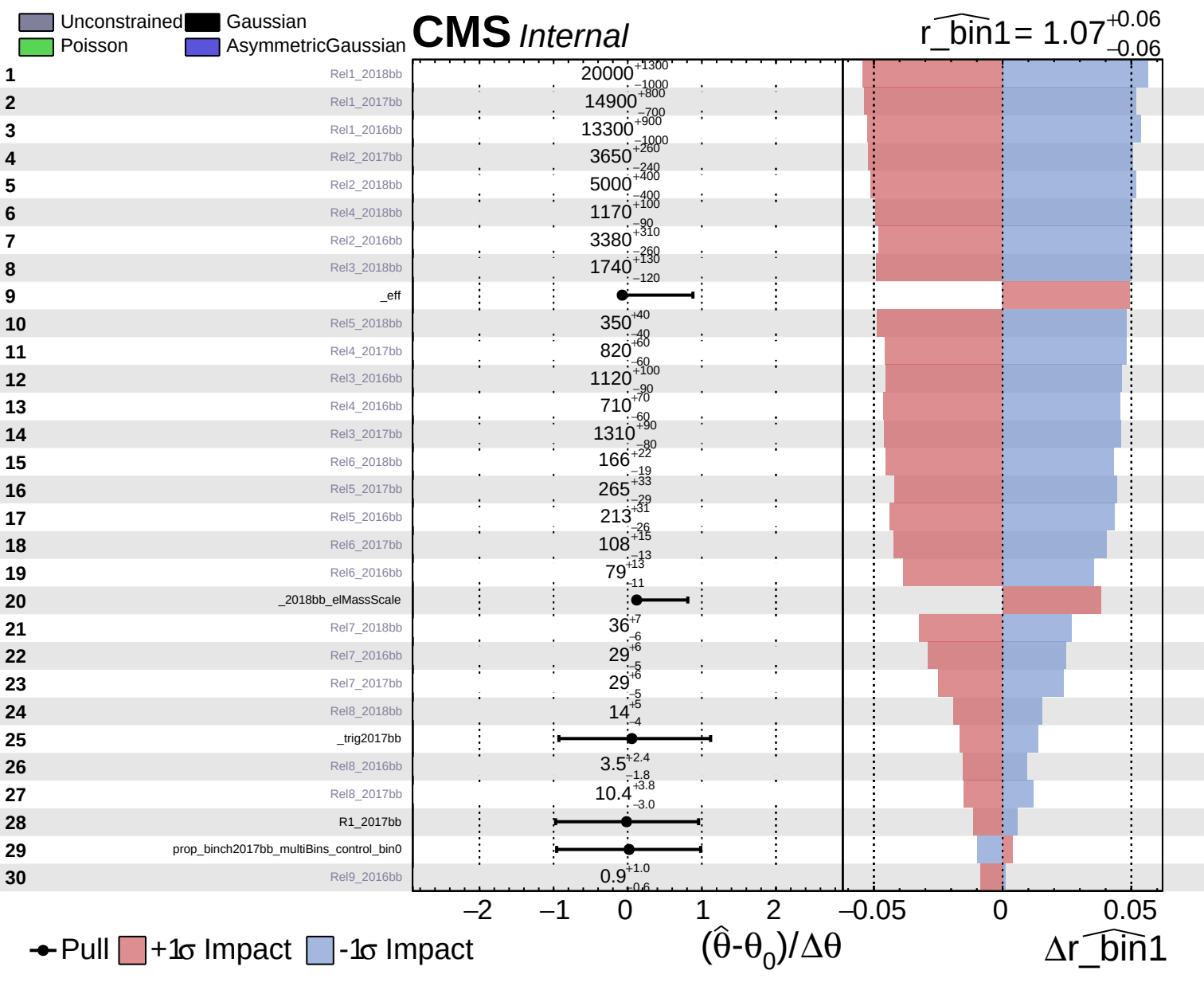
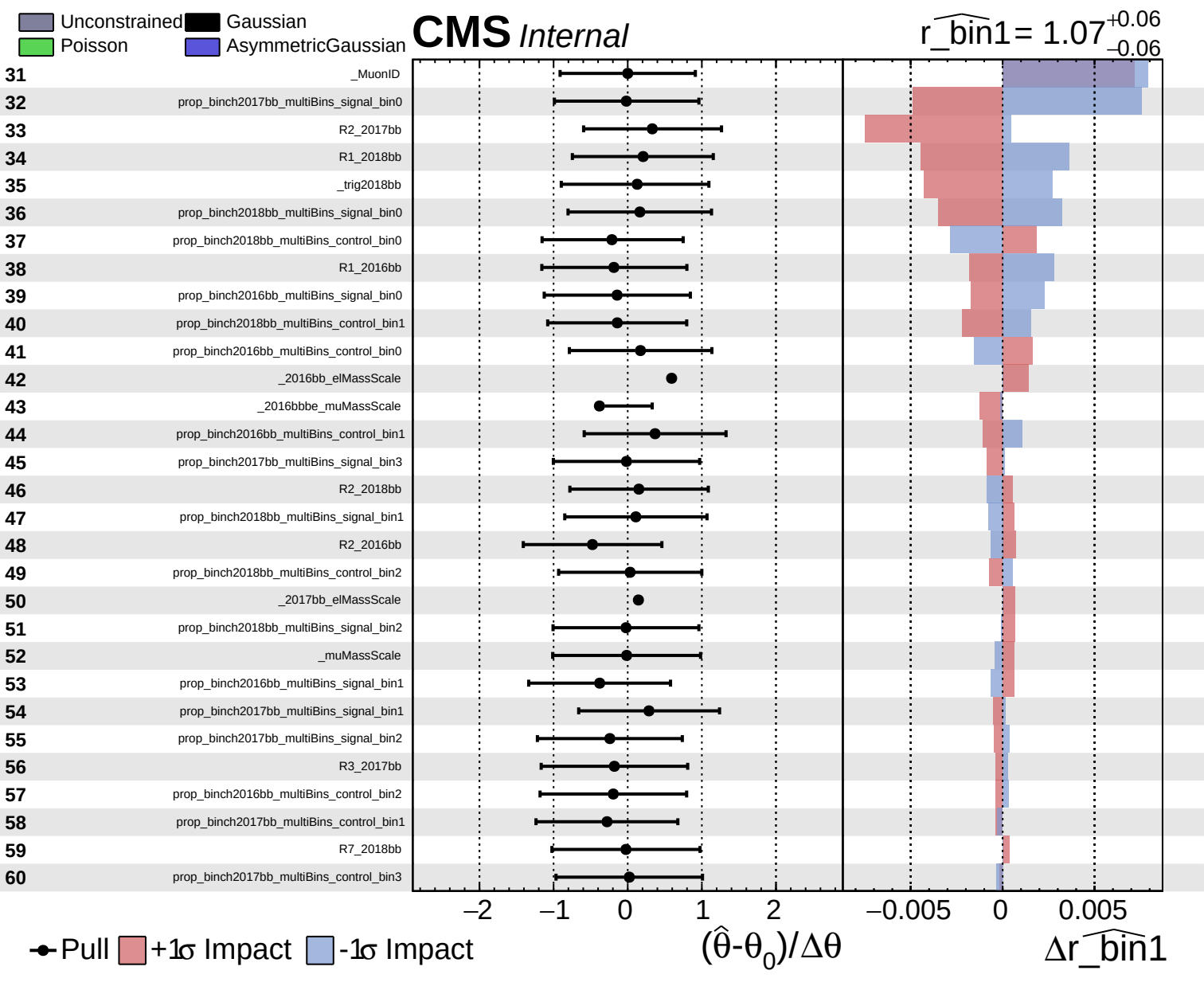
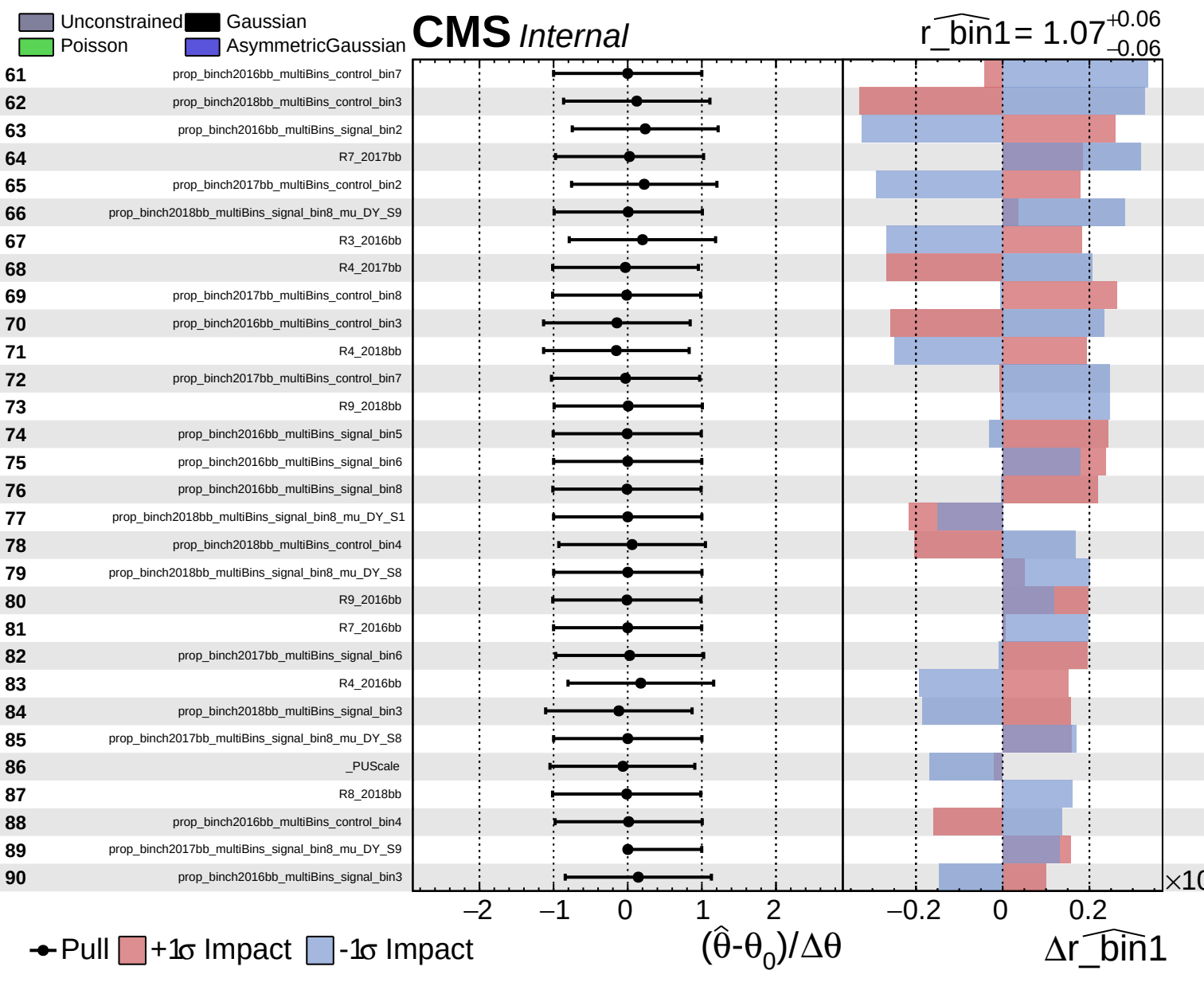
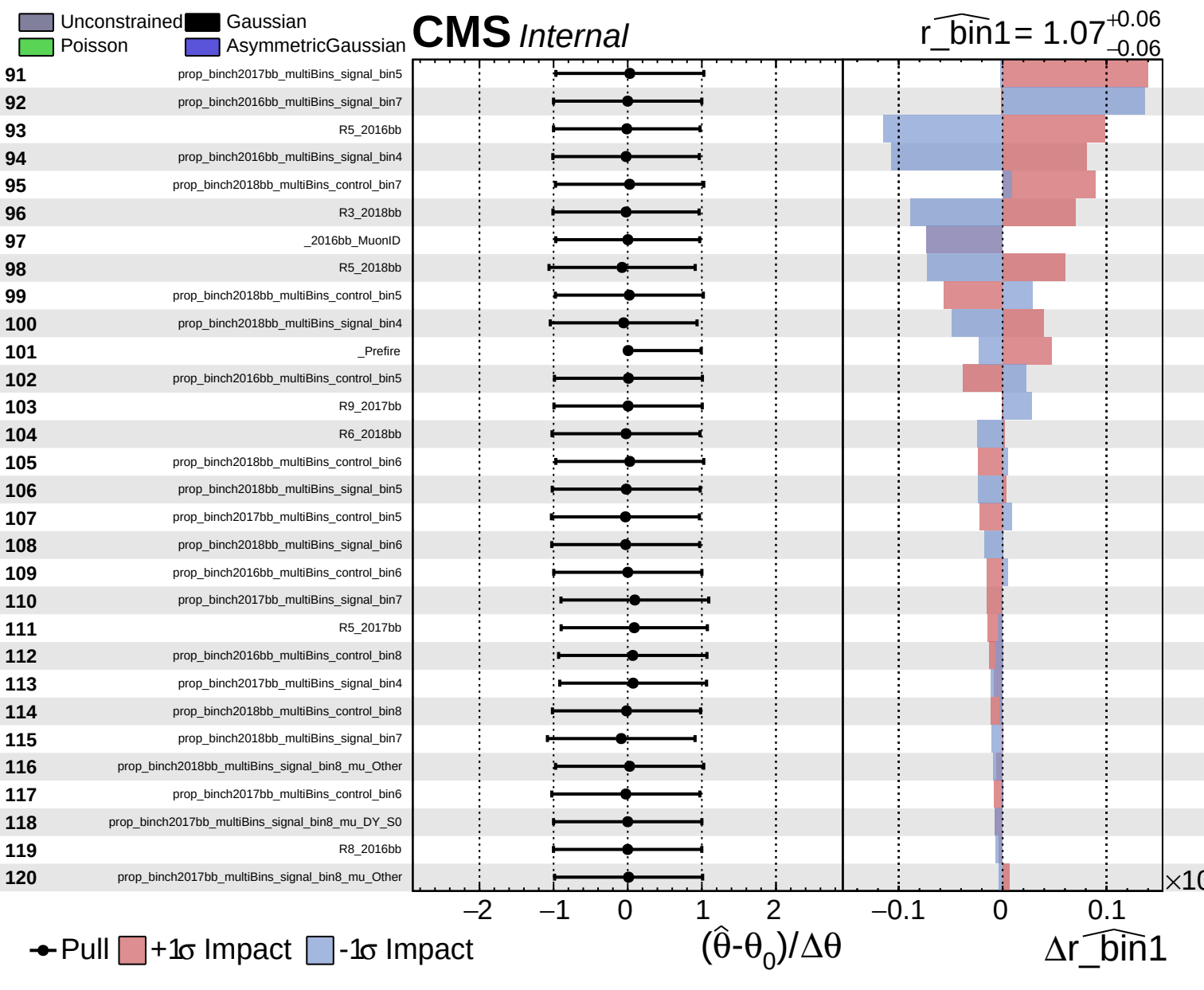
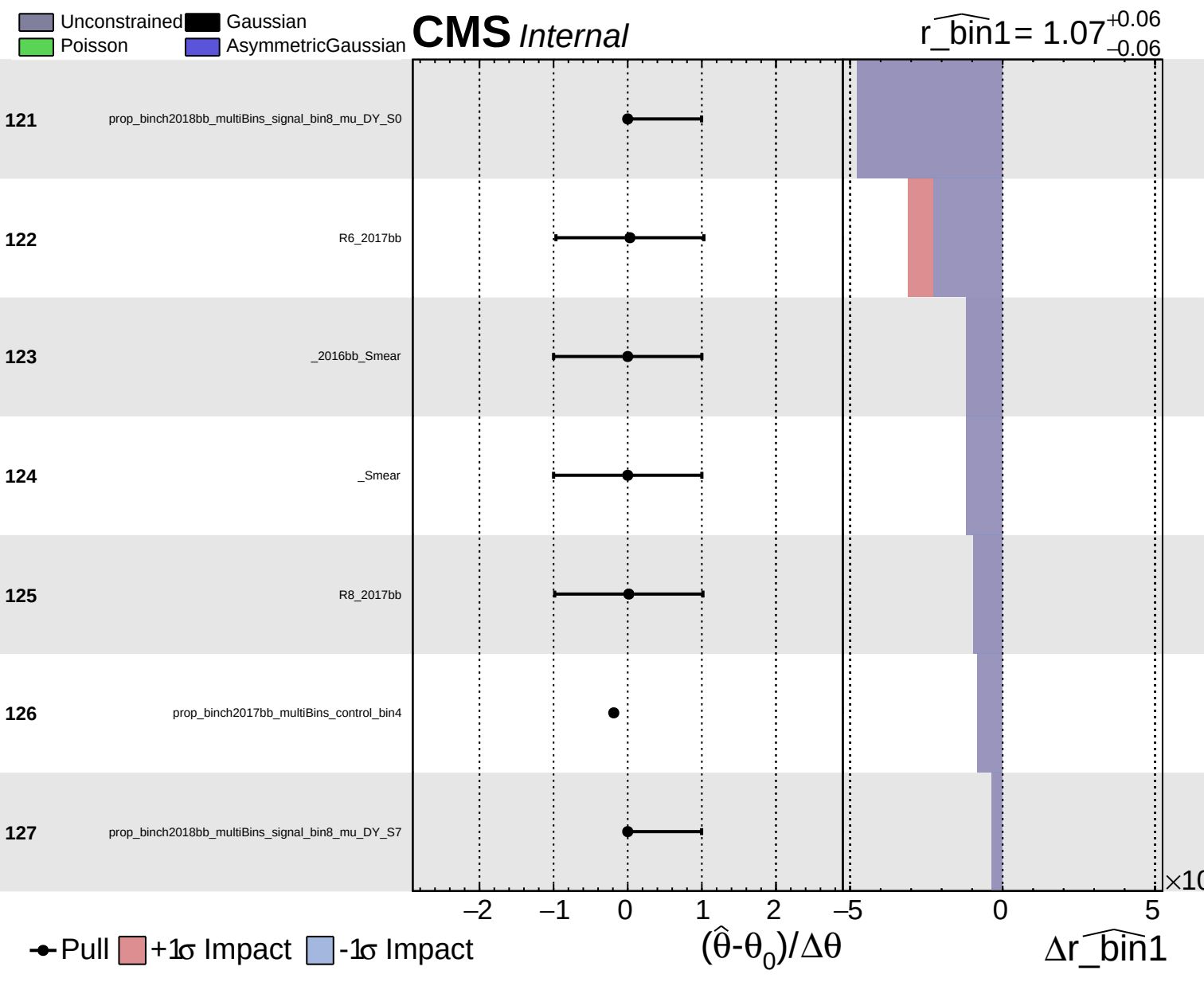

Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin1 = 1.07 +0.06 −0.06
1 Rel1_2018bb 20000 +1300 −1000
2 Rel1_2017bb 14900 +800 −700
3 Rel1_2016bb 13300 +900 −1000
4 Rel2_2017bb 3650 +260 −240
5 Rel2_2018bb 5000 +400 −400
6 Rel4_2018bb 1170 +100 −90
7 Rel2_2016bb 3380 +310 −260
8 Rel3_2018bb 1740 +130 −120
9 _eff
10 Rel5_2018bb 350 +40 −40
11 Rel4_2017bb 820 +60 −60
12 Rel3_2016bb 1120 +100 −90
13 Rel4_2016bb 710 +70 −60
14 Rel3_2017bb 1310 +90 −80
15 Rel6_2018bb 166 +22 −19
16 Rel5_2017bb 265 +33 −29
17 Rel5_2016bb 213 +31 −26
18 Rel6_2017bb 108 +15 −13
19 Rel6_2016bb 79 +13 −11
20 _2018bb_elMassScale
21 Rel7_2018bb 36 +7 −6
22 Rel7_2016bb 29 +6 −5
23 Rel7_2017bb 29 +6 −5
24 Rel8_2018bb 14 +5 −4
25 _trig2017bb
26 Rel8_2016bb 3.5 +2.4 −1.8
27 Rel8_2017bb 10.4 +3.8 −3.0
28 R1_2017bb
29 prop_binch2017bb_multiBins_control_bin0
30 Rel9_2016bb 0.9 +1.0 −0.6
−2 −1 0 1 2
−0.05 0 0.05
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin1


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin1 = 1.07 +0.06 −0.06
31 _MuonID
32 prop_binch2017bb_multiBins_signal_bin0
33 R2_2017bb
34 R1_2018bb
35 _trig2018bb
36 prop_binch2018bb_multiBins_signal_bin0
37 prop_binch2018bb_multiBins_control_bin0
38 R1_2016bb
39 prop_binch2016bb_multiBins_signal_bin0
40 prop_binch2018bb_multiBins_control_bin1
41 prop_binch2016bb_multiBins_control_bin0
42 _2016bb_elMassScale
43 _2016bbbe_muMassScale
44 prop_binch2016bb_multiBins_control_bin1
45 prop_binch2017bb_multiBins_signal_bin3
46 R2_2018bb
47 prop_binch2018bb_multiBins_signal_bin1
48 R2_2016bb
49 prop_binch2018bb_multiBins_control_bin2
50 _2017bb_elMassScale
51 prop_binch2018bb_multiBins_signal_bin2
52 _muMassScale
53 prop_binch2016bb_multiBins_signal_bin1
54 prop_binch2017bb_multiBins_signal_bin1
55 prop_binch2017bb_multiBins_signal_bin2
56 R3_2017bb
57 prop_binch2016bb_multiBins_control_bin2
58 prop_binch2017bb_multiBins_control_bin1
59 R7_2018bb
60 prop_binch2017bb_multiBins_control_bin3
−2 −1 0 1 2
−0.005 0 0.005
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin1


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin1 = 1.07 +0.06 −0.06
61 prop_binch2016bb_multiBins_control_bin7
62 prop_binch2018bb_multiBins_control_bin3
63 prop_binch2016bb_multiBins_signal_bin2
64 R7_2017bb
65 prop_binch2017bb_multiBins_control_bin2
66 prop_binch2018bb_multiBins_signal_bin8_mu_DY_S9
67 R3_2016bb
68 R4_2017bb
69 prop_binch2017bb_multiBins_control_bin8
70 prop_binch2016bb_multiBins_control_bin3
71 R4_2018bb
72 prop_binch2017bb_multiBins_control_bin7
73 R9_2018bb
74 prop_binch2016bb_multiBins_signal_bin5
75 prop_binch2016bb_multiBins_signal_bin6
76 prop_binch2016bb_multiBins_signal_bin8
77 prop_binch2018bb_multiBins_signal_bin8_mu_DY_S1
78 prop_binch2018bb_multiBins_control_bin4
79 prop_binch2018bb_multiBins_signal_bin8_mu_DY_S8
80 R9_2016bb
81 R7_2016bb
82 prop_binch2017bb_multiBins_signal_bin6
83 R4_2016bb
84 prop_binch2018bb_multiBins_signal_bin3
85 prop_binch2017bb_multiBins_signal_bin8_mu_DY_S8
86 _PUScale
87 R8_2018bb
88 prop_binch2016bb_multiBins_control_bin4
89 prop_binch2017bb_multiBins_signal_bin8_mu_DY_S9
90 prop_binch2016bb_multiBins_signal_bin3
−2 −1 0 1 2
−0.2 0 0.2
×10
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin1


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin1 = 1.07 +0.06 −0.06
91 prop_binch2017bb_multiBins_signal_bin5
92 prop_binch2016bb_multiBins_signal_bin7
93 R5_2016bb
94 prop_binch2016bb_multiBins_signal_bin4
95 prop_binch2018bb_multiBins_control_bin7
96 R3_2018bb
97 _2016bb_MuonID
98 R5_2018bb
99 prop_binch2018bb_multiBins_control_bin5
100 prop_binch2018bb_multiBins_signal_bin4
101 _Prefire
102 prop_binch2016bb_multiBins_control_bin5
103 R9_2017bb
104 R6_2018bb
105 prop_binch2018bb_multiBins_control_bin6
106 prop_binch2018bb_multiBins_signal_bin5
107 prop_binch2017bb_multiBins_control_bin5
108 prop_binch2018bb_multiBins_signal_bin6
109 prop_binch2016bb_multiBins_control_bin6
110 prop_binch2017bb_multiBins_signal_bin7
111 R5_2017bb
112 prop_binch2016bb_multiBins_control_bin8
113 prop_binch2017bb_multiBins_signal_bin4
114 prop_binch2018bb_multiBins_control_bin8
115 prop_binch2018bb_multiBins_signal_bin7
116 prop_binch2018bb_multiBins_signal_bin8_mu_Other
117 prop_binch2017bb_multiBins_control_bin6
118 prop_binch2017bb_multiBins_signal_bin8_mu_DY_S0
119 R8_2016bb
120 prop_binch2017bb_multiBins_signal_bin8_mu_Other
−2 −1 0 1 2
−0.1 0 0.1
×10
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin1


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin1 = 1.07 +0.06 −0.06
121
prop_binch2018bb_multiBins_signal_bin8_mu_DY_S0
122
R6_2017bb
123
_2016bb_Smear
124
_Smear
125
R8_2017bb
126
prop_binch2017bb_multiBins_control_bin4
127
prop_binch2018bb_multiBins_signal_bin8_mu_DY_S7
−2
−1
0
1
2
−5
0
5
×10
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin1