

Model Comparison

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***** Problem *****
Problem structure : MINLP
Is convex? : no
Total # variables : 4
-- continuous : 2
-- binary : 2
-- integer : 0
Total # constraints : 5
-- linear : 0
-- nonlinear : 5
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var x1 >= -10, <= 10;
var x2 >= -10, <= 10;
var x3 binary >= 0, <= 1;
var x4 binary >= 0, <= 1;
minimize obj : (-1*(x2)**(2))+(x1)**(3)+(3*x2*x1)+(5*x4*x3)+0;
subject to
con1 : (2*log(((x1)**(2))+(-1*(x2)**(2))+(3*x2*x1)))+-10.0 <= 0;
con2 : (-3*log(((x2)**(2))+(-1*(x1)**(2))+(3*x2*x1)))+15.0 >= 0;
con3 : (5*x1*x3)+-45.0 <= 0;
con4 : (5*x2*x4)+-45.0 <= 0;
con5 : (x2*x1)+-40.0 <= 0;
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***** Problem *****
Problem structure : MINLP
Is convex? : no
Total # variables : 9
-- continuous : 6
-- binary : 3
-- integer : 0
Total # constraints : 18
-- linear : 15
-- nonlinear : 3
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var x1 >= -10, <= 10;
var x2 >= -10, <= 10;
var x3 binary >= 0, <= 1;
var x4 binary >= 0, <= 1;
var w_yy_0 binary >= 0, <= 1;
var w_xy_0 >= 0, <= 1.79769e+308;
var w_xy_1 >= 0, <= 1.79769e+308;
var w_log_0 >= -inf, <= 5.99146;
var w_log_1 >= -inf, <= 5.99146;
minimize obj : (-1*(x2)**(2))+(x1)**(3)+(3*x2*x1)+5*w_yy_0+0;
subject to
con1 : 2.0*w_log_0+-10.0 <= 0;
con2 : -3.0*w_log_1+15.0 >= 0;
con3 : 5.0*w_xy_0+-50.0*x3+-45.0 <= 0;
con4 : 5.0*w_xy_1+-50.0*x4+-45.0 <= 0;
con5 : (x2*x1)+-40.0 <= 0;
con1_1 : 1.0*x4+-1.0*w_yy_0+1.0*x3+-1.0 <= 0;
con2_1 : 1.0*w_yy_0+-1.0*x3+0.0 <= 0;
con3_1 : 1.0*w_yy_0+-1.0*x4+0.0 <= 0;
con1_2 : 1.0*w_xy_0+0.0 <= 0;
con2_2 : 1.0*w_xy_0+-20.0*x3+0.0 <= 0;
con3_2 : 1.0*w_xy_0+-1.0*x1+0.0 <= 0;
con4_1 : -1.0*w_xy_0+20.0*x3+1.0*x1+0.0 <= 0;
con1_3 : 1.0*w_xy_1+0.0 <= 0;
con2_3 : 1.0*w_xy_1+-20.0*x4+0.0 <= 0;
con3_3 : 1.0*w_xy_1+-1.0*x2+0.0 <= 0;
con4_2 : -1.0*w_xy_1+20.0*x4+1.0*x2+0.0 <= 0;
con1_4 : (3*x2*x1)+(-1*(2.718)**(w_log_0))+(x1)**(2)+(-1*(x2)**(2))+0.0 = 0;
con1_5 : (3*x2*x1)+(x2)**(2)+(-1*(2.718)**(w_log_1))+(-1*(x1)**(2))+0.0 = 0;
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