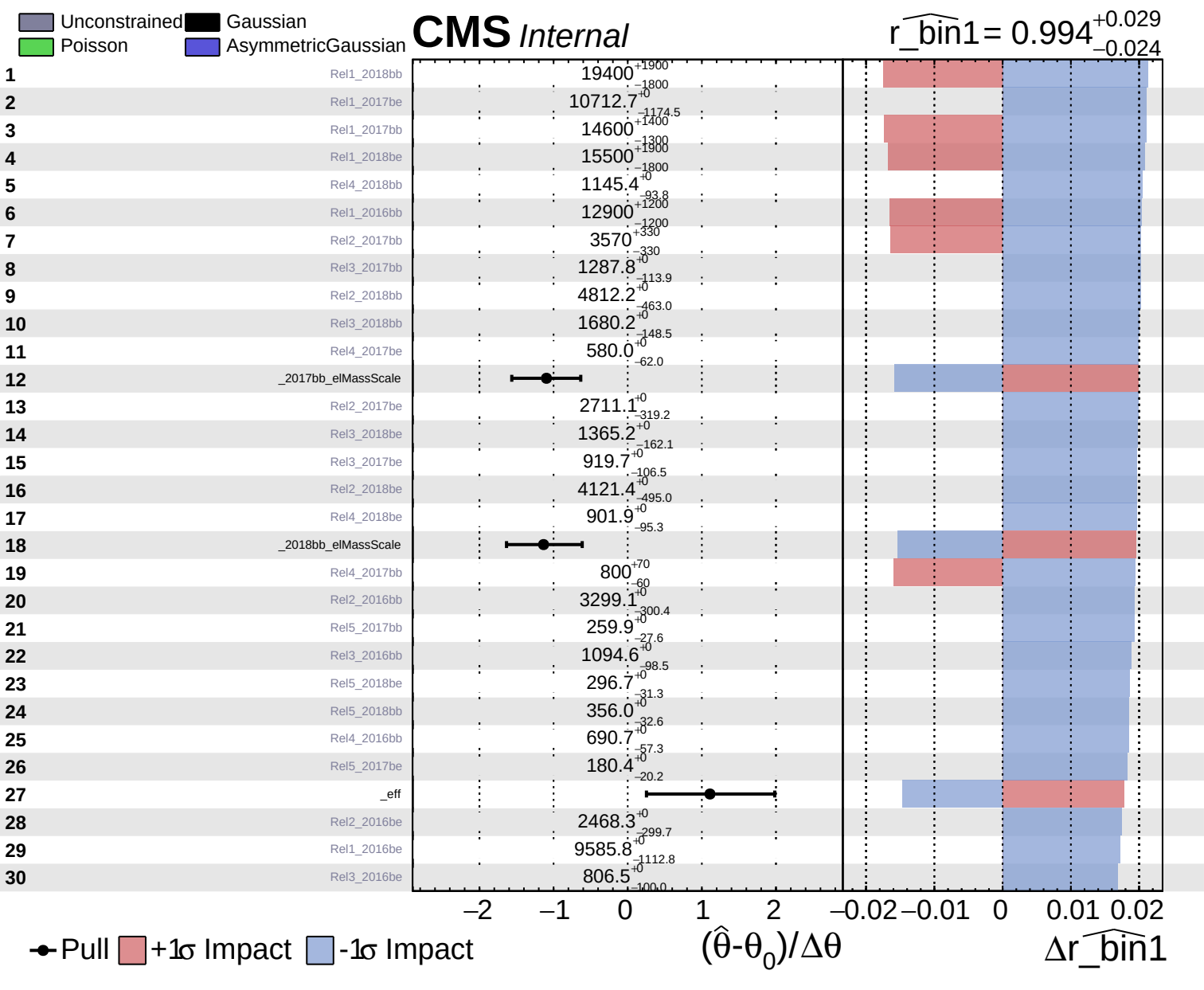
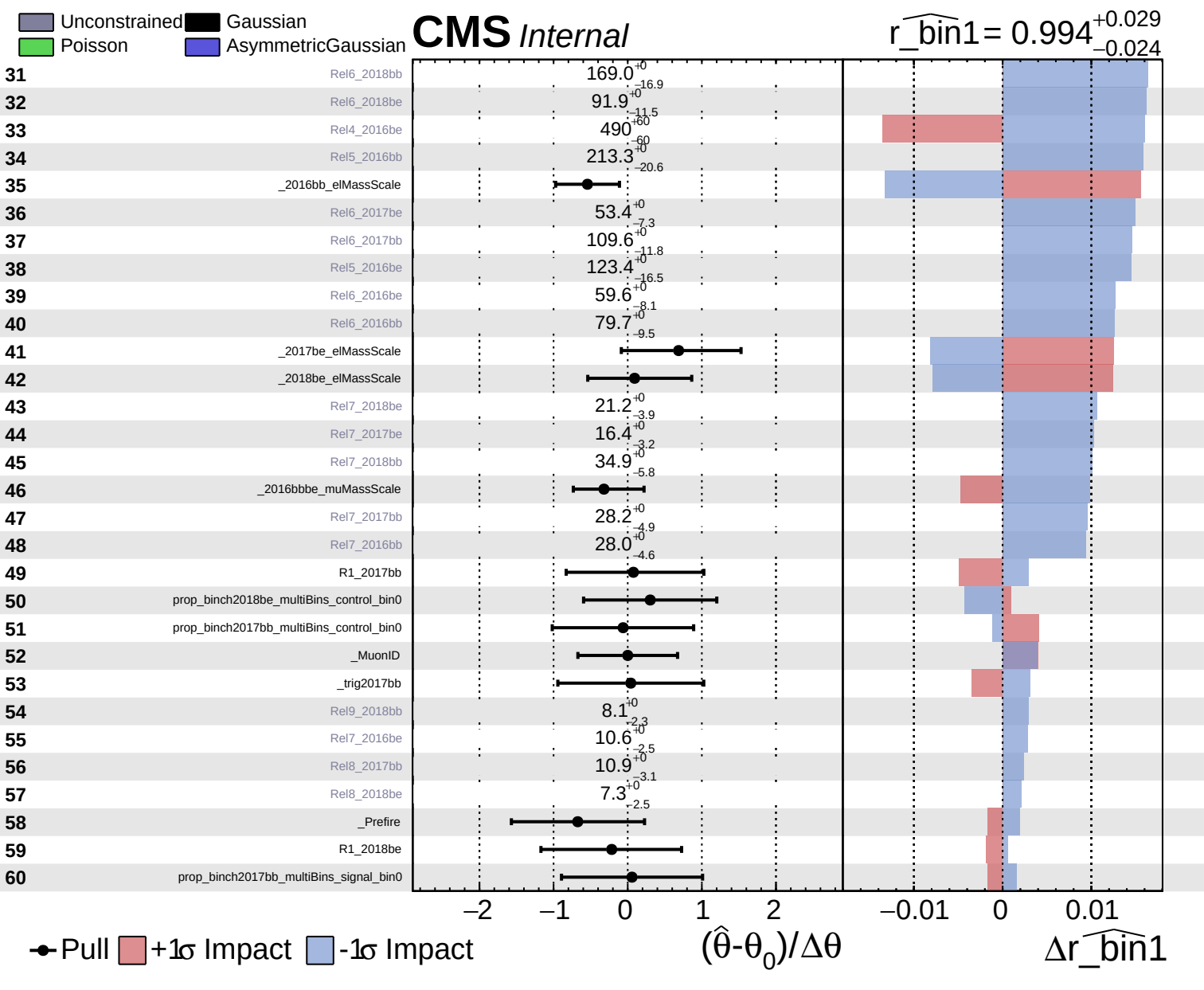
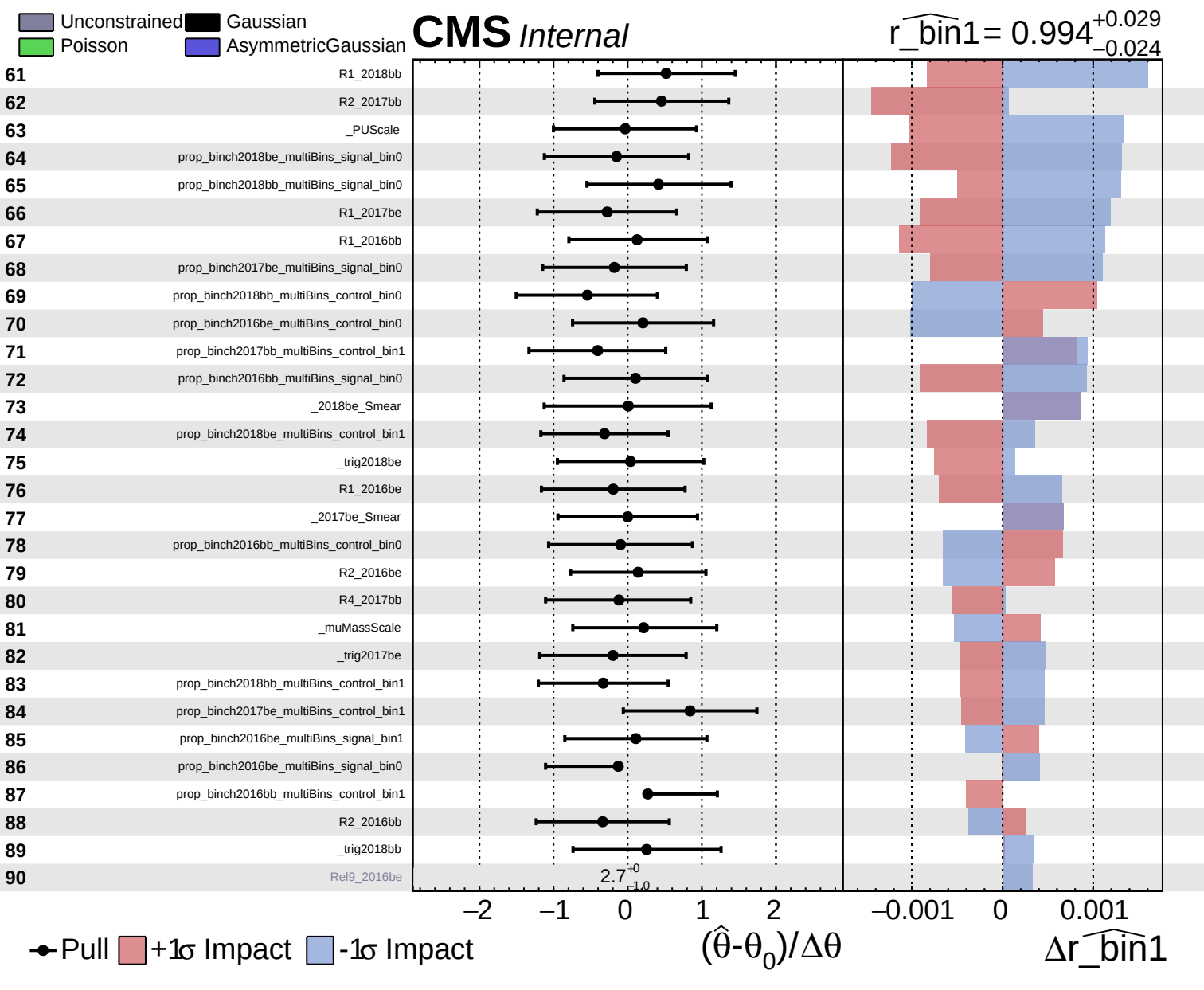
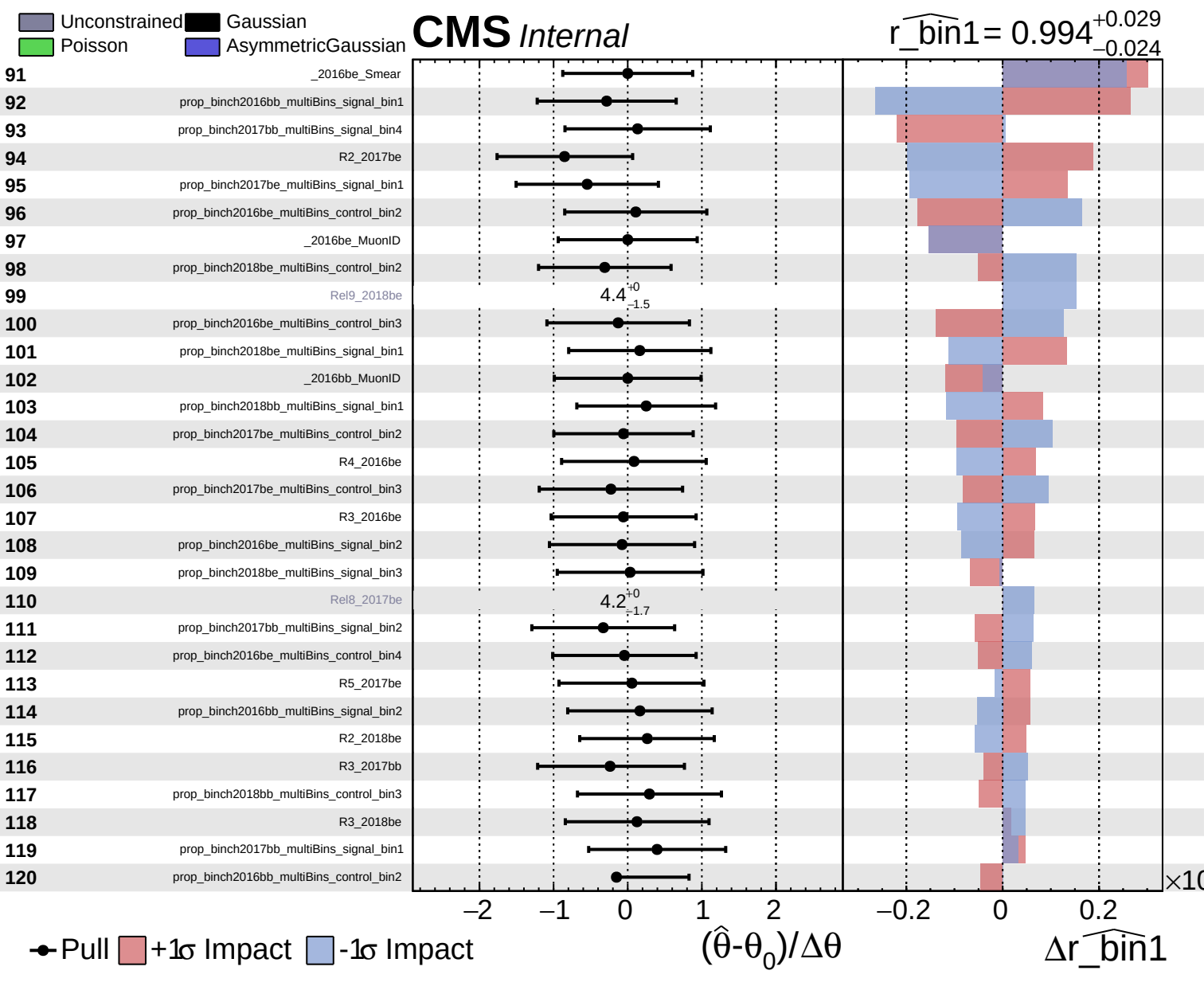
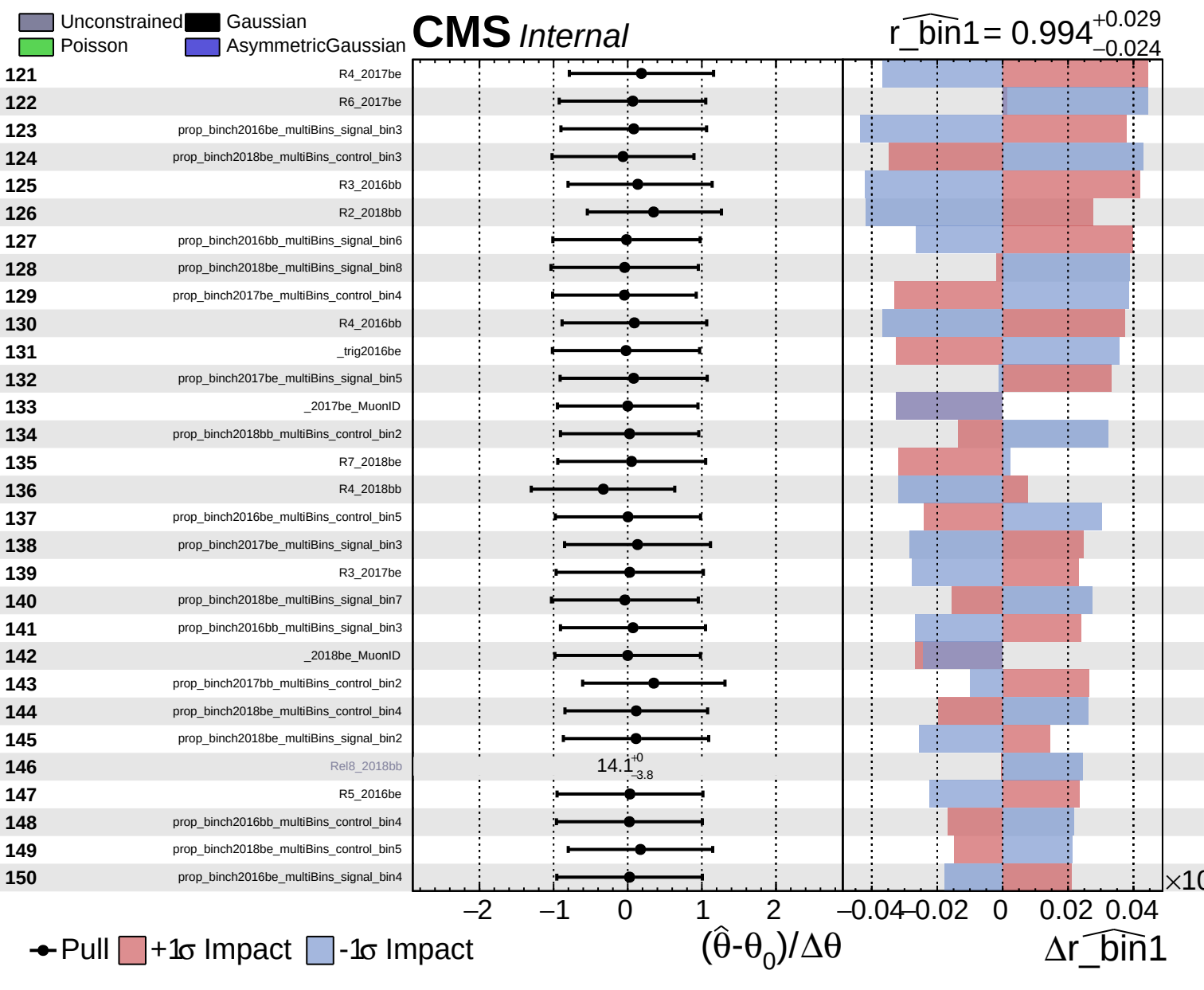
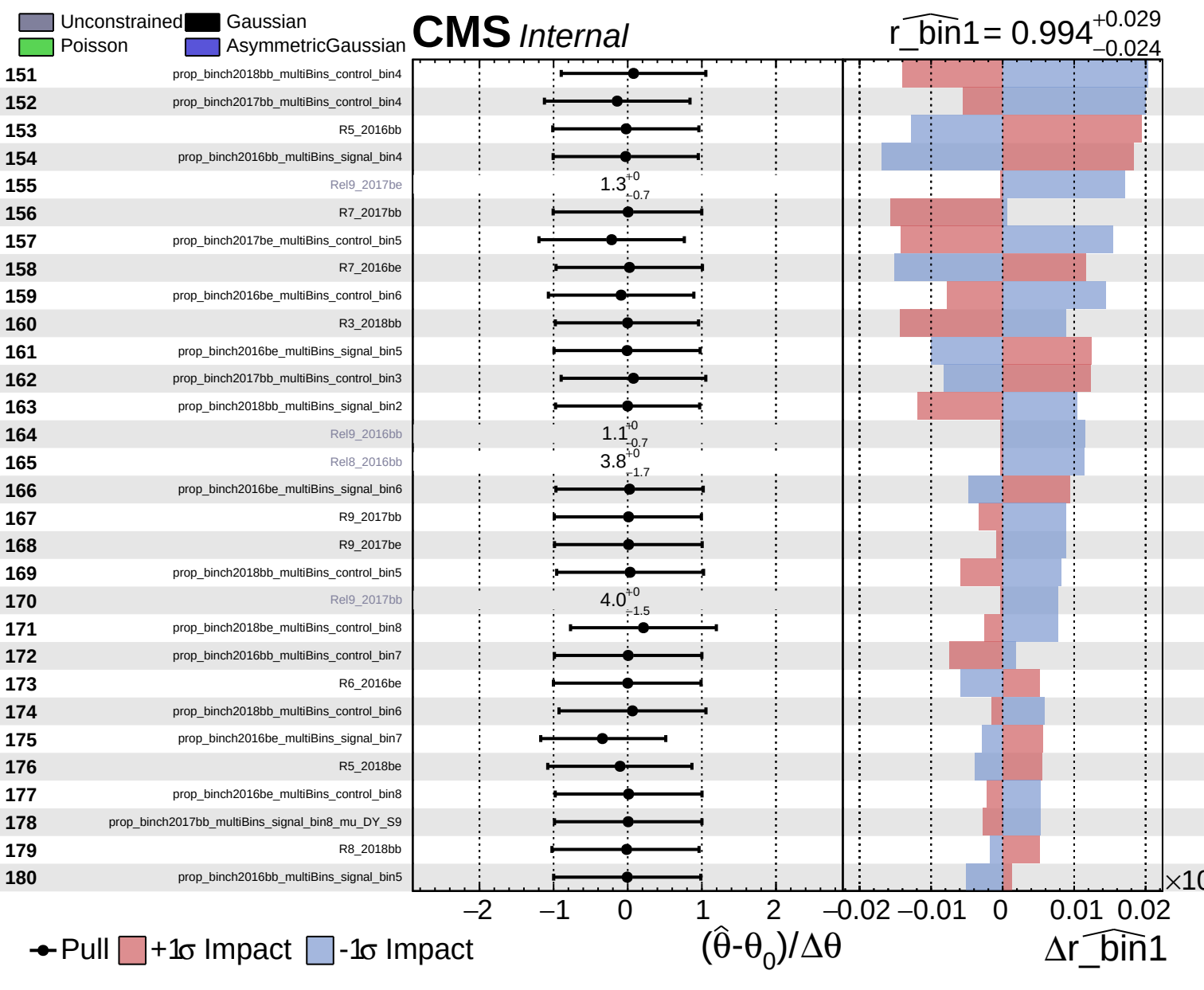

Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin1 = 0.994 +0.029 −0.024
1 Rel1_2018bb 19400 +1900 −1800
2 Rel1_2017be 10712.7 +0 −1174.5
3 Rel1_2017bb 14600 +1400 −1300
4 Rel1_2018be 15500 +1900 −1800
5 Rel4_2018bb 1145.4 +0 −93.8
6 Rel1_2016bb 12900 +1200 −1200
7 Rel2_2017bb 3570 +330 −330
8 Rel3_2017bb 1287.8 +0 −113.9
9 Rel2_2018bb 4812.2 +0 −463.0
10 Rel3_2018bb 1680.2 +0 −148.5
11 Rel4_2017be 580.0 +0 −62.0
12 _2017bb_elMassScale
13 Rel2_2017be 2711.1 +0 −319.2
14 Rel3_2018be 1365.2 +0 −162.1
15 Rel3_2017be 919.7 +0 −106.5
16 Rel2_2018be 4121.4 +0 −495.0
17 Rel4_2018be 901.9 +0 −95.3
18 _2018bb_elMassScale
19 Rel4_2017bb 800 +70 −60
20 Rel2_2016bb 3299.1 +0 −300.4
21 Rel5_2017bb 259.9 +0 −27.6
22 Rel3_2016bb 1094.6 +0 −98.5
23 Rel5_2018be 296.7 +0 −31.3
24 Rel5_2018bb 356.0 +0 −32.6
25 Rel4_2016bb 690.7 +0 −57.3
26 Rel5_2017be 180.4 +0 −20.2
27 _eff
28 Rel2_2016be 2468.3 +0 −299.7
29 Rel1_2016be 9585.8 +0 −1112.8
30 Rel3_2016be 806.5 +0 −100.0
−2 −1 0 1 2
−0.02 −0.01 0 0.01 0.02
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin1

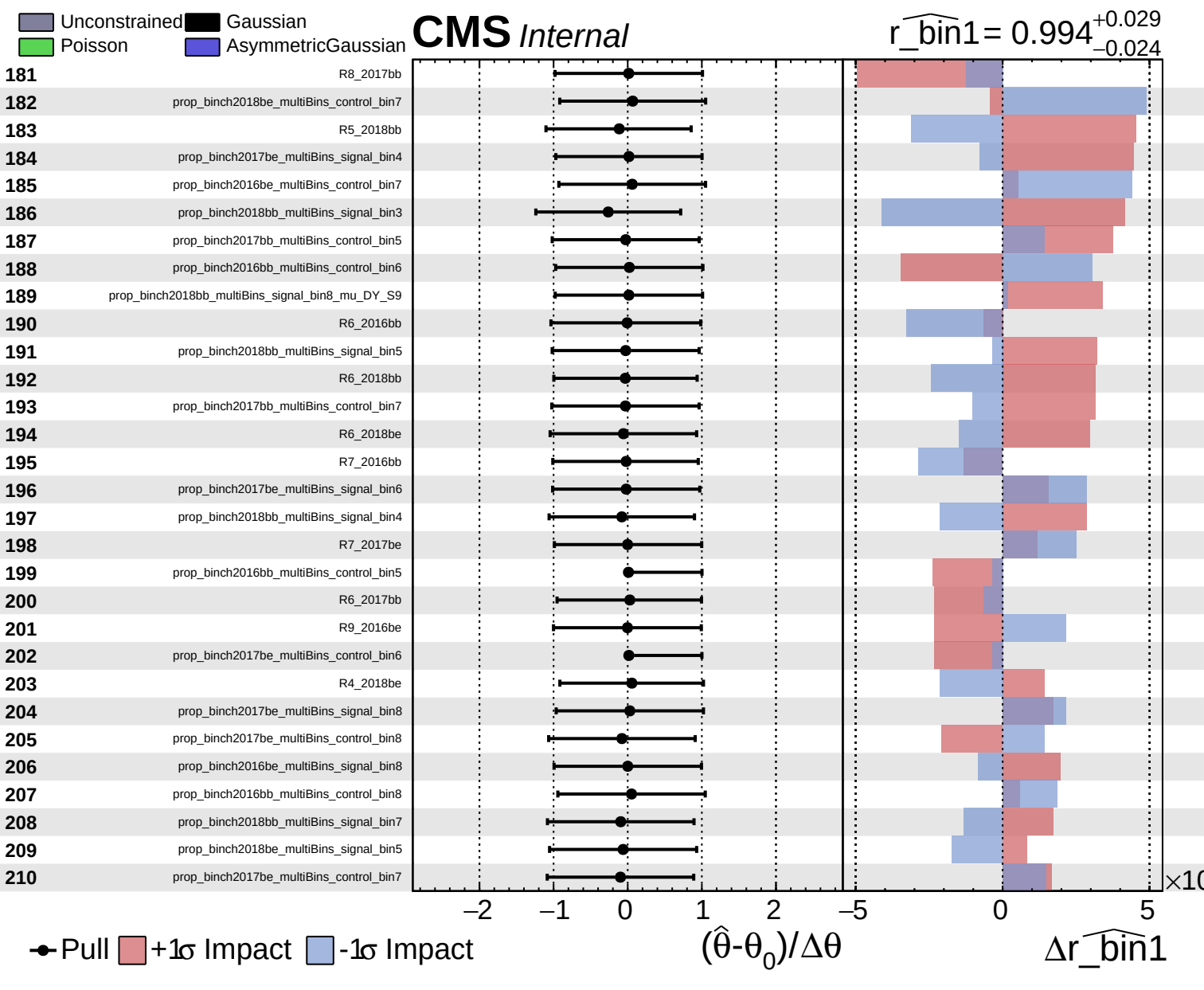

Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin1 = 0.994 +0.029 −0.024
31 Rel6_2018bb 169.0 +0 −16.9
32 Rel6_2018be 91.9 +0 −11.5
33 Rel4_2016be 490 +60 −60
34 Rel5_2016bb 213.3 +0 −20.6
35 _2016bb_elMassScale
36 Rel6_2017be 53.4 +0 −7.3
37 Rel6_2017bb 109.6 +0 −11.8
38 Rel5_2016be 123.4 +0 −16.5
39 Rel6_2016be 59.6 +0 −8.1
40 Rel6_2016bb 79.7 +0 −9.5
41 _2017be_elMassScale
42 _2018be_elMassScale
43 Rel7_2018be 21.2 +0 −3.9
44 Rel7_2017be 16.4 +0 −3.2
45 Rel7_2018bb 34.9 +0 −5.8
46 _2016bbbe_muMassScale
47 Rel7_2017bb 28.2 +0 −4.9
48 Rel7_2016bb 28.0 +0 −4.6
49 R1_2017bb
50 prop_binch2018be_multiBins_control_bin0
51 prop_binch2017bb_multiBins_control_bin0
52 _MuonID
53 _trig2017bb
54 Rel9_2018bb 8.1 +0 −2.3
55 Rel7_2016be 10.6 +0 −2.5
56 Rel8_2017bb 10.9 +0 −3.1
57 Rel8_2018be 7.3 +0 −2.5
58 _Prefire
59 R1_2018be
60 prop_binch2017bb_multiBins_signal_bin0
−2
−1
0
1
2
−0.01
0
0.01
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin1

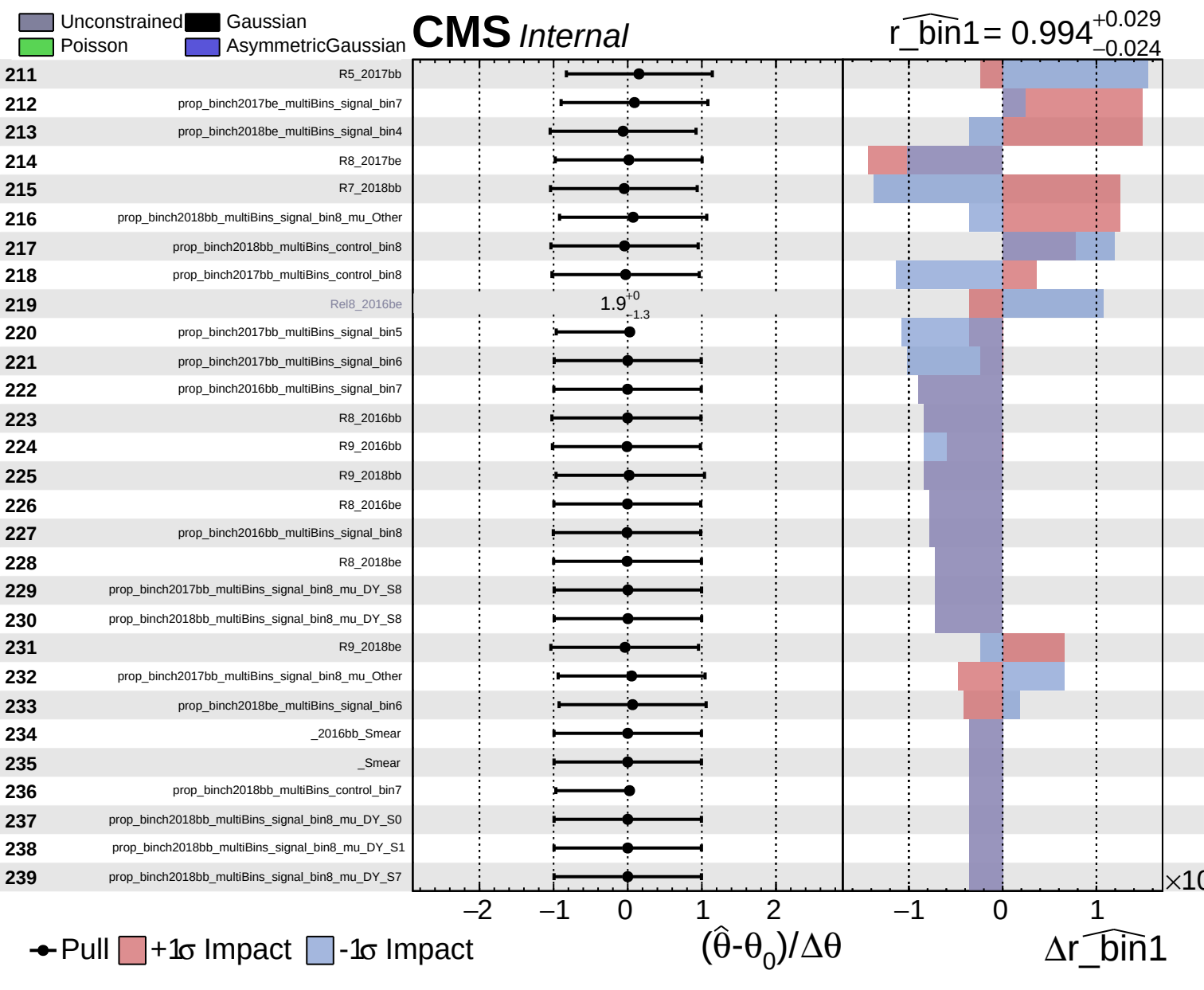

Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin1 = 0.994 +0.029 −0.024
61 R1_2018bb
62 R2_2017bb
63 _PUScale
64 prop_binch2018be_multiBins_signal_bin0
65 prop_binch2018bb_multiBins_signal_bin0
66 R1_2017be
67 R1_2016bb
68 prop_binch2017be_multiBins_signal_bin0
69 prop_binch2018bb_multiBins_control_bin0
70 prop_binch2016be_multiBins_control_bin0
71 prop_binch2017bb_multiBins_control_bin1
72 prop_binch2016bb_multiBins_signal_bin0
73 _2018be_Smear
74 prop_binch2018be_multiBins_control_bin1
75 _trig2018be
76 R1_2016be
77 _2017be_Smear
78 prop_binch2016bb_multiBins_control_bin0
79 R2_2016be
80 R4_2017bb
81 _muMassScale
82 _trig2017be
83 prop_binch2018bb_multiBins_control_bin1
84 prop_binch2017be_multiBins_control_bin1
85 prop_binch2016be_multiBins_signal_bin1
86 prop_binch2016be_multiBins_signal_bin0
87 prop_binch2016bb_multiBins_control_bin1
88 R2_2016bb
89 _trig2018bb
90 Rel9_2016be
2.7 +0 −1.0
−2 −1 0 1 2
−0.001 0 0.001
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin1


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin1 = 0.994 +0.029 −0.024
91 _2016be_Smear
92 prop_binch2016bb_multiBins_signal_bin1
93 prop_binch2017bb_multiBins_signal_bin4
94 R2_2017be
95 prop_binch2017be_multiBins_signal_bin1
96 prop_binch2016be_multiBins_control_bin2
97 _2016be_MuonID
98 prop_binch2018be_multiBins_control_bin2
99 Rel9_2018be
4.4 +0 −1.5
100 prop_binch2016be_multiBins_control_bin3
101 prop_binch2018be_multiBins_signal_bin1
102 _2016bb_MuonID
103 prop_binch2018bb_multiBins_signal_bin1
104 prop_binch2017be_multiBins_control_bin2
105 R4_2016be
106 prop_binch2017be_multiBins_control_bin3
107 R3_2016be
108 prop_binch2016be_multiBins_signal_bin2
109 prop_binch2018be_multiBins_signal_bin3
110 Rel8_2017be
4.2 +0 −1.7
111 prop_binch2017bb_multiBins_signal_bin2
112 prop_binch2016be_multiBins_control_bin4
113 R5_2017be
114 prop_binch2016bb_multiBins_signal_bin2
115 R2_2018be
116 R3_2017bb
117 prop_binch2018bb_multiBins_control_bin3
118 R3_2018be
119 prop_binch2017bb_multiBins_signal_bin1
120 prop_binch2016bb_multiBins_control_bin2
−2 −1 0 1 2
(θ̂-θ0)/Δθ
−0.2 0 0.2
Δr_bin1
×10
Pull
+1σ Impact
-1σ Impact


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin1 = 0.994 +0.029 −0.024
121 R4_2017be
122 R6_2017be
123 prop_binch2016be_multiBins_signal_bin3
124 prop_binch2018be_multiBins_control_bin3
125 R3_2016bb
126 R2_2018bb
127 prop_binch2016bb_multiBins_signal_bin6
128 prop_binch2018be_multiBins_signal_bin8
129 prop_binch2017be_multiBins_control_bin4
130 R4_2016bb
131 _trig2016be
132 prop_binch2017be_multiBins_signal_bin5
133 _2017be_MuonID
134 prop_binch2018bb_multiBins_control_bin2
135 R7_2018be
136 R4_2018bb
137 prop_binch2016be_multiBins_control_bin5
138 prop_binch2017be_multiBins_signal_bin3
139 R3_2017be
140 prop_binch2018be_multiBins_signal_bin7
141 prop_binch2016bb_multiBins_signal_bin3
142 _2018be_MuonID
143 prop_binch2017bb_multiBins_control_bin2
144 prop_binch2018be_multiBins_control_bin4
145 prop_binch2018be_multiBins_signal_bin2
146 Rel8_2018bb
147 R5_2016be
148 prop_binch2016bb_multiBins_control_bin4
149 prop_binch2018be_multiBins_control_bin5
150 prop_binch2016be_multiBins_signal_bin4
14.1 +0 −3.8
−2 −1 0 1 2
−0.04 −0.02 0 0.02 0.04
×10
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin1


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin1 = 0.994 +0.029 −0.024
151 prop_binch2018bb_multiBins_control_bin4
152 prop_binch2017bb_multiBins_control_bin4
153 R5_2016bb
154 prop_binch2016bb_multiBins_signal_bin4
155 Rel9_2017be
156 R7_2017bb
157 prop_binch2017be_multiBins_control_bin5
158 R7_2016be
159 prop_binch2016be_multiBins_control_bin6
160 R3_2018bb
161 prop_binch2016be_multiBins_signal_bin5
162 prop_binch2017bb_multiBins_control_bin3
163 prop_binch2018bb_multiBins_signal_bin2
164 Rel9_2016bb
165 Rel8_2016bb
166 prop_binch2016be_multiBins_signal_bin6
167 R9_2017bb
168 R9_2017be
169 prop_binch2018bb_multiBins_control_bin5
170 Rel9_2017bb
171 prop_binch2018be_multiBins_control_bin8
172 prop_binch2016bb_multiBins_control_bin7
173 R6_2016be
174 prop_binch2018bb_multiBins_control_bin6
175 prop_binch2016be_multiBins_signal_bin7
176 R5_2018be
177 prop_binch2016be_multiBins_control_bin8
178 prop_binch2017bb_multiBins_signal_bin8_mu_DY_S9
179 R8_2018bb
180 prop_binch2016bb_multiBins_signal_bin5
1.3 +0 −0.7
1.1 +0 −0.7
3.8 +0 −1.7
4.0 +0 −1.5
−2 −1 0 1 2
(θ̂-θ0)/Δθ
−0.02 −0.01 0 0.01 0.02
×10
Δr_bin1
Pull
+1σ Impact
-1σ Impact


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin1 = 0.994 +0.029 −0.024
181 R8_2017bb
182 prop_binch2018be_multiBins_control_bin7
183 R5_2018bb
184 prop_binch2017be_multiBins_signal_bin4
185 prop_binch2016be_multiBins_control_bin7
186 prop_binch2018bb_multiBins_signal_bin3
187 prop_binch2017bb_multiBins_control_bin5
188 prop_binch2016bb_multiBins_control_bin6
189 prop_binch2018bb_multiBins_signal_bin8_mu_DY_S9
190 R6_2016bb
191 prop_binch2018bb_multiBins_signal_bin5
192 R6_2018bb
193 prop_binch2017bb_multiBins_control_bin7
194 R6_2018be
195 R7_2016bb
196 prop_binch2017be_multiBins_signal_bin6
197 prop_binch2018bb_multiBins_signal_bin4
198 R7_2017be
199 prop_binch2016bb_multiBins_control_bin5
200 R6_2017bb
201 R9_2016be
202 prop_binch2017be_multiBins_control_bin6
203 R4_2018be
204 prop_binch2017be_multiBins_signal_bin8
205 prop_binch2017be_multiBins_control_bin8
206 prop_binch2016be_multiBins_signal_bin8
207 prop_binch2016bb_multiBins_control_bin8
208 prop_binch2018bb_multiBins_signal_bin7
209 prop_binch2018be_multiBins_signal_bin5
210 prop_binch2017be_multiBins_control_bin7
−2 −1 0 1 2
−5 0 5
×10
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr_bin1


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r_bin1 = 0.994 +0.029 −0.024
211 R5_2017bb
212 prop_binch2017be_multiBins_signal_bin7
213 prop_binch2018be_multiBins_signal_bin4
214 R8_2017be
215 R7_2018bb
216 prop_binch2018bb_multiBins_signal_bin8_mu_Other
217 prop_binch2018bb_multiBins_control_bin8
218 prop_binch2017bb_multiBins_control_bin8
219 Rel8_2016be
1.9 +0 −1.3
220 prop_binch2017bb_multiBins_signal_bin5
221 prop_binch2017bb_multiBins_signal_bin6
222 prop_binch2016bb_multiBins_signal_bin7
223 R8_2016bb
224 R9_2016bb
225 R9_2018bb
226 R8_2016be
227 prop_binch2016bb_multiBins_signal_bin8
228 R8_2018be
229 prop_binch2017bb_multiBins_signal_bin8_mu_DY_S8
230 prop_binch2018bb_multiBins_signal_bin8_mu_DY_S8
231 R9_2018be
232 prop_binch2017bb_multiBins_signal_bin8_mu_Other
233 prop_binch2018be_multiBins_signal_bin6
234 _2016bb_Smear
235 _Smear
236 prop_binch2018bb_multiBins_control_bin7
237 prop_binch2018bb_multiBins_signal_bin8_mu_DY_S0
238 prop_binch2018bb_multiBins_signal_bin8_mu_DY_S1
239 prop_binch2018bb_multiBins_signal_bin8_mu_DY_S7
−2 −1 0 1 2
(θ̂-θ0)/Δθ
−1 0 1
×10
Δr_bin1
Pull
+1σ Impact
-1σ Impact