6
48 prop_binch2016bb_multiBins_signal_bin0
49 prop_binch2018bb_multiBins_signal_bin1
50 Rel9_2016bb 0.9 +0 −0.6
51 prop_binch2018bb_multiBins_control_bin2
52 _eff
53 prop_binch2017bb_multiBins_control_bin2
54 prop_binch2016bb_multiBins_control_bin0
55 R3_2017bb
56 prop_binch2017bb_multiBins_signal_bin2
57 _trig2018bb
58 prop_binch2018bb_multiBins_signal_bin2
59 R2_2016bb
60 R3_2018bb
−2 −1 0 1 2
−0.004 −0.002 0 0.002 0.004
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin4


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin4 = 1.02 +0.05 −0.05
61 R5_2017bb
62 _PUScale
63 _muMassScale
64 _Prefire
65 Rel8_2016bb
3.5 +0 −1.8
66 prop_binch2018bb_multiBins_signal_bin4
67 prop_binch2016bb_multiBins_control_bin1
68 prop_binch2018bb_multiBins_control_bin4
69 _2016bb_MuonID
70 prop_binch2017bb_multiBins_signal_bin4
71 prop_binch2016bb_multiBins_control_bin2
72 prop_binch2016bb_multiBins_signal_bin4
73 prop_binch2016bb_multiBins_signal_bin2
74 R6_2018bb
75 prop_binch2018bb_multiBins_signal_bin5
76 R6_2017bb
77 prop_binch2017bb_multiBins_signal_bin5
78 R5_2018bb
79 R7_2018bb
80 _trig2016bb
81 R3_2016bb
82 prop_binch2016bb_multiBins_control_bin4
83 prop_binch2017bb_multiBins_control_bin5
84 prop_binch2018bb_multiBins_control_bin5
85 prop_binch2017bb_multiBins_signal_bin7
86 prop_binch2016bb_multiBins_signal_bin1
87 prop_binch2018bb_multiBins_control_bin8
88 R8_2017bb
89 prop_binch2018bb_multiBins_control_bin6
90 R5_2016bb
−2 −1 0 1 2
−0.001 −0.0005 0 0.0005 0.001
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin4


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin4 = 1.02 +0.05 −0.05
91 R9_2016bb
92 R8_2016bb
93 prop_binch2017bb_multiBins_signal_bin8_mu_DY_S8
94 Rel9_2017bb
95 _2016bb_Smear
96 _Smear
97 prop_binch2018bb_multiBins_signal_bin8_mu_DY_S9
98 prop_binch2016bb_multiBins_signal_bin5
99 prop_binch2016bb_multiBins_signal_bin8
100 prop_binch2016bb_multiBins_control_bin5
101 prop_binch2018bb_multiBins_signal_bin6
102 R8_2018bb
103 prop_binch2016bb_multiBins_control_bin6
104 prop_binch2017bb_multiBins_signal_bin8_mu_Other
105 prop_binch2017bb_multiBins_control_bin6
106 prop_binch2018bb_multiBins_control_bin7
107 prop_binch2018bb_multiBins_signal_bin8_mu_DY_S7
108 prop_binch2016bb_multiBins_control_bin7
109 prop_binch2018bb_multiBins_signal_bin8_mu_DY_S0
110 prop_binch2017bb_multiBins_control_bin7
111 prop_binch2017bb_multiBins_control_bin8
112 R6_2016bb
113 prop_binch2016bb_multiBins_signal_bin6
114 prop_binch2016bb_multiBins_signal_bin7
115 R7_2017bb
116 R7_2016bb
117 prop_binch2016bb_multiBins_control_bin8
118 R9_2018bb
119 R9_2017bb
120 prop_binch2018bb_multiBins_signal_bin8_mu_Other
3.3 +0 −1.3
−2 −1 0 1 2
−0.1 −0.05 0 0.05 0.1
×10
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin4


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin4 = 1.02 +0.05 −0.05
121
prop_binch2017bb_multiBins_signal_bin8_mu_DY_S9
122
prop_binch2018bb_multiBins_signal_bin8_mu_DY_S8
123
prop_binch2018bb_multiBins_signal_bin7
124
prop_binch2017bb_multiBins_signal_bin8_mu_DY_S0
125
prop_binch2017bb_multiBins_signal_bin6
126
prop_binch2018bb_multiBins_signal_bin8_mu_DY_S1
−2
−1
0
1
2
−0.02
−0.01
0
0.01
0.02
×10
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin4