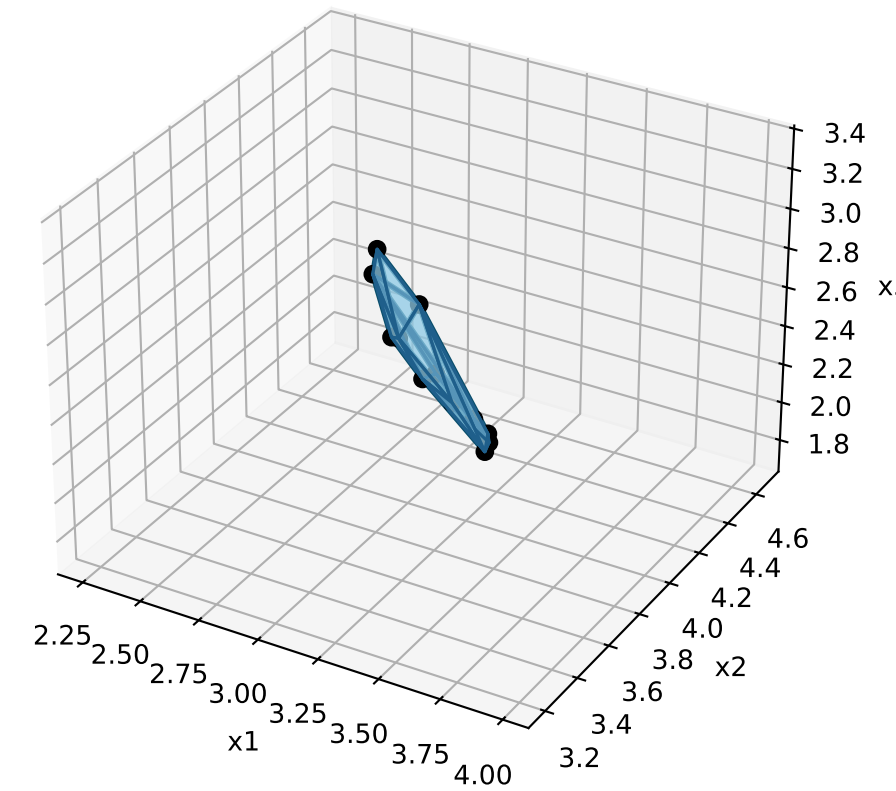


Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 1/31 | BIG-M step 0

COMMENTS

Teaching Mode | BIG-M

Big-M initialized with artificial penalty M=1.5e+07.

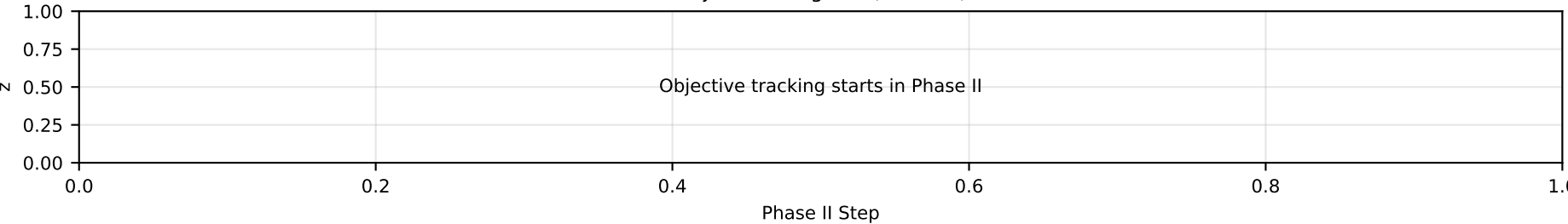
TABLEAU

Current solution: x1=0, x2=0, x3=0

Tableau objective: -7.9895e+09

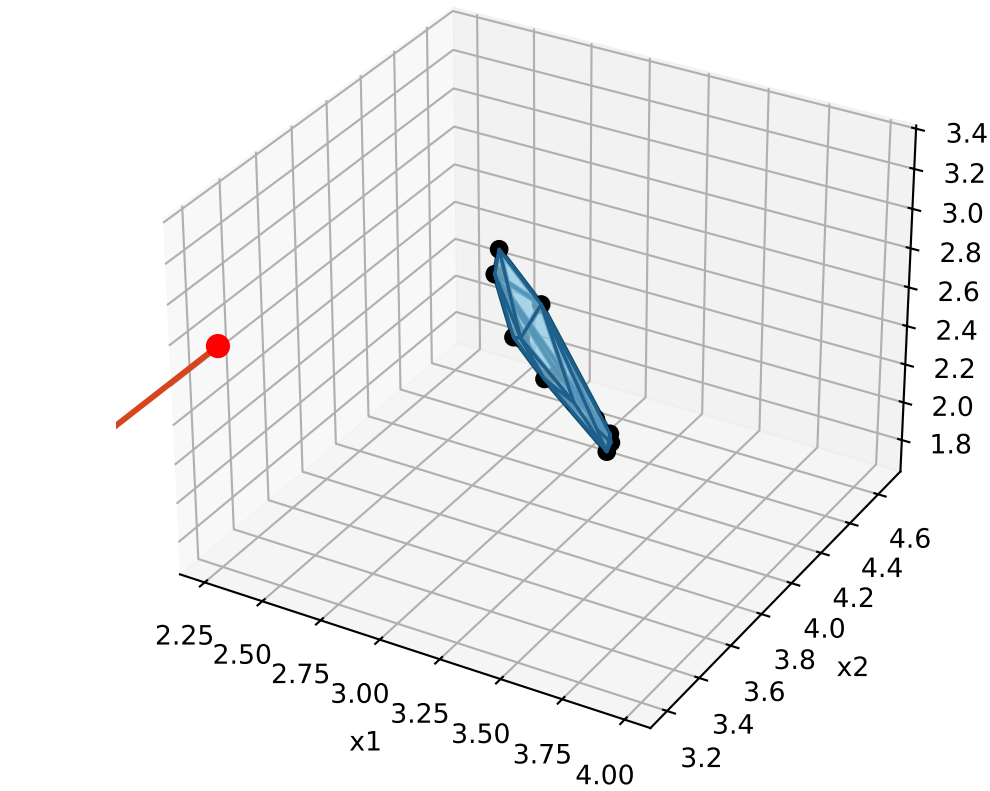
row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio			
R1(s1)	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	inf					
R2(s2)	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	inf					
R3(s3)	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	inf					
R4(a4)	4	4	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27.3806	inf					
R5(s5)	3	0	6	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25.3127	inf					
R6(a6)	0	0	2	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.84349	inf					
R7(a7)	2	1	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.77031	inf					
R8(a8)	5	5	3	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41.7099	inf					
R9(s9)	5	4	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39.3197	inf					
R10(a10)	5	6	7	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55.9447	inf					
R11(a11)	6	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50.3659	inf					
R12(a12)	2	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27.994	inf					
R13(a13)	4	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47.0236	inf					
R14(s14)	3	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35.811	inf					
R15(a15)	5	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46.5579	inf				
R16(s16)	5	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26.2458	inf					
R17(a17)	3	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26.1909	inf					
R18(s18)	3	2	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37.4848	inf					
R19(a19)	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	6.90233	inf					
R20(s20)	4	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	41.59	inf				
R21(s21)	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	20.4599	inf						
R22(a22)	4	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	42.7001	inf				
R23(a23)	3	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	33.5008	inf					
R24(a24)	5	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	20.5719	inf					
R25(s25)	6	6	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	58.3069	inf					
R26(a26)	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	9.62938	inf			
R27(a27)	3	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	41.001	inf
R28(a28)	5	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	43.5467	inf
Rz	-8.55e+08	-9.15e+08	-8.25e+08	0	0	0	1.5e+07	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	0	1.5e+07	0	0	1.5e+07	0	0	1.5e+07	0	0	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	-7.9895e+09	-	

Objective Progress (Phase II)



Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 2/31 | BIG-M step 1 | ENTER: x2 | LEAVE: s14

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: x2 enters, s14 leaves.

Reduced cost of entering variable: -9.15e+08

Minimum ratio theta\*: 5.9685

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution: x1=0, x2=5.9685, x3=0

Tableau objective: -2.52833e+09

	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio		
R1(s1)	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	inf		
R2(s2)	-0.5	0	-0.166667	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.166667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.0315	12		
R3(s3)	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	inf		
R4(a4)	2	0	-0.666667	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.666667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.50659	6.84514	
R5(s5)	3	0	6	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25.3127	inf		
R6(a6)	0	0	2	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.84349	inf
R7(a7)	1.5	0	-0.166667	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	-0.166667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.80181	7.77031
R8(a8)	2.5	0	2.16667	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	-0.833333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11.8674	8.34198
R9(s9)	3	0	2.33333	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	-0.666667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15.4457	9.82992
R10(a10)	2	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20.1337	9.32412
R11(a11)	3.5	0	4.16667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	-0.833333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20.5234	10.0732
R12(a12)	1	0	5.66667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	-0.333333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16.057	13.997
R13(a13)	0.5	0	1.83333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	-1.16667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.24413	6.71766
R14(x2)	0.5	1	0.166667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.166667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.9685	5.9685
R15(a15)	1.5	0	0.833333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.16667	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.77843	6.65113
R16(s16)	5	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26.2458	inf
R17(a17)	2.5	0	5.83333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.166667	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20.2224	26.1909
R18(s18)	2	0	6.66667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.333333	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25.5478	18.7424
R19(a19)	0.5	0	-0.166667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.166667	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.933829	6.90233
R20(s20)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.77906	6.93167
R21(s21)	0.5	0	-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.55442	6.81997
R22(a22)	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6.88911	7.11668	
R23(a23)	1	0	3.33333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.666667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	9.62678	8.37519
R24(a24)	5	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20.5719	inf
R25(s25)	3	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22.4959	9.71782
R26(a26)	-0.5	0	2.83333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.166667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.66088	9.62938
R27(a27)	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.18998	6.83349
R28(a28)	2.5	0	3.16667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.833333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13.7042	8.70933

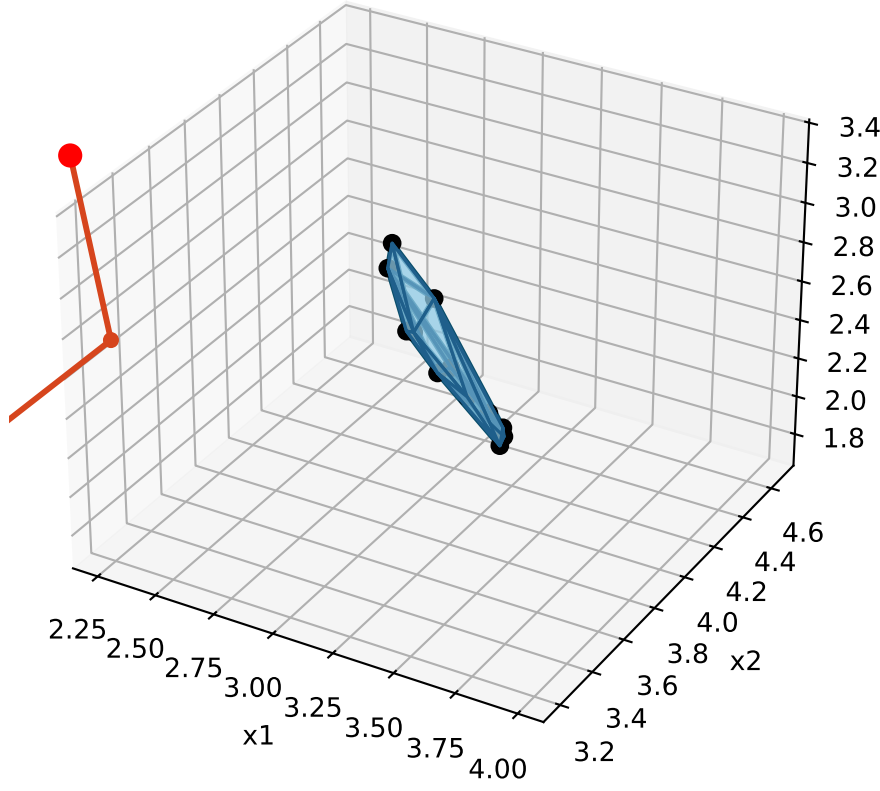
Objective Progress (Phase II)

Objective tracking starts in Phase II

Phase II Step

Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 3/31 | BIG-M step 2 | ENTER: x3 | LEAVE: a26

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: x3 enters, a26 leaves.

Reduced cost of entering variable: -6.725e+08

Minimum ratio theta\*: 1.29208

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution: x1=0, x2=5.75315, x3=1.29208

Tableau objective: -1.6594e+09

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio
R1(s1)	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	inf			
R2(s2)	-0.529412	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.176471	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.24685	inf		
R3(s3)	0.176471	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0588235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10.7079	12		
R4(a4)	1.88235	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.705882	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.36797	inf		
R5(s5)	4.05882	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.352941	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17.5602	4.21878		
R6(a6)	0.352941	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.117647	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.25934	1.92175		
R7(a7)	1.47059	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	-0.176471	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.01716	inf		
R8(a8)	2.88235	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	-0.705882	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.06791	5.47726		
R9(s9)	3.41176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	-0.529412	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12.4309	6.61959		
R10(a10)	3.05882	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	-0.647059	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12.3813	3.35562		
R11(a11)	4.23529	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	-0.588235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15.1398	4.92562		
R12(a12)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.73524	2.83359			
R13(a13)	0.823529	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	-1.05882	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.87532	2.86043		
R14(x2)	0.529412	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.176471	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.75315	35.811		
R15(a15)	1.64706	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.11765	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.7017	5.73411		
R16(s16)	5.52941	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.176471	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22.3695	8.74858		
R17(a17)	3.52941	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.176471	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12.6853	3.4667		
R18(s18)	3.17647	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0588235	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16.934	3.83218		
R19(a19)	0.470588	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.176471	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1.14918	inf		
R20(s20)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5.77906	inf		
R21(s21)	0.411765	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.529412	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.20046	inf		
R22(a22)	1.35294	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.882353	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	4.30495	3.44455		
R23(a23)	1.58824	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.470588	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	5.31986	2.88803			
R24(a24)	5.52941	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.176471	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16.6956	6.85729		
R25(s25)	3.70588	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.764706	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17.3276	5.62398		
R26(x3)	-0.176471	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.352941	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.29208	1.29208		
R27(a7)	0.529412	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.823529	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.31375	1.72999		
R28(a28)	3.05882	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.647059	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.61261	4.32764		

Objective Progress (Phase II)

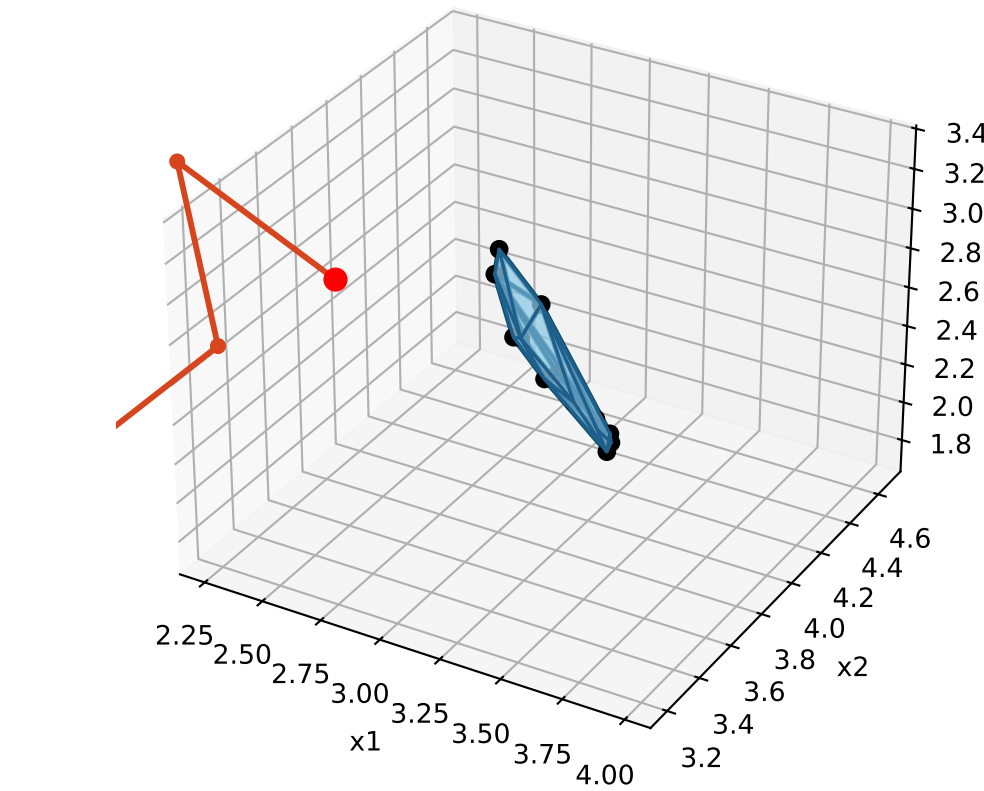
Objective tracking starts in Phase II

Phase II Step



Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 4/31 | BIG-M step 3 | ENTER: x1 | LEAVE: a7

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: x1 enters, a7 leaves.

Reduced cost of entering variable: -5.16176e+08

Minimum ratio theta\*: 1.37167

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution: x1=1.37167, x2=5.02697, x3=1.53413

Tableau objective: -9.51383e+08

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0.68	-0.68	0	0	0	0	0	0	0	0	0	0	0	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10.6283	12		
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	-0.36	0.36	0	0	0	0	0	0	0	0	0	0	-0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.97303	inf		
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0.12	-0.12	0	0	0	0	0	0	0	0	0	0	0.08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10.4659	60.6782		
R4(a4)	0	0	0	0	0	0	-1	1	0	0	0	1.28	-1.28	0	0	0	0	0	0	0	0	0	0	-0.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.78602	2.32049		
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	2.76	-2.76	0	0	0	0	0	0	0	0	0	0	0.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11.9929	4.32643		
R6(a6)	0	0	0	0	0	0	0	0	0	-1	1	0.24	-0.24	0	0	0	0	0	0	0	0	0	0	0.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.775222	3.56813		
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	-0.68	0.68	0	0	0	0	0	0	0	0	0	0	-0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.37167	1.37167		
R8(a8)	0	0	0	0	0	0	0	0	0	0	0	1.96	-1.96	-1	1	0	0	0	0	0	0	0	0	-0.36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.11428	3.14601		
R9(s9)	0	0	0	0	0	0	0	0	0	0	0	2.32	-2.32	0	0	1	0	0	0	0	0	0	0	-0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.75106	3.64353		
R10(a10)	0	0	0	0	0	0	0	0	0	0	0	2.08	-2.08	0	0	0	-1	1	0	0	0	0	0	-0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.18559	4.04772		
R11(a11)	0	0	0	0	0	0	0	0	0	0	0	2.88	-2.88	0	0	0	0	0	-1	1	0	0	0	-0.08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.33037	3.57467		
R12(a12)	0	0	0	0	0	0	0	0	0	0	0	1.36	-1.36	0	0	0	0	0	0	0	-1	1	0	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.99191	4.36762		
R13(a13)	0	0	0	0	0	0	0	0	0	0	0	0.56	-0.56	0	0	0	0	0	0	0	0	-1	1	-0.96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.74572	3.49146		
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0.36	-0.36	0	0	0	0	0	0	0	0	0	0	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.02697	10.8671		
R15(a15)	0	0	0	0	0	0	0	0	0	0	0	1.12	-1.12	0	0	0	0	0	0	0	0	0	0	-0.92	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.44248	2.24746		
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	3.76	-3.76	0	0	0	0	0	0	0	0	0	0	0.84	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14.785	4.04555		
R17(a17)	0	0	0	0	0	0	0	0	0	0	0	2.4	-2.4	0	0	0	0	0	0	0	0	0	0	0.6	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.84414	3.59417			
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	2.16	-2.16	0	0	0	0	0	0	0	0	0	0	0.44	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12.5769	5.33107		
R19(a19)	0	0	0	0	0	0	0	0	0	0	0	0.32	-0.32	0	0	0	0	0	0	0	0	0	0	-0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.503686	2.442		
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0.68	-0.68	0	0	0	0	0	0	0	0	0	0	-0.88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.40739	5.77906		
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0.28	-0.28	0	0	0	0	0	0	0	0	0	0	-0.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.63566	7.77255		
R22(a22)	0	0	0	0	0	0	0	0	0	0	0	0.92	-0.92	0	0	0	0	0	0	0	0	0	0	-0.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.44917	3.18192		
R23(a23)	0	0	0	0	0	0	0	0	0	0	0	1.08	-1.08	0	0	0	0	0	0	0	0	0	0	-0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.14133	3.34954		
R24(a24)	0	0	0	0	0	0	0	0	0	0	0	3.76	-3.76	0	0	0	0	0	0	0	0	0	0	0.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.11113	3.01942		
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	2.52	-2.52	0	0	0	0	0	0	0	0	0	0	-0.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12.2444	4.67571		
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	-0.12	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.53413	inf			
R27(a27)	0	0	0	0	0	0	0	0	0	0	0	0.36	-0.36	0	0	0	0	0	0	0	0	0	0	-0.76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.587577	2.48153		
R28(a28)	0	0	0	0	0	0	0	0	0	0	0	2.08	-2.08	0	0	0	0	0	0	0	0	0	0	-0.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.41692	3.14258		

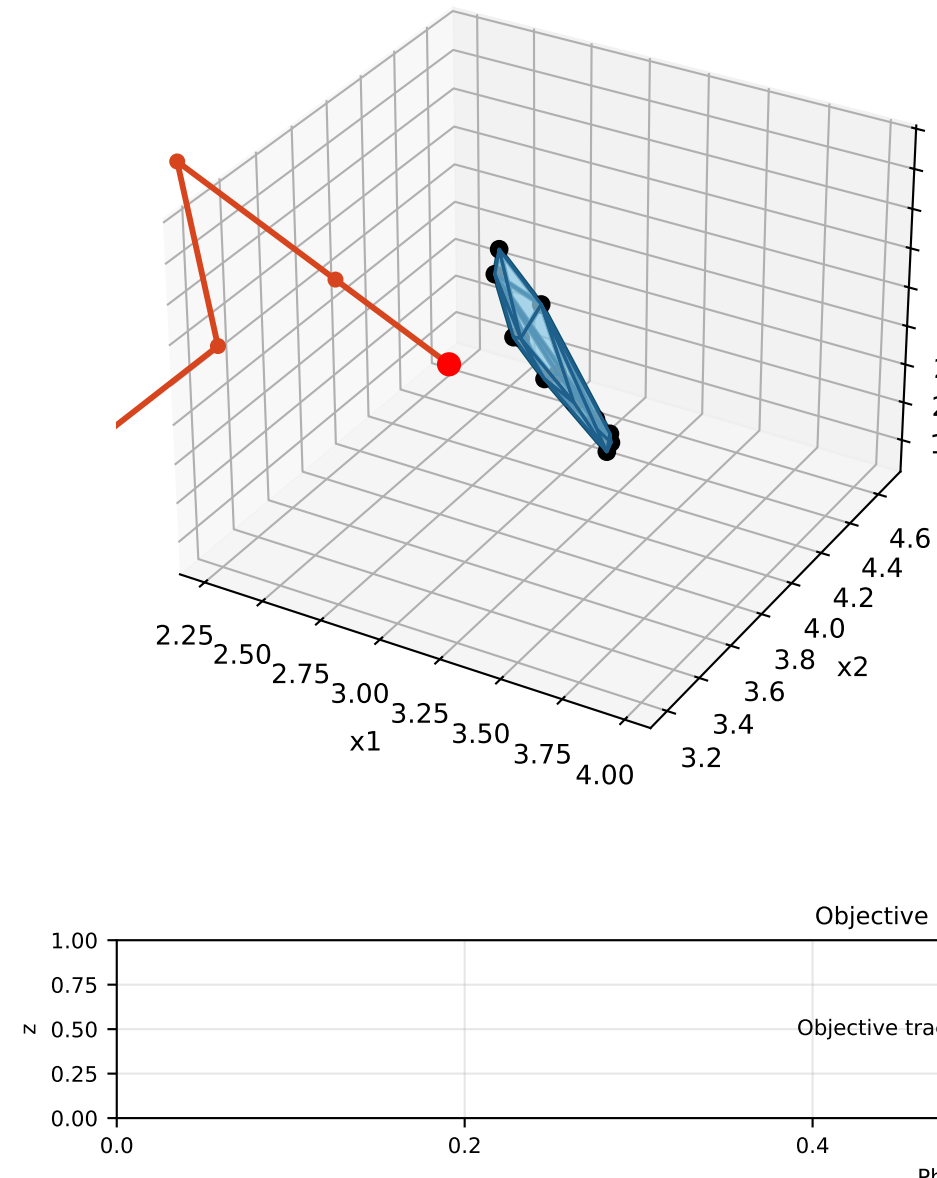
Objective Progress (Phase II)

Objective tracking starts in Phase II

Phase II Step

Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 5/31 | BIG-M step 4 | ENTER: u7 | LEAVE: a15

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u7 enters, a15 leaves.

Reduced cost of entering variable: -3.36e+08

Minimum ratio theta\*: 1.28793

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution: x1=2.24746, x2=4.56332, x3=1.68869

Tableau objective: -5.18638e+08

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.678571	0.607143	-0.607143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.75254	15.6299
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.535714	-0.321429	0.321429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.43668	inf
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.178571	0.107143	-0.107143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10.3113	87.2155
R4(a4)	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.571429	1.14286	-1.14286	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.137464	1.39532
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.10714	2.46429	-2.46429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.43816	4.34524
R6(a6)	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.357143	0.214286	-0.214286	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.466119	3.23009
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.678571	-0.607143	0.607143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.24746	inf
R8(a8)	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	1.25	1.75	-1.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.58994	2.60933
R9(s9)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1.78571	2.07143	-2.07143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.76306	3.34097
R10(a10)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	1.42857	1.85714	-1.85714	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.50669	3.93538
R11(a11)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.28571	2.57143	-2.57143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.62113	3.23971
R12(a12)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	1.35714	1.21429	-1.21429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.24032	4.40582
R13(a13)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	-0.5	0.5	-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.02448	3.11735	
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.535714	0.321429	-0.321429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.56332	13.9638	
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	-0.821429	-0.892857	0.892857	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.28793	1.28793
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.92857	3.35714	-3.35714	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.9424	3.93219
R17(a17)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.57143	2.14286	-2.14286	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.75311	3.26839
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.21429	1.92857	-1.92857	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.79502	5.82266
R19(a19)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.142857	0.285714	-0.285714	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0915477	1.57402
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.321429	0.607143	-0.607143	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.5316	6.48146
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.25	0.25	-0.25	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2.27504	9.41307		
R22(a22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0357143	0.821429	-0.821429	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	1.26427	2.66214
R23(a23)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.607143	0.964286	-0.964286	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.75037	2.90864
R24(a24)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.92857	3.35714	-3.35714	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.26851	2.42317
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.75	2.25	-2.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.9988	4.85888
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.178571	-0.107143	0.107143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.68869	inf
R27(a27)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.464286	0.321429	-0.321429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.123922	1.63216
R28(a28)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.42857	1.85714	-1.85714	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.571429	2.60429

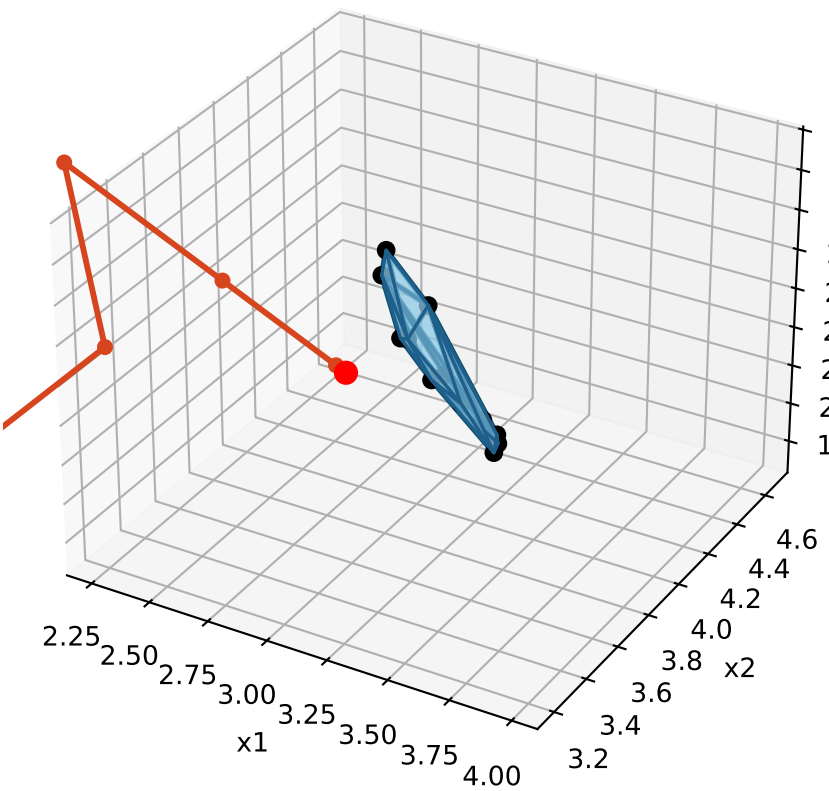
Objective Progress (Phase II)

Objective tracking starts in Phase II

Phase II Step

Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 6/31 | BIG-M step 5 | ENTER: u15 | LEAVE: a4

COMMENTS  
Teaching Mode | Rule: DANTZIG  
Pivot: u15 enters, a4 leaves.  
Reduced cost of entering variable: -2.85e+08  
Minimum ratio theta\*: 0.120281  
Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU  
Current solution: x1=2.32049, x2=4.52466, x3=1.70157  
Tableau objective: -4.84358e+08

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio			
R1(s1)	0	0	0	1	0	0	0.53125	-0.53125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.67951	16.063				
R2(s2)	0	0	0	0	1	0	-0.28125	0.28125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.47534	inf			
R3(s3)	0	0	0	0	0	1	0.09375	-0.09375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10.2984	96.2389			
R4(u15)	0	0	0	0	0	0	-0.875	0.875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.120281	0.120281			
R5(s5)	0	0	0	0	0	0	2.15625	-2.15625	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.14176	3.42418			
R6(a6)	0	0	0	0	0	0	0.1875	-0.1875	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.440344	2.17522		
R7(x1)	1	0	0	0	0	0	-0.53125	0.53125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.32049	inf			
R8(a8)	0	0	0	0	0	0	1.53125	-1.53125	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0.375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.37945	1.47997			
R9(s9)	0	0	0	0	0	0	1.8125	-1.8125	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.51391	2.29941		
R10(a10)	0	0	0	0	0	0	1.625	-1.625	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.28331	2.96514		
R11(a11)	0	0	0	0	0	0	2.25	-2.25	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.31183	2.18599		
R12(a12)	0	0	0	0	0	0	1.0625	-1.0625	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.09427	3.49203		
R13(a13)	0	0	0	0	0	0	0.4375	-0.4375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	-0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.964335	2.04895		
R14(x2)	0	1	0	0	0	0	0.28125	-0.28125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.52466	14.197	
R15(u7)	0	0	0	0	0	0	-0.78125	0.78125	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	-0.375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.39532	inf	
R16(s16)	0	0	0	0	0	0	2.9375	-2.9375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.25	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.5386	2.96157
R17(a17)	0	0	0	0	0	0	1.875	-1.875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.49536	2.21812
R18(s18)	0	0	0	0	0	0	1.6875	-1.6875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.25	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.56304	5.0789
R19(a19)	0	0	0	0	0	0	0.25	-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0571818	0.320417		
R20(s20)	0	0	0	0	0	0	0.53125	-0.53125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.625	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.45857	5.81675	
R21(s21)	0	0	0	0	0	0	0.21875	-0.21875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.375	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.24497	9.10015	
R22(a22)	0	0	0	0	0	0	0.71875	-0.71875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.375	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	1.16547	1.53912	
R23(a23)	0	0	0	0	0	0	0.84375	-0.84375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	1.63438	1.8152
R24(a24)	0	0	0	0	0	0	2.9375	-2.9375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	3.86471	1.27147
R25(s25)	0	0	0	0	0	0	1.96875	-1.96875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	8.72816	3.99947	
R26(x3)	0	0	1	0	0	0	-0.09375	0.09375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.70157	inf	
R27(a27)	0	0	0	0	0	0	0.28125	-0.28125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.08526	0.385534
R28(a28)	0	0	0	0	0	0	1.625	-1.625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.51465	1.47432

Objective Progress (Phase II)

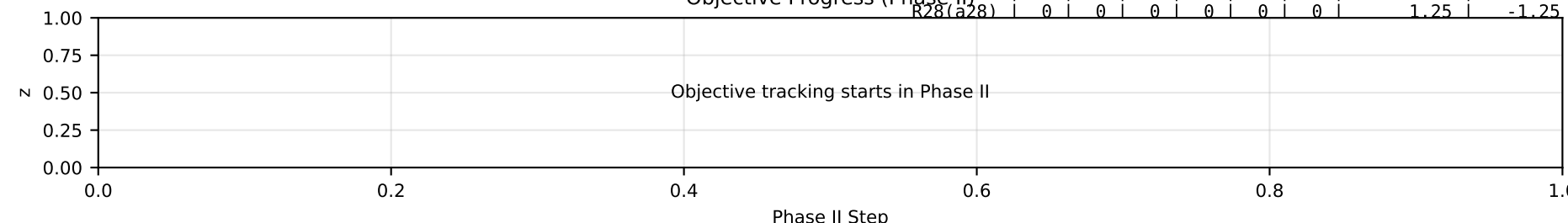
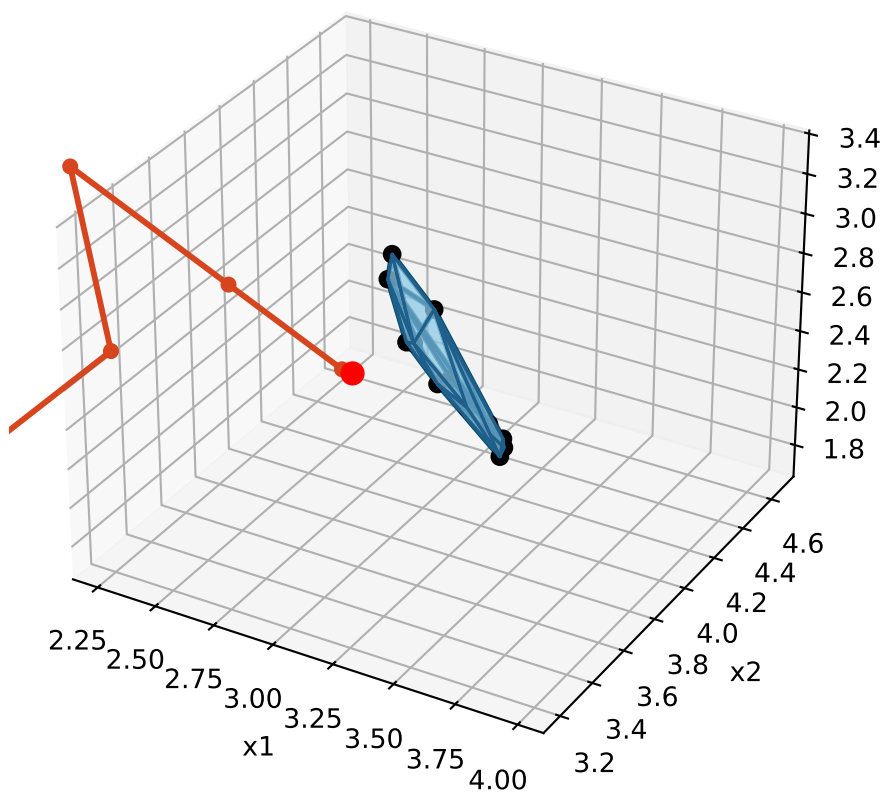
Objective tracking starts in Phase II

Phase II Step



## Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 7/31 | BIG-M step 6 | ENTER: u26 | LEAVE: a27

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u26 enters, a27 leaves

Reduced cost of entering variable: -2.775e+0

Minimum ratio theta\*: 0.0757866

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution:  $x_1=2.32996$ ,  $x_2=4.51518$ ,  $x_3=1.72999$

Tableau objective: -4.63328e+08

[illegible]

State 8/31 | BIG-M step 7 | ENTER: s14 | LEAVE: a

## COMMENTS

Teaching Mode | Rule: DANTZIC

Pivot: s14 enters, a6 leaves

Reduced cost of entering variable: -2.36667e+00

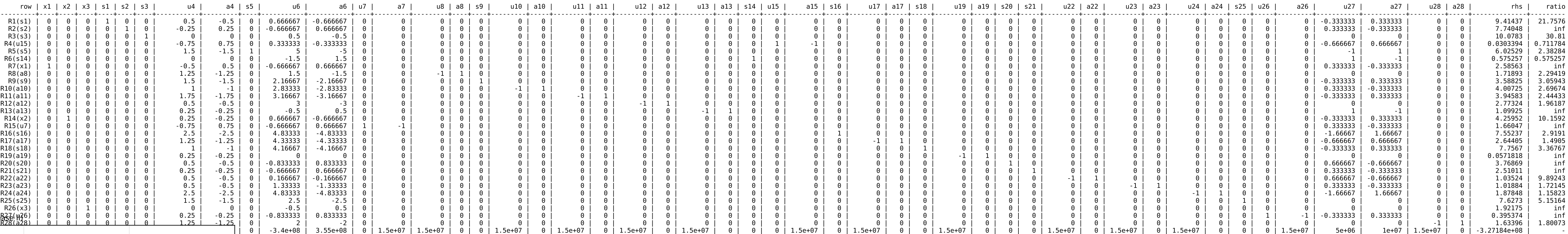
Minimum ratio theta\*: 0.57525

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TARI FAU

Current solution:  $x_1=2.58563$ ,  $x_2=4.25952$ ,  $x_3=1.92175$

Tableau objective: -3.27184e+08



Objective Progress (Phase II) -

Objective tracking starts in Phase II

### Phase II Stop

Objective Progress (Phase II) 140



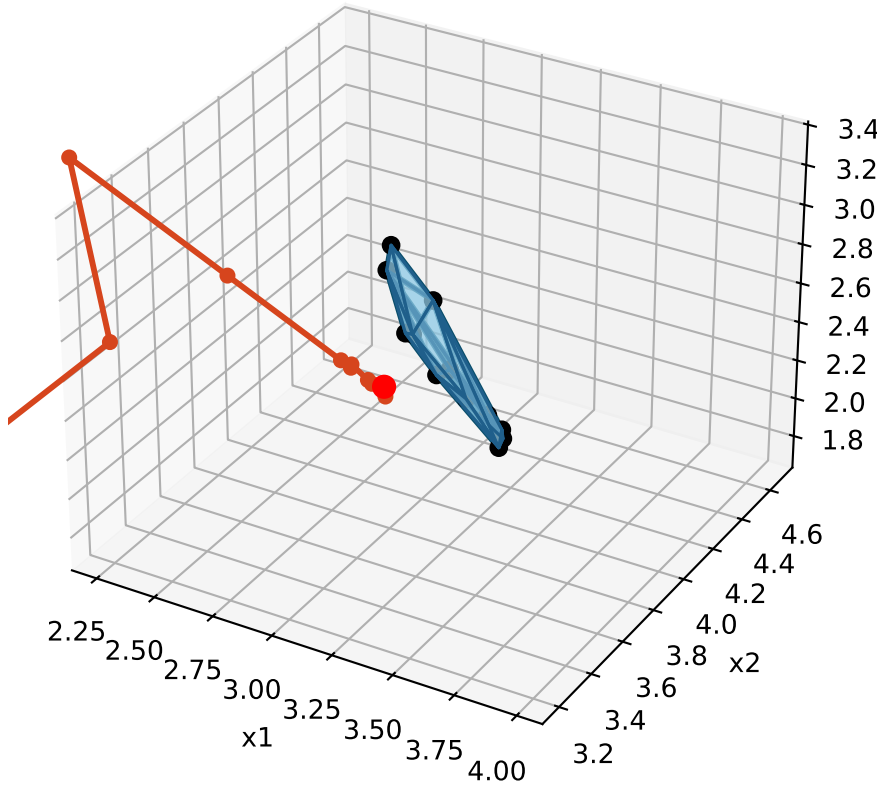
Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

Tableau objective: -2.96237e+0



Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 11/31 | BIG-M step 10 | ENTER: u27 | LEAVE: a15

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u27 enters, a15 leaves.

Reduced cost of entering variable: -1.20517e+08

Minimum ratio theta\*: 0.17982

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution: x1=2.82613, x2=4.01902, x3=2.14707

Tableau objective: -1.74859e+08

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio
R1(s1)	0	0	0	1	0	0	0.328125	-0.328125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.1875	0.1875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.17387	inf		
R2(s2)	0	0	0	0	1	0	-0.078125	0.078125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1875	-0.1875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.98098	77.3293	
R3(s3)	0	0	0	0	0	1	-0.546875	0.546875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3125	-0.3125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.85293	57.3268	
R4(u6)	0	0	0	0	0	0	1.09375	-1.09375	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.625	0.625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.450659	inf	
R5(s5)	0	0	0	0	0	0	-2.29687	2.29687	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3125	-1.3125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.95182	5.6371	
R6(s14)	0	0	0	0	0	0	-0.03125	0.03125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.875	-0.875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.07142	2.3992	
R7(x1)	1	0	0	0	0	0	-0.328125	0.328125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1875	-0.1875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.82613	27.4991	
R8(a8)	0	0	0	0	0	0	-0.390625	0.390625	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0.9375	-0.9375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.04294	2.19618	
R9(s9)	0	0	0	0	0	0	-0.3125	0.3125	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.75	-0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.67176	6.63658
R10(a10)	0	0	0	0	0	0	-2.65625	2.65625	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	2.375	-2.375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.67045	2.21779
R11(a11)	0	0	0	0	0	0	-1.15625	1.15625	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	1.375	-1.375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.57868	3.579
R12(a12)	0	0	0	0	0	0	-2.78125	2.78125	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	1.875	-1.875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.42126	1.55371
R13(a13)	0	0	0	0	0	0	-0.875	0.875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	1.5	-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.14476	1.56307
R14(x2)	0	1	0	0	0	0	0.078125	-0.078125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.1875	0.1875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.01902	inf	
R15(u7)	0	0	0	0	0	0	-0.578125	0.578125	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0.1875	-0.1875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.90097	18.5558
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.67389	inf		
R17(a17)	0	0	0	0	0	0	-2.375	2.375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5	-1.5	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.811072	1.15987
R18(s18)	0	0	0	0	0	0	-3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	-2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.93889	5.56194		
R19(a19)	0	0	0	0	0	0	0.25	-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0.0571818	inf			
R20(s20)	0	0	0	0	0	0	0.296875	-0.296875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6875	-0.6875	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.02435	10.7895
R21(s21)	0	0	0	0	0	0	0.421875	-0.421875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1875	-0.1875	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2.75061	26.7691	
R22(a22)	0	0	0	0	0	0	-0.796875	0.796875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3125	-1.3125	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0.840251	1.34017
R23(a23)	0	0	0	0	0	0	-1.51562	1.51562	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.4375	-1.4375	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0.358018	0.631234	
R24(u27)	0	0	0	0	0	0	1.67187	-1.67187	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.8125	1.8125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0.17982	0.17982	
R25(s25)	0	0	0	0	0	0	-1.23437	1.23437	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5625	-1.5625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.50066	7.72058
R26(x3)	0	0	1	0	0	0	-0.546875	0.546875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.3125	0.3125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.14707	inf
R27(u26)	0	0	0	0	0	0	1.71875	-1.71875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.125	1.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.830862	inf
R28(a28)	0	0	0	0	0	0	-0.9375	0.9375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.25	-1.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.732642	1.24215

Objective Progress (Phase II)

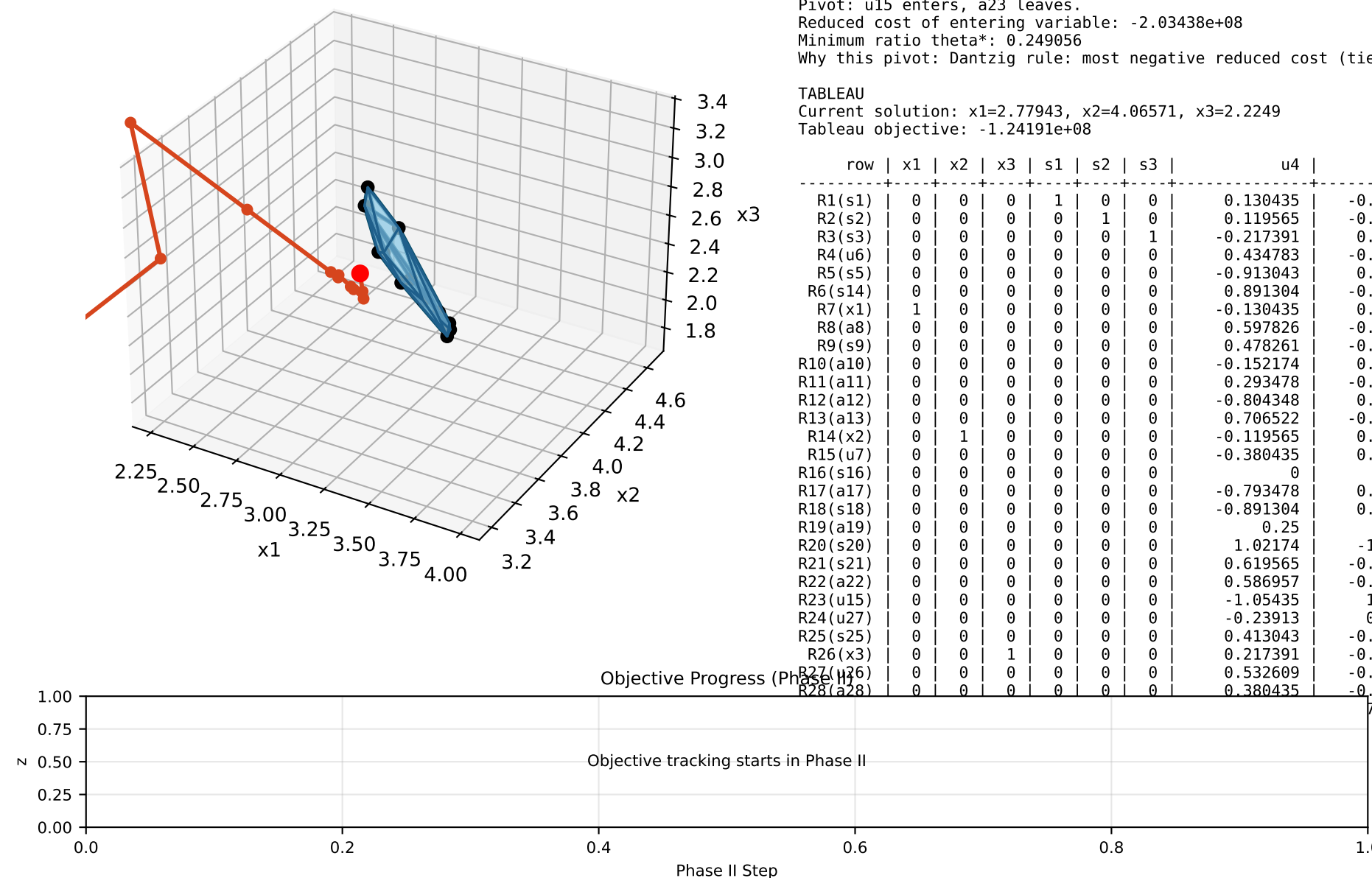
Objective tracking starts in Phase II

Phase II Step



Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 12/31 | BIG-M step 11 | ENTER: u15 | LEAVE: a23

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u15 enters, a23 leaves.

Reduced cost of entering variable: -2.03438e+08

Minimum ratio theta\*: 0.249056

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution: x1=2.77943, x2=4.06571, x3=2.2249

Tableau objective: -1.24191e+08

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	r			
R1(s1)	0	0	0	1	0	0	0.130435	-0.130435	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.130435	0.130435	0.173913	-0.173913	0	0	0	0	0	0	0	0	9.22057		
R2(s2)	0	0	0	0	1	0	0.119565	-0.119565	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.130435	-0.130435	-0.173913	0.173913	0	0	0	0	0	0	0	0	7.93429	42.5652
R3(s3)	0	0	0	0	0	1	-0.217391	0.217391	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.7751	31.5294		
R4(u6)	0	0	0	0	0	0	0.434783	-0.434783	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.606319	inf		
R5(s5)	0	0	0	0	0	0	-0.913043	0.913043	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.62494	3.01091		
R6(s14)	0	0	0	0	0	0	0.891304	-0.891304	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8535	1.22448		
R7(x1)	1	0	0	0	0	0	-0.130435	0.130435	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.77943	15.0727		
R8(a8)	0	0	0	0	0	0	0.597826	-0.597826	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.809453	1.11247		
R9(s9)	0	0	0	0	0	0	0.478261	-0.478261	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.48497	3.56235		
R10(a10)	0	0	0	0	0	0	-0.152174	0.152174	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.07894	1.1244		
R11(a11)	0	0	0	0	0	0	0.293478	-0.293478	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.23623	1.87541		
R12(a12)	0	0	0	0	0	0	-0.804348	0.804348	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.954281	0.758006		
R13(a13)	0	0	0	0	0	0	0.706522	-0.706522	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.771172	0.763171		
R14(x2)	0	1	0	0	0	0	-0.119565	0.119565	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.06571	inf		
R15(u7)	0	0	0	0	0	0	-0.380435	0.380435	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.85427	10.1385		
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.67389	inf
R17(a17)	0	0	0	0	0	0	-0.793478	0.793478	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.437488	0.540715		
R18(s18)	0	0	0	0	0	0	-0.891304	0.891304	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.44078	2.96945		
R19(a19)	0	0	0	0	0	0	0.25	-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0571818	inf	
R20(s20)	0	0	0	0	0	0	1.02174	-1.02174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.85313	5.85361		
R21(s21)	0	0	0	0	0	0	0.619565	-0.619565	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.70391	14.6699		
R22(a22)	0	0	0	0	0	0	0.586957	-0.586957	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.513365	0.640192		
R23(u15)	0	0	0	0	0	0	-1.05435	1.05435	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.249056	0.249056		
R24(u27)	0	0	0	0	0	0	-0.23913	0.23913	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.631234	inf		
R25(s25)	0	0	0	0	0	0	0.413043	-0.413043	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.11151	4.16042		
R26(x3)	0	0	1	0	0	0	0.217391	-0.217391	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.2249	inf		
R27(u16)	0	0	0	0	0	0	0.532609	-0.532609	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.11105	inf		
R28(a28)	0	0	0	0	0	0	0.380435	-0.380435	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.421322	0.586113		
base u1	0	0	0	0	0	0	783e+07	0	0	1.5e+07	0	1.5e+07	1.5e+07	0	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	1.5e+07	0	0	0	1.5e+07	0	1.5e+07	0	0	1.5e+07	0	0	0	0	0	-1.26522e+08	1.41522e+08	-1.63043e+07	3.13043e+07	0	0	1.5e+07	0	1.5e+07	1.5e+07	0	0	-1.24191e+08	0.586113	

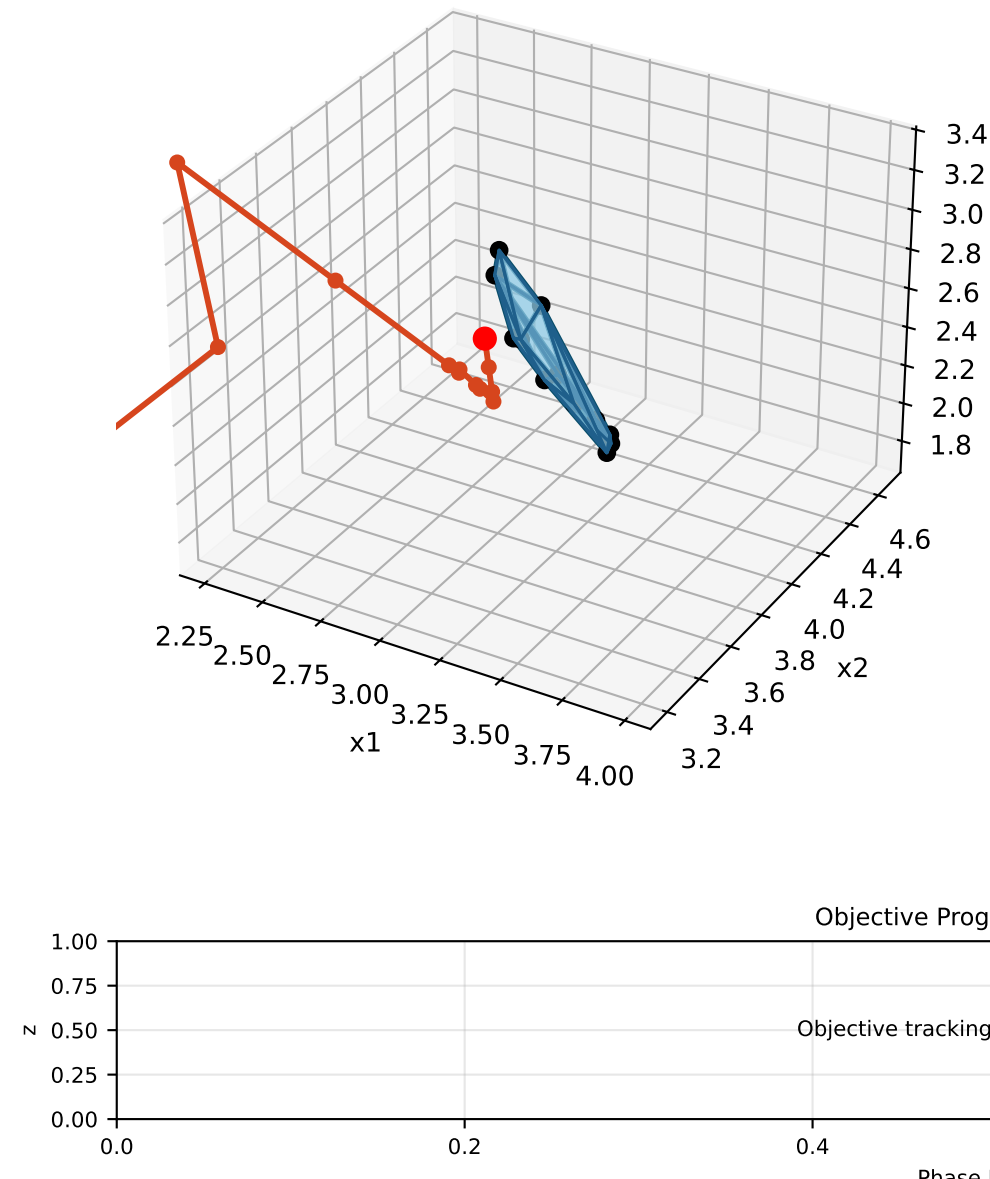
Objective Progress (Phase II)

Objective tracking starts in Phase II

Phase II Step

Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 13/31 | BIG-M step 12 | ENTER: u23 | LEAVE: a17

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u23 enters, a17 leaves.

Reduced cost of entering variable: -1.26522e+08

Minimum ratio theta\*: 0.419259

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution: x1=2.72474, x2=4.1204, x3=2.31605

Tableau objective: -7.1146e+07

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio						
R1(s1)	0	0	0	1	0	0	0.03125	-0.03125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.125	0.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.27526							
R2(s2)	0	0	0	0	1	0	0.21875	-0.21875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.125	-0.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.8796	60.8295				
R3(s3)	0	0	0	0	0	1	-0.0520833	0.0520833	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.208333	-0.208333	0	0	0	0	0	0	0	0	0	-0.0833333	0.0833333	0	0	0	0	0	0	0	0	9.68395	44.9654				
R4(u6)	0	0	0	0	0	0	0.104167	-0.104167	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.416667	0.416667	0	0	0	0	0	0	0	0	0	0.166667	-0.166667	0	0	0	0	0	0	0	0	0.788605					
R5(s5)	0	0	0	0	0	0	-0.21875	0.21875	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.875	-0.875	0	0	0	0	0	0	0	0	0	0.25	-0.25	0	0	0	0	0	0	0	0	3.24213	3.97017				
R6(s14)	0	0	0	0	0	0	1.35417	-1.35417	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.583333	-0.583333	0	0	0	0	0	0	0	0	0	-0.833333	0.833333	0	0	0	0	0	0	0	0	0	0.598299	1.40218			
R7(x1)	1	0	0	0	0	0	-0.03125	0.03125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.125	-0.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.72474	21.309					
R8(a8)	0	0	0	0	0	0	1.09375	-1.09375	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.625	-0.625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.536024	1.24116				
R9(s9)	0	0	0	0	0	0	0.875	-0.875	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0.5	-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.26623	4.76286				
R10(a10)	0	0	0	0	0	0	1.10417	-1.10417	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	1.58333	-1.58333	0	0	0	0	0	0	0	0	0	-0.833333	0.833333	0	0	0	0	0	0	0	0	0	1.38625	1.2583			
R11(a11)	0	0	0	0	0	0	1.02083	-1.02083	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0.916667	-0.916667	0	0	0	0	0	0	0	0	0	-0.166667	0.166667	0	0	0	0	0	0	0	0	0	1.8352	2.33788			
R12(a12)	0	0	0	0	0	0	0.1875	-0.1875	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	1.25	-1.25	0	0	0	0	0	0	0	0	0	-0.5	0.5	0	0	0	0	0	0	0	0	0.407421	0.731615				
R13(a13)	0	0	0	0	0	0	1.5	-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0.333684	0.73904					
R14(x2)	0	1	0	0	0	0	-0.21875	0.21875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.125	0.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.1204					
R15(u7)	0	0	0	0	0	0	-0.28125	0.28125	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.125	-0.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.79958	14.2161			
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.67389					
R17(u23)	0	0	0	0	0	0	-0.760417	0.760417	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.958333	0.958333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.419259	0.419259		
R18(s18)	0	0	0	0	0	0	0.166667	-0.166667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.33333	-1.33333	1	0	0	0	0	0	0	0	0	-0.333333	0.333333	0	0	0	0	0	0	0	0	0	0	0	0	4.85746	3.91056
R19(a19)	0	0	0	0	0	0	0.25	-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0571818						
R20(s20)	0	0	0	0	0	0	1.38542	-1.38542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.458333	-0.458333	0	0	0	0	1	0	0	0	0	-0.583333	0.583333	0	0	0	0	0	0	0	0	0	3.65261	8.05654			
R21(s21)	0	0	0	0	0	0	0.71875	-0.71875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.125	-0.125	0	0	0	0	0	1	0	0	-0.25	0.25	0	0	0	0	0	0	0	0	0	0	2.64923	20.73			
R22(a22)	0	0	0	0	0	0	1.28125	-1.28125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.875	-0.875	0	0	0	0	0	0	-1	1	0	0	-0.75	0.75	0	0	0	0	0	0	0	0	0.130564	0.562257			
R23(u15)	0	0	0	0	0	0	-1.58333	1.58333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	-0.666667	0.666667	0	0	0	0	0	0	0	0	0	0.666667	-0.666667	0	0	0	0	0	0	0	0	0	0.540715					
R24(u27)	0	0	0	0	0	0	-1.19792	1.19792	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.20833	1.20833	0	0	0	0	0	0	0	0	0	1.08333	-1.08333	0	0	0	1	-1	0	0	0	0	1.15987				
R25(s25)	0	0	0	0	0	0	1.23958	-1.23958	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.04167	-1.04167	0	0	0	0	0	0	0	0	0	-0.416667	0.416667	1	0	0	0	0	0	0	0	0	5.65579	5.62259			
R26(x3)	0	0	1	0	0	0	0.0520833	-0.0520833	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.208333	0.208333	0	0	0	0	0	0	0	0	0	0.0833333	-0.0833333	0	0	0	0	0	0	0	0	0	2.31605				
R27(u26)	0	0	0	0	0	0	-0.0625	0.0625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.75	0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.43917					
R28(a28)	0	0	0	0	0	0	1.04167	-1.04167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.833333	-0.833333	0	0	0	0	0	0	0	0	0	-0.333333	0.333333	0	0	0	0	-1	0	0	-1	0	0.0567485	0.48452			
base H	0	0	0	0	0	0	1.88e+08	0	0	0	1.5e+07	0	1.5e+07	1.5e+07	0	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	0	0	1.5e+07	0	-1.0625e+08	1.2125e+08	0	1.5e+07	0	0	0	1.5e+07	0	0	0	0	0	0	0	1.5e+07	0	1.5e+07	1.5e+07	0	1.5e+07	1.5e+07	0	-7.1146e+07	0.48452		

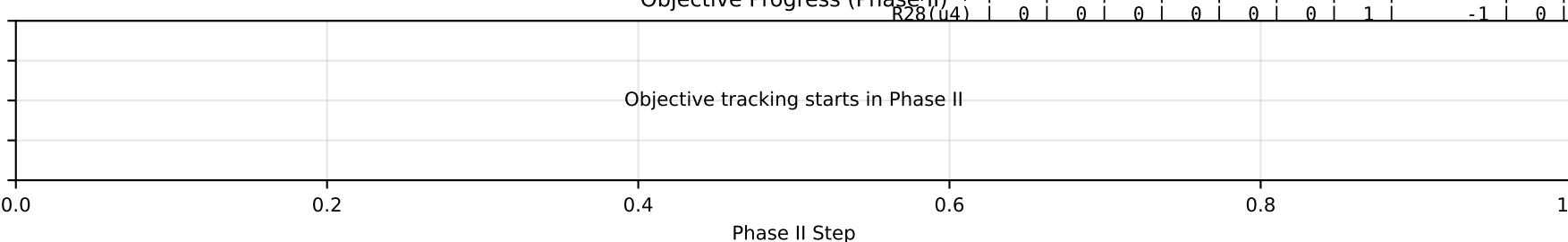
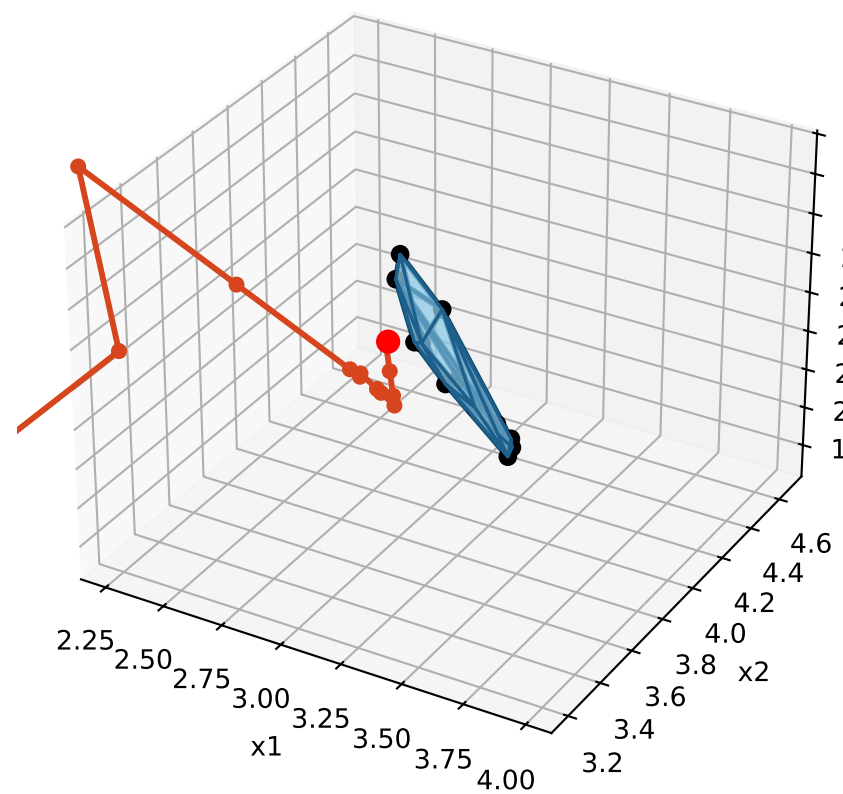
Objective Progress (Phase II)

Objective tracking starts in Phase II

Phase II Step

## Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 14/31 | BIG-M step 13 | ENTER: u4 | LEAVE: a2

COMMENTS

Teaching Mode | Rule: DANTZIC

Pivot: u4 enters, a28 leaves

Reduced cost of entering variable: -1.12188e+0

Minimum ratio theta\*: 0.054478

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution:  $x_1=2.72645$ ,  $x_2=4.13232$ ,  $x_3=2.31321$

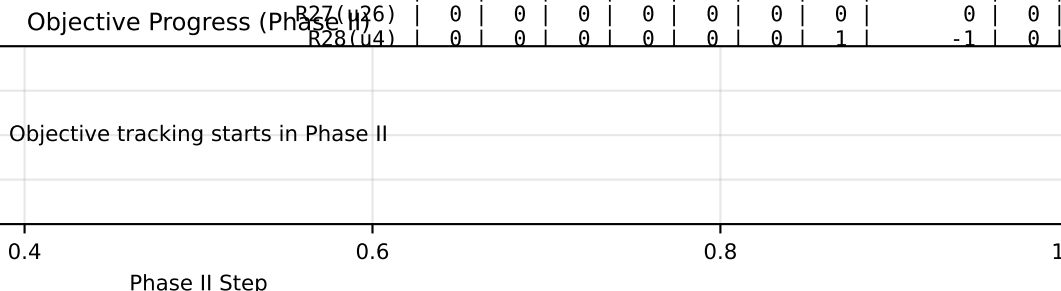
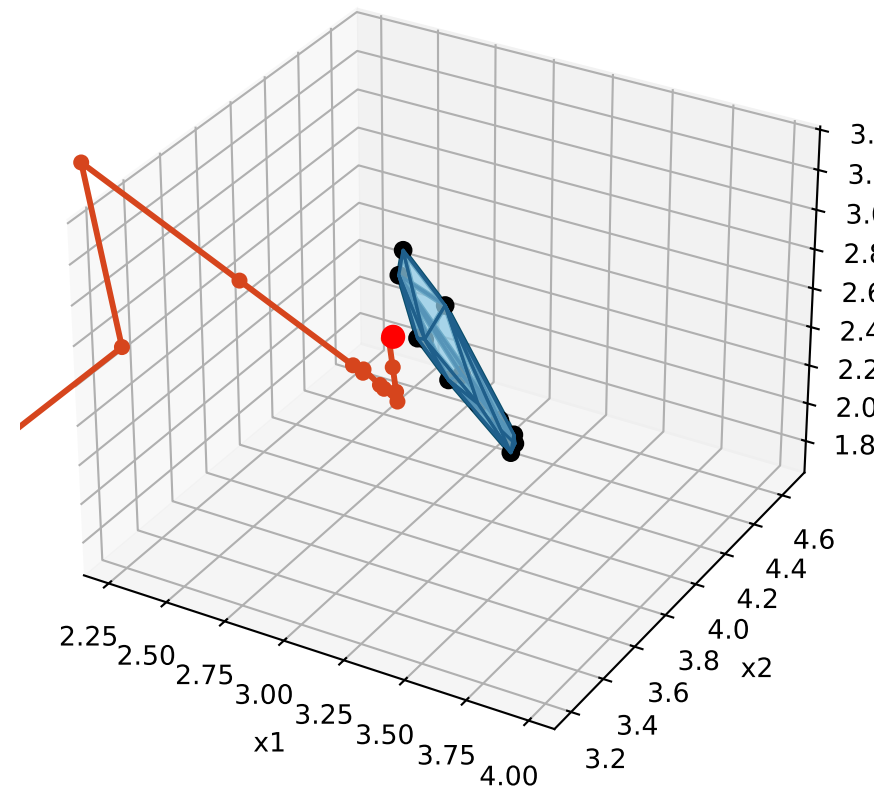
Tableau objective: -6.50342e+0

[illegible]



## Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 15/31 | BIG-M step 14 | ENTER: u28 | LEAVE: a2

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u28 enters, a22 leaves.

Reduced cost of entering variable: -9.27e+0

Minimum ratio theta\*: 0.049400

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

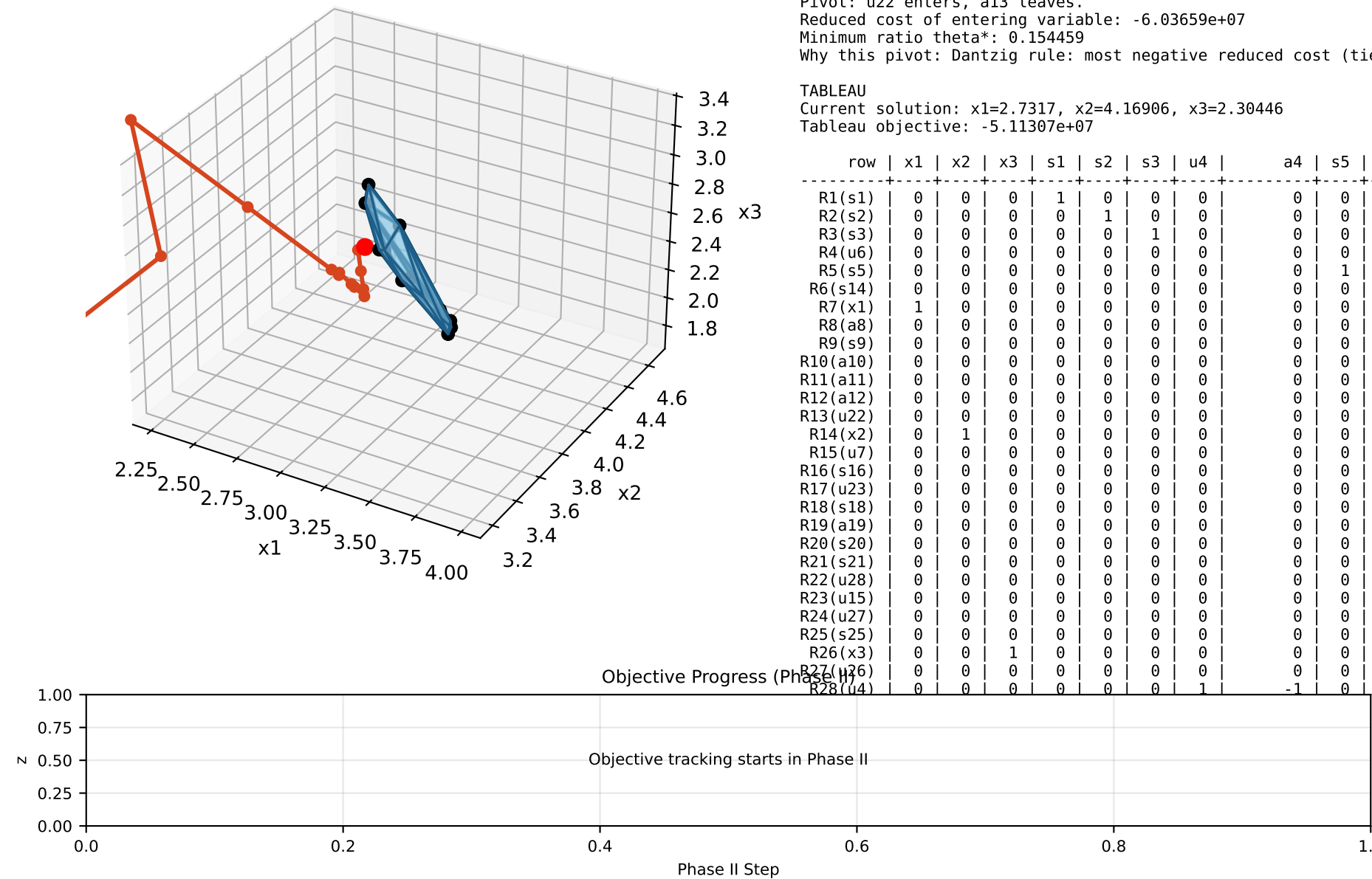
Current solution:  $x_1=2.72793$ ,  $x_2=4.14269$ ,  $x_3=2.3107$

Tableau objective: -6.04547e+0

[illegible]

Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 16/31 | BIG-M step 15 | ENTER: u22 | LEAVE: a13

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u22 enters, a13 leaves.

Reduced cost of entering variable: -6.03659e+07

Minimum ratio theta\*: 0.154459

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

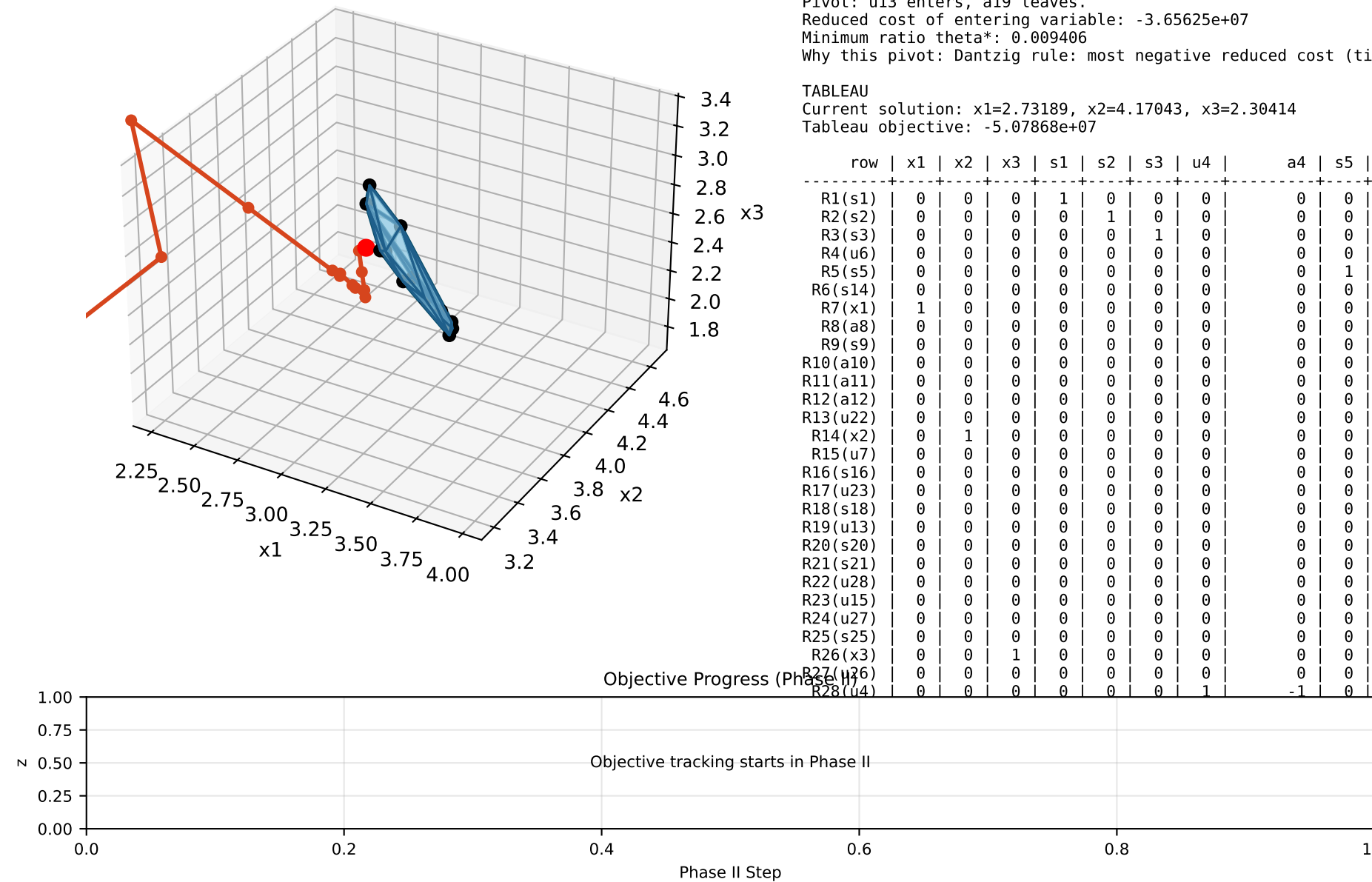
Current solution: x1=2.7317, x2=4.16906, x3=2.30446

Tableau objective: -5.11307e+07

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio			
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0208333	-0.0208333	0	0	0	0	-0.145833	0.145833	0	0	0	0	0	0	0	0	0	0	0.270833	-0.270833	0	0	0	0	0	0	0	0	0	9.2683	380.155
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.145833	-0.145833	0	0	0	0	-0.0208333	0.0208333	0	0	0	0	0	0	0	0	0	0	-0.104167	0.104167	0	0	0	0	0	0	0	0	0	7.83094	46.0214
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0347222	0.0347222	0	0	0	0	0.243056	-0.243056	0	0	0	0	0	0	0	0	0	0	-0.118056	0.118056	0	0	0	0	0	0	0	0	0	9.69554	inf
R4(u6)	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	-0.0694444	-0.0694444	0	0	0	0	-0.486111	0.486111	0	0	0	0	0	0	0	0	0	0	0.236111	-0.236111	0	0	0	0	0	0	0	0.765433	9.56928		
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-0.145833	0.145833	0	0	0	0	1.02083	-1.02083	0	0	0	0	0	0	0	0	0	0	0.104167	-0.104167	0	0	0	0	0	0	0	3.2908	inf			
R6(s14)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.902778	-0.902778	1	0	0	0	-0.319444	0.319444	0	0	0	0	0	0	0	0	0	0	0.0694444	-0.0694444	0	0	0	0	0	0	0	0.297056	0.435519			
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0208333	0.0208333	0	0	0	0	0.145833	-0.145833	0	0	0	0	0	0	0	0	0	0	-0.270833	0.270833	0	0	0	0	0	0	0	2.7317	inf			
R8(a8)	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0.729167	-0.729167	0	0	0	0	-0.104167	0.104167	0	0	0	0	0	0	0	0	0	0	0.479167	-0.479167	0	0	0	0	0	0	0	0.292712	0.49735			
R9(s9)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.583333	-0.583333	0	0	0	0	-0.0833333	0.0833333	0	0	0	0	0	0	0	0	0	0	0.583333	-0.583333	0	0	0	0	0	0	0	2.07158	3.18784			
R10(a10)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0.736111	-0.736111	0	0	0	0	0.847222	-0.847222	0	0	0	0	0	0	0	0	0	0	-0.0972222	0.0972222	0	0	0	0	0	0	0	1.14062	1.47801			
R11(a11)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0.680556	-0.680556	0	0	0	0	0.236111	-0.236111	0	0	0	0	0	0	0	0	0	0	0.513889	-0.513889	0	0	0	0	0	0	0	1.60811	2.1728			
R12(a12)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0.125	-0.125	0	0	0	0	1.125	-1.125	0	0	0	0	0	0	0	0	0	0	-0.375	0.375	0	0	0	0	0	0	0	0.36571	2.65348			
R13(u22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.854167	0.854167	0	0	0	0	-0.0208333	0.0208333	0	0	0	0	1	-1	0	0	0	0	-0.104167	0.104167	0	0	0	0	0	0	0	0.154459	0.154459			
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.145833	0.145833	0	0	0	0	0.0208333	-0.0208333	0	0	0	0	0	0	0	0	0	0	0.104167	-0.104167	0	0	0	0	0	0	0	4.16906	inf			
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	-0.1875	0.1875	0	0	0	0	0.3125	-0.3125	0	0	0	0	0	0	0	0	0	0	-0.4375	0.4375	0	0	0	0	0	0	0	1.86215	inf			
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.67389	inf					
R17(u23)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.506944	0.506944	0	0	0	0	-0.451389	0.451389	0	0	0	0	0	0	0	0	1	-1	0.0763889	-0.0763889	0	0	0	0	0	0	0	0.588419	inf			
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.111111	-0.111111	0	0	0	0	1.22222	-1.22222	1	0	0	0	0	0	0	0	0	0	-0.222222	0.222222	0	0	0	0	0	0	0	4.82039	37.2112			
R19(a19)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.166667	-0.166667	0	0	0	0	-0.166667	0.166667	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00156767	0.162493				
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.923611	-0.923611	0	0	0	0	-0.465278	0.465278	0	0	0	0	1	0	0	0	0	0	0.340278	-0.340278	0	0	0	0	0	0	0	3.34442	3.24742			
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.479167	-0.479167	0	0	0	0	-0.354167	0.354167	0	0	0	0	0	1	0	0	0	0	0.229167	-0.229167	0	0	0	0	0	0	0	2.48934	4.59197			
R22(u28)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.694444	0.694444	0	0	0	0	-0.138889	0.138889	0	0	0	0	0	0	0	0	0	0	-0.361111	0.361111	0	0	0	0	0	1	-1	0.174977	inf			
R23(u15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.05556	1.05556	0	1	-1	0	0.388889	-0.388889	0	0	0	0	0	0	0	0	0	0	-0.388889	0.388889	0	0	0	0	0	0	0	0.892937	inf			
R24(u27)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.798611	0.798611	0	0	0	0	-0.409722	0.409722	0	0	0	0	0	0	0	0	0	0	0.284722	-0.284722	0	0	0	0	1	-1	0	1.42635	inf			
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.826389	-0.826389	0	0	0	0	0.215278	-0.215278	0	0	0	0	0	0	0	0	0	0	0.409722	-0.409722	1	0	0	0	0	0	0	5.38004	5.71534			
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0347222	-0.0347222	0	0	0	0	-0.243056	0.243056	0	0	0	0	0	0	0	0	0	0	0.118056	-0.118056	0	0	0	0	0	0	0	2.30446	56.8442			
R27(u16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0416667	0.0416667	0	0	0	0	-0.708333	0.708333	0	0	0	0	0	0	0	0	0	0	0.458333	-0.458333	0	1	-1	0	0	0	0	1.45307	inf			
R28(u4)	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.666667	0.666667	0	0	0	0	0.666667	-0.666667	0	0	0	0	0	0	0	0	0	0	-0.666667	0.666667	0	0	0	0	0	0	0	0.222456	inf			
											0	1.5e+07	0	1.5e+07	1.5e+07	0	0	1.5e+07	0	1.5e+07	0	-3.65625e+07	5.15625e+07	0	0	1.5e+07	0	-2.90625e+07	4.40625e+07	0	1.5e+07	0	0	0	0	1.5e+07	0	1.5e+07	-1.03125e+07	2.53125e+07	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	-5.11307e+07	-		

Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 17/31 | BIG-M step 16 | ENTER: u13 | LEAVE: a19

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u13 enters, a19 leaves.

Reduced cost of entering variable: -3.65625e+07

Minimum ratio theta\*: 0.009406

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution: x1=2.73189, x2=4.17043, x3=2.30414

Tableau objective: -5.07868e+07

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio						
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.125	0.125	0	0.125	-0.125	0	0	0	0	0	0	0.25	-0.25	0	0	0	0	0	0	0	9.26811	444.879					
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.125	-0.125	0	0.875	-0.875	0	0	0	0	0	0	-0.25	0.25	0	0	0	0	0	0	0	7.82957	53.6979					
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.208333	-0.208333	0	-0.208333	0.208333	0	0	0	0	0	0	-0.0833333	0.0833333	0	0	0	0	0	0	0	9.69586	inf					
R4(u6)	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.416667	0.416667	0	0.416667	-0.416667	0	0	0	0	0	0	0.166667	-0.166667	0	0	0	0	0	0	0	0.764779	11.0222						
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.875	-0.875	0	-0.875	0.875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.29217	inf							
R6(s14)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.583333	-0.583333	0	5.41667	-5.41667	0	0	0	0	0	0	-0.833333	0.833333	0	0	0	0	0	0	0	0.288564	0.329047						
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.125	-0.125	0	-0.125	0.125	0	0	0	0	0	0	0	0	0	0	0	0	0	2.73189	inf								
R8(a8)	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.625	-0.625	0	4.375	-4.375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.285853	0.401433							
R9(s9)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0.5	-0.5	0	3.5	-3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.06609	3.55127							
R10(a10)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	1.58333	-1.58333	0	4.41667	-4.41667	0	0	0	0	0	0	-0.833333	0.833333	0	0	0	0	0	0	0	1.1337	1.54952						
R11(a11)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0.916667	-0.916667	0	4.08333	-4.08333	0	0	0	0	0	0	-0.166667	0.166667	0	0	0	0	0	0	0	1.60171	2.36294						
R12(a12)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	1.25	-1.25	0	0.75	-0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0.364535	2.92568								
R13(u22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.875	0.875	0	-5.125	5.125	0	0	1	-1	0	0	0.75	-0.75	0	0	0	0	0	0	0	0.162493	inf						
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.125	0.125	0	-0.875	0.875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.17043	inf							
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.125	-0.125	0	-1.125	1.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.86391	inf						
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.67389	inf							
R17(u23)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.958333	0.958333	0	-3.04167	3.04167	0	0	0	0	1	-1	0.583333	-0.583333	0	0	0	0	0	0	0	0.593187	inf						
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.33333	-1.33333	1	0.666667	-0.666667	0	0	0	0	0	0	-0.333333	0.333333	0	0	0	0	0	0	0	4.81934	43.3835						
R19(u13)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	-1	1	0	-6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009406	0.009406								
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.458333	-0.458333	0	5.54167	-5.54167	1	0	0	0	0	0	-0.583333	0.583333	0	0	0	0	0	0	0	3.3573	3.62102						
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.125	-0.125	0	2.875	-2.875	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2.48483	5.19514						
R22(u28)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.833333	0.833333	0	-4.16667	4.16667	0	0	0	0	0	0	0.333333	-0.333333	0	0	0	0	0	0	0	0	1	-1	0.181509	inf			
R23(u15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	-0.666667	0.666667	0	-6.33333	6.33333	0	0	0	0	0	0	0.666667	-0.666667	0	0	0	0	0	0	0	0	0.902866	inf					
R24(u27)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.20833	1.20833	0	-4.79167	4.79167	0	0	0	0	0	0	1.08333	-1.08333	0	0	0	0	0	0	0	0	1	-1	0	0	0	1.43386	inf
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.04167	-1.04167	0	4.95833	-4.95833	0	0	0	0	0	0	-0.416667	0.416667	1	0	0	0	0	0	0	5.37226	6.5103						
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.208333	0.208333	0	0.208333	-0.208333	0	0	0	0	0	0	0.0833333	-0.0833333	0	0	0	0	0	0	0	2.30414	66.3685						
R27(u26)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.75	0.75	0	-0.25	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.45346	inf					
R28(u4)	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.228727	inf		

Objective Progress (Phase II)

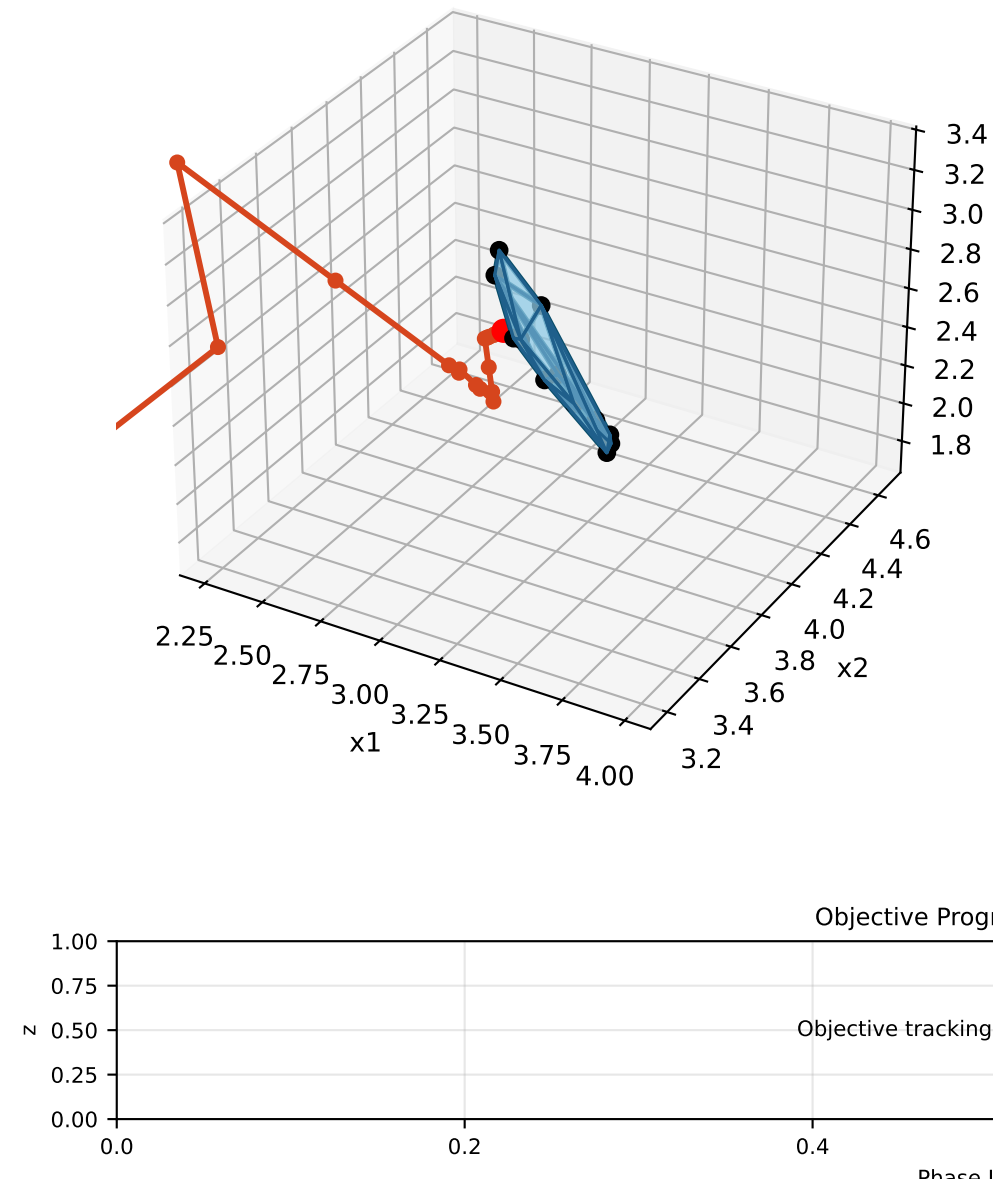
Objective tracking starts in Phase II

Phase II Step



Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 18/31 | BIG-M step 17 | ENTER: u19 | LEAVE: s14

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u19 enters, s14 leaves.

Reduced cost of entering variable: -2.04375e+08

Minimum ratio theta\*: 0.0532734

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

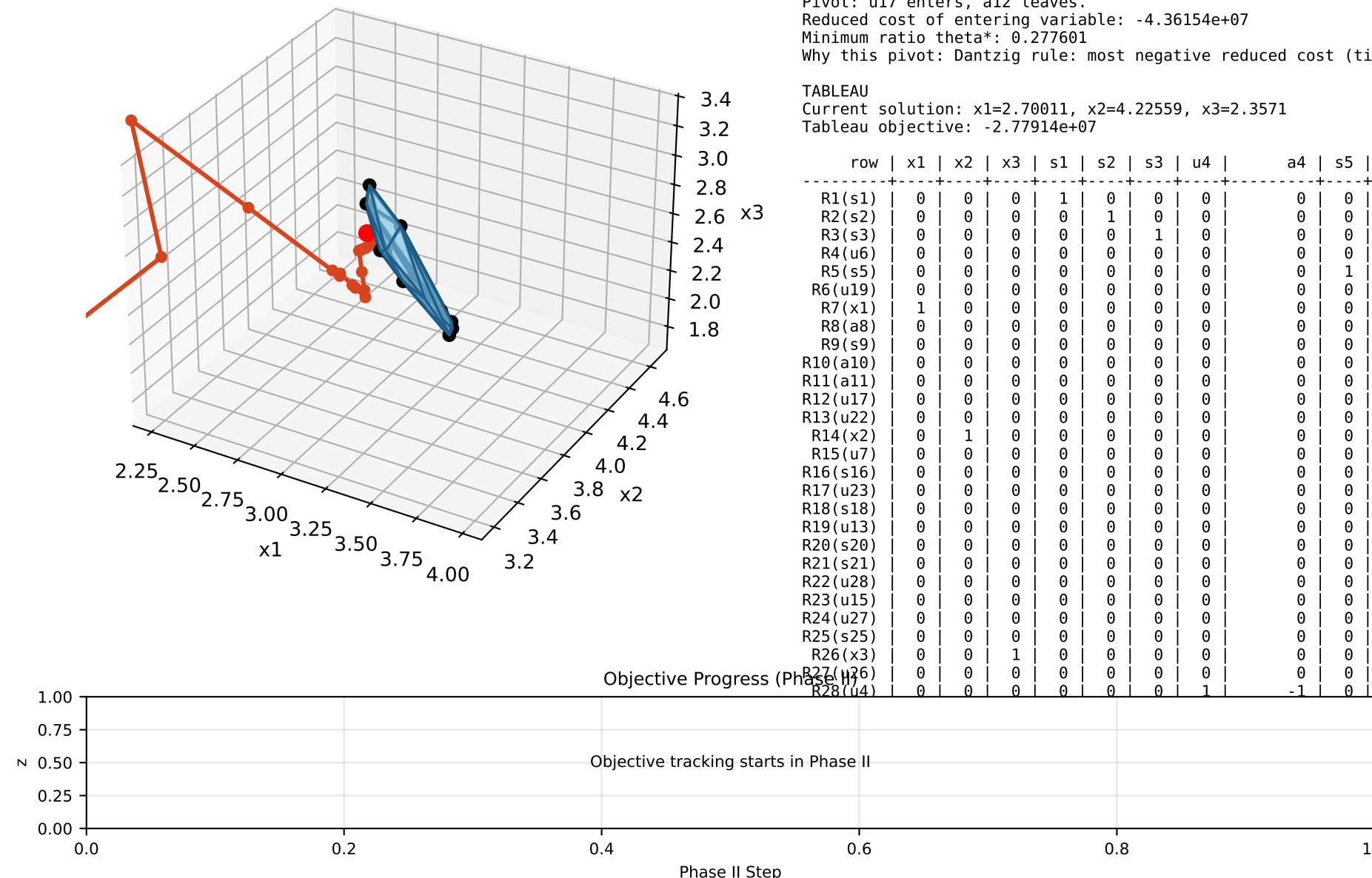
Current solution:  $x_1=2.73855$ ,  $x_2=4.21705$ ,  $x_3=2.29304$

Tableau objective: -3.98991e+07

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	r				
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0230769	0	0	0	0	-0.138462	0.138462	0	0	0	0	0	0	0	0	0	0.269231	-0.269231	0	0	0	0	0	0	0	9.26145	74.1449		
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.161538	0	0	0	0	-0.0307692	-0.0307692	0	0	0	0	0	0	0	0	0	-0.115385	0.115385	0	0	0	0	0	0	0	7.78295	8.94808		
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0384615	0	0	0	0	0.230769	-0.230769	0	0	0	0	0	0	0	0	0	-0.115385	0.115385	0	0	0	0	0	0	0	9.70696	inf		
R4(u6)	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0769231	0	0	0	0	-0.461538	0.461538	0	0	0	0	0	0	0	0	0	0.230769	-0.230769	0	0	0	0	0	0	0	0.742582	1.83547		
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.161538	0	0	0	0	0.969231	-0.969231	0	0	0	0	0	0	0	0	0	0.115385	-0.115385	0	0	0	0	0	0	0	3.33878	inf		
R6(u19)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.184615	0	0	0	0	0.107692	-0.107692	0	1	-1	0	0	0	0	0	0	-0.153846	0.153846	0	0	0	0	0	0	0	0.0532734	0.0532734		
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0230769	0	0	0	0	0.138462	-0.138462	0	0	0	0	0	0	0	0	0	-0.269231	0.269231	0	0	0	0	0	0	0	2.73855	inf		
R8(a8)	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	-0.807692	0	0	0	0	0.153846	-0.153846	0	0	0	0	0	0	0	0	0	0.423077	-0.423077	0	0	0	0	0	0	0	0.0527821	0.0653379		
R9(s9)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	-0.646154	0	0	0	0	0.123077	-0.123077	0	0	0	0	0	0	0	0	0	0.538462	-0.538462	0	0	0	0	0	0	0	1.87963	0.590311		
R10(a10)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	-0.815385	0	0	0	0	1.10769	-1.10769	0	0	0	0	0	0	0	0	0	-0.153846	0.153846	0	0	0	0	0	0	0	0.898405	0.256686		
R11(a11)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	-0.753846	0	0	0	0	0.476923	-0.476923	0	0	0	0	0	0	0	0	0	0.461538	-0.461538	0	0	0	0	0	0	0	1.38418	0.392256		
R12(a12)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	-0.138462	0	0	0	0	1.16923	-1.16923	0	0	0	0	0	0	0	0	0	-0.384615	0.384615	0	0	0	0	0	0	0	0.32458	0.486046		
R13(u22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.946154	0	0	0	0	-0.323077	0.323077	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0.435519	inf					
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.161538	0	0	0	0	0.0307692	0.0307692	0	0	0	0	0	0	0	0	0	0.115385	-0.115385	0	0	0	0	0	0	0	4.21705	inf		
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0.207692	0	0	0	0	0.246154	-0.246154	0	0	0	0	0	0	0	0	0	-0.423077	0.423077	0	0	0	0	0	0	0	1.92384	inf		
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.67389	inf						
R17(u23)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.561538	0	0	0	0	-0.630769	0.630769	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.755227	inf
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.123077	0	0	0	0	1.26154	-1.26154	1	0	0	0	0	0	0	0	0	-0.230769	0.230769	0	0	0	0	0	0	0	4.78383	7.22901		
R19(u13)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	1.10769	0	0	0	0	-0.353846	0.353846	0	0	0	0	0	0	0	0	0	0.0769231	-0.0769231	0	0	0	0	0	0	0	0.329047	inf			
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.02308	0	0	0	0	0.138462	0.138462	0	0	0	0	0	0	0	0	0	0.269231	-0.269231	0	0	0	0	0	0	0	3.04051	0.601936		
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.530769	0	0	0	0	-0.184615	0.184615	0	0	0	0	0	0	0	0	0	0.192308	-0.192308	0	0	0	0	0	0	0	2.33167	0.864288		
R22(u28)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.769231	0	0	0	0	-0.384615	0.384615	0	0	0	0	0	0	0	0	0	-0.307692	0.307692	0	0	0	0	0	0	0	0.403481	inf		
R23(u15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.16923	1	-1	0	0	0.0153846	-0.0153846	0	0	0	0	0	0	0	0	0	-0.307692	0.307692	0	0	0	0	0	0	0	1.24026	inf		
R24(u27)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.884615	0	0	0	0	-0.692308	0.692308	0	0	0	0	0	0	0	0	0	0.346154	-0.346154	0	0	0	0	0	0	0	1.68913	inf		
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.915385	0	0	0	0	0.507692	-0.507692	0	0	0	0	0	0	0	0	0	0.346154	-0.346154	1	0	0	0	0	0	0	5.10812	1.08348		
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0384615	0	0	0	0	-0.230769	0.230769	0	0	0	0	0	0	0	0	0	0.115385	-0.115385	0	0	0	0	0	0	0	2.29304	11.0598		
R27(u26)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0461538	0	0	0	0	-0.723077	0.723077	0	0	0	0	0	0	0	0	0	0.461538	-0.461538	0	1	-1	0	0	0	0	1.46678	inf		
R28(u4)	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.738462	0	0	0	0	0.430769	-0.430769	0	0	0	0	0	0	0	0	0	-0.615385	0.615385	0	0	0	0	0	0	0	0.441821	inf		
	0	1.5e+07	0	0	1.5e+07	1.5e+07	0	0	0	0	0	0	0	0	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	0	0	1.5e+07	3.77308e+07	0	1.5e+07	0	-4.36154e+07	5.86154e+07	0	0	1.5e+07	0	0	0	1.5e+07	0	1.5e+07	-5.19231e+06	2.01923e+07	0	0	1.5e+07	0								

Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 19/31 | BIG-M step 18 | ENTER: u17 | LEAVE: a12

COMMENTS  
Teaching Mode | Rule: DANTZIG  
Pivot: u17 enters, a12 leaves.  
Reduced cost of entering variable: -4.36154e+07  
Minimum ratio theta\*: 0.277601  
Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU  
Current solution: x1=2.70011, x2=4.22559, x3=2.3571  
Tableau objective: -2.77914e+07

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio			
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.118421	0.118421	0	0	-0.0394737	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.223684	-0.223684	0	0	0	0	0	0	9.29989				
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0263158	-0.0263158	0	0	-0.157895	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.105263	0.105263	0	0	0	0	0	0	7.77441	252.946			
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.197368	-0.197368	0	0	0.0657895	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0394737	0.0394737	0	0	0	0	0	0	9.6429	42.0635			
R4(u6)	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	-0.394737	0.394737	0	0	-0.131579	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0789474	-0.0789474	0	0	0	0	0	0	0.870706	inf			
R5(s5)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.828947	-0.828947	0	0	0.276316	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.06972	3.44478			
R6(u19)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0921053	-0.0921053	0	0	0.197368	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0233779	0.494682				
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.118421	-0.118421	0	0	0.0394737	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.70011	19.7784			
R8(a8)	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0.131579	-0.131579	0	0	-0.789474	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0100743	0.343084			
R9(s9)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.105263	-0.105263	0	0	-0.631579	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.84547	15.272	
R10(a10)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0.947368	-0.947368	0	0	-0.684211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.590909	0.81106			
R11(a11)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0.407895	-0.407895	0	0	-0.697368	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.25178	2.90231		
R12(u17)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.855263	0.855263	0	0	-0.118421	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.277601	0.277601			
R13(u22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.276316	0.276316	0	0	0.907895	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.525206	inf		
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0263158	0.0263158	0	0	0.157895	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.22559	inf		
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0.210526	-0.210526	0	0	0.236842	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.85551	7.81562		
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.67389	inf				
R17(u23)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.539474	0.539474	0	0	0.486842	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.930329	inf			
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.07895	-1.07895	0	0	0.0263158	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.43362	3.79206		
R19(u13)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.302632	0.302632	1	-1	1.06579	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.427275	inf			
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.118421	0.118421	0	0	-1.03947	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.07894	inf			
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.157895	0.157895	0	0	-0.552632	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.38292	inf			
R22(u28)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.328947	0.328947	0	0	0.723684	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0.510251	80.6172
R23(u15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0131579	-0.0131579	0	0	1.17105	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.23599	inf		
R24(u27)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.592105	0.592105	0	0	0.802632	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	1.88132	inf
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.434211	-0.434211	0	0	-0.855263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.96718	10.0614	
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.197368	0.197368	0	0	-0.0657895	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.3571	inf		
R27(u26)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.618421	0.618421	0	0	-0.0394737	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.66751	inf	
R28(u4)	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0.368421	-0.368421	0	0	0.789474	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									

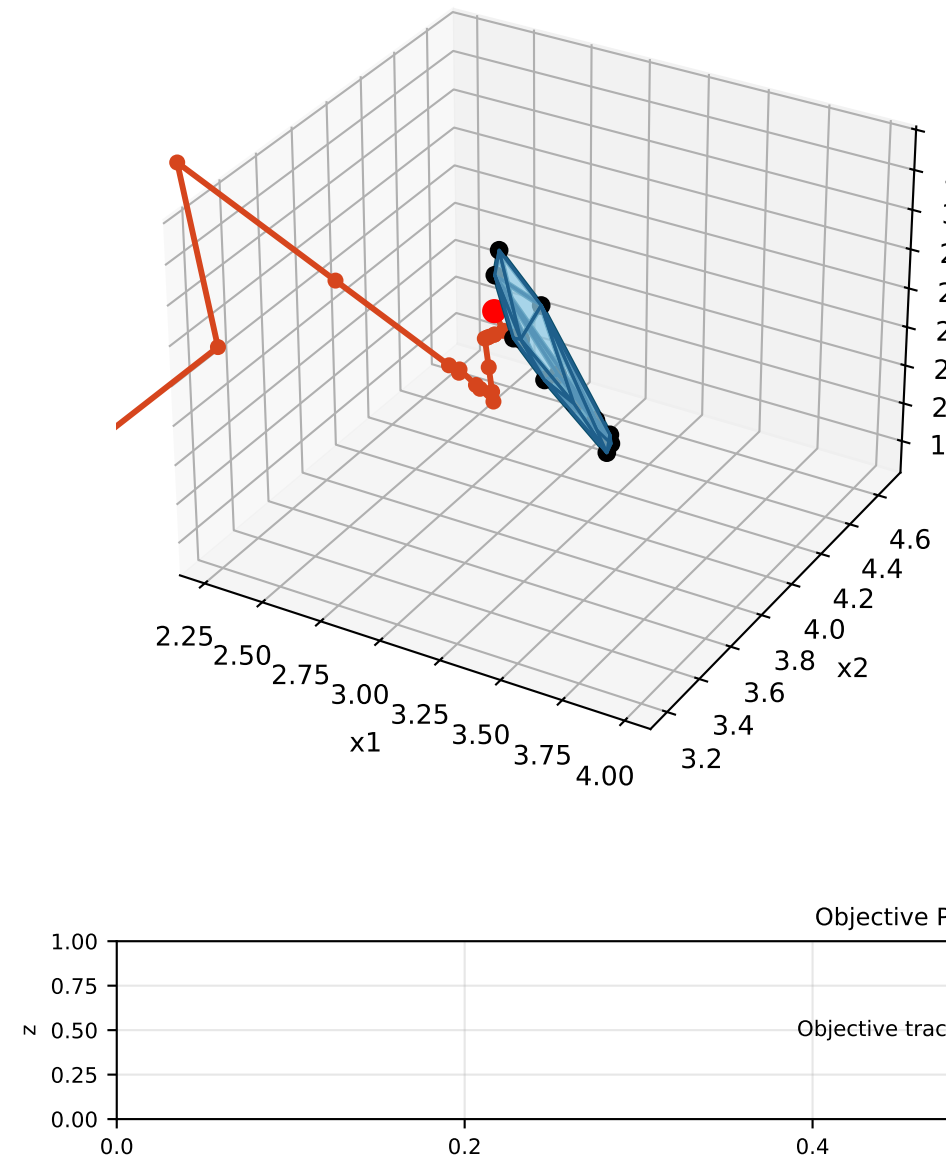
Objective Progress (Phase II)

Objective tracking starts in Phase II

Phase II Step

Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 20/31 | BIG-M step 19 | ENTER: u12 | LEAVE: a8

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u12 enters, a8 leaves.

Reduced cost of entering variable: -2.23026e+07

Minimum ratio theta\*: 0.0765644

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution:  $x_1=2.69105$ ,  $x_2=4.2276$ ,  $x_3=2.37221$

Tableau objective: -2.60838e+07

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio																																																																																																																																																																													
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	-0.9	0.9	0	0	0	0	0	0	0	0	0	0	-0.75	0	0	0	0	0	0	0	0	0	0	0	0	0.65	-0.65	0	0	0	0	0	0	0	0	9.30895																																																																																																																																																																														
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0.2	-0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.7724	295																																																																																																																																																																														
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0	0	1.5	-1.5	0	0	0	0	0	0	0	0	0	0	1.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.62779	48.8																																																																																																																																																																													
R4(u6)	0	0	0	0	0	0	0	0	0	1	-1	0	0	-3	3	0	0	0	0	0	0	0	0	0	0	-2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.900928																																																																																																																																																																													
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	0	0	6.3	-6.3	0	0	0	0	0	0	0	0	0	0	5.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.00626	3.70316																																																																																																																																																																												
R6(u19)	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	-0.7	0	0	0	0	0	0	0	0	0	0	0.75	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0163259	0.253818																																																																																																																																																																												
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0.9	-0.9	0	0	0	0	0	0	0	0	0	0	0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.69105	22																																																																																																																																																																												
R8(u12)	0	0	0	0	0	0	0	0	0	0	0	0	0	-7.6	7.6	0	0	0	0	0	0	1	-1	0	0	-6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0765644	0.0765644																																																																																																																																																																												
R9(s9)	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	-0.8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.83741	17.5																																																																																																																																																																												
R10(a10)	0	0	0	0	0	0	0	0	0	0	0	0	0	7.2	-7.2	0	-1	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.518374	0.623737																																																																																																																																																																											
R11(a11)	0	0	0	0	0	0	0	0	0	0	0	0	0	3.1	-3.1	0	0	0	-1	1	0	0	0	0	0	1.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.22055	3.06889																																																																																																																																																																											
R12(u17)	0	0	0	0	0	0	0	0	0	0	0	0	0	-6.5	6.5	0	0	0	0	0	0	0	0	0	0	-5.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.343084																																																																																																																																																																												
R13(u22)	0	0	0	0	0	0	0	0	0	0	0	0	0	-2.1	2.1	0	0	0	0	0	0	0	0	0	0	-0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.546362																																																																																																																																																																												
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	-0.2	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.2276																																																																																																																																																																													
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	1.6	-1.6	0	0	0	0	0	0	0	0	0	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.83939	8.8																																																																																																																																																																											
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.67389																																																																																																																																																																												
R17(u23)	0	0	0	0	0	0	0	0	0	0	0	0	0	-4.1	4.1	0	0	0	0	0	0	0	0	0	0	-2.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.971634																																																																																																																																																																												
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	8.2	-8.2	0	0	0	0	0	0	0	0	0	0	6.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.35101	4.10921																																																																																																																																																																										
R19(u13)	0	0	0	0	0	0	0	0	0	0	0	0	0	-2.3	2.3	0	0	0	0	0	0	0	0	0	0	-0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.450445																																																																																																																																																																												
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.9	0.9	0	0	0	0	0	0	0	0	0	0	-1.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.08801																																																																																																																																																																												
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.2	1.2	0	0	0	0	0	0	0	0	0	0	-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.39501																																																																																																																																																																												
R22(u28)	0	0	0	0	0	0	0	0	0	0	0	0	0	-2.5	2.5	0	0	0	0	0	0	0	0	0	0	-1.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.535437																																																																																																																																																																												
R23(u15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	-0.1	0	0	0	0	0	0	0	0	0	0	1.25	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.23499	93.9																																																																																																																																																																											
R24(u27)	0	0	0	0	0	0	0	0	0	0	0	0	0	-4.5	4.5	0	0	0	0	0	0	0	0	0	0	-2.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.92665																																																																																																																																																																												
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	3.3	-3.3	0	0	0	0	0	0	0	0	0	0	1.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.93394	11.4																																																																																																																																																																										
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	-1.5	1.5	0	0	0	0	0	0	0	0	0	0	-1.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.37221																																																																																																																																																																												
R27(u16)	0	0	0	0	0	0	0	0	0	0	0	0	0	-4.7	4.7	0	0	0	0	0	0	0	0	0	0	-3.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.71486																																																																																																																																																																												
R28(u4)	0	0	0	0	0	0	1	-1	0	0	0	0	0	2.8	-2.8	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.294031	0.874648																																																																																																																																																																											
ase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Objective Progress (Phase II)

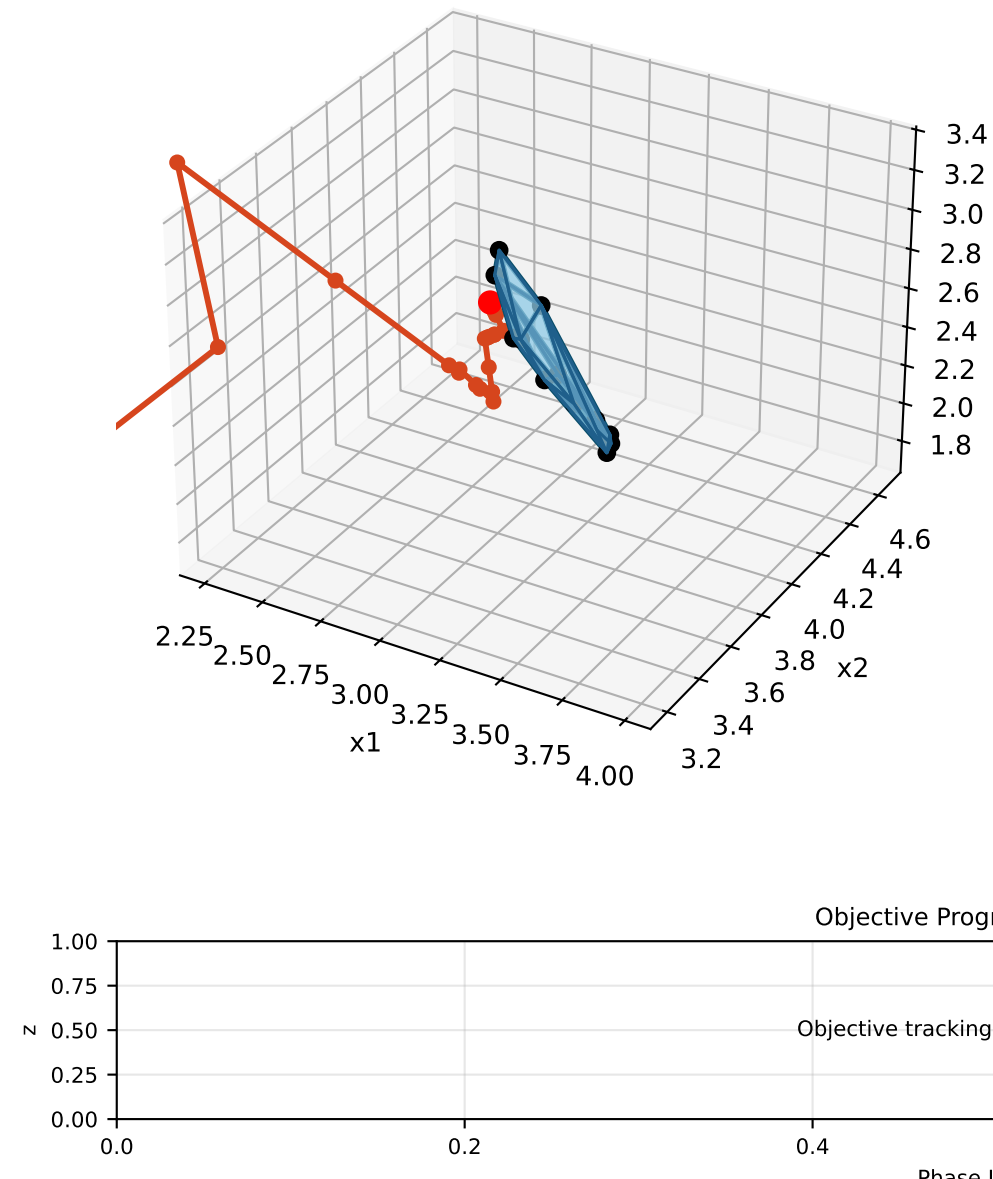
Objective tracking starts in Phase II

Phase II Step



Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 21/31 | BIG-M step 20 | ENTER: u8 | LEAVE: u19

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u8 enters, u19 leaves.

Reduced cost of entering variable: -1.545e+08

Minimum ratio theta\*: 0.0233228

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution: x1=2.67006, x2=4.23227, x3=2.40719

Tableau objective: -2.24804e+07

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs																																																																																																																																																																																																																																																																																																																																																																																																																																																											
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.214286	0	0	0	0	0	0	1.28571	-1.28571	0	0	0	0	0	0	0.0714286	-0.0714286	0	0	0	0	0	0	9.32994																																																																																																																																																																																																																																																																																																																																																																																																																																																											
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.214286	0	0	0	0	0	0	-0.285714	0.285714	0	0	0	0	0	0	-0.0714286	0.0714286	0	0	0	0	0	0	7.76773	38																																																																																																																																																																																																																																																																																																																																																																																																																																																										
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.357143	0	0	0	0	0	0	-2.14286	2.14286	0	0	0	0	0	0	0.214286	-0.214286	0	0	0	0	0	0	9.59281	6.4																																																																																																																																																																																																																																																																																																																																																																																																																																																										
R4(u6)	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.714286	0	0	0	0	0	0	4.28571	-4.28571	0	0	0	0	0	0	-0.428571	0.428571	0	0	0	0	0	0	0.970897																																																																																																																																																																																																																																																																																																																																																																																																																																																											
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.5	0	0	0	0	0	-9	9	0	0	0	0	1.5	-1.5	0	0	0	0	0	0	2.85932	0.47																																																																																																																																																																																																																																																																																																																																																																																																																																																													
R6(u8)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	1.07143	0	0	0	0	0	1.42857	-1.42857	0	0	0	0	0	0	-0.642857	0.642857	0	0	0	0	0	0	0.0233228	0.023																																																																																																																																																																																																																																																																																																																																																																																																																																																											
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.214286	0	0	0	0	0	-1.28571	1.28571	0	0	0	0	0	0	-0.0714286	0.0714286	0	0	0	0	0	0	2.67006	2.9																																																																																																																																																																																																																																																																																																																																																																																																																																																											
R8(u12)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	2.14286	0	0	0	0	0	10.8571	-10.8571	0	0	0	0	0	0	-1.28571	1.28571	0	0	0	0	0	0	0.253818																																																																																																																																																																																																																																																																																																																																																																																																																																																												
R9(s9)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	-0.857143	0	0	0	0	0	-1.14286	1.14286	0	0	0	0	0	0	0.714286	-0.714286	0	0	0	0	0	0	1.81875	2.2																																																																																																																																																																																																																																																																																																																																																																																																																																																											
R10(a10)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	-1	1	0	0	0	0	-2.71429	0	0	0	0	0	-10.2857	10.2857	0	0	0	0	0	0	1.42857	-1.42857	0	0	0	0	0	0	0.35045	0.071																																																																																																																																																																																																																																																																																																																																																																																																																																																											
R11(a11)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	-1.57143	0	0	0	0	0	-4.42857	4.42857	0	0	0	0	0	0	1.14286	-1.14286	0	0	0	0	0	0	1.14825	0.39																																																																																																																																																																																																																																																																																																																																																																																																																																																											
R12(u17)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.71429	0	0	0	1	-1	9.28571	-9.28571	0	0	0	0	0	0	-1.42857	1.42857	0	0	0	0	0	0	0.494682																																																																																																																																																																																																																																																																																																																																																																																																																																																												
R13(u22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5	0	0	0	0	0	3	-3	0	0	1	-1	0	0	-0.5	0.5	0	0	0	0	0	0	0.595339																																																																																																																																																																																																																																																																																																																																																																																																																																																												
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.214286	0	0	0	0	0	0.285714	-0.285714	0	0	0	0	0	0	0.0714286	-0.0714286	0	0	0	0	0	0	4.23227																																																																																																																																																																																																																																																																																																																																																																																																																																																												
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	-0.214286	0	0	0	0	0	-2.28571	2.28571	0	0	0	0	0	0	-0.0714286	0.0714286	0	0	0	0	0	0	1.80208	1.1																																																																																																																																																																																																																																																																																																																																																																																																																																																											
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.67389																																																																																																																																																																																																																																																																																																																																																																																																																																																														
R17(u23)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.64286	0	0	0	0	0	5.85714	-5.85714	0	0	0	0	1	-1	-0.785714	0.785714	0	0	0	0	0	0	1.06726																																																																																																																																																																																																																																																																																																																																																																																																																																																												
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-2.28571	0	0	0	0	0	-11.7143	11.7143	0	0	0	0	0	0	1.57143	-1.57143	0	0	0	0	0	0	4.15977	0.53																																																																																																																																																																																																																																																																																																																																																																																																																																																											
R19(u13)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	1.71429	0	0	0	0	0	3.28571	-3.28571	0	0	0	0	0	0	-0.428571	0.428571	0	0	0	0	0	0	0.504088																																																																																																																																																																																																																																																																																																																																																																																																																																																												
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.785714	0	0	0	0	0	1.28571	-1.28571	1	0	0	0	0	0	0.0714286	-0.0714286	0	0	0	0	0	0	3.109																																																																																																																																																																																																																																																																																																																																																																																																																																																												
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.214286	0	0	0	0	0	1.71429	-1.71429	0	1	0	0	0	0	-0.0714286	0.0714286	0	0	0	0	0	0	2.42299																																																																																																																																																																																																																																																																																																																																																																																																																																																												
R22(u28)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.42857	0	0	0	0	0	3.57143	-3.57143	0	0	0	0	0	0	-0.857143	0.857143	0	0	0	0	1	-1	0.593744																																																																																																																																																																																																																																																																																																																																																																																																																																																												
R23(u15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.14286	1	-1	0	0	0	-0.142857	0.142857	0	0	0	0	0	0	0.285714	0.285714	0	0	0	0	0	0	12.3499	12.																																																																																																																																																																																																																																																																																																																																																																																																																																																											
R24(u27)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.07143	0	0	0	0	0	6.42857	-6.42857	0	0	0	0	0	0	-0.642857	0.642857	0	0	0	1	-1	0	2.0316																																																																																																																																																																																																																																																																																																																																																																																																																																																												
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.78571	0	0	0	0	0	4.71429	-4.71429	0	0	0	0	0	0	1.07143	-1.07143	1	0	0	0	0	0	4.85697	1.4																																																																																																																																																																																																																																																																																																																																																																																																																																																											
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.357143	0	0	0	0	0	-2.14286	2.14286	0	0	0	0	0	0	-0.214286	0.214286	0	0	0	0	0	0	2.40719																																																																																																																																																																																																																																																																																																																																																																																																																																																												
R27(u26)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.28571	0	0	0	0	0	6.71429	-6.71429	0	0	0	0	0	0	-0.571429	0.571429	0	1	-1	0	0	0	1.82447																																																																																																																																																																																																																																																																																																																																																																																																																																																												
R28(u4)	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-4	4	0	0	0	0	0	0	0	0	0	0	0	0	0.228727	0.10																																																																																																																																																																																																																																																																																																																																																																																																																																																													

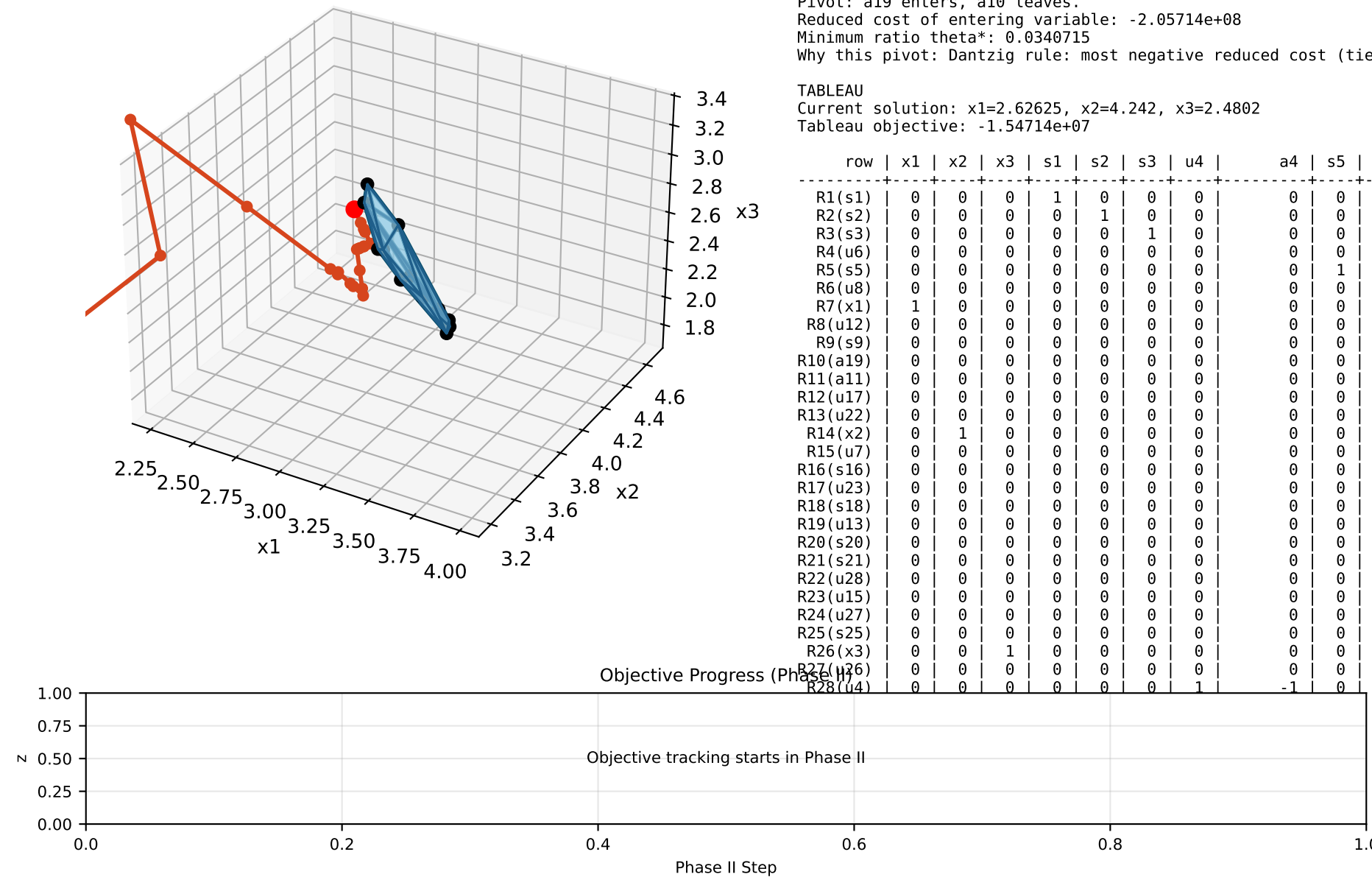
Objective Progress (Phase II)

Objective tracking starts in Phase II

Phase II Step

Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 22/31 | BIG-M step 21 | ENTER: a19 | LEAVE: a10

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: a19 enters, a10 leaves.

Reduced cost of entering variable: -2.05714e+08

Minimum ratio theta\*: 0.0340715

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution: x1=2.62625, x2=4.242, x3=2.4802

Tableau objective: -1.54714e+07

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio																																																																																																																																																																																																																																																																											
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-0.125	0.125	0	0	0	0	0	0	0	-0.125	0	0	0	0	0	0	0	0	0	0	0	0	0.25	-0.25	0	0	0	0	0	0	0	0	9.37375	inf																																																																																																																																																																																																																																																																											
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.0277778	-0.0277778	0	0	0	0	0	0	0	-0.138889	0	0	0	0	0	0	0	0	0	0	0	0	-0.111111	0.111111	0	0	0	0	0	0	0	0	0	0	7.758	27.1871																																																																																																																																																																																																																																																																									
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.208333	-0.208333	0	0	0	0	0	0	0	0.208333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.5198	4.47664																																																																																																																																																																																																																																																																										
R4(u6)	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	-0.416667	0.416667	0	0	0	0	0	0	0	-0.416667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.11692	inf																																																																																																																																																																																																																																																																										
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.875	-0.875	0	0	0	0	0	0	0	0.875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.25	-0.25	0	0	0	0	0	0	0	0	2.55268	0.317702																																																																																																																																																																																																																																																																									
R6(u8)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	-0.138889	0.138889	0	0	0	0	0	0	0	0.694444	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0719964	inf																																																																																																																																																																																																																																																																										
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.125	-0.125	0	0	0	0	0	0	0	0.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.62625	2.07671																																																																																																																																																																																																																																																																										
R8(u12)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.05556	1.05556	0	0	1	-1	0	0	0	-0.722222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.623737	inf																																																																																																																																																																																																																																																																										
R9(s9)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.111111	-0.111111	0	0	0	0	0	0	0	-0.555556	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.77981	1.59141																																																																																																																																																																																																																																																																										
R10(a19)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0972222	0.0972222	0	0	0	0	0	0	0	-0.263889	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0340715	0.0340715																																																																																																																																																																																																																																																																										
R11(a11)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.430556	-0.430556	-1	1	0	0	0	0	0	-0.402778	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.997363	0.259283																																																																																																																																																																																																																																																																										
R12(u17)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.902778	0.902778	0	0	0	0	0	0	0	-0.736111	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.81106	inf																																																																																																																																																																																																																																																																										
R13(u22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.291667	0.291667	0	0	0	0	0	0	0	0.708333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.697554	inf																																																																																																																																																																																																																																																																										
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0277778	0.0277778	0	0	0	0	0	0	0	0.138889	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.242	inf																																																																																																																																																																																																																																																																										
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0.222222	-0.222222	0	0	0	0	0	0	0	0.388889	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.7242	0.788409																																																																																																																																																																																																																																																																									
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.67389	inf																																																																																																																																																																																																																																																																											
R17(u23)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.569444	0.569444	0	0	0	0	0	0	0	0.0972222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.26682	inf																																																																																																																																																																																																																																																																								
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.13889	-1.13889	0	0	0	0	0	0	0	0.805556	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.76064	0.355102																																																																																																																																																																																																																																																																								
R19(u13)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.319444	0.319444	0	0	0	0	0	1	-1	0.847222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.616037	inf																																																																																																																																																																																																																																																																									
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.125	0.125	0	0	0	0	0	0	0	-1.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.15281	inf																																																																																																																																																																																																																																																																									
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.166667	0.166667	0	0	0	0	0	0	0	-0.666667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.4814	inf																																																																																																																																																																																																																																																																									
R22(u28)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.347222	0.347222	0	0	0	0	0	0	0	0.486111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0.715428	inf																																																																																																																																																																																																																																																																							
R23(u15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0138889	-0.0138889	0	0	0	0	0	0	0	1.18056	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.22779	8.62857																																																																																																																																																																																																																																																																								
R24(u27)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.625	0.625	0	0	0	0	0	0	0	0.375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.25063	inf																																																																																																																																																																																																																																																																									
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.458333	-0.458333	0	0	0	0	0	0	0	-0.541667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.69635	1.03027																																																																																																																																																																																																																																																																									
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.208333	0.208333	0	0	0	0	0	0	0	-0.208333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.4802	inf																																																																																																																																																																																																																																																																									
R27(u26)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.652778	0.652778	0	0	0	0	0	0	0	-0.486111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.05324	inf																																																																																																																																																																																																																																																																									
R28(u4)	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0.388889	-0.388889	0	0	0	0	0	0	0	1.05556	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0924408	0.0571818																																																																																																																																																																																																																																																																									
ase(u1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

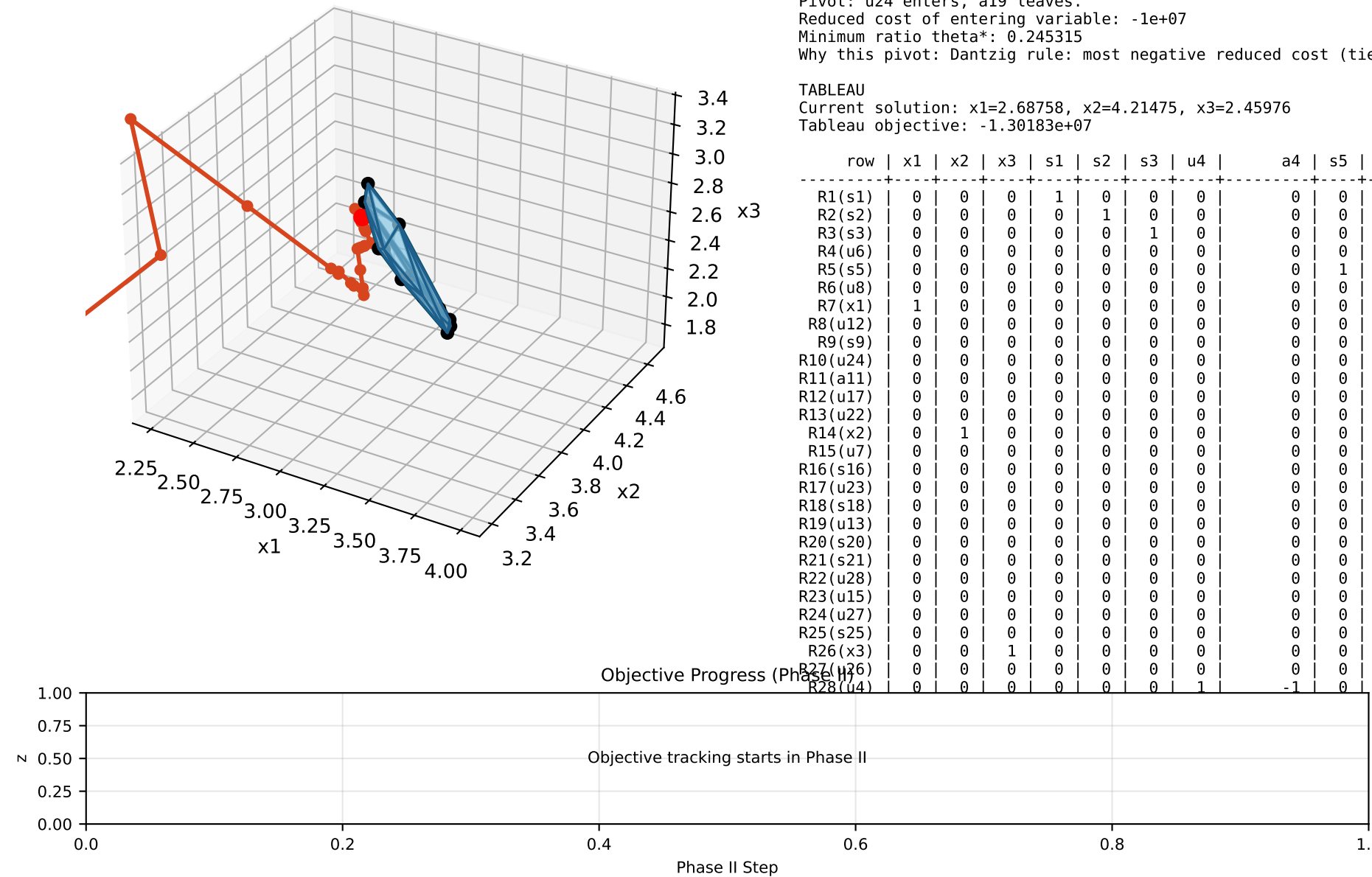
Objective Progress (Phase II)

Objective tracking starts in Phase II

Phase II Step

Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 23/31 | BIG-M step 22 | ENTER: u24 | LEAVE: a19

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u24 enters, a19 leaves.

Reduced cost of entering variable: -1e+07

Minimum ratio theta\*: 0.245315

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution: x1=2.68758, x2=4.21475, x3=2.45976

Tableau objective: -1.30183e+07

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio					
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05	-0.05	0	0	0	0	0	0	0.35	0	0	0	0	0	0	1.8	-1.8	0	0	0	0	0	0	0	0	0	0	0	0	0	9.31242	37.495						
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	-0.05	0.05	0	0	0	0	0	0	0	-0.35	0	0	0	0	0	0	-0.8	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.78525	inf					
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.15	-0.15	0	0	0	0	0	0	0	0.05	0	0	0	0	0	0	-0.6	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.54024	inf					
R4(u6)	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	-0.3	0.3	0	0	0	0	0	0	0	-0.1	0	0	0	0	0	0	1.2	-1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.07603	6.70151					
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1.05	-1.05	0	0	0	0	0	0	1.35	0	0	0	0	0	0	1.8	-1.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.49135	10.2107					
R6(u8)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	-0.45	0.45	0	0	0	0	0	0	0	-0.15	0	0	0	0	0	0	-3.2	3.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.181025	inf					
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.05	0.05	0	0	0	0	0	0	0	-0.35	0	0	0	0	0	0	-1.8	1.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.68758	inf					
R8(u12)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.9	0.9	0	0	1	-1	0	0	0	-0.3	0	0	0	0	0	0	1.6	-1.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.569223	2.80682					
R9(s9)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.5	-0.5	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	4	-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.64352	3.20366				
R10(u24)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.7	0.7	0	0	0	0	0	0	0	-1.9	0	0	0	0	0	0	-7.2	7.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.245315	0.245315					
R11(a11)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	-0.8	-1	1	0	0	0	0	0	0.6	0	0	0	0	0	0	3.8	-3.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.867892	1.88974				
R12(u17)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	1	0	0	0	0	0	0	0	-1	0	0	0	1	-1	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.845132	inf					
R13(u22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.35	0.35	0	0	0	0	0	0	0	0.55	0	0	0	0	0	0	-0.6	0.6	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0.717997	inf			
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05	-0.05	0	0	0	0	0	0	0	0.35	0	0	0	0	0	0	0.8	-0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.21475	38.178			
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	-0.05	0.05	0	0	0	0	0	0	0	-0.35	0	0	0	0	0	0	-2.8	2.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.8196	inf				
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	-0.7	0	0	0	0	0	0	0	1.9	0	0	1	0	0	0	7.2	-7.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.42857	5.67389			
R17(u23)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.55	0.55	0	0	0	0	0	0	0	0.15	0	0	0	0	0	0	0.2	-0.2	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	1.26	45.6055		
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.1	-1.1	0	0	0	0	0	0	0	0.7	0	0	0	0	0	0	-0.4	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.77427	inf		
R19(u13)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.3	0.3	0	0	0	0	1	-1	0	0.9	0	0	0	0	0	0	0.2	-0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.609223	22.1773		
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05	-0.05	0	0	0	0	0	0	0	-0.65	0	0	0	0	0	0	1.8	-1.8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.09148	12.6112		
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.05	0.05	0	0	0	0	0	0	0	-0.35	0	0	0	0	0	0	1.2	-1.2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.44052	14.8884			
R22(u28)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.6	0.6	0	0	0	0	0	0	0	-0.2	0	0	0	0	0	0	-2.6	2.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.804014	inf		
R23(u15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.2	0.2	0	0	0	0	0	0	0	0.6	1	-1	0	0	0	0	-2.2	2.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.30274	inf	
R24(u27)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.45	0.45	0	0	0	0	0	0	0	0.85	0	0	0	0	0	0	1.8	-1.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.1893	9.00253
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.75	-0.75	0	0	0	0	0	0	0	0.25	0	0	0	0	0	0	3	-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.59413	11.2712
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.15	0.15	0	0	0	0	0	0	0	-0.05	0	0	0	0	0	0	0.6	-0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.45976	29.7625	
R27(u26)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.4	0.4	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	2.6	-2.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.96465	5.68589
R28(u4)	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.228727	inf	
base	0	0	0	0	0	0	0	0	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	-1.2e+07	2.7e+07	1.5e+07	0	0	1.5e+07	0	1.5e+07	-9e+06	0	1.5e+07	0	0	1.5e+07	0	-5.7e+07	7.2e+07	0	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	-1.30183e+07	-					



State 24/31 | BIG-M step 23 | ENTER: u19 | LEAVE: a11

## COMMENTS

Teaching Mode | Rule: DANTZIC

Pivot: u19 enters, a11 leaves

Reduced cost of entering variable:  $-5.7e+0$

```
Minimum ratio theta*: 0.22839
```

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution:  $x_1=3.09869$ ,  $x_2=4.03203$ ,  $x_3=2.3227$

Tableau objective: 114.673

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio							
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-0.328947	0.328947	0.473684	-0.473684	0	0	0	0	0.0657895	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.90131	5.17357								
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.118421	-0.118421	-0.210526	0.210526	0	0	0	0	-0.223684	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.96797	inf							
R3(s3)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.276316	-0.276316	-0.157895	0.157895	0	0	0	0	0.144737	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.67727	inf							
R4(u6)	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	-0.552632	0.552632	0.315789	-0.315789	0	0	0	0	-0.289474	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.801961	0.89669								
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.671053	-0.671053	0.473684	-0.473684	0	0	0	0	1.06579	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.08024	1.38408							
R6(u8)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0.223684	-0.223684	-0.842105	0.842105	0	0	0	0	0.355263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.911881	inf							
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.328947	-0.328947	-0.473684	0.473684	0	0	0	0	-0.0657895	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.09869	inf							
R8(u12)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.23684	1.23684	0.421053	-0.421053	1	-1	0	0	-0.552632	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.203795	0.355764							
R9(s9)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-0.342105	0.342105	1.05263	-1.05263	0	0	0	0	-0.131579	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.729953	0.410881							
R10(u24)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.815789	-0.815789	-1.89474	1.89474	0	0	0	0	-0.763158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	1.88974	inf						
R11(u19)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.210526	-0.210526	-0.263158	0.263158	0	0	0	0	0.157895	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.228393	0.228393							
R12(u17)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.789474	0.789474	0.263158	-0.263158	0	0	0	0	-0.842105	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.07352	inf							
R13(u22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.223684	0.223684	-0.157895	0.157895	0	0	0	0	0.644737	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0.855033	inf							
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.118421	0.118421	0.210526	-0.210526	0	0	0	0	0.223684	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.03203	5.26843							
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0.539474	-0.539474	0.736842	-0.736842	0	0	0	0	0.0921053	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.4591	inf				
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.815789	0.815789	1.89474	-1.89474	0	0	0	0	0.763158	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.78415	0.753968				
R17(u23)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.592105	0.592105	0.0526316	-0.0526316	0	0	0	0	0.118421	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	1.21433	6.30002						
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.18421	-1.18421	-0.105263	0.105263	0	0	0	0	0.763158	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.86563	inf							
R19(u13)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.342105	0.342105	0.0526316	-0.0526316	0	0	0	1	-0.868421	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.563544	3.04611							
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.328947	0.328947	0.473684	-0.473684	0	0	0	0	-0.934211	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2.68037	1.71749						
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.302632	0.302632	0.315789	-0.315789	0	0	0	0	-0.539474	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2.16645	2.03376						
R22(u28)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0526316	0.0526316	-0.684211	0.684211	0	0	0	0	0.210526	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	1.39783	inf				
R23(u15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.263158	0.263158	-0.578947	0.578947	0	0	0	0	0.947368	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.80521	inf						
R24(u27)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.828947	0.828947	0.473684	-0.473684	0	0	0	0	0.565789	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.7782	1.21628		
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.118421	-0.118421	0.789474	-0.789474	0	0	0	0	-0.223684	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.90896	1.53138		
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.276316	0.276316	0.157895	-0.157895	0	0	0	0	0.144737	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.32273	4.0996		
R27(u26)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.947368	0.947368	0.684211	-0.684211	0	0	0	0	-0.210526	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.37083	0.755636		
R28(u4)	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0.842105	-0.842105	-1.05263	1.05263	0	0	0	0	0.631579	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.1423	inf	
base	0	0	0	0	0	0	0	0	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	0.434211	1.5e+07	-3.10526	1.5e+07	0	1.5e+07	0	1.5e+07	-0.486842	0	1.5e+07	0	0	0	1.5e+07	0	1.5e+07	0	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	114.673	

Objective Progress (Phase 1)

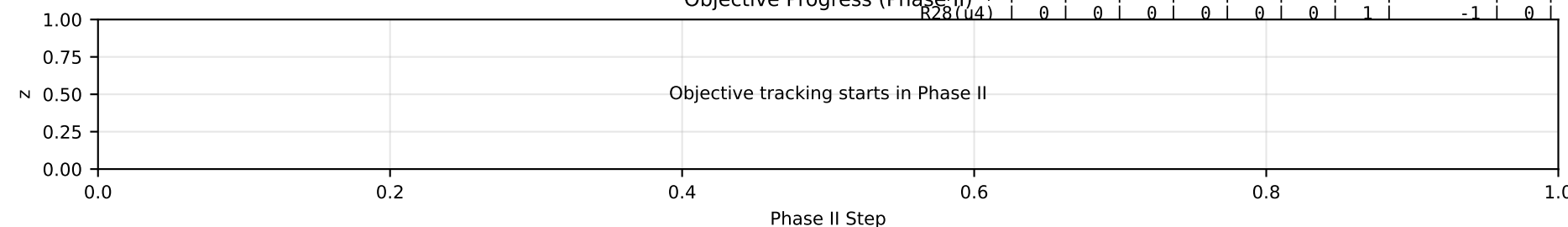
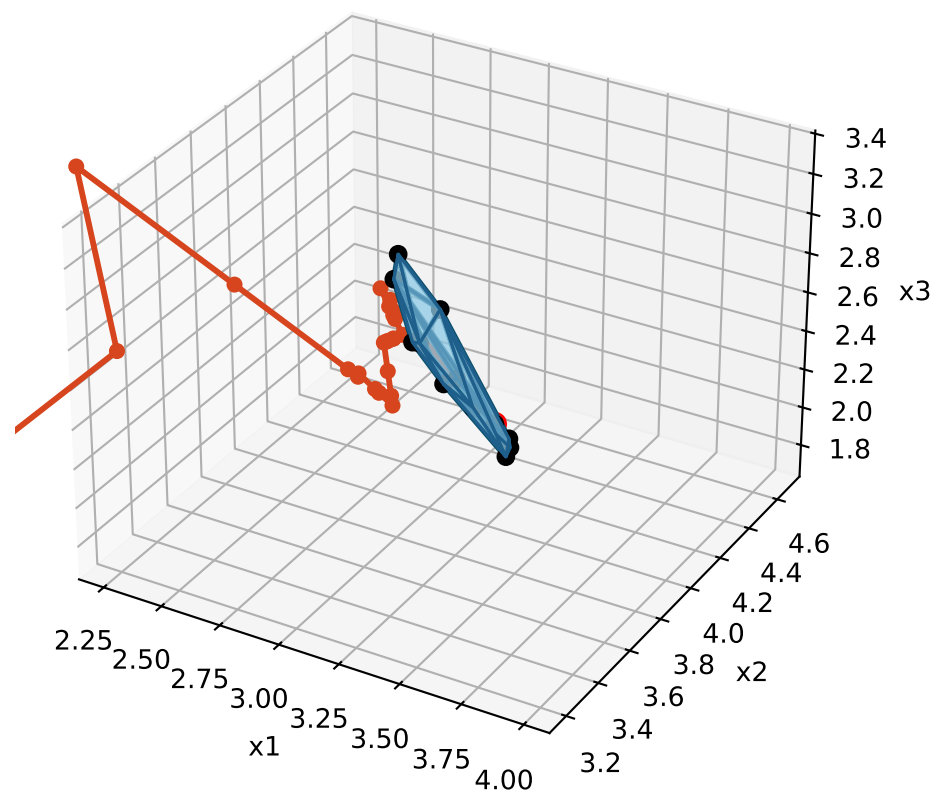
Objective tracking starts in Phase

### Phase II Step

### Phase II Step

## Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 25/31 | BIG-M step 24 | ENTER: u11 | LEAVE: u12

COMMENTS

Teaching Mode | Rule: DANTZI

Pivot: u11 enters, u12 leaves

Reduced cost of entering variable: -3.1052

Minimum ratio theta\*: 0.48401

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

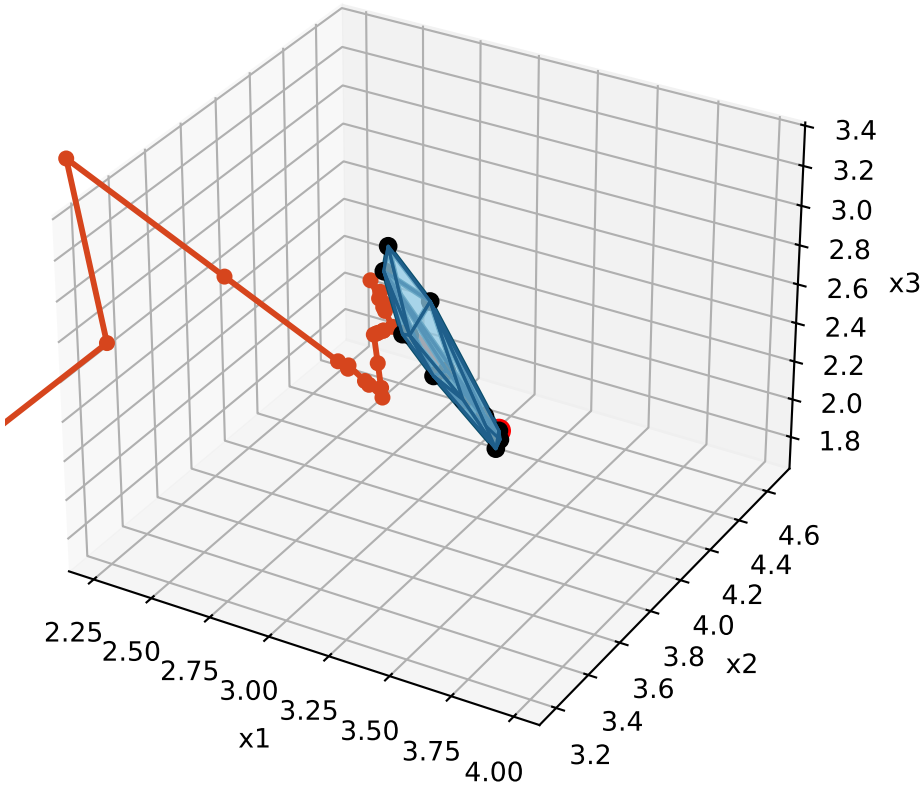
Current solution:  $x_1=3.32795$ ,  $x_2=3.93014$ ,  $x_3=2.2463$

Tableau objective: 116.176

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio									
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1.0625	-1.0625	0	0	-1.125	1.125	0	0	0.6875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.67205	18.7917								
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	-0.5	0.5	0	0	0.5	-0.5	0	0	-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.06986	inf								
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	-0.1875	0.1875	0	0	0.375	-0.375	0	0	-0.0625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.7537	inf							
R4(u6)	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0.375	-0.375	0	0	-0.75	0.75	0	0	0.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.649115	2.53954								
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2.0625	-2.0625	0	0	-1.125	1.125	0	0	1.6875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.85097	4.39162						
R6(u8)	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	-2.25	2.25	0	0	2	-2	0	0	-0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.31947	inf						
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.0625	1.0625	0	0	1.125	-1.125	0	0	-0.6875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.32795	inf					
R8(u11)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-2.9375	2.9375	1	-1	2.375	-2.375	0	0	-1.3125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.484012	0.484012					
R9(s9)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2.75	-2.75	0	0	-2.5	2.5	0	0	1.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.220467	0.693456				
R10(u24)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-4.75	4.75	0	0	4.5	-4.5	0	0	-3.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	2.80682	inf						
R11(u19)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.5625	0.5625	0	0	0.625	-0.625	0	0	-0.1875	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.355764	inf					
R12(u17)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.5625	1.5625	0	0	0.625	-0.625	0	0	-1.1875	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.2009	inf				
R13(u22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.6875	0.6875	0	0	0.375	-0.375	0	0	0.4375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0.931456	inf					
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	-0.5	0	0	-0.5	0.5	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.93014	19.1522					
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	-1.625	1.625	0	0	1.75	-1.75	0	0	-0.875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.81574	inf					
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.75	-4.75	0	0	-4.5	4.5	0	0	3.25	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.86707	1.99719				
R17(u23)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.4375	0.4375	0	0	-0.125	0.125	0	0	0.1875	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.8885	23.0722					
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.875	-0.875	0	0	0.25	-0.25	0	0	0.625	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.91658	inf					
R19(u13)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.1875	0.1875	0	0	-0.125	0.125	1	-1	0.9375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.53807	10.7073					
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0625	-1.0625	0	0	-1.125	1.125	0	0	-0.3125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.65856	2.4511			
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.625	-0.625	0	0	-0.75	0.75	0	0	-0.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.0136	6.86041				
R22(u28)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-2.0625	2.0625	0	0	1.625	-1.625	0	0	-0.6875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	3.52684	4.95134
R23(u15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.4375	1.4375	0	0	1.375	-1.375	0	0	0.1875	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.08542	inf			
R24(u27)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5625	-0.5625	0	0	-1.125	1.125	0	0	1.1875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.54893	3.75397		
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.4375	-2.4375	0	0	-1.875	1.875	0	0	0.8125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.52684	4.95134		
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1875	-0.1875	0	0	-0.375	0.375	0	0	0.0625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.2463	14.7106			
R27(u26)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0625	-1.0625	0	0	-1.625	1.625	0	0	0.6875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.03967	2.00352		
R28(u4)	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	-2.25	2.25	0	0	2.5	-2.5	0	0	-0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.65178	inf			
phase1										0	1.5e+07	0	1.5e+07	0	1.5e+07	0	-8.6875	1.5e+07	0	1.5e+07	7.375	1.5e+07	0	1.5e+07	-4.5625	0	1.5e+07	0	0	1.5e+07	0	0	1.5e+07	0	0	0	1.5e+07	0	1.5e+07	0	0	1.5e+07	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	116.176									

Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 26/31 | BIG-M step 25 | ENTER: u10 | LEAVE: s9

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u10 enters, s9 leaves.

Reduced cost of entering variable: -8.6875

Minimum ratio theta\*: 0.0801697

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution: x1=3.41314, x2=3.89005, x3=2.23127

Tableau objective: 116.873

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio							
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	-0.386364	0	0	0	0	-0.159091	0.159091	0	0	0.204545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.58686	8.16193							
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.181818	0	0	0	0	0.0454545	-0.0454545	0	0	-0.272727	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.10995	inf					
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.0681818	0	0	0	0	0.204545	-0.204545	0	0	0.0227273	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.76873	inf				
R4(u6)	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	-0.136364	0	0	0	0	-0.409091	0.409091	0	0	-0.0454545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.619051	1.73097				
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	-0.75	0	0	0	0	0.75	-0.75	0	0	0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.68562	0.897442				
R6(u8)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0.818182	0	0	0	0	-0.0454545	0.0454545	0	0	0.272727	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.49985	inf		
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.386364	0	0	0	0	0.159091	-0.159091	0	0	-0.204545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.41314	inf		
R8(u11)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.06818	0	0	1	-1	-0.295455	0.295455	0	0	0.0227273	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.719511	inf		
R9(u10)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.363636	1	-1	0	0	-0.909091	0.909091	0	0	0.454545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0801697	0.0801697		
R10(u24)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.72727	0	0	0	0	0.181818	-0.181818	0	0	-1.09091	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.18762	inf		
R11(u19)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.204545	0	0	0	0	0.113636	-0.113636	0	0	0.0681818	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40086	inf	
R12(u17)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.568182	0	0	0	0	-0.795455	0.795455	0	0	-0.477273	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.32616	inf		
R13(u22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.25	0	0	0	0	-0.25	0.25	0	0	0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.986572	inf		
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.181818	0	0	0	0	-0.0454545	0.0454545	0	0	0.272727	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.89005	7.86027		
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0.590909	0	0	0	0	0.272727	-0.272727	0	0	-0.136364	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.94601	inf		
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.72727	0	0	0	0	-0.181818	0.181818	0	0	1.09091	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.48626	0.603594	
R17(u23)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.159091	0	0	0	0	-0.522727	0.522727	0	0	0.386364	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.22393	inf		
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.318182	0	0	0	0	1.04545	-1.04545	0	0	0.227273	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.84643	4.47609	
R19(u13)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0681818	0	0	0	0	-0.295455	0.295455	1	-1	1.02273	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.553102	inf		
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.386364	0	0	0	0	-0.159091	0.159091	0	0	-0.795455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.36592	2.30692		
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.227273	0	0	0	0	-0.181818	0.181818	0	0	-0.409091	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.96349	3.22176		
R22(u28)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.75	0	0	0	0	-0.25	0.25	0	0	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.89435	inf
R23(u15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.522727	0	0	0	0	0.0681818	-0.0681818	0	0	0.840909	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.20067	inf		
R24(u27)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.204545	0	0	0	0	-0.613636	0.613636	0	0	0.931818	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.50383	2.75365		
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.886364	0	0	0	0	-0.340909	-0.340909	0	0	-0.295455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.33143	1.44691		
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-0.0681818	0	0	0	0	-0.204545	0.204545	0	0	-0.0227273	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.23127	11.9803		
R27(u26)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.386364	0	0	0	0	-0.659091	0.659091	0	0	0.204545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.954486	0.978509		
R28(u4)	0	0	0	0																																																					

Objective Progress (Phase II)

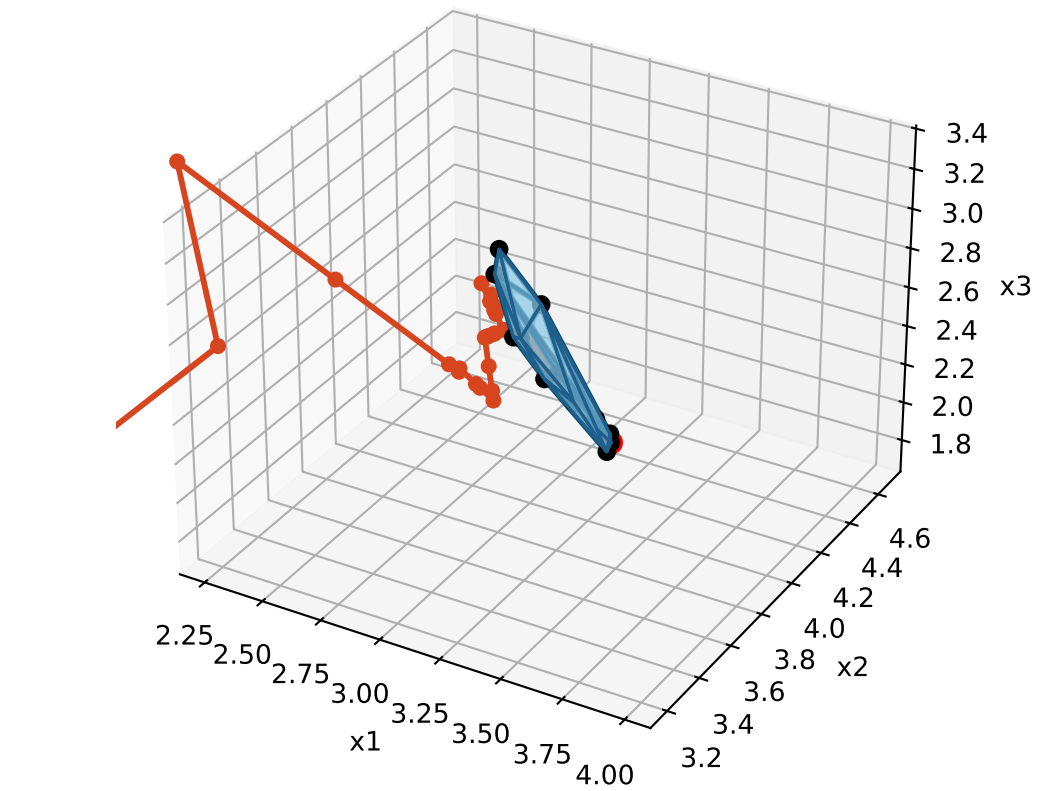
Objective tracking starts in Phase II

Phase II Step



Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 27/31 | BIG-M step 26 | ENTER: s14 | LEAVE: u10

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: s14 enters, u10 leaves.

Reduced cost of entering variable: -0.613636

Minimum ratio theta\*: 0.176373

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution: x1=3.44921, x2=3.84195, x3=2.23528

Tableau objective: 116.981

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio			
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	-0.55	-0.45	0.45	0	0	0.25	-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.55079	41.9802			
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.4	0.6	-0.6	0	0	-0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.15805	inf		
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.05	-0.05	0.05	0	0	0.25	-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.76472	429.824		
R4(u6)	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	-0.1	0.1	-0.1	0	0	-0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.627068	inf		
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	-1.35	-1.65	1.65	0	0	2.25	-2.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.55334	2.2475		
R6(u8)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0.6	-0.6	0.6	0	0	0.5	-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.45175	5.49946	
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.55	0.45	-0.45	0	0	-0.25	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.44921	inf		
R8(u11)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.05	-0.05	0.05	1	-1	-0.25	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.715502	31.6585		
R9(s14)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	2.2	-2.2	0	0	-2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.176373	0.176373	
R10(u24)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.6	2.4	-2.4	0	0	-2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	3.38003	inf
R11(u19)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.15	-0.15	0.15	0	0	0.25	-0.25	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.388834	5.87927		
R12(u17)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.95	1.05	-1.05	0	0	-1.75	1.75	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.41034	inf	
R13(u22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.35	-1.65	1.65	0	0	1.25	-1.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.854292	1.31543	
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.4	-0.6	0.6	0	0	0.5	-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.84195	14.2635	
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0.7	0.3	-0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.97007	inf	
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-2.6	-2.4	2.4	0	0	2	-2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.29386	2.27908
R17(u23)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.15	-0.85	0.85	0	0	0.25	-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	1.15578	3.16781	
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.5	-0.5	0.5	0	0	1.5	-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.80634	16.9243
R19(u13)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.75	-2.25	2.25	0	0	1.75	-1.75	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.37272	0.540811	
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.25	1.75	-1.75	0	0	-1.75	1.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.50622	inf	
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.9	-0.9	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.03565	inf
R22(u28)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.55	-0.55	0.55	0	0	0.25	-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8.5026	7.5774
R23(u15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.15	-1.85	1.85	0	0	1.75	-1.75	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.05235	2.61701	
R24(u27)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.95	-2.05	2.05	0	0	1.25	-1.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.33949	1.61387	
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.65	0.65	-0.65	0	0	-0.25	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.38354	inf	
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-0.05	0.05	-0.05	0	0	-0.25	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.23528	inf	
R27(u26)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.55	-0.45	0.45	0	0	-0.25	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.91841	4.66638	
R28(u4)	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0.6	-0.6	0.6	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.78406	6.71794
Obj											1.5e+07		1.5e+07		1.5e+07	3.65	1.35	1.5e+07		1.5e+07	-1.75	1.5e+07		1.5e+07			1.5e+07			1.5e+07			1.5e+07			1.5e+07			1.5e+07			1.5e+07			1.5e+07			1.5e+07			116.981	-	

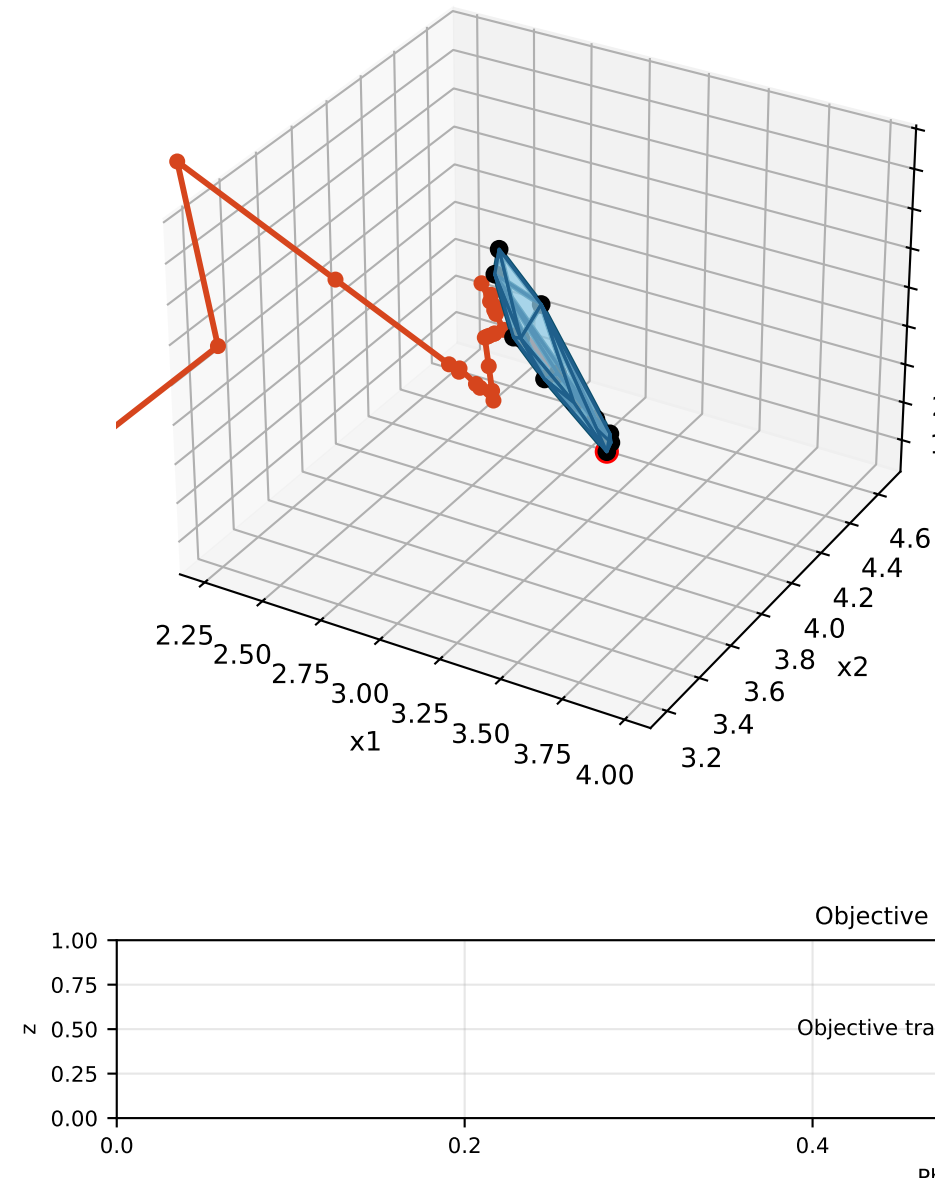
Objective Progress (Phase II)

Objective tracking starts in Phase II

Phase II Step

Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 28/31 | BIG-M step 27 | ENTER: u12 | LEAVE: u13

COMMENTS

Teaching Mode | Rule: DANTZIG

Pivot: u12 enters, u13 leaves.

Reduced cost of entering variable: -1.75

Minimum ratio theta\*: 0.212983

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution:  $x_1=3.50246$ ,  $x_2=3.73546$ ,  $x_3=2.28853$

Tableau objective: 117.354

row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratio								
R1(s1)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	-0.442857	-0.128571	0.128571	0	0	0	0	-0.142857	0.142857	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.49754	34.2032								
R2(s2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.185714	-0.0428571	0.0428571	0	0	0	0	0.285714	-0.285714	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.26454	inf						
R3(s3)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.157143	0.271429	-0.271429	0	0	0	0	-0.142857	0.142857	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.71147	39.0589						
R4(u6)	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	-0.314286	-0.542857	0.542857	0	0	0	0	0.285714	-0.285714	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.73356	inf					
R5(s5)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	-0.385714	1.24286	-1.24286	0	0	0	0	-1.28571	1.28571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.07413	0.690375					
R6(u8)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0.814286	0.0428571	-0.0428571	0	0	0	0	-0.285714	0.285714	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.34526	2.9035				
R7(x1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.442857	0.128571	-0.128571	0	0	0	0	0.142857	-0.142857	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.50246	inf					
R8(u11)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.942857	-0.371429	0.371429	1	-1	0	0	0.142857	-0.142857	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.768748	inf				
R9(s14)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0571429	-0.371429	0.371429	0	0	0	0	1.14286	-1.14286	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.602339	inf				
R10(u24)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.74286	-0.171429	0.171429	0	0	0	0	1.14286	-1.14286	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.806	inf				
R11(u19)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.257143	0.171429	-0.171429	0	0	0	0	-0.142857	0.142857	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.335588	1.55534					
R12(u17)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	-1.2	1.2	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.78306	inf				
R13(u22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.185714	-0.0428571	0.0428571	0	0	0	0	-0.714286	0.714286	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.588064	0.683434					
R14(x2)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.185714	0.0428571	-0.0428571	0	0	0	0	-0.285714	0.285714	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.73546	7.6839				
R15(u7)	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0.7	0.3	-0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.97007	inf				
R16(s16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.74286	0.171429	-0.171429	0	0	0	0	-1.14286	1.14286	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.86789	1.14693				
R17(u23)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0428571	-0.528571	0.528571	0	0	0	0	-0.142857	0.142857	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.10254	4.62313				
R18(s18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.142857	1.42857	-1.42857	0	0	0	0	-0.857143	0.857143	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.48687	2.53756				
R19(u12)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.428571	-1.28571	1.28571	0	0	1	-1	0.571429	-0.571429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.212983	0.212983				
R20(s20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.5	-0.5	0.5	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.87894	inf				
R21(s21)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.328571	-0.385714	0.385714	0	0	0	0	0.571429	-0.571429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.24863	inf				
R22(u28)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.657143	-0.228571	0.228571	0	0	0	0	-0.142857	0.142857	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7.40103				
R23(u15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6	0.4	-0.4	0	0	0	0	-1	1	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.67963	1.17277			
R24(u27)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.414286	-0.442857	0.442857	0	0	0	0	-0.714286	0.714286	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	1.07326	1.07159
R25(s25)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.757143	0.328571	-0.328571	0	0	0	0	0.142857	-0.142857	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.43678	inf				
R26(x3)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-0.157143	-0.271429	0.271429	0	0	0	0	0.142857	-0.142857	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.28853	inf				
R27(u16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.657143	-0.771429	0.771429	0	0	0	0	0.142857	-0.142857	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.971655	inf				
R28(u4)	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	1.02857	0.685714	-0.685714	0	0	0	0	-0.571429	0.571429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.57108	1.78406			
										1.5e+07			1.5e+07		1.5e+07		2.9	-0.9	1.5e+07		1.5e+07		1.5e+07	1	1.5e+07			1.5e+07			1.5e+07			1.5e+07			1.5e+07			1.5e+07			1.5e+07															

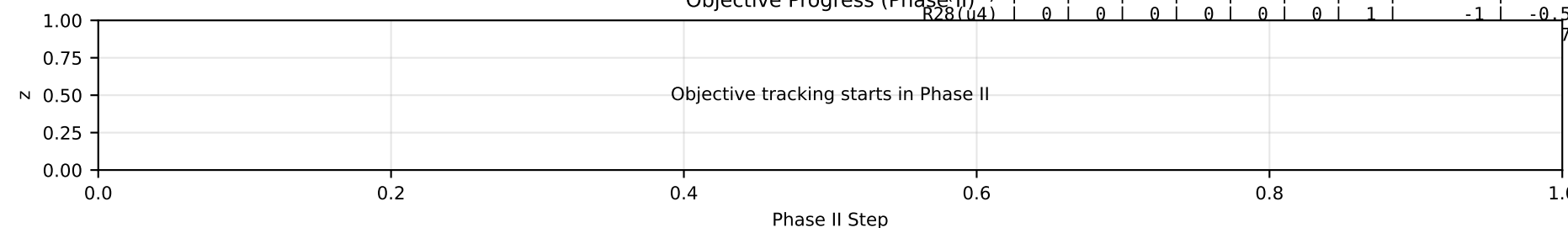
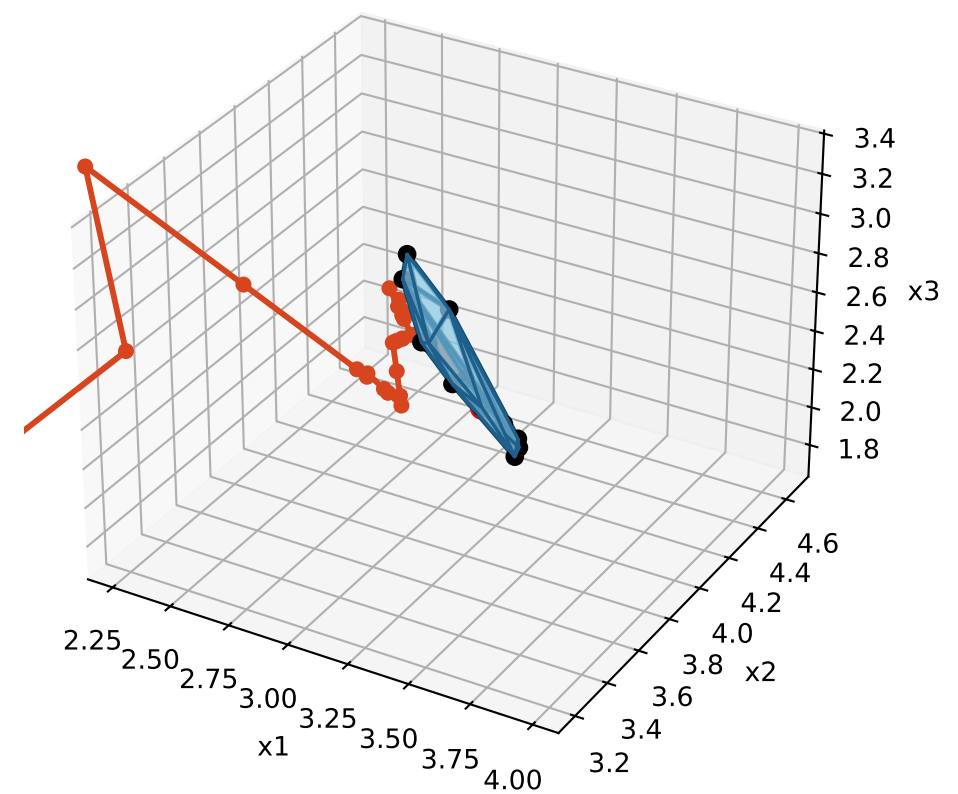
Objective Progress (Phase II)

Objective tracking starts in Phase II

Phase II Step

## Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path



State 29/31 | BIG-M step 28 | ENTER: u10 | LEAVE: s5

## COMMENTS

Teaching Mode | Rule: DANTZIC

Pivot: u10 enters, s5 leaves

Reduced cost of entering variable: -0.

Minimum ratio theta\*: 0.86424

Why this pivot: Dantzig rule: most negative reduced cost (ties by smallest index). Minimum-ratio test (ties by smallest row index).

TABLEAU

Current solution:  $x_1=3.39134$ ,  $x_2=3.69842$ ,  $x_3=2.52311$

Tableau objective: 118.132

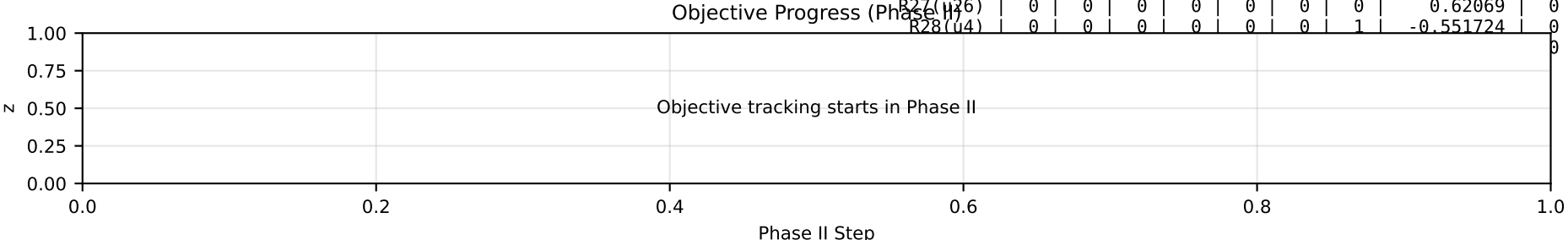
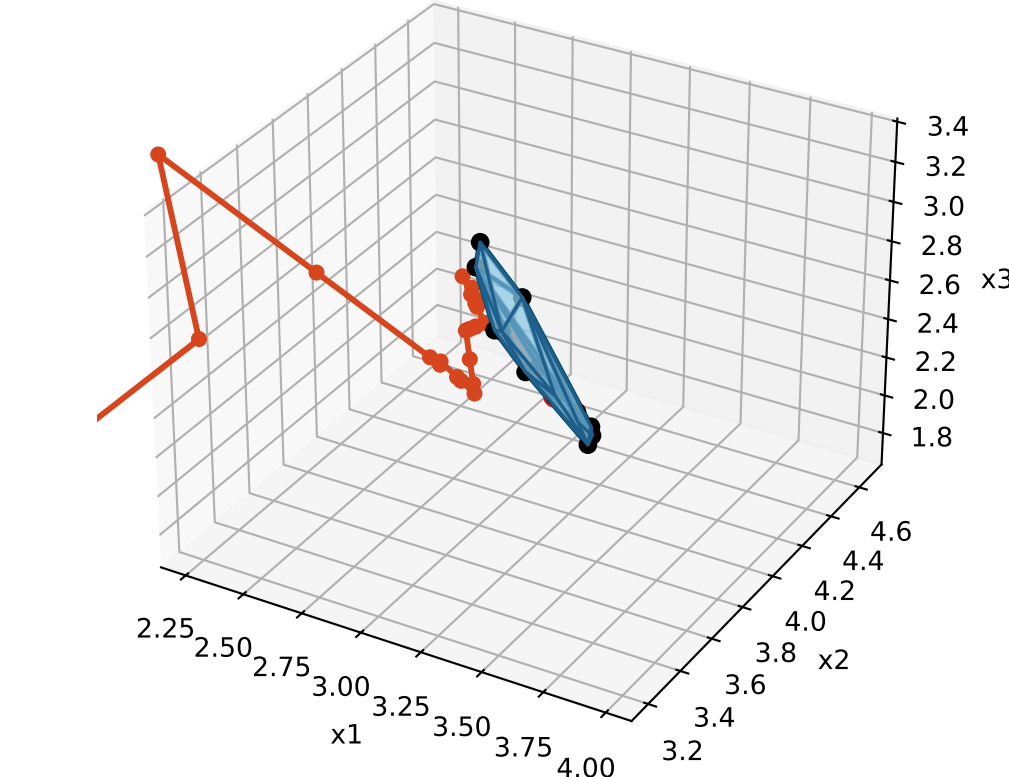
	row	x1	x2	x3	s1	s2	s3	u4	a4	s5	u6	a6	u7	a7	u8	a8	s9	u10	a10	u11	a11	u12	a12	u13	a13	s14	u15	a15	s16	u17	a17	s18	u19	a19	s20	s21	u22	a22	u23	a23	u24	a24	s25	u26	a26	u27	a27	u28	a28	rhs	ratic																																																																																																																																									
	R1(s1)	0	0	0	1	0	0	0	0	0.103448	0	0	0	0	0	0	-0.482759	0	0	0	0	0	0	-0.275862	0.275862	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.60866	inf																																																																																																																																											
	R2(s2)	0	0	0	0	1	0	0	0	0.0344828	0	0	0	0	0	0	0.172414	0	0	0	0	0	0	0.241379	-0.241379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.30158	inf																																																																																																																																									
	R3(s3)	0	0	0	0	0	1	0	0	-0.218391	0	0	0	0	0	0	0.241379	0	0	0	0	0	0	0.137931	-0.137931	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.47689	35.7791																																																																																																																																									
	R4(u6)	0	0	0	0	0	0	0	0	0.436782	1	-1	0	0	0	0	-0.482759	0	0	0	0	0	0	-0.275862	0.275862	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.20272	inf																																																																																																																																									
	R5(u10)	0	0	0	0	0	0	0	0	0.804598	0	0	0	0	0	0	-0.310345	1	-1	0	0	0	0	-1.03448	1.03448	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.864244	0.864244																																																																																																																																										
	R6(u8)	0	0	0	0	0	0	0	0	-0.0344828	0	0	0	0	1	-1	0.827586	0	0	0	0	0	0	-0.241379	0.241379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.30822	31.3894																																																																																																																																								
	R7(x1)	1	0	0	0	0	0	0	0	-0.103448	0	0	0	0	0	0	0.482759	0	0	0	0	0	0	0.275862	-0.275862	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.39134	27.2413																																																																																																																																								
	R8(u11)	0	0	0	0	0	0	0	0	0.298851	0	0	0	0	0	0	0.827586	0	0	0	1	-1	0	-0.241379	0.241379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.08975	inf																																																																																																																																							
	R9(s14)	0	0	0	0	0	0	0	0	0.298851	0	0	0	0	0	0	-0.172414	0	0	0	0	0	0	-0.758621	-0.758621	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.923344	inf																																																																																																																																								
	R10(u24)	0	0	0	0	0	0	0	0	0.137931	0	0	0	0	0	0	1.68966	0	0	0	0	0	0	0.965517	-0.965517	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	3.95415	inf																																																																																																																																								
	R11(u19)	0	0	0	0	0	0	0	0	-0.137931	0	0	0	0	0	0	0.310345	0	0	0	0	0	0	0.0344828	-0.0344828	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.187432	1.9576																																																																																																																																								
	R12(u17)	0	0	0	0	0	0	0	0	0.965517	0	0	0	0	0	0	-0.172414	0	0	0	0	0	0	-0.241379	0.241379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.82015	inf																																																																																																																																							
	R13(u22)	0	0	0	0	0	0	0	0	0.0344828	0	0	0	0	0	0	0.172414	0	0	0	0	0	0	-0.758621	0.758621	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.625103	inf																																																																																																																																							
	R14(x2)	0	1	0	0	0	0	0	0	-0.0344828	0	0	0	0	0	0	-0.172414	0	0	0	0	0	0	-0.241379	0.241379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.69842	87.1607																																																																																																																																							
	R15(u7)	0	0	0	0	0	0	0	0	-0.241379	0	0	1	-1	0	0	0.793103	0	0	0	0	0	0	0.310345	-0.310345	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.71079	9.90022																																																																																																																																						
	R16(s16)	0	0	0	0	0	0	0	0	-0.137931	0	0	0	0	0	0	-1.68966	0	0	0	0	0	0	-0.965517	0.965517	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.71974	10.896																																																																																																																																							
	R17(u23)	0	0	0	0	0	0	0	0	0.425287	0	0	0	0	0	0	-0.206897	0	0	0	0	0	0	-0.689655	0.689655	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.55935	inf																																																																																																																																							
	R18(s18)	0	0	0	0	0	0	0	0	-1.14943	0	0	0	0	0	0	0.586207	0	0	0	0	0	0	0.62069	-0.62069	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.25224	2.44081																																																																																																																																								
	R19(u12)	0	0	0	0	0	0	0	0	1.03448	0	0	0	0	0	0	-0.827586	0	0	0	0	0	0	0.758621	0.758621	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.32415	inf																																																																																																																																						
	R20(s20)	0	0	0	0	0	0	0	0	0.402299	0	0	0	0	0	0	-0.655172	0	0	0	0	0	0	0.482759	-0.482759	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.31106	inf																																																																																																																																						
	R21(s21)	0	0	0	0	0	0	0	0	0.310345	0	0	0	0	0	0	-0.448276	0	0	0	0	0	0	0.172414	-0.172414	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.58198	inf																																																																																																																																							
	R22(u28)	0	0	0	0	0	0	0	0	0.183908	0	0	0	0	0	0	0.586207	0	0	0	0	0	0	-0.37931	0.37931	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	1.99455	inf																																																																																																																																
	R23(u15)	0	0	0	0	0	0	0	0	-0.321839	0	0	0	0	0	0	0.724138	0	0	0	0	0	0	-0.586207	0.586207	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.33394	4.19909																																																																																																																																					
	R24(u27)	0	0	0	0	0	0	0	0	0.356322	0	0	0	0	0	0	-0.551724	0	0	0	0	0	0	-1.17241	1.17241	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	1.45599	inf																																																																																																																															
	R25(s25)	0	0	0	0	0	0	0	0	-0.264368	0	0	0	0	0	0	-0.655172	0	0	0	0	0	0	0.482759	-0.482759	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.15282	10.4598																																																																																																																																				
	R26(x3)	0	0	0	1	0	0	0	0	0.218391	0	0	0	0	0	0	-0.241379	0	0	0	0	0	0	0.137931	-0.137931	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.52311	inf																																																																																																																																					
	R27(u26)	0	0	0	0	0	0	0	0	0.62069	0	0	0	0	0	0	-0.896552	0	0	0	0	0	0	-0.655172	0.655172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	1.63836	inf																																																																																																																												
	R28(u4)	0	0	0	0	0	1	-1	-0.551724	0	0	0	0	0	0	0	1.24138	0	0	0	0	0	0	0.137931	-0.137931	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.978457	2.29116																																																																																																																																		
	phase 11									724138	0	1.5e+07	0	1.5e+07	0	1.5e+07	2.62069	0	1.5e+07	0	1.5e+07	0	1.5e+07	0.0689656	1.5e+07	0	0	1.5e+07	0	0	1.5e+07	0	0	1.5e+07	0	0	1.5e+07	0	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	1.5e+07	0	



State 30/31 | BIG-M -> PHASE II step 0

```
COMMENTS
Teaching Mode | Phase Transition
Phase I objective value: 118.132 (should be 0)
Artificial vars removed: a4, a6, a7, a8, a10, a11, a12, a13, a15, a17, a19, a22, a23, a24, a26, a27, a28
No artificial variable remained basic before cleanup.
Big-M phase complete. Artificial variables removed before restoring original objective.
```

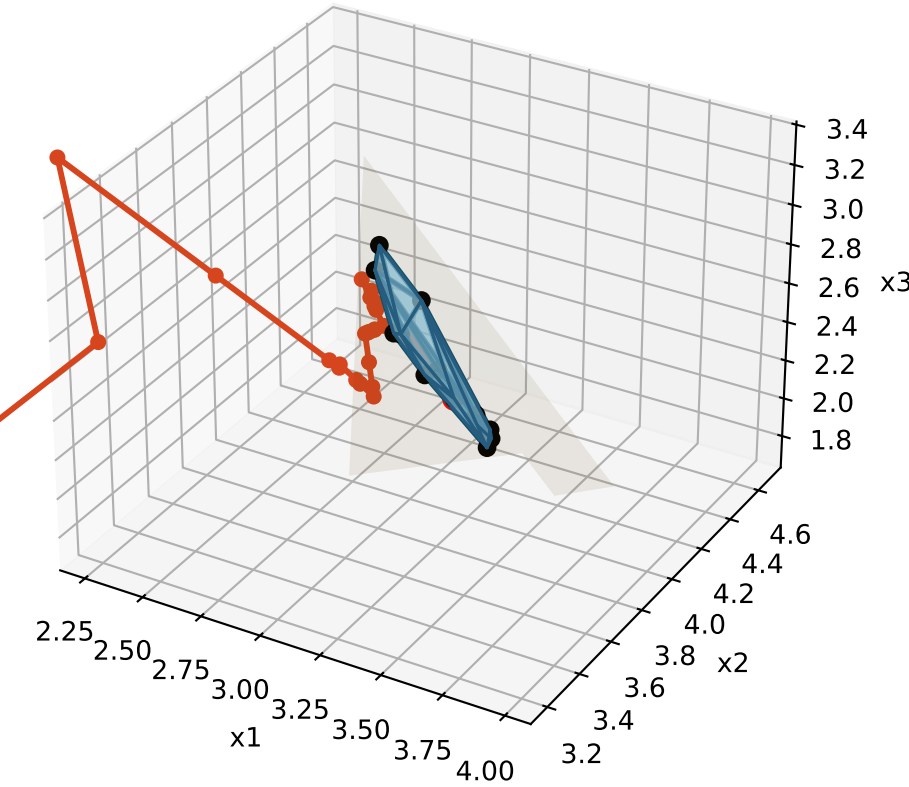
TABLEAU  
Current solution:  $x_1=3.39134$ ,  $x_2=3.69842$ ,  $x_3=2.52311$   
Tableau objective: 118.132

[illegible]

Two-Phase Simplex Report

Feasible polytope + extreme points + simplex path

$15x_1 + 10x_2 + 12x_3 = 118$



State 31/31 | PHASE II step 0 | Z=118.132

COMMENTS  
Teaching Mode | PHASE II  
Original objective restored after Big-M cleanup.

TABLEAU  
Current solution: x1=3.39134, x2=3.69842, x3=2.52311  
Objective z: 118.132

row	x1	x2	x3	s1	s2	s3	u4	s5	u6	u7	u8	s9	u10	u11	u12	u13	s14	u15	s16	u17	s18	u19	s20	s21	u22	u23	u24	s25	u26	u27	u28	rhs	ratio		
R1(s1)	0	0	0	1	0	0	0	0.103448	0	0	0	-0.482759	0	0	0	-0.275862	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.60866	inf		
R2(s2)	0	0	0	0	1	0	0	0.0344828	0	0	0	0.172414	0	0	0	0.241379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.30158	inf	
R3(s3)	0	0	0	0	0	1	0	-0.218391	0	0	0	0.241379	0	0	0	0.137931	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.47689	inf	
R4(u6)	0	0	0	0	0	0	0	0.436782	1	0	0	-0.482759	0	0	0	-0.275862	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.20272	inf	
R5(u10)	0	0	0	0	0	0	0	0.804598	0	0	0	-0.310345	1	0	0	-1.03448	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.864244	inf	
R6(u8)	0	0	0	0	0	0	0	-0.0344828	0	0	1	0.827586	0	0	0	-0.241379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.30822	inf
R7(x1)	1	0	0	0	0	0	0	-0.103448	0	0	0	0.482759	0	0	0	0.275862	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.39134	inf	
R8(u11)	0	0	0	0	0	0	0	0.298851	0	0	0	0.827586	0	1	0	-0.241379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.08975	inf
R9(s14)	0	0	0	0	0	0	0	0.298851	0	0	0	-0.172414	0	0	0	0.758621	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.923344	inf	
R10(u24)	0	0	0	0	0	0	0	0.137931	0	0	0	1.68966	0	0	0	0.965517	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3.95415	inf
R11(u19)	0	0	0	0	0	0	0	-0.137931	0	0	0	0.310345	0	0	0	0.0344828	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.187432	inf
R12(u17)	0	0	0	0	0	0	0	0.965517	0	0	0	-0.172414	0	0	0	-0.241379	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2.82015	inf
R13(u22)	0	0	0	0	0	0	0	0.0344828	0	0	0	0.172414	0	0	0	-0.758621	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.625103	inf
R14(x2)	0	1	0	0	0	0	0	-0.0344828	0	0	0	-0.172414	0	0	0	-0.241379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.69842	inf
R15(u7)	0	0	0	0	0	0	0	-0.241379	0	1	0	0.793103	-0.241379	0	0	0.310345	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.71079	inf
R16(s16)	0	0	0	0	0	0	0	-0.137931	0	0	0	-1.68966	0	0	0	-0.965517	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.71974	inf
R17(u23)	0	0	0	0	0	0	0	0.425287	0	0	0	-0.206897	0	0	0	-0.689655	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1.55935	inf
R18(s18)	0	0	0	0	0	0	0	-1.14943	0	0	0	0.586207	0	0	0	0.62069	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2.25224	inf
R19(u12)	0	0	0	0	0	0	0	1.03448	0	0	0	-0.827586	0	0	1	-0.758621	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.32415	inf
R20(s20)	0	0	0	0	0	0	0	0.402299	0	0	0	-0.655172	0	0	0	0.482759	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3.31106	inf
R21(s21)	0	0	0	0	0	0	0	0.310345	0	0	0	-0.448276	0	0	0	0.172414	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2.58198	inf
R22(u28)	0	0	0	0	0	0	0	0.183908	0	0	0	0.586207	0	0	0	-0.37931	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1.99455	inf	
R23(u15)	0	0	0	0	0	0	0	-0.321839	0	0	0	0.724138	0	0	0	-0.586207	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.33394	inf
R24(u27)	0	0	0	0	0	0	0	0.356322	0	0	0	-0.551724	0	0	0	-1.17241	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1.45599	inf	
R25(s25)	0	0	0	0	0	0	0	-0.264368	0	0	0	-0.655172	0	0	0	0.482759	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3.15282	inf	
R26(x3)	0	0	1	0	0	0	0	0.218391	0	0	0	-0.241379	0	0	0	-0.137931	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.52311	inf
R27(u26)	0	0	0	0	0	0	0	0.62069	0	0	0	-0.896552	0	0	0	-0.655172	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1.63836	inf
R28(u4)	0	0	0	0	0	0	1	-0.551724	0	0	0	1.24138	0	0	0	0.137931	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.978457	inf
Rz	0	0	0	0	0	0	0	0.724138	0	0	0	2.62069	0	0	0	0.0689655	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	118.132	-	

Objective Progress (Phase II)

