Solução do Problema tuff - Solver HiGHS

Análise Computacional

16 de setembro de 2025

1 Informações do Problema

Informações do Problema:

- Nome: tuff

- Número de Variáveis: 587

- Número de Restrições: 333

- Inviabilidade Primal: 0.000e+00

- Inviabilidade Dual: 0.000e+00

- Valor Primal: 2.921e-01

- Valor Dual: 0.000e+00

- Gap: 2.399e-16

- Número de Iterações: 25

2 Variáveis Primais e Custos Reduzidos

Tabela 1: Variáveis primais e custos reduzidos do problema tuff

Coordenada x	Valor x	Coordenada z	Valor z
1	0.000000	1	0.005319
2	0.000000	2	0.005270
3	-0.000000	3	0.000000
4	0.000000	4	0.005607
5	0.000000	5	0.000000
6	0.000000	6	0.001260
7	0.000000	7	0.006224
8	0.000000	8	0.006224
9	0.000000	9	0.005607
10	0.000000	10	0.012386
11	11.113308	11	0.000000
12	0.000000	12	0.000000

Coordenada x	Valor x	Coordenada z	Valor z
13	5.857942	13	0.000000
14	0.000000	14	0.007300
15	0.000000	15	0.000054
16	0.000000	16	0.007727
17	0.000000	17	0.000000
18	0.000000	18	0.001260
19	0.000000	19	0.012386
20	-0.000000	20	0.000000
21	5.329754	21	0.000000
22	0.000000	22	0.000000
23	0.000000	23	0.008902
24	0.000000	24	0.006092
25	0.000000	25	0.000924
26	0.000000	26	0.000924
27	0.000000	27	0.000236
28	0.000000	28	0.000000
29	0.000000	29	0.000771
30	0.000000	30	0.002646
31	0.000000	31	0.000771
32	0.000000	32	0.001173
33	0.000000	33	0.001326
34	0.000000	34	0.000293
35	0.432000	35	0.000000
36	0.000000	36	0.000193
37	0.000000	37	0.000867
38	0.000000	38	0.000218
39	3.078000	39	0.000000
40	-0.000000	40	0.000000
41	0.000000	41	0.006091
42	0.000000	42	0.000000
43	0.061777	43	0.000000
44	0.000000	44	0.011443
45	0.000000	45	0.011443
46	0.000000	46	0.004231
47	0.000000	47	0.006801
48	-0.000000	48	0.000000
49	0.000000	49	0.003779
50	0.000000	50	0.009103
51	0.000000	51	0.011443
52	0.000000	52	0.007300
53	0.000000	53	0.006801
54	0.000000	54	0.012221
55	0.000000	55	0.011443
56	-0.000000	56	0.000000
57	-0.000000	57	0.000000
58	0.000000	58	0.003395
59	0.000000	59	0.003657
60	0.000000	60	0.007750
61	0.000000	61	0.003420

Coordenada x	Valor x	Coordenada z	Valor z
62	0.000000	62	0.000000
63	0.000000	63	0.003779
64	0.000000	64	0.012221
65	0.000000	65	0.012096
66	0.000000	66	0.090659
67	0.000000	67	0.000000
68	-0.000000	68	0.000000
69	0.000000	69	0.004065
70	-0.000000	70	0.000000
71	0.000000	71	0.003048
72	0.000000	72	0.000086
73	0.000000	73	0.009967
74	0.000000	74	0.000344
75	0.000000	75	0.003433
76	0.000000	76	0.000073
77	0.000000	77	0.010038
78	0.000000	78	0.000133
79	0.000000	79	0.003048
80	0.000000	80	0.000086
81	0.000000	81	0.009967
82	0.000000	82	0.000344
83	0.000000	83	0.003395
84	0.000000	84	0.000000
85	-0.000000	85	0.000000
86	-0.000000	86	0.000000
87	-0.000000	87	0.000000
88	0.000000	88	0.000000
89	2.906010	89	0.000000
90	-0.000000	90	0.000000
91	0.000000	91	0.000082
92	0.000000	92	0.007061
93	10.234933	93	0.000000
94	-0.000000	94	0.000000
95	0.000000	95	0.000323
96	-0.000000	96	0.000000
97	0.840000	97	0.000000
98	0.000000	98	0.013902
99	0.000000	99	0.000000
100	0.000000	100	0.289917
101	0.000000	101	0.006279
102	0.000000	102	0.016905
103	0.522205	103	0.000000
104	0.000000	104	0.320837
105	0.000000	105	0.000000
106	0.000000	106	0.000000
107	1.109054	107	0.000000
108	0.000000	108	0.289917
109	0.000000	109	0.000000
110	0.000000	110	0.090659

Coordenada x	Valor x	Coordenada z	Valor z
111	0.000000	111	0.000000
112	0.000000	112	0.005319
113	0.000000	113	0.005270
114	0.000000	114	0.000000
115	0.000000	115	0.005607
116	0.000000	116	0.000000
117	0.000000	117	0.001260
118	0.000000	118	0.006224
119	0.000000	119	0.006224
120	0.000000	120	0.005607
121	0.000000	121	0.012386
122	0.000000	122	0.000000
123	1.247829	123	0.000000
124	0.000000	124	0.000000
125	0.000000	125	0.007300
126	0.000000	126	0.000054
127	0.000000	127	0.007727
128	0.000000	128	0.000000
129	0.000000	129	0.001260
130	0.000000	130	0.012386
131	0.000000	131	0.000000
132	0.000000	132	0.000000
133	0.000000	133	0.000000
134	0.000000	134	0.008902
135	0.000000	135	0.006092
136	0.000000	136	0.000924
137	0.000000	137	0.000924
138	0.000000	138	0.000236
139	2.052000	139	0.000000
140	0.000000	140	0.000771
141	0.000000	141	0.002646
142	0.000000	142	0.000771
143	0.000000	143	0.001173
144	0.000000	144	0.001326
145	0.000000	145	0.000293
146	0.000000	146	0.000000
147	0.000000	147	0.000193
148	0.000000	148	0.000867
149	0.000000	149	0.000218
150	0.000000	150	0.000000
151	0.000000	151	0.000000
152	0.000000	152	0.006091
153	0.000000	153	0.000000
154	0.000000	154	0.000000
155	0.000000	155	0.011443
156	0.000000	156	0.011443
157	0.000000	157	0.004231
158	0.000000	158	0.006801
159	0.000000	159	0.000000

Coordenada x	Valor x	Coordenada z	Valor z
160	0.000000	160	0.003779
161	0.000000	161	0.009103
162	0.000000	162	0.011443
163	0.000000	163	0.007300
164	0.000000	164	0.006801
165	0.000000	165	0.012221
166	0.000000	166	0.011443
167	0.000000	167	0.000000
168	0.000000	168	0.000000
169	0.000000	169	0.003395
170	0.000000	170	0.003657
171	0.000000	171	0.007750
172	0.000000	172	0.003420
173	0.000000	173	0.000000
174	0.000000	174	0.003779
175	0.000000	175	0.012221
176	0.000000	176	0.012096
177	0.000000	177	0.090659
178	0.000000	178	0.000000
179	0.000000	179	0.000000
180	0.000000	180	0.004065
181	0.000000	181	0.000000
182	0.000000	182	0.003048
183	0.000000	183	0.000086
184	0.000000	184	0.009967
185	0.000000	185	0.000344
186	0.000000	186	0.003433
187	0.000000	187	0.000073
188	0.000000	188	0.010038
189	0.000000	189	0.000133
190	0.000000	190	0.003048
191	0.000000	191	0.000086
192	0.000000	192	0.009967
193	0.000000	193	0.000344
194	0.000000	194	0.003395
195	-0.000000	195	0.000000
196	0.000000	196	0.000000
197	0.000000	197	0.000000
198	0.000000	198	0.000000
199	-0.000000	199	0.000000
200	4.537604	200	0.000000
201	0.000000	201	0.000000
202	0.000000	202	0.000082
203	0.000000	203	0.007061
204	0.000000	204	0.000000
205	0.000000	205	0.000000
206	0.000000	206	0.000323
207	0.000000	207	0.000000
208	0.000000	208	0.000000

Coordenada x	Valor x	Coordenada z	Valor z
209	0.000000	209	0.013902
210	0.000000	210	0.000000
211	0.000000	211	0.289917
212	0.000000	212	0.006279
213	0.000000	213	0.016905
214	0.000000	214	0.000000
215	0.000000	215	0.320837
216	-0.000000	216	0.000000
217	0.000000	217	0.000000
218	0.000000	218	0.000000
219	0.000000	219	0.289917
220	0.000000	220	0.000000
221	0.000000	221	0.090659
222	0.927000	222	0.000000
223	0.000000	223	0.005319
224	0.000000	224	0.005270
225	0.000000	225	0.000000
226	0.000000	226	0.005607
227	0.000000	227	0.000000
228	0.000000	228	0.001260
229	0.000000	229	0.006224
230	0.000000	230	0.006224
231	0.000000	231	0.005607
232	0.000000	232	0.012386
233	0.000000	233	0.000000
234	3.118864	234	0.000000
235	0.000000	235	0.000000
236	0.000000	236	0.007300
237	0.000000	237	0.000054
238	0.000000	238	0.007727
239	0.000000	239	0.000000
240	0.000000	240	0.001260
241	0.000000	241	0.012386
242	0.000000	242	0.000000
243	3.611628	243	0.000000
244	0.332423	244	0.000000
245	0.000000	245	0.008902
246	0.000000	246	0.006092
247	0.000000	247	0.000924
248	0.000000	248	0.000924
249	0.000000	249	0.000236
250	0.000000	250	0.000000
251	0.000000	251	0.000771
252	0.000000	252	0.002646
253	0.000000	253	0.000771
254	0.000000	254	0.001173
255	0.000000	255	0.001326
256	0.000000	256	0.000293
257	0.000000	257	0.000000

Coordenada x	Valor x	Coordenada z	Valor z
258	0.000000	258	0.000193
259	0.000000	259	0.000867
260	0.000000	260	0.000218
261	0.000000	261	0.000000
262	0.000000	262	0.000000
263	0.000000	263	0.006091
264	0.576000	264	0.000000
265	0.541223	265	0.000000
266	0.000000	266	0.011443
267	0.000000	267	0.011443
268	0.000000	268	0.004231
269	0.000000	269	0.006801
270	0.000000	270	0.000000
271	0.000000	271	0.003779
272	0.000000	272	0.009103
273	0.000000	273	0.011443
274	0.000000	274	0.007300
275	0.000000	275	0.006801
276	0.000000	276	0.012221
277	0.000000	277	0.011443
278	0.000000	278	0.000000
279	0.000000	279	0.000000
280	0.000000	280	0.003395
281	0.000000	281	0.003657
282	0.000000	282	0.007750
283	0.000000	283	0.003420
284	0.000000	284	0.000000
285	0.000000	285	0.003779
286	0.000000	286	0.012221
287	0.000000	287	0.012096
288	0.000000	288	0.090659
289	-0.000000	289	0.000000
290	0.000000	290	0.000000
291	0.000000	291	0.004065
292	0.000000	292	0.000000
293	0.000000	293	0.003048
294	0.000000	294	0.000086
295	0.000000	295	0.009967
296	0.000000	296	0.000344
297	0.000000	297	0.003433
298	0.000000	298	0.000073
299	0.000000	299	0.010038
300	0.000000	300	0.000133
301	0.000000	301	0.003048
302	0.000000	302	0.000086
303	0.000000	303	0.009967
304	0.000000	304	0.000344
305	0.000000	305	0.003395
306	0.000000	306	0.000000

Coordenada x	Valor x	Coordenada z	Valor z
307	0.000000	307	0.000000
308	0.000000	308	0.000000
309	0.000000	309	0.000000
310	0.000000	310	0.000000
311	0.000000	311	0.000000
312	0.000000	312	0.000000
313	0.000000	313	0.000082
314	0.000000	314	0.007061
315	0.000000	315	0.000000
316	0.000000	316	0.000000
317	0.000000	317	0.000323
318	0.000000	318	0.000000
319	0.000000	319	0.000000
320	0.000000	320	0.013902
321	0.000000	321	0.000000
322	0.000000	322	0.289917
323	0.000000	323	0.006279
324	0.000000	324	0.016905
325	0.000000	325	0.000000
326	0.000000	326	0.320837
327	0.000000	327	0.000000
328	-0.000000	328	0.000000
329	0.000000	329	0.000000
330	0.000000	330	0.289917
331	-0.000000	331	0.000000
332	0.000000	332	0.090659
333	0.000000	333	0.000000
334	-0.000000	334	0.000000
335	-0.000000	335	0.000000
336	-0.000000	336	0.000000
337	-0.000000	337	0.000000
338	250.000000	338	0.000623
339	90.000000	339	0.001552
340	5.130000	340	0.000000
341	90.000000	341	0.000000
342	-0.000000	342	0.000000
343	0.000000	343	0.000000
344	-0.000000	344	0.000000
345	-0.000000	345	0.000000
346	-0.000000	346	0.000000
347	0.000000	347	0.000000
348	0.000134	348	0.000000
349	31.500000	349	0.000000
350	13.425043	350	0.000000
351	13.222211	351	0.000000
352	0.000132	352	0.000000
353	0.000000	353	0.000000
354	0.000181	354	0.000000
355	18.074957	355	0.000000

Coordenada x	Valor x	Coordenada z	Valor z
356	-0.000000	356	0.000000
357	5.100000	357	-0.000637
358	10.312881	358	0.000000
359	58.137405	359	0.000000
360	2.060000	360	0.000000
361	-0.000000	361	0.000000
362	0.000000	362	0.000000
363	4.575000	363	0.000000
364	33.299847	364	0.000000
365	0.000000	365	0.000000
366	50.000000	366	0.000000
367	250.000000	367	0.000000
368	-0.000000	368	0.000000
369	0.000000	369	0.000000
370	3.000000	370	0.000000
371	-0.000000	371	0.000000
372	5.477260	372	0.000000
373	-0.000000	373	0.000000
374	26.022740	374	0.000000
375	-0.000000	375	0.000000
376	-0.000000	376	0.000000
377	10.224634	377	0.000000
378	27.894960	378	0.000000
379	2.052000	379	0.000000
380	6.447077	380	0.000000
381	-0.000000	381	0.000000
382	-0.000000	382	0.000000
383	18.175000	383	0.000000
384	13.222211	384	0.000000
385	33.790639	385	0.000000
386	13.222211	386	0.000000
387	58.137405	387	0.000000
388	-0.000000	388	0.000000
389	-0.000000	389	0.000000
390	-0.000000	390	0.000000
391	0.000000	391	0.001796
392	0.000000	392	0.001707
393	0.000000	393	0.001666
394	0.000000	394	0.001818
395	250.000000	395	0.000000
396	0.000000	396	0.005927
397	0.000000	397	0.007015
398	0.000000	398	0.007116
399	0.000000	399	0.008160
400	87.000000	400	0.000000
401	3.000000	401	0.000000
402	30.960000	402	0.000000
403	-0.000000	403	0.000000
404	-0.000000	404	0.000000

Coordenada x	Valor x	Coordenada z	Valor z
405	-0.000000	405	0.000000
406	-0.000000	406	0.000000
407	-0.000000	407	0.000000
408	-0.000000	408	0.000000
409	-0.000000	409	0.000000
410	-0.000000	410	0.000000
411	-0.000000	411	0.000000
412	4.366692	412	0.000000
413	-0.000000	413	0.000000
414	5.857942	414	0.000000
415	-0.000000	415	0.000000
416	27.894960	416	0.000000
417	-0.000000	417	0.000000
418	-0.000000	418	0.000000
419	-0.000000	419	0.000000
420	0.000000	420	0.000575
421	0.000000	421	0.000072
422	-0.000000	422	0.000000
423	5.130000	423	0.000000
424	-0.000000	424	0.000000
425	0.000000	425	0.000000
426	6.447077	426	0.000000
427	-0.000000	427	0.000000
428	-0.000000	428	0.000000
429	-0.000000	429	0.000000
430	0.000000	430	0.000000
431	18.175000	431	0.000000
432	-0.000000	432	0.000000
433	-0.000000	433	0.000000
434	0.000000	434	0.000000
435	0.000000	435	0.000000
436	0.000000	436	0.000000
437	4.575000	437	0.000000
438	0.000000	438	0.000000
439	0.000000	439	0.000000
440	0.000000	440	0.000000
441	8.814807	441	0.000000
442	-0.000000	442	0.000000
443	0.000000	443	0.000463
444	0.000000	444	0.000298
445	5.076000	445	0.000000
446	5.100000	446	0.000000
447	0.000000	447	0.000000
448	0.000000	448	0.000000
449	0.000000	449	0.000000
450	13.222211	450	0.000000
451	-0.000000	451	0.000000
452	10.473313	452	0.000000
453	-0.000000	453	0.000000

Coordenada x	Valor x	Coordenada z	Valor z
454	-0.000000	454	0.000000
455	-0.000000	455	0.000000
456	-0.000000	456	0.000000
457	-0.000000	457	0.000000
458	-0.000000	458	0.000000
459	-0.000000	459	0.000000
460	-0.000000	460	0.000000
461	9.647236	461	0.000000
462	-0.000000	462	0.000000
463	-0.000000	463	0.000000
464	-0.000000	464	0.000000
465	13.670090	465	0.000000
466	-0.000000	466	0.000000
467	-0.000000	467	0.000000
468	-0.000000	468	0.000000
469	-0.000000	469	0.000000
470	-0.000000	470	0.000000
471	-0.000000	471	0.000000
472	-0.000000	472	0.000000
473	-0.000000	473	0.000000
474	-0.000000	474	0.000000
475	13.425043	475	0.000000
476	-0.000000	476	0.000000
477	-0.000000	477	0.000000
478	-0.000000	478	0.000000
479	13.222211	479	0.000000
480	-0.000000	480	0.000000
481	-0.000000	481	0.000000
482	13.670090	482	0.000000
483	-0.000000	483	0.000000
484	-0.000000	484	0.000000
485	-0.000000	485	0.000000
486	8.941382	486	0.000000
487	-0.000000	487	0.000000
488	-0.000000	488	0.000000
489	-0.000000	489	0.000000
490	-0.000000	490	0.000000
491	-0.000000	491	0.000000
492	-0.000000	492	0.000000
493	-0.000000	493	0.000000
494	27.894960	494	0.000000
495	-0.000000	495	0.000000
496	-0.000000	496	0.000000
497	-0.000000	497	0.000000
498	-0.000000	498	0.000000
499	-0.000000	499	0.000000
500	-0.000000	500	0.000000
501	-0.000000	501	0.000000
502	0.840000	502	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
503	-0.000000	503	0.000000
504	-0.000000	504	0.000000
505	-0.000000	505	0.000000
506	31.500000	506	0.000000
507	-0.000000	507	0.000000
508	-0.000000	508	0.000000
509	-0.000000	509	0.000000
510	-0.000000	510	0.000000
511	0.000000	511	0.000000
512	-0.000000	512	0.000000
513	-0.000000	513	0.000000
514	11.113308	514	0.000000
515	-0.000000	515	0.000000
516	-0.000000	516	0.000000
517	-0.000000	517	0.000000
518	-0.000000	518	0.000000
519	-0.000000	519	0.000000
520	-0.000000	520	0.000000
521	-0.000000	521	0.000000
522	-0.000000	522	0.000000
523	-0.000000	523	0.000000
524	3.078000	524	0.000000
525	-0.000000	525	0.000000
526	-0.000000	526	0.000000
527	-0.000000	527	0.000000
528	-0.000000	528	0.000000
529	-0.000000	529	0.000000
530	31.500000	530	0.000000
531	-0.000000	531	0.000000
532	-0.000000	532	0.000000
533	-0.000000	533	0.000000
534	-0.000000	534	0.000000
535	-0.000000	535	0.000000
536	31.500000	536	0.000000
537	-0.000000	537	0.000000
538	-0.000000	538	0.000000
539	-0.000000	539	0.000000
540	-0.000000	540	0.000000
541	18.074957	541	0.000000
542	-0.000000	542	0.000000
543	-0.000000	543	0.000000
544	-0.000000	544	0.000000
545	41.484983	545	0.000000
546	31.486478	546	0.000000
547	8.764433	547	0.000000
548	6.555110	548	0.000000
549	8.180137	549	0.000000
550	6.132412	550	0.000000
551	0.000003	551	0.000000

Coordenada x	Valor x	Coordenada z	Valor z
552	-62.284945	552	0.000000
553	-0.000000	553	0.000000
554	1100.410000	554	0.000000
555	0.908535	555	0.000000
556	13.604086	556	0.000000
557	0.000000	557	0.000000
558	2.998875	558	0.000000
559	21.124074	559	0.000000
560	15.176125	560	0.000000
561	41.515222	561	0.000000
562	5.207028	562	0.000000
563	1.000000	563	0.000000
564	0.000000	564	0.000000
565	6.738760	565	0.000000
566	977.470000	566	0.000000
567	3524.186957	567	0.000000
568	4060.336696	568	0.000000
569	0.463266	569	0.000000
570	308.516856	570	0.000000
571	3660.551579	571	0.000000
572	1861.868637	572	0.000000
573	865.216971	573	0.000000
574	783.298426	574	0.000000
575	886.790916	575	0.000000
576	0.024675	576	0.000000
577	81.026925	577	0.000000
578	745.306532	578	0.000000
579	412.145651	579	0.000000
580	281.322291	580	0.000000
581	710.071725	581	0.000000
582	827.920103	582	0.000000
583	0.050772	583	0.000000
584	81.586620	584	0.000000
585	726.278394	585	0.000000
586	364.127768	586	0.000000
587	216.398428	587	0.000000

3 Variáveis Duais (Multiplicadores de Lagrange)

Tabela 2: Variáveis duais do problema tuff

Coordenada y	Valor y
1	-0.000000
2	-0.000351
3	-0.004695
4	-0.000000

Continua na próxima página

Coordenada y	Valor y
5	-0.000000
6	-0.000000
7	-0.000000
8	-0.000637
9	-0.003325
10	-0.002302
11	-0.006097
12	-0.002996
13	-0.002996
14	-0.003325
15	0.000463
16	-0.002302
17	-0.002302
18	-0.002072
19	-0.001920
20	-0.007698
21	-0.000000
22	-0.002072
23	-0.006097
24	0.000463
25	-0.012096
26	-0.000000
27	-0.008922
28	-0.002555
29	-0.000000
30	-0.000000
31	-0.000000
32	-0.000000
33	-0.000000
34	-0.000000
35	-0.000000
36	-0.000000
37	-0.000000
38	-0.000000
39	-0.000523
40	-0.000000
41	-0.006538
42	-0.000000
43	-0.007391
44	-0.004233
45	-0.000000
46	-0.000000
47	-0.000000
48	-0.000000
49	-0.000000
50	-0.000000
51	-0.000000
52	-0.000000
53	-0.000217

Coordenada y	Valor y
54	-0.001306
55	-0.004945
56	-0.000000
57	-0.000000
58	-0.000000
59	-0.001280
60	-0.001785
61	-0.001785
62	-0.000000
63	-0.000000
64	-0.000000
65	-0.000000
66	0.000463
67	0.000298
68	-0.003325
69	-0.002131
70	-0.002996
71	-0.001920
72	-0.000000
73	-0.000000
74	-0.000637
75	-0.000000
76	-0.004945
77	-0.000000
78	-0.000000
79	-0.000000
80	-0.000000
81	-0.000000
82	-0.000000
83	-0.008922
84	-0.004878
85	-0.006097
86	-0.003579
87	-0.006097
88	-0.003579
89	-0.002996
90	-0.001920
91	-0.003325
92	-0.002131
93	-0.002302
94	-0.002302
95	-0.000000
96	-0.000000
97	-0.007698
98	-0.004316
99	-0.000000
100	-0.001306
101	-0.001280
102	-0.001785

Continua na próxima página

Coordenada y	Valor y
103	-0.001785
104	0.000463
105	-0.002072
106	-0.002072
107	0.000298
108	-0.000637
109	-0.000523
110	-0.000000
111	-0.000000
112	-0.004878
113	-0.002131
114	-0.002589
115	-0.003579
116	-0.000000
117	-0.000000
118	-0.001920
119	-0.002131
120	0.000298
121	-0.000000
122	-0.002302
123	-0.002072
124	-0.004233
125	-0.004316
126	-0.000000
127	-0.004409
128	-0.002072
129	-0.003579
130	0.000298
131	-0.000000
132	-0.000000
133	-0.000000
134	-0.000000
135	0.088483
136	-0.002738
137	-0.008886
138	-0.004932
139	-0.000000
140	-0.001785
141	-0.000000
142	-0.000000
143	-0.004945
144	-0.000000
145	-0.006097
146	-0.003579
147	-0.000000
148	-0.004945
149	-0.000000
150	-0.006097
151	-0.003579

Coordenada y	Valor y
152	-0.000000
153	-0.006538
154	-0.000000
155	-0.007391
156	-0.000000
157	-0.006881
158	-0.000000
159	-0.007766
160	-0.000000
161	-0.006538
162	-0.000000
163	-0.007391
164	-0.004233
165	-0.006178
166	-0.008533
167	-0.011648
168	-0.008943
169	-0.006315
170	-0.008764
171	-0.011652
172	-0.008943
173	0.000884
174	-0.008533
175	-0.011648
176	-0.008620
177	-0.008886
178	-0.000000
179	-0.000000
180	-0.000000
181	-0.000000
182	-0.000000
183	-0.000000
184	-0.000000
185	-0.000000
186	-0.000000
187	-0.000000
188	-0.000000
189	-0.000000
190	-0.000000
191	-0.000000
192	-0.000000
193	-0.000000
194	-0.000000
195	-0.000000
196	-0.000000
197	-0.000000
198	-0.000000
199	-0.000000
200	-0.000000

Coordenada y	Valor y
201	-0.000000
202	-0.000000
203	-0.000000
204	-0.000000
205	-0.000000
206	-0.000637
207	-0.000000
208	0.012163
209	-0.001837
210	0.288487
211	0.003874
212	0.015005
213	-0.002204
214	0.319339
215	-0.003094
216	-0.001739
217	-0.001837
218	0.288487
219	-0.002405
220	0.088483
221	-0.000121
222	-0.009389
223	-0.000000
224	-0.000000
225	-0.000000
226	-0.010970
227	-0.010970
228	-0.010970
229	-0.000000
230	-0.000000
231	-0.000000
232	-0.000000
233	-0.000000
234	-0.000000
235	-0.000000
236	-0.000623
237	-0.000000
238	-0.001552
239	-0.000000
240	-0.000000
241	-0.000000
242	-0.000000
243	-0.000000
244	-0.000000
245	-0.000000
246	-0.000000
247	-0.000000
248	-0.000000
249	-0.000000

Coordenada y	Valor y
250	-0.000000
251	-0.000000
252	-0.000000
253	-0.000000
254	-0.000000
255	-0.000000
256	-0.000000
257	-0.000000
258	-0.000000
259	-0.000000
260	-0.000000
261	-0.000000
262	-0.000000
263	-0.000000
264	-0.000000
265	-0.000000
266	-0.000000
267	-0.000000
268	-0.000000
269	-0.000000
270	-0.000000
271	-0.000000
272	-0.000000
273	0.000057
274	-0.000000
275	-0.000000
276	-0.000000
277	-0.000000
278	-0.000000
279	-0.000000
280	0.000057
281	-0.000000
282	-0.000000
283	-0.000000
284	-0.000000
285	-0.000000
286	-0.000000
287	-0.000000
288	-0.000000
289	0.000057
290	-0.000000
291	-0.000000
292	-0.000000
293	-0.000000
294	-0.000000
295	-0.000000
296	-0.000000
297	-0.000000
298	-0.000000

Coordenada y	Valor y
299	-0.000000
300	-0.000000
301	-0.000000
302	0.000038
303	0.000057
304	-0.000000
305	-0.000000
306	-0.000000
307	-0.000000
308	-0.000000
309	0.000038
310	0.000057
311	-0.000000
312	-0.000000
313	-0.000000
314	-0.000000
315	-0.000000
316	0.000038
317	0.000057
318	-0.000000
319	-0.000000
320	-0.000000
321	-0.000000
322	-0.000000
323	-0.000000
324	-0.000000
325	-0.000000
326	-0.000000
327	-0.000000
328	-0.000000
329	-0.000000
330	-0.000000
331	-0.000000
332	-0.000000
333	-0.000000

4 Observações

- O solver HiGHS foi configurado com o método IPM (Interior Point Method).

- Este arquivo contém a solução detalhada para o problema tuff.

- As variáveis duais representam os multiplicadores de Lagrange das restrições.

- Os custos reduzidos (z) indicam o impacto de forçar variáveis não-básicas na base.