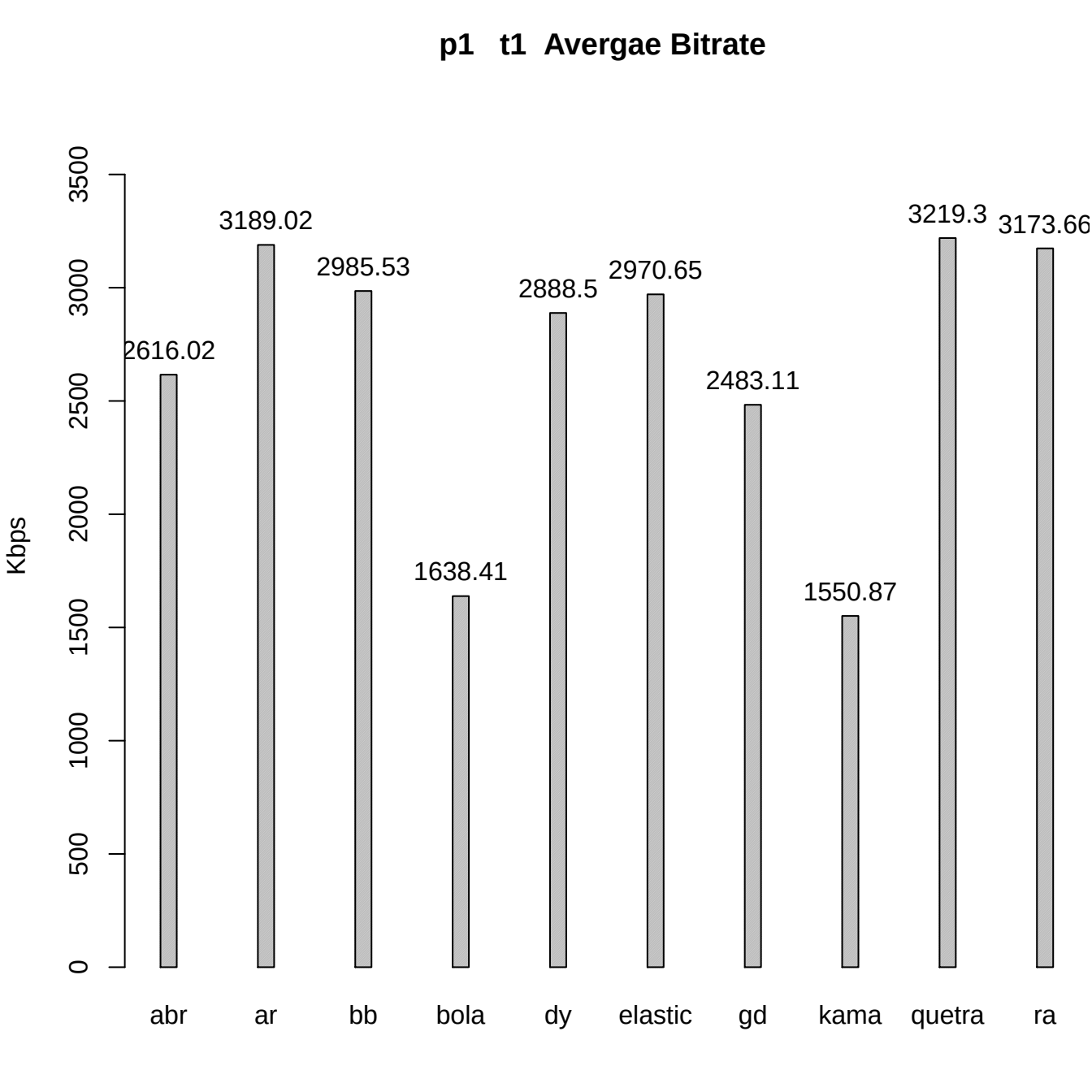
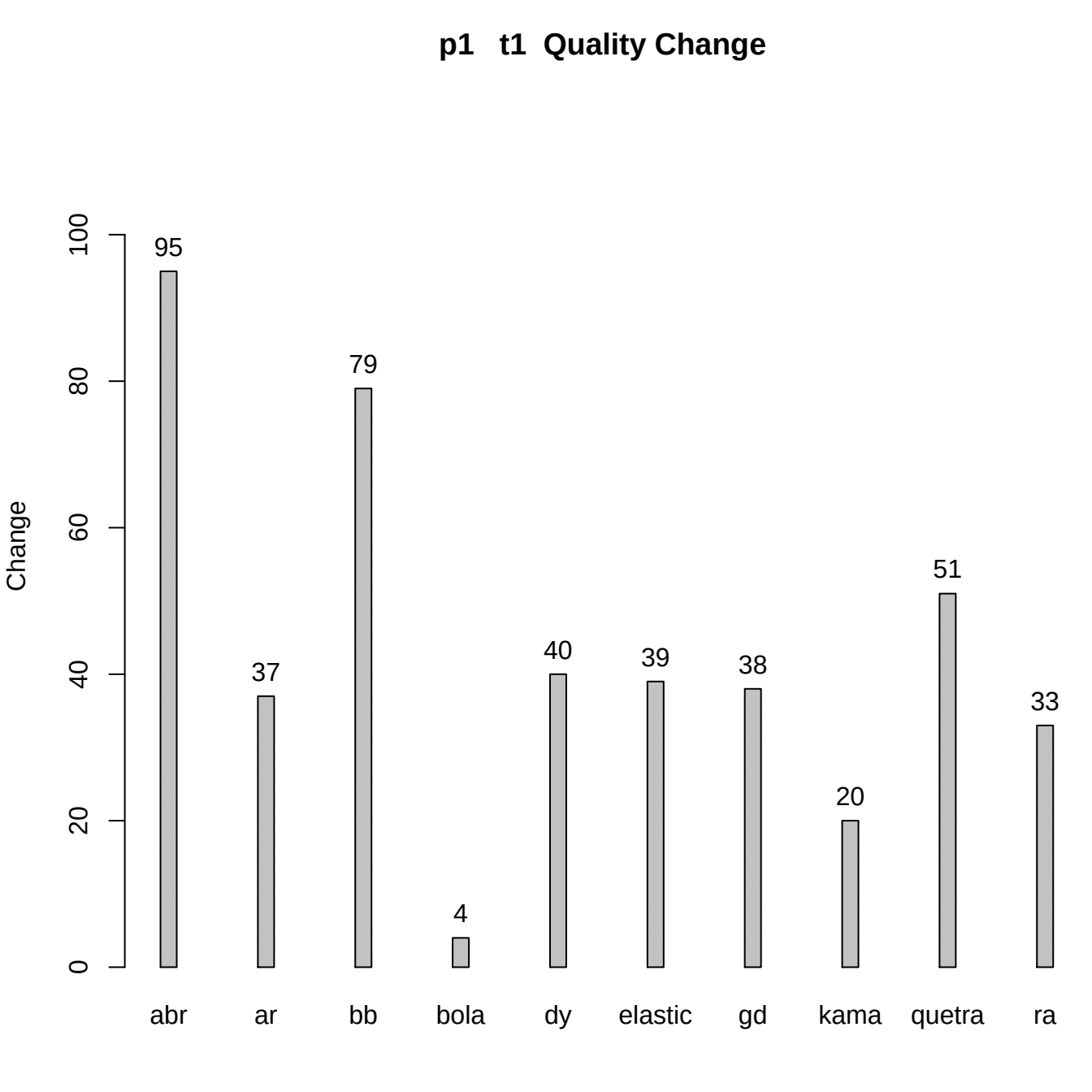
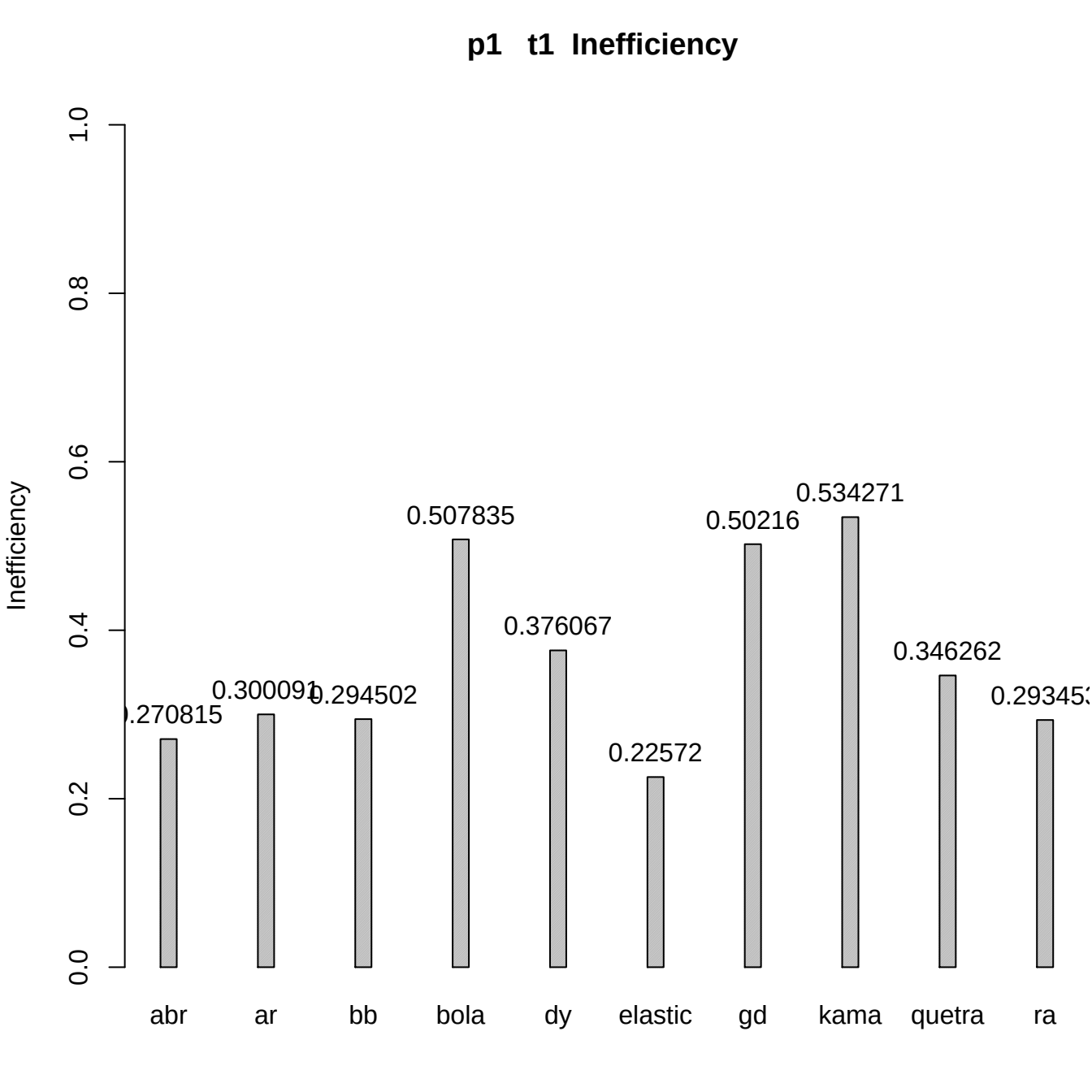
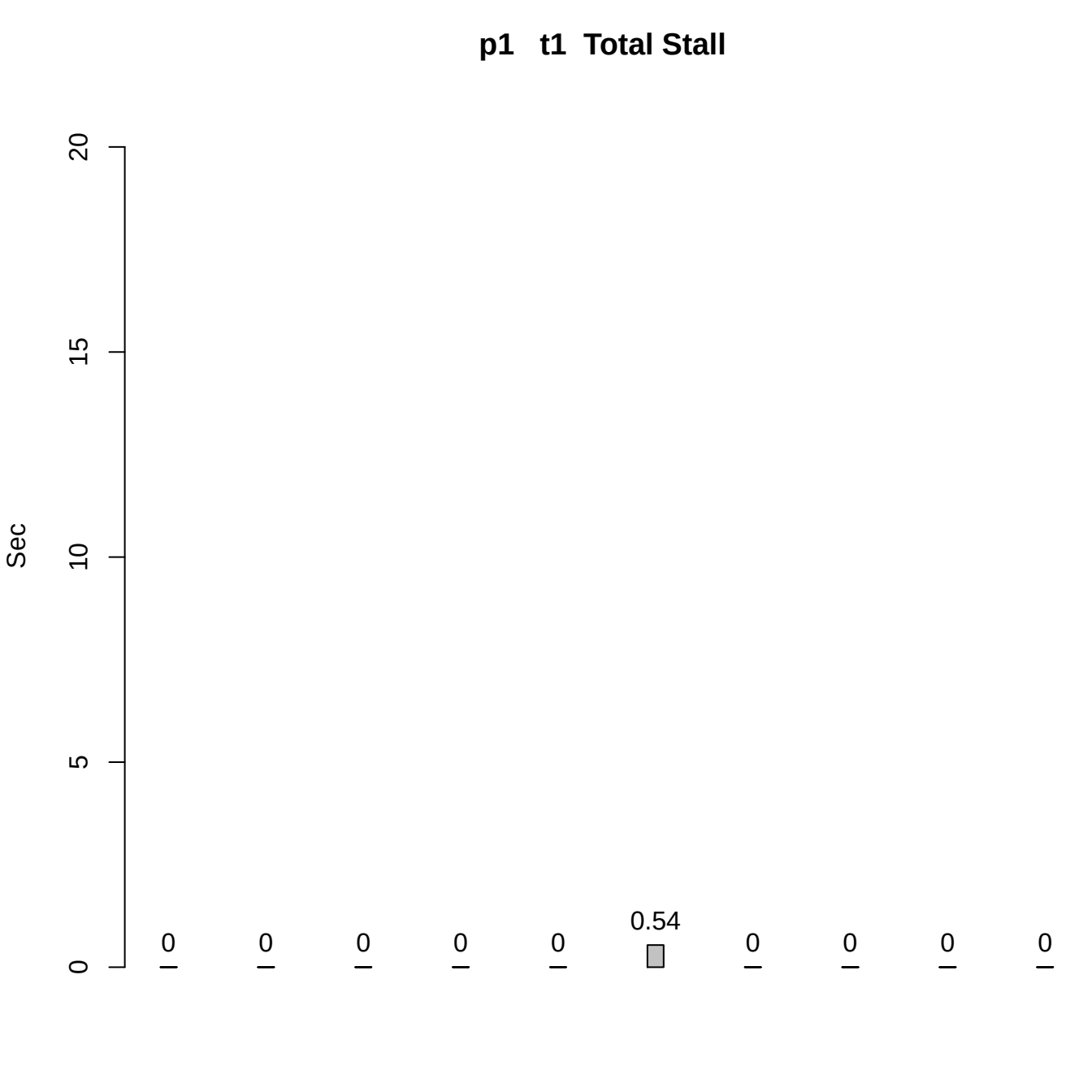
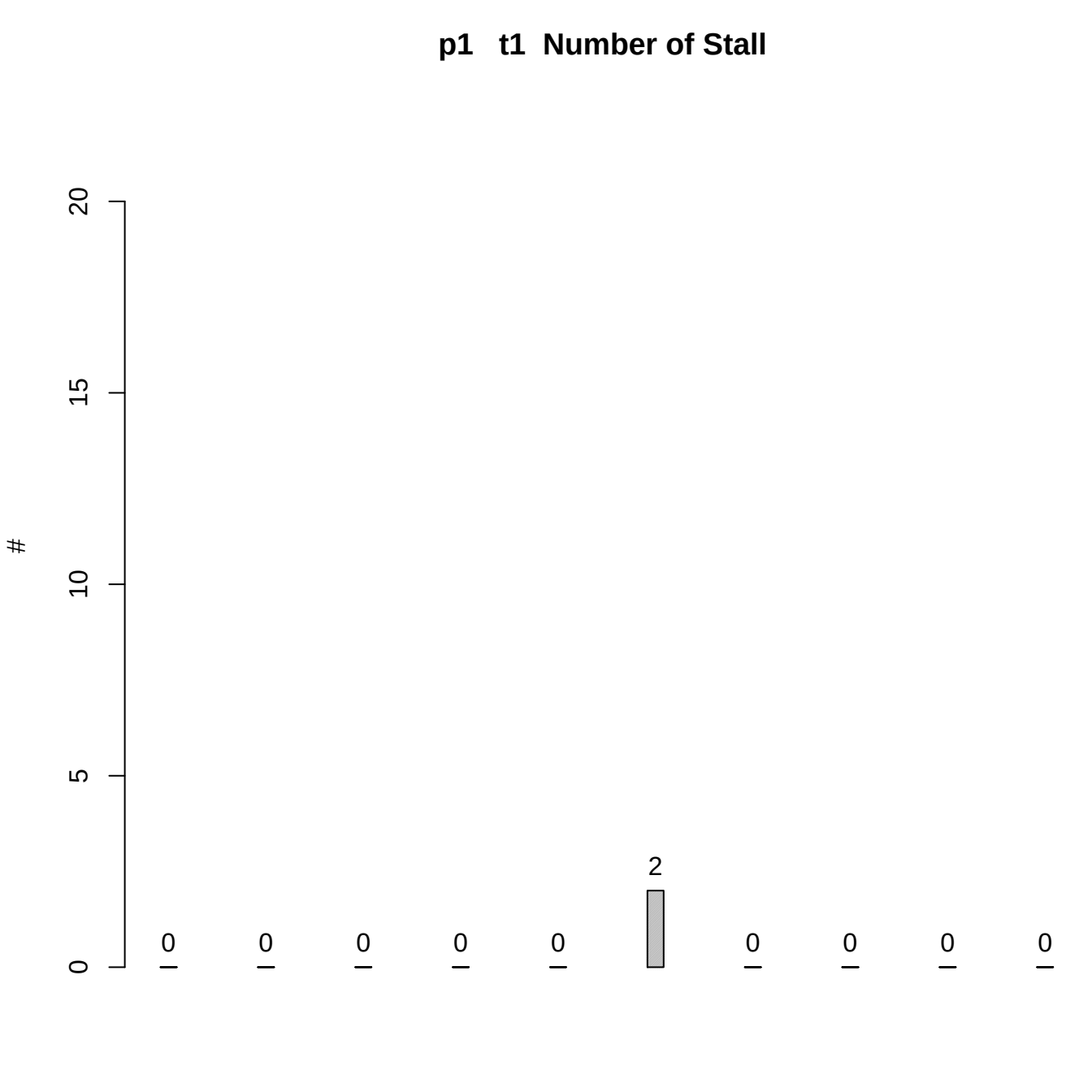
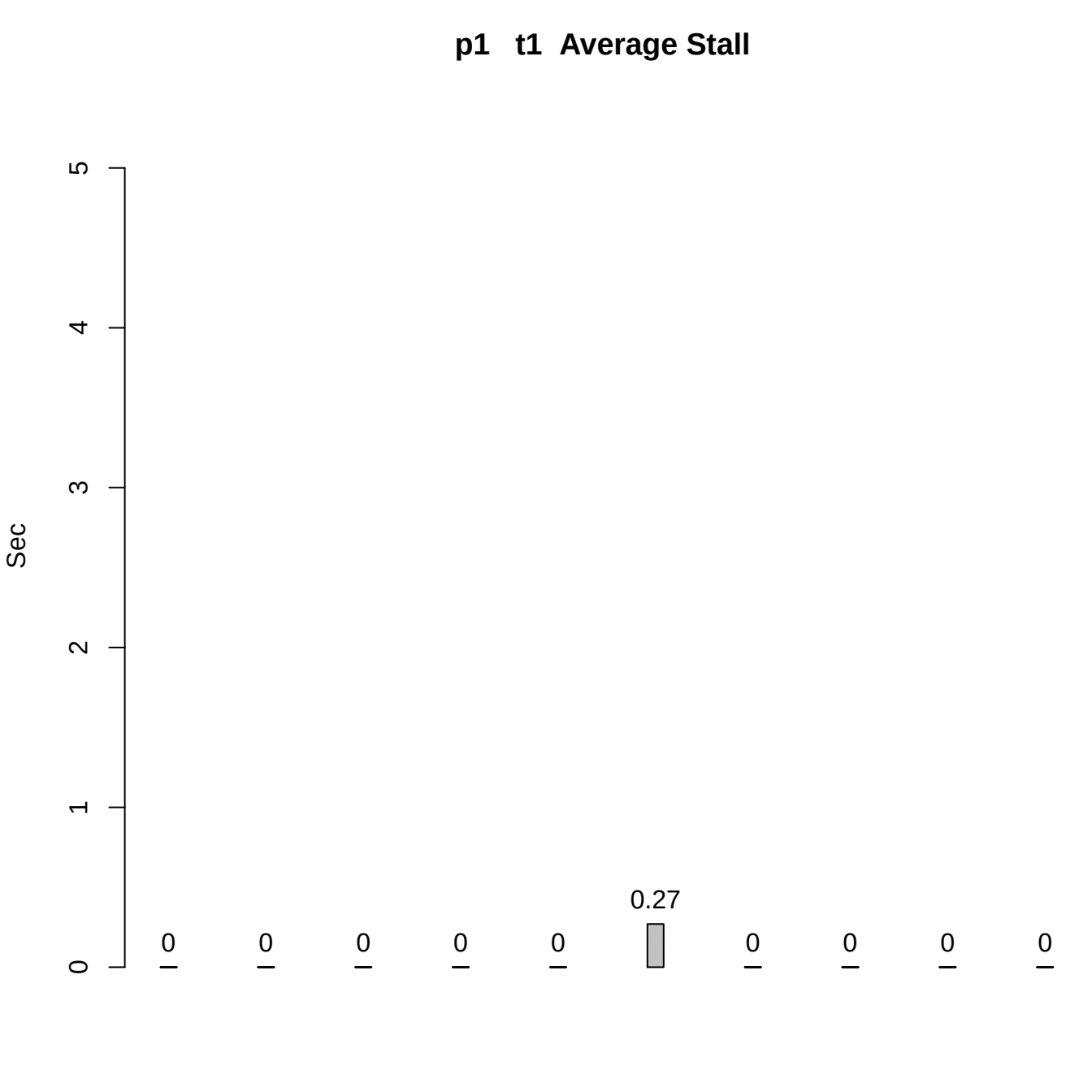

p1 t1 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
3000
3500
2616.02
3189.02
2985.53
1638.41
2888.5
2970.65
2483.11
1550.87
3219.3
3173.66
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

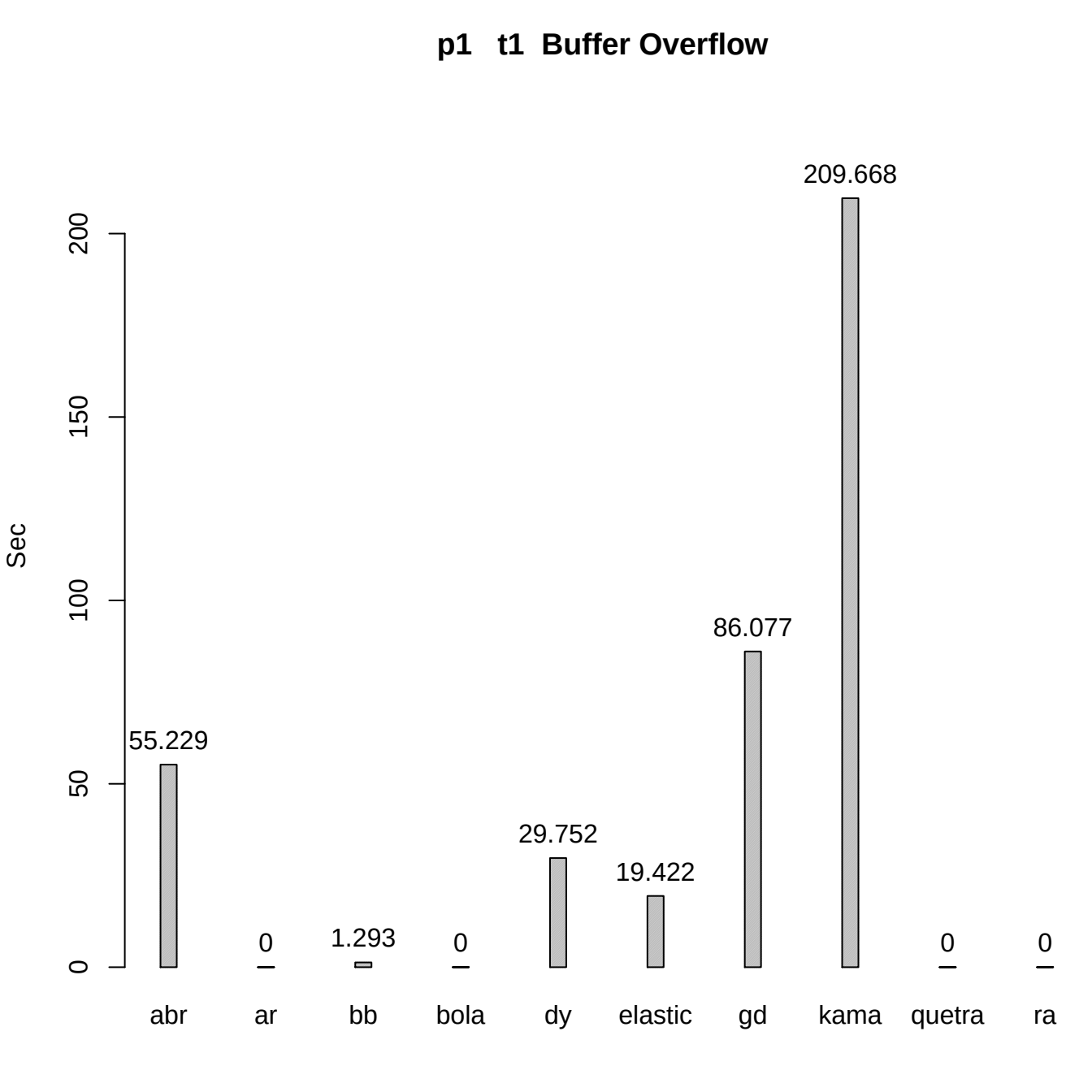

p1 t1 Quality Change
Change
0
20
40
60
80
100
95
37
79
4
40
39
38
20
51
33
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

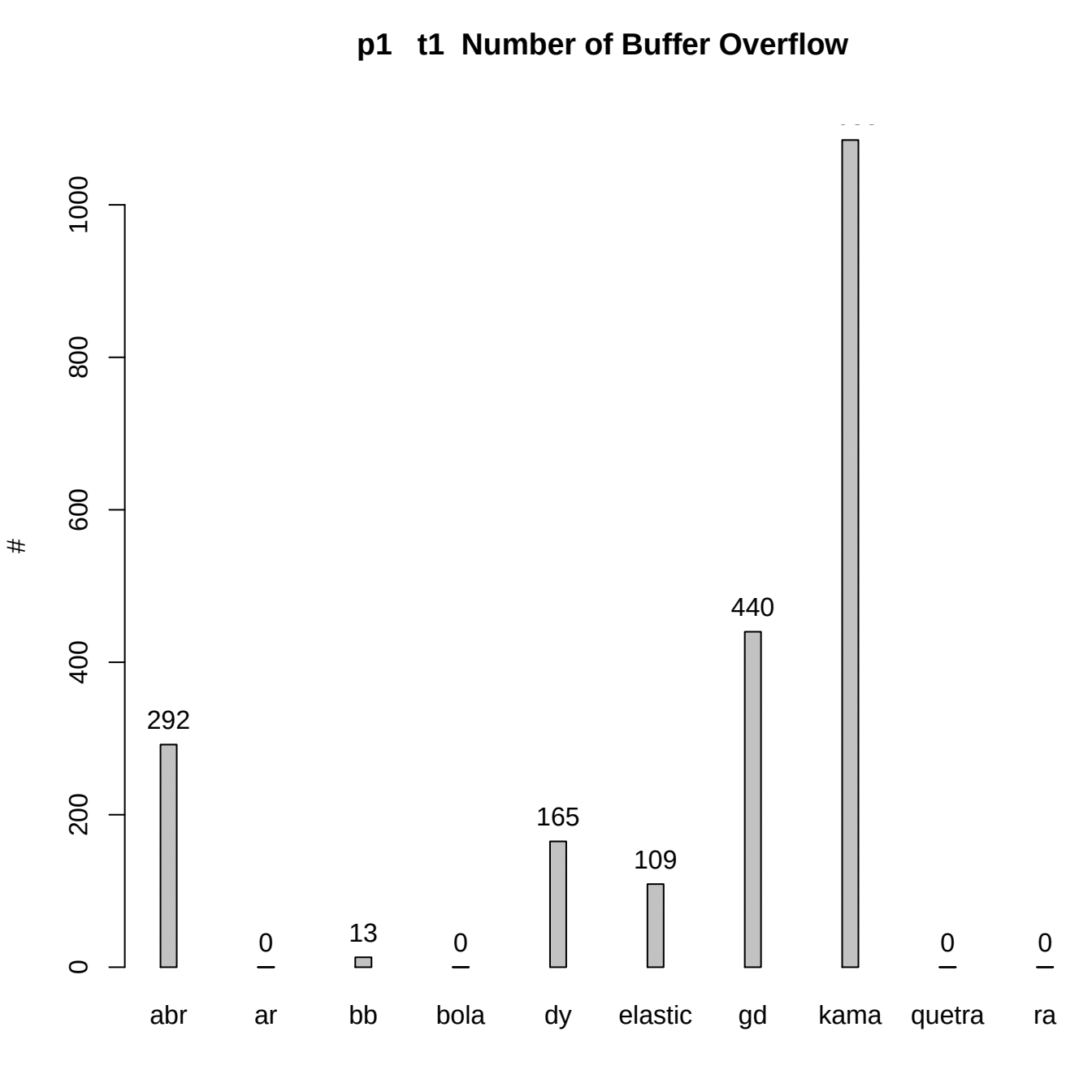

p1 t1 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.270815
0.300091
0.294502
0.507835
0.376067
0.22572
0.50216
0.534271
0.346262
0.29345
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

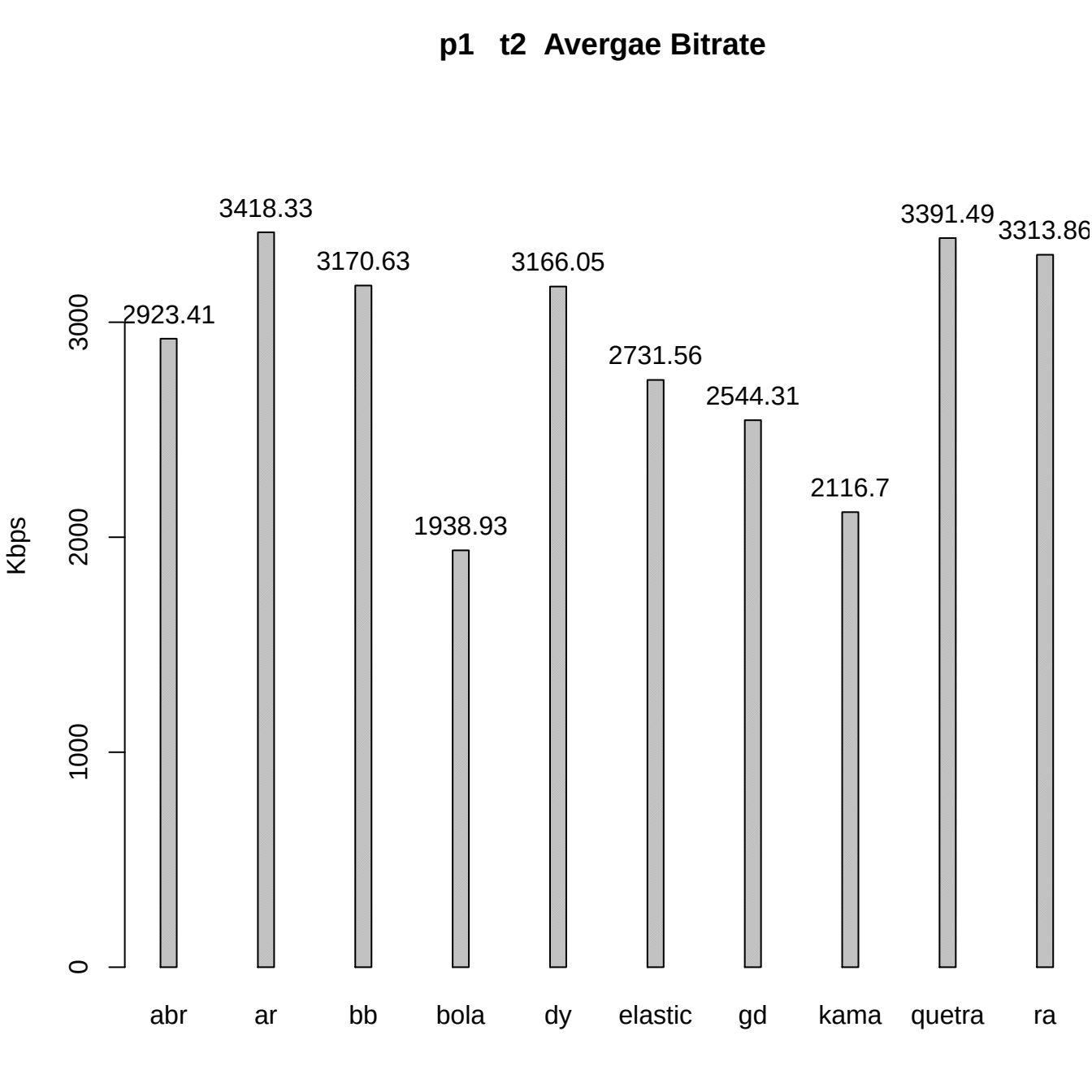

p1 t1 Total Stall
Sec
0
5
10
15
20
0
0
0
0
0
0.54
0
0
0
0

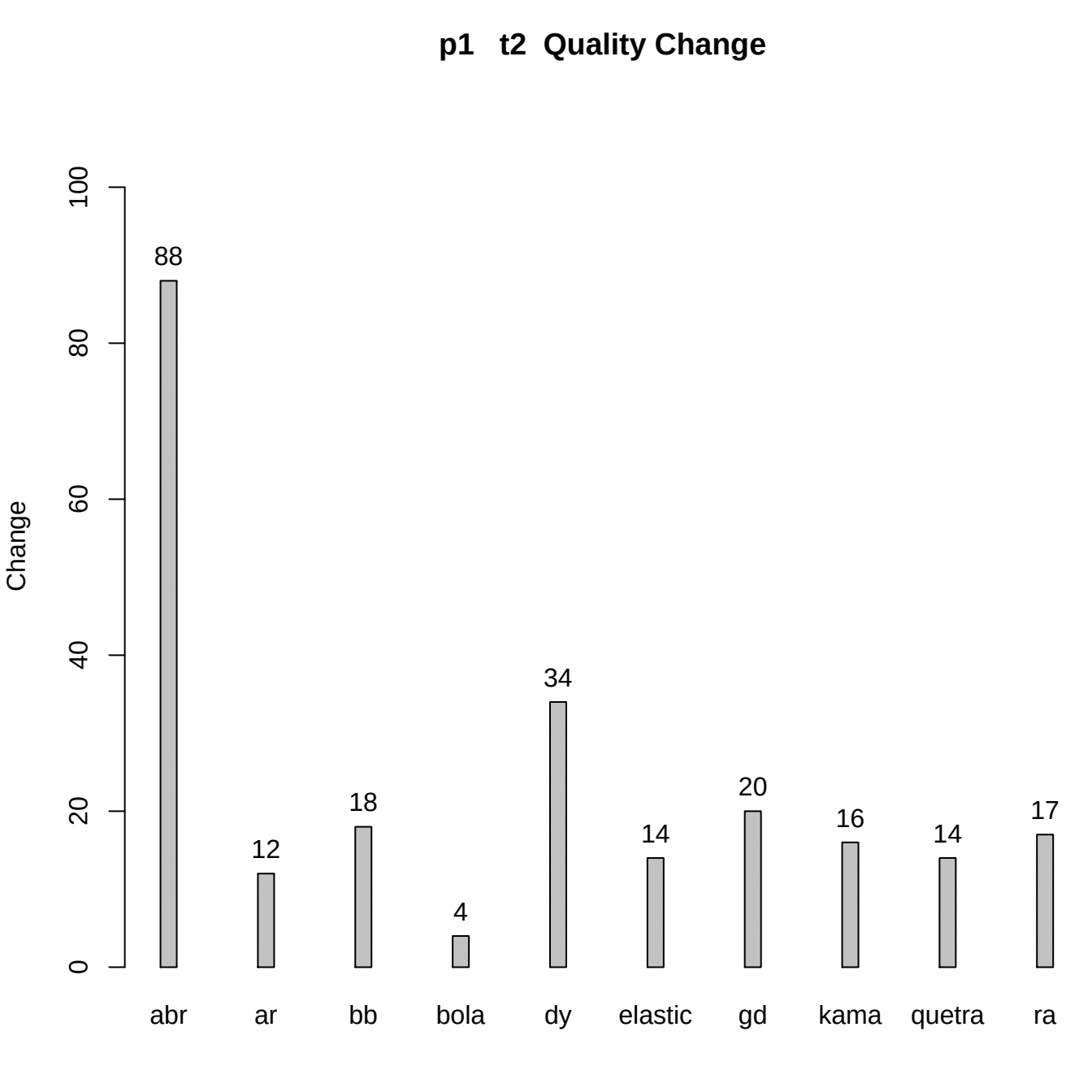

p1 t1 Number of Stall
#
0
5
10
15
20
0
0
0
0
0
2
0
0
0
0

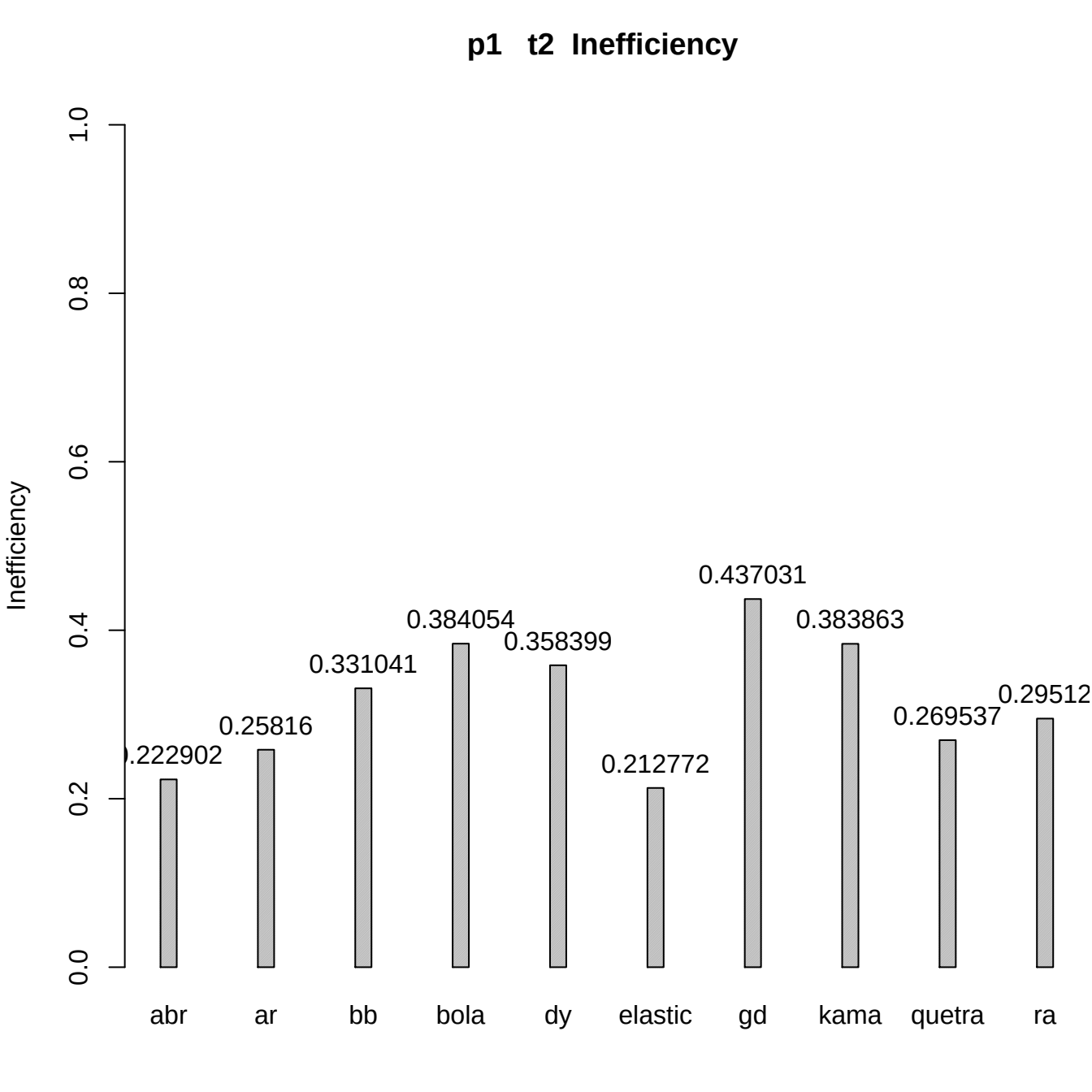

p1 t1 Average Stall
Sec
0
1
2
3
4
5
0
0
0
0
0
0.27
0
0
0
0

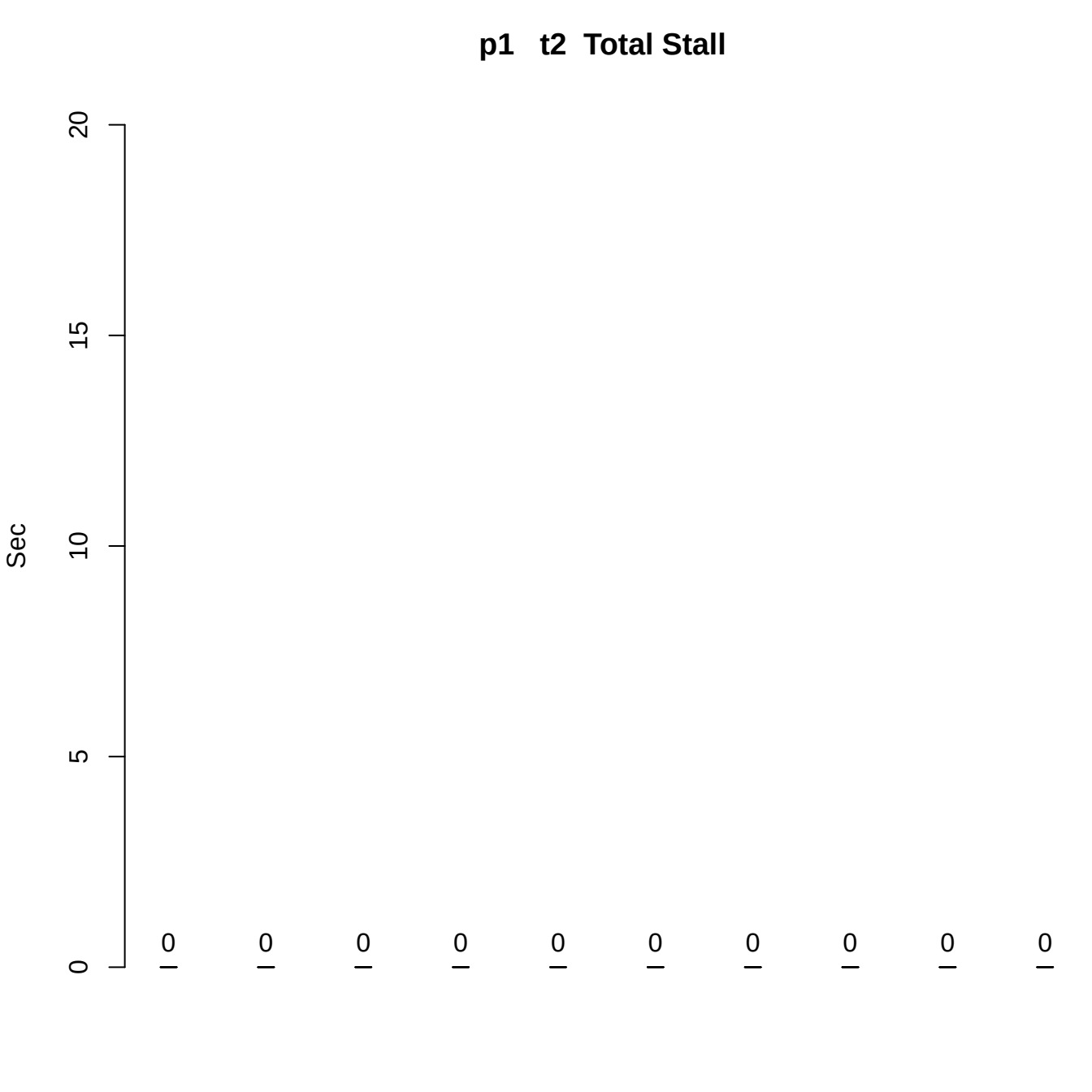

p1 t1 Buffer Overflow
Sec
0
50
100
150
200
55.229
0
1.293
0
29.752
19.422
86.077
209.668
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

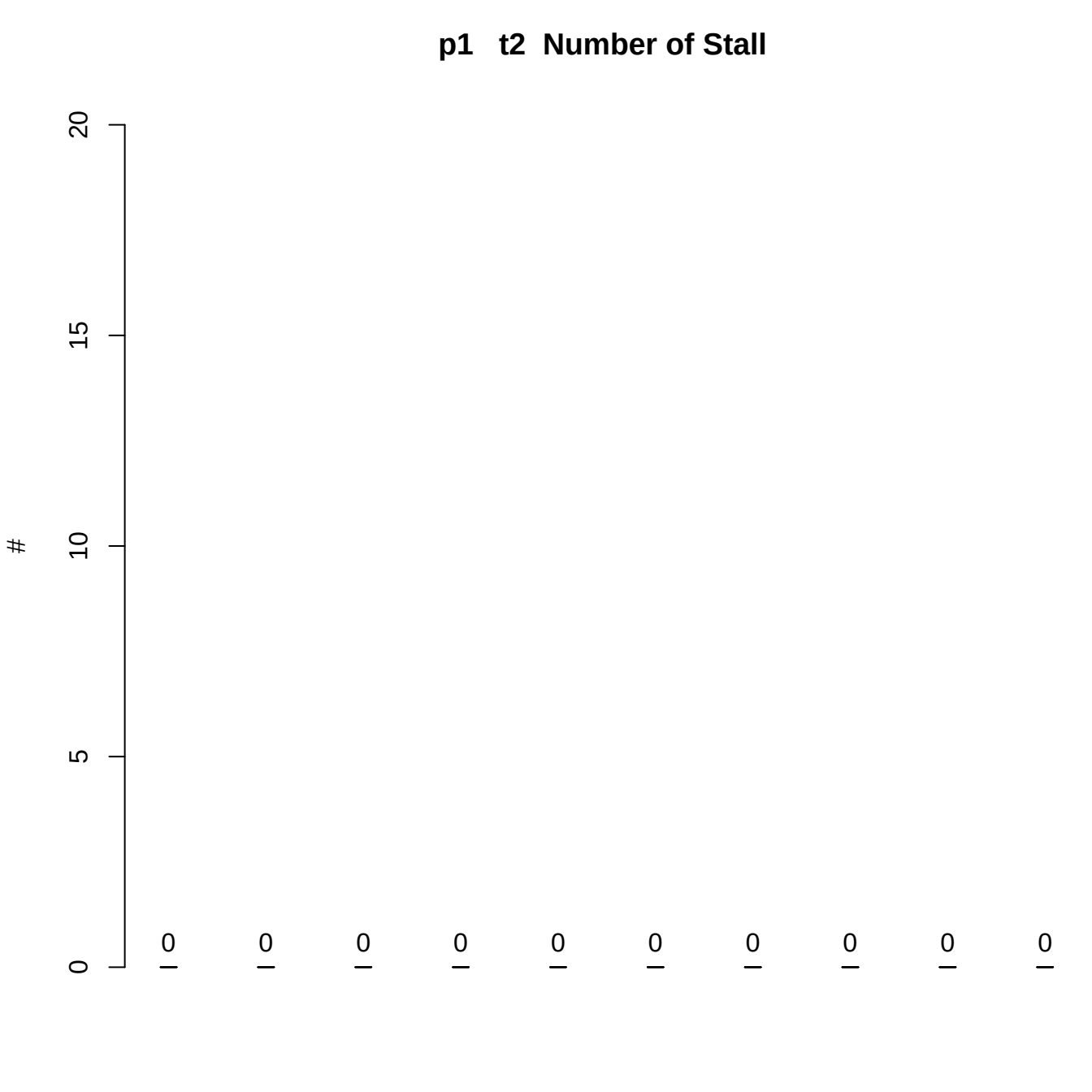

p1 t1 Number of Buffer Overflow
#
0
200
400
600
800
1000
292
0
13
0
165
109
440
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

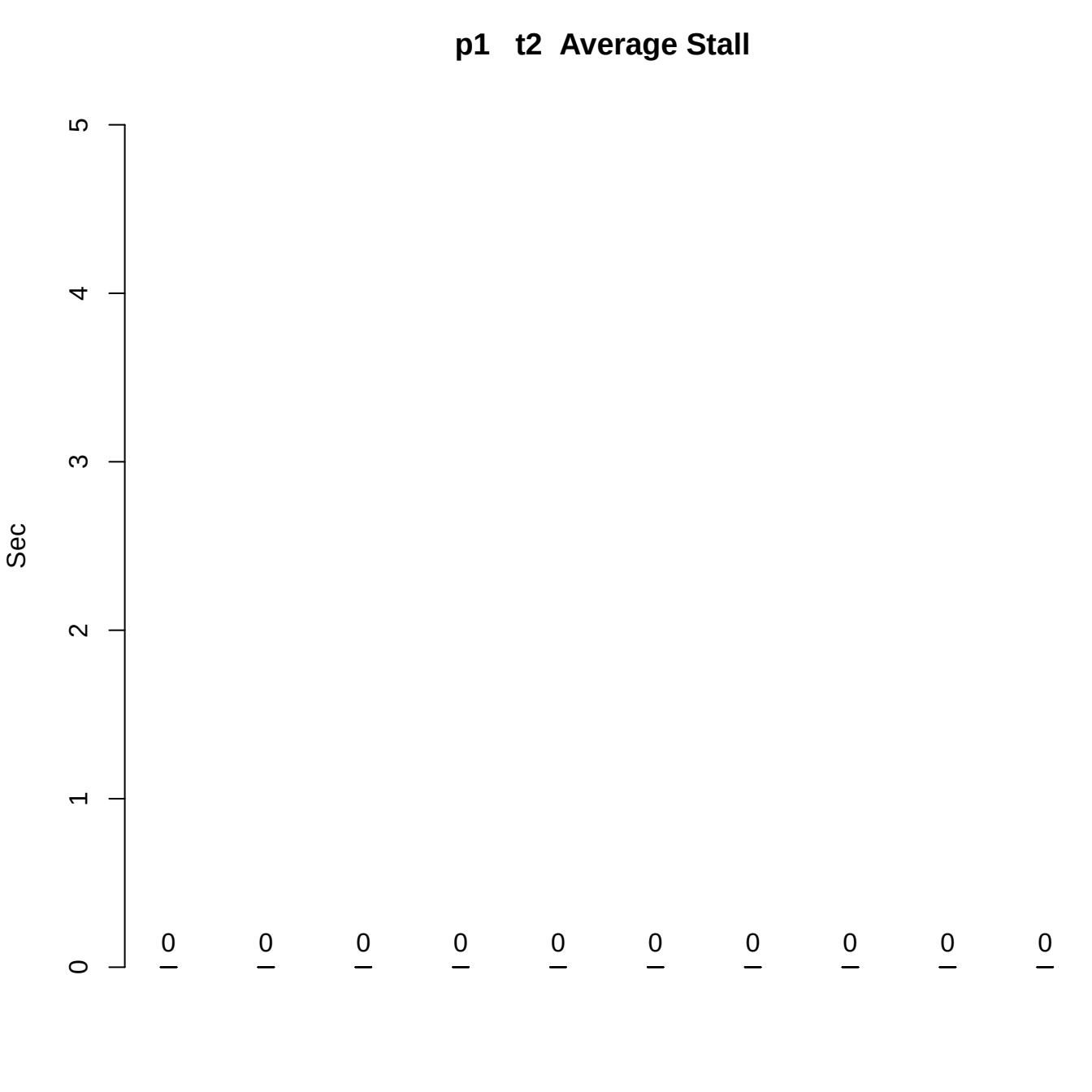

p1 t2 Avergae Bitrate
Kbps
0
1000
2000
3000
2923.41
3418.33
3170.63
1938.93
3166.05
2731.56
2544.31
2116.7
3391.49
3313.86
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

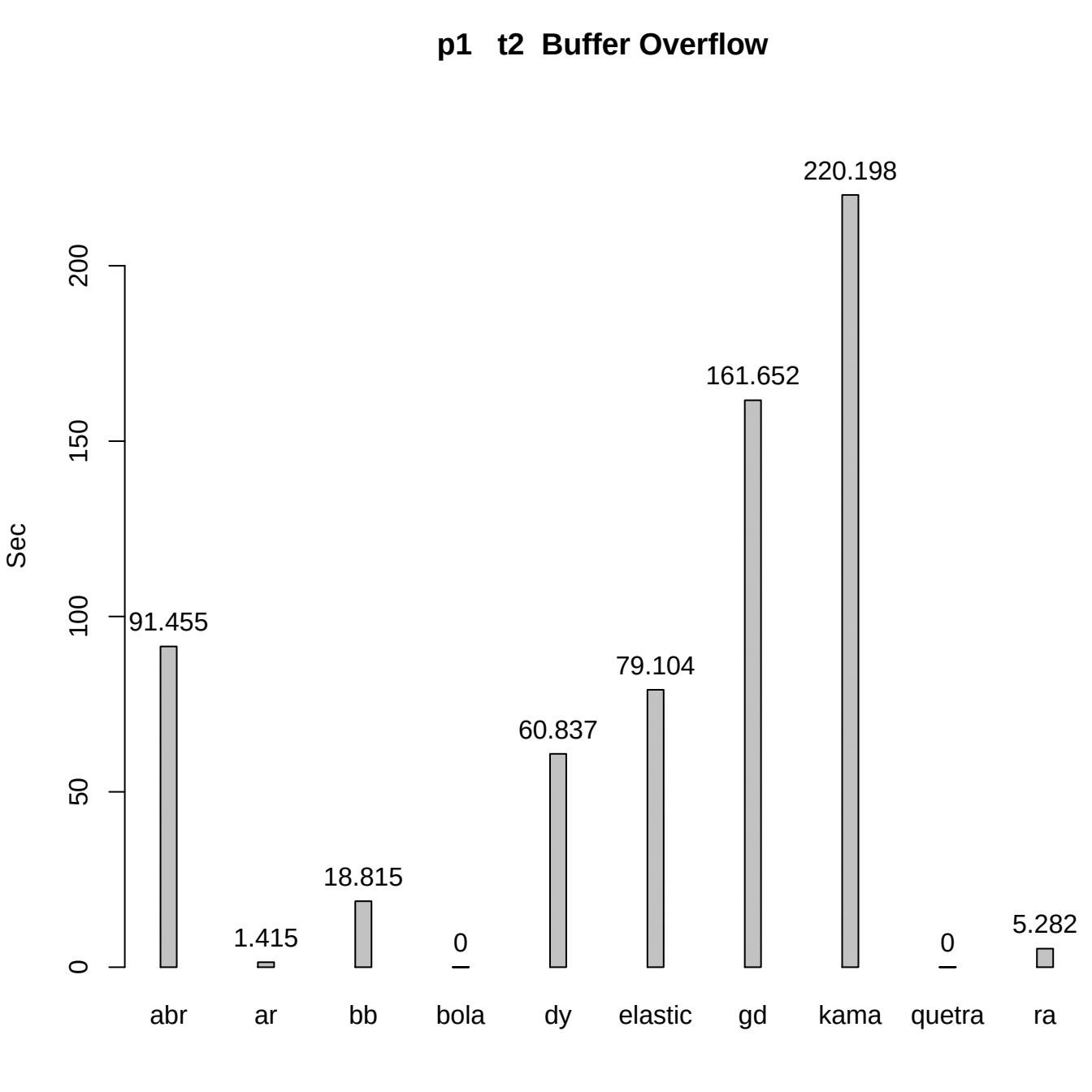

p1 t2 Quality Change
Change
0
20
40
60
80
100
88
12
18
4
34
14
20
16
14
17
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

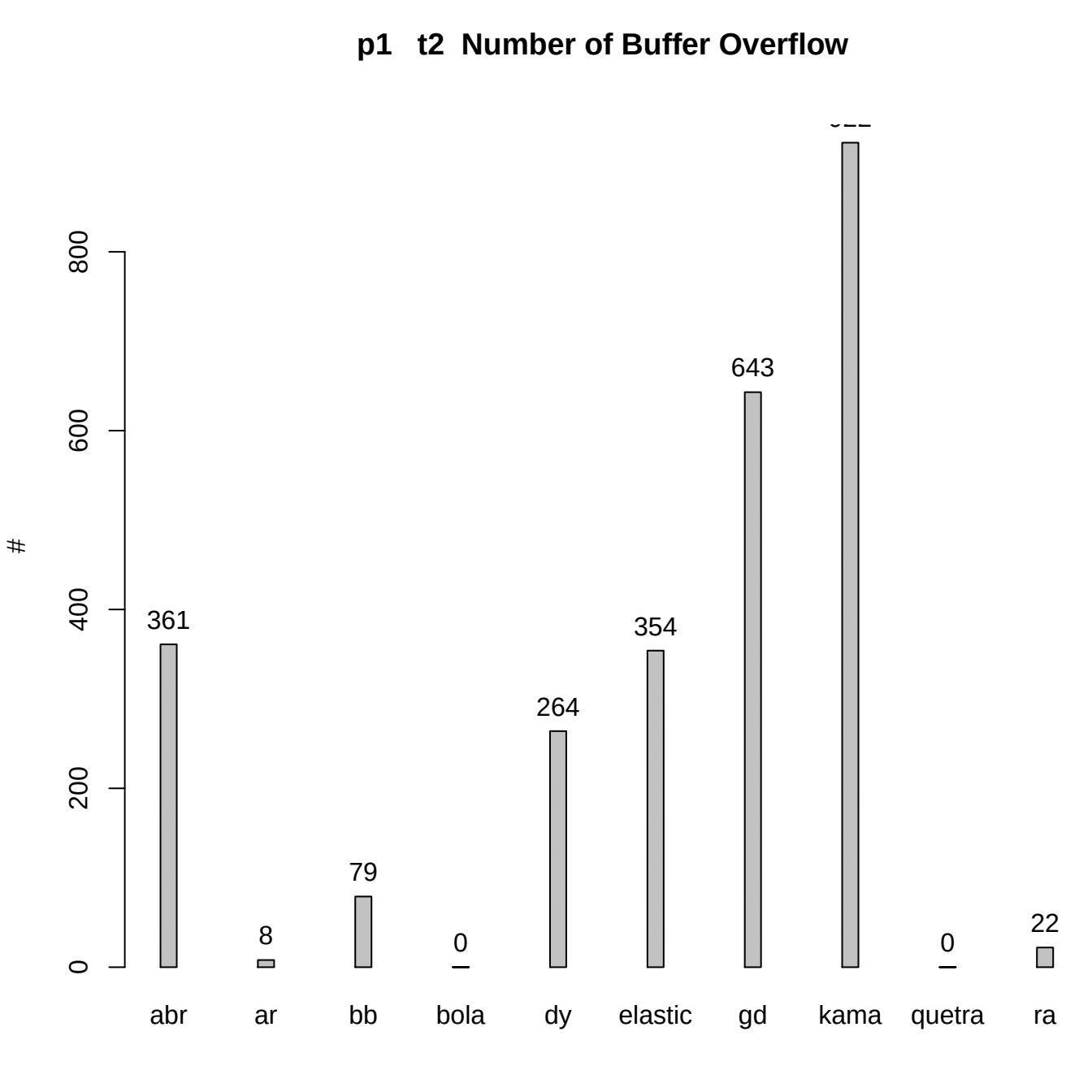

p1 t2 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.222902
0.25816
0.331041
0.384054
0.358399
0.212772
0.437031
0.383863
0.269537
0.29512
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

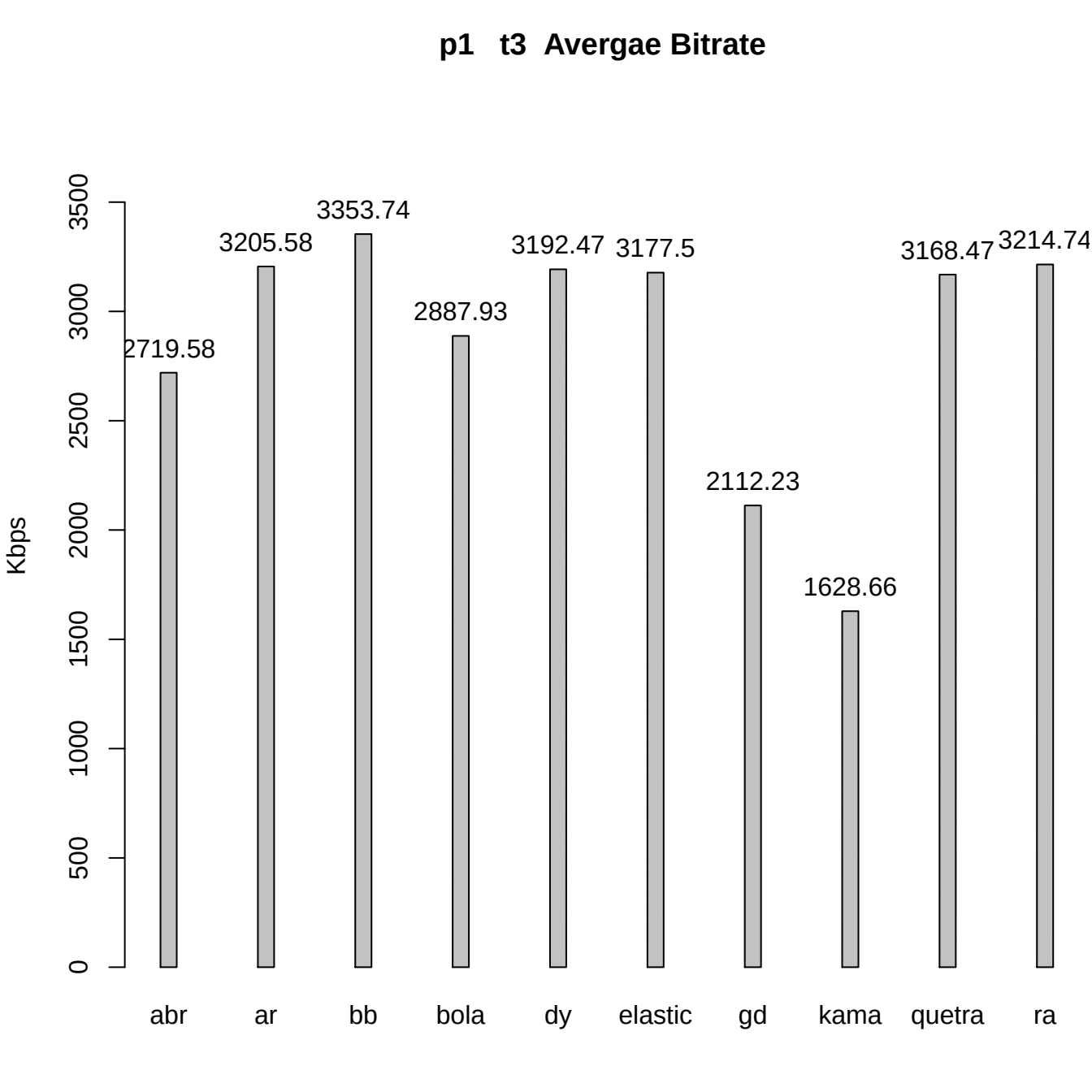

p1 t2 Total Stall
Sec
0
5
10
15
20
0
0
0
0
0
0
0
0
0
0

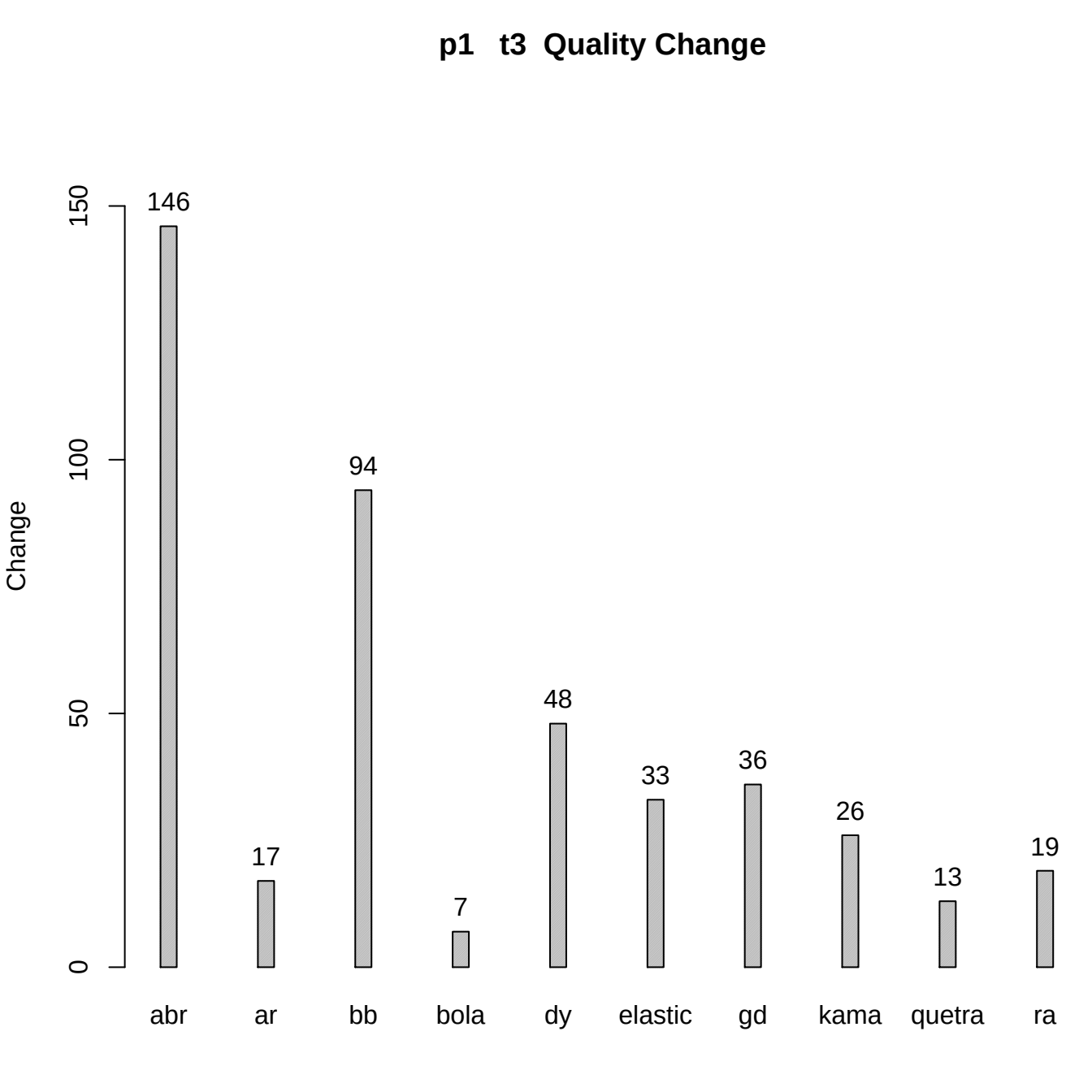

p1 t2 Number of Stall
#
0
5
10
15
20
0
0
0
0
0
0
0
0
0
0

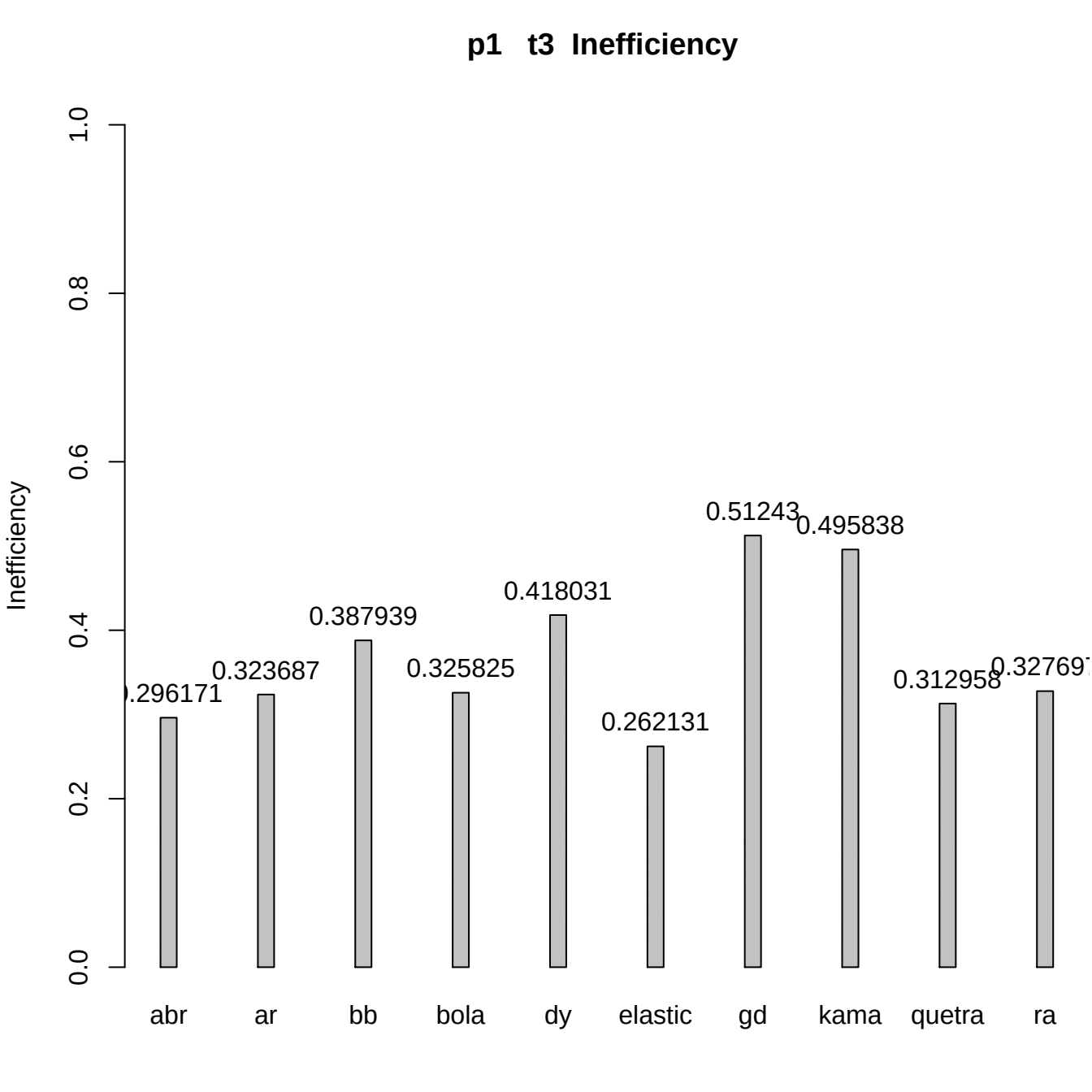

p1 t2 Average Stall
Sec
0
1
2
3
4
5
0
0
0
0
0
0
0
0
0
0

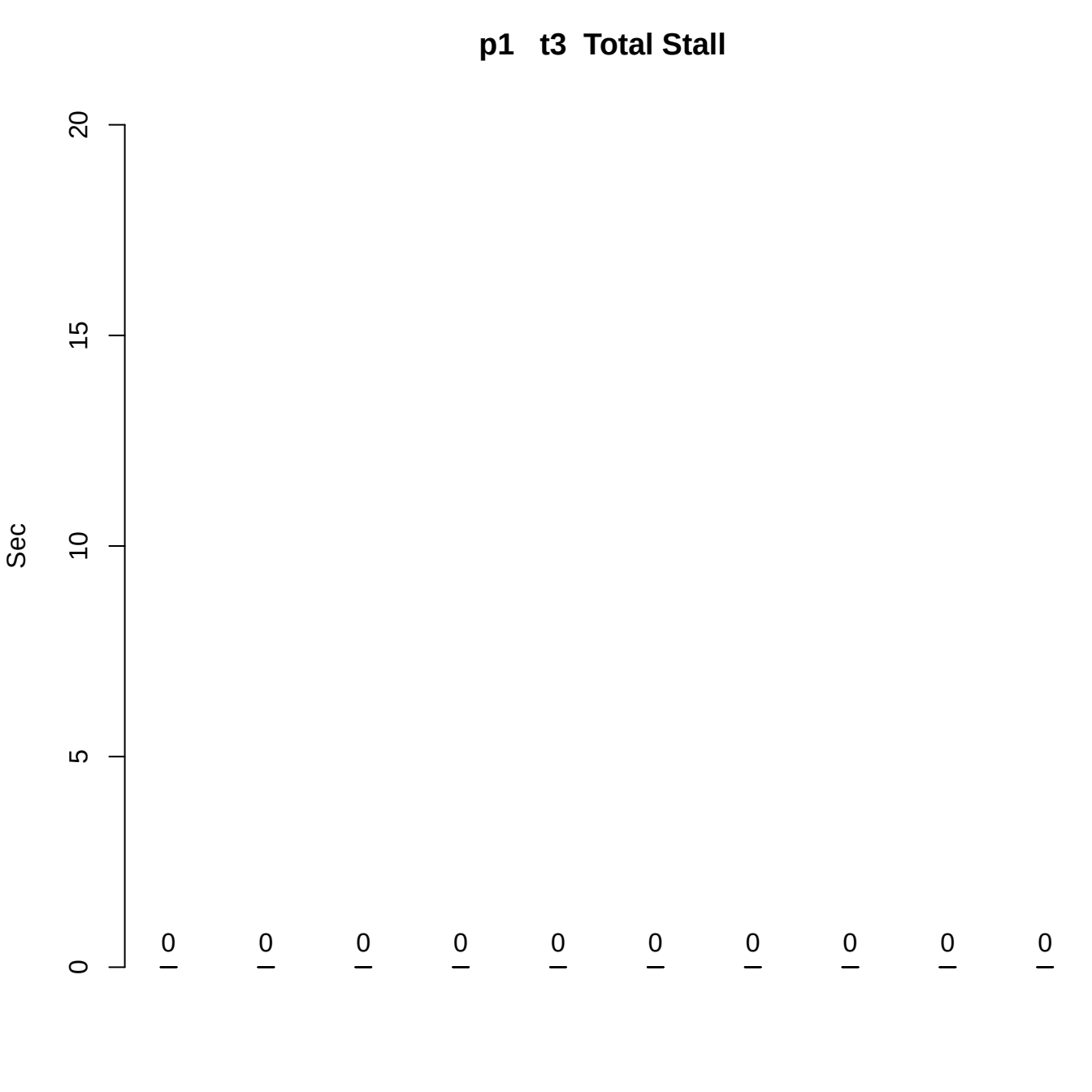

p1 t2 Buffer Overflow
Sec
0
50
100
150
200
91.455
1.415
18.815
0
60.837
79.104
161.652
220.198
0
5.282
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

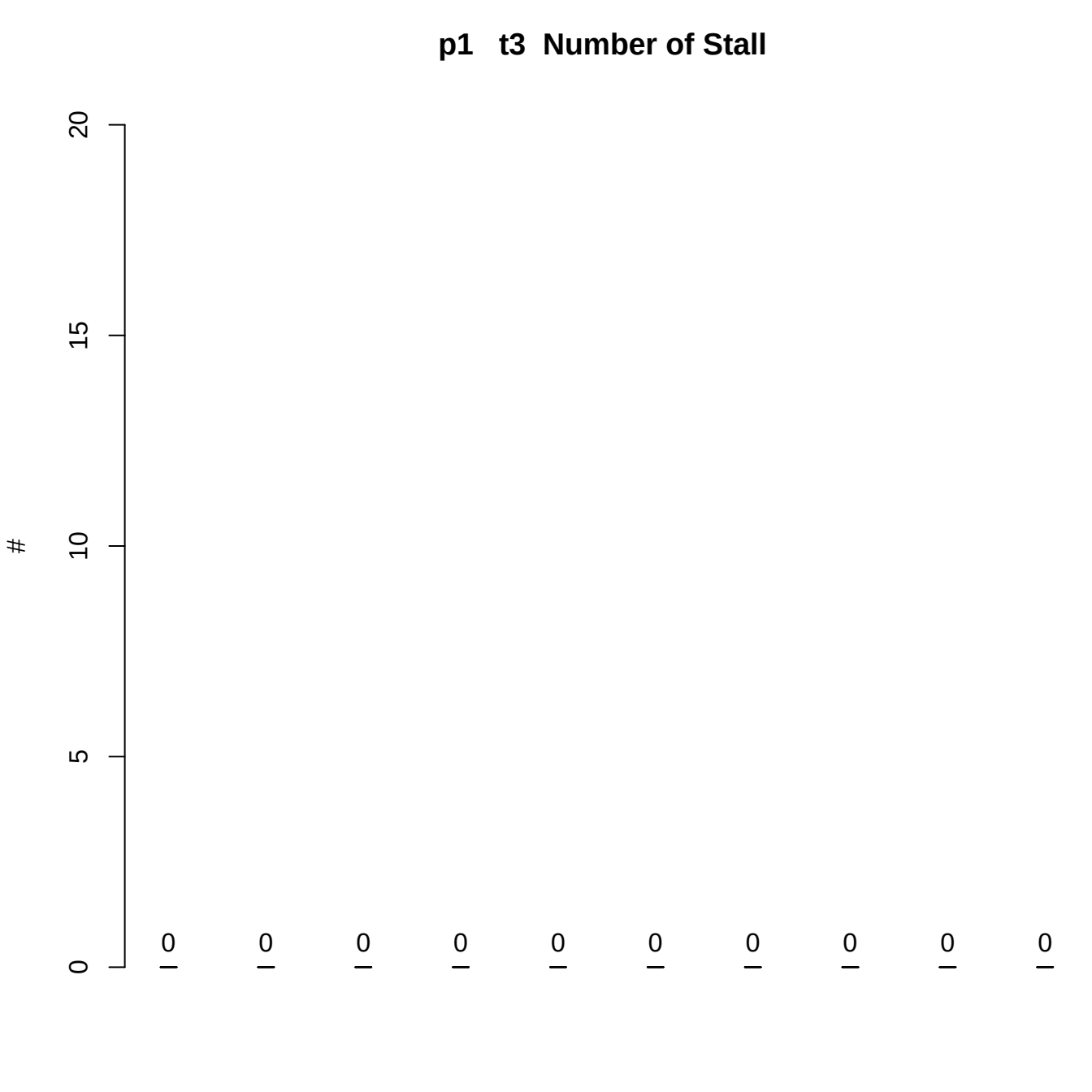

p1 t2 Number of Buffer Overflow
#
0
200
400
600
800
361
8
79
0
264
354
643
0
22
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

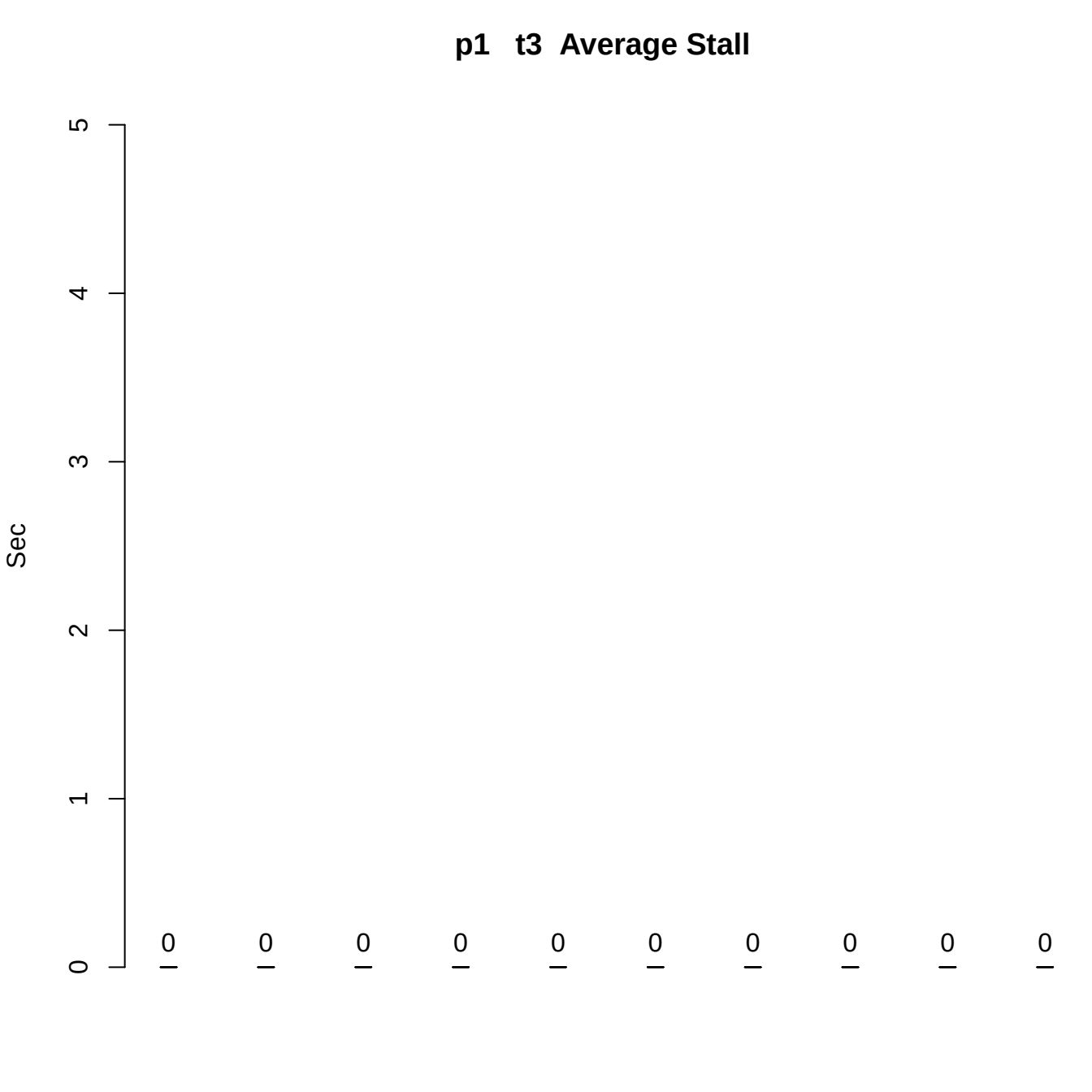

p1 t3 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
3000
3500
2719.58
3205.58
3353.74
2887.93
3192.47
3177.5
2112.23
1628.66
3168.47
3214.74
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

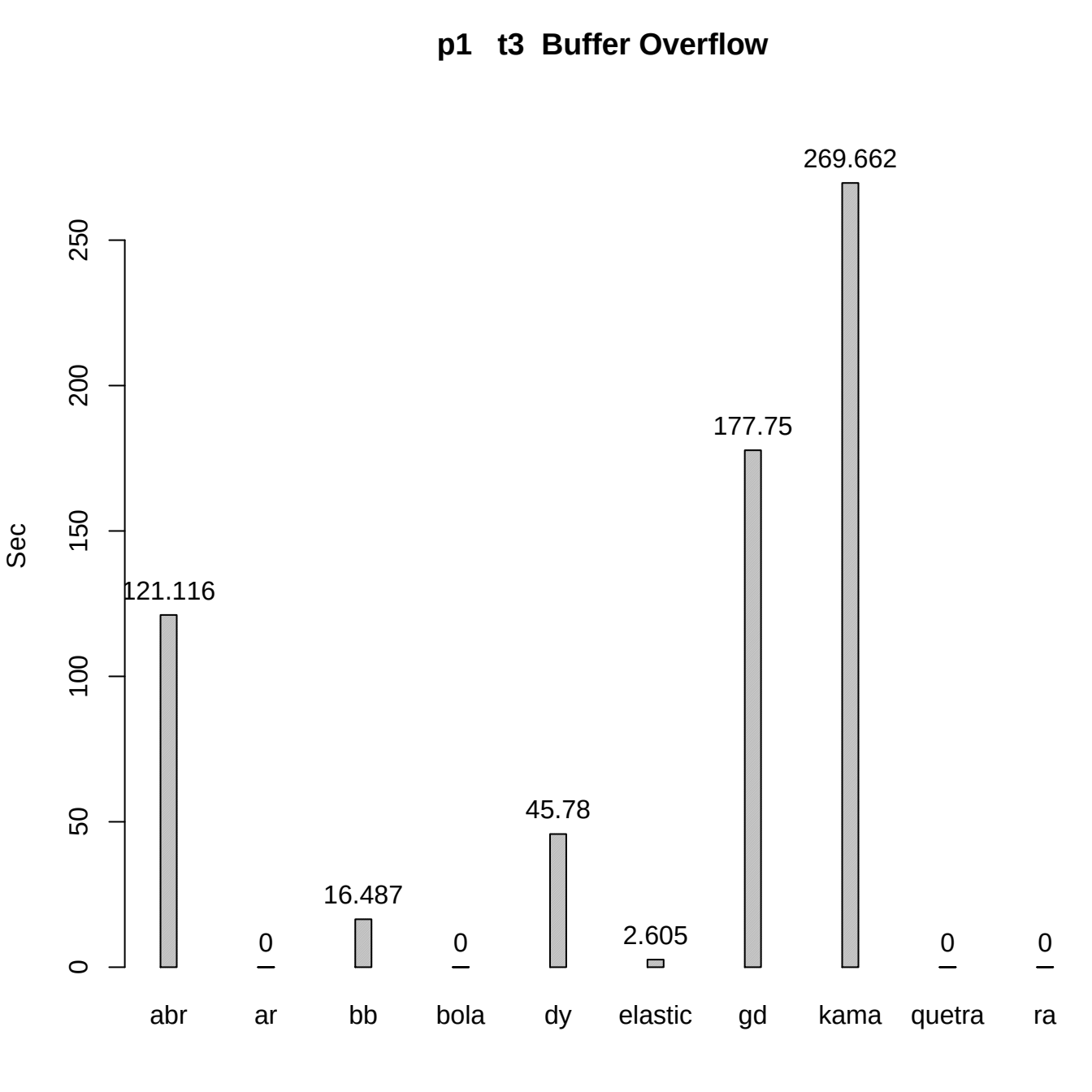

p1 t3 Quality Change
Change
0
50
100
150
146
17
94
7
48
33
36
26
13
19
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

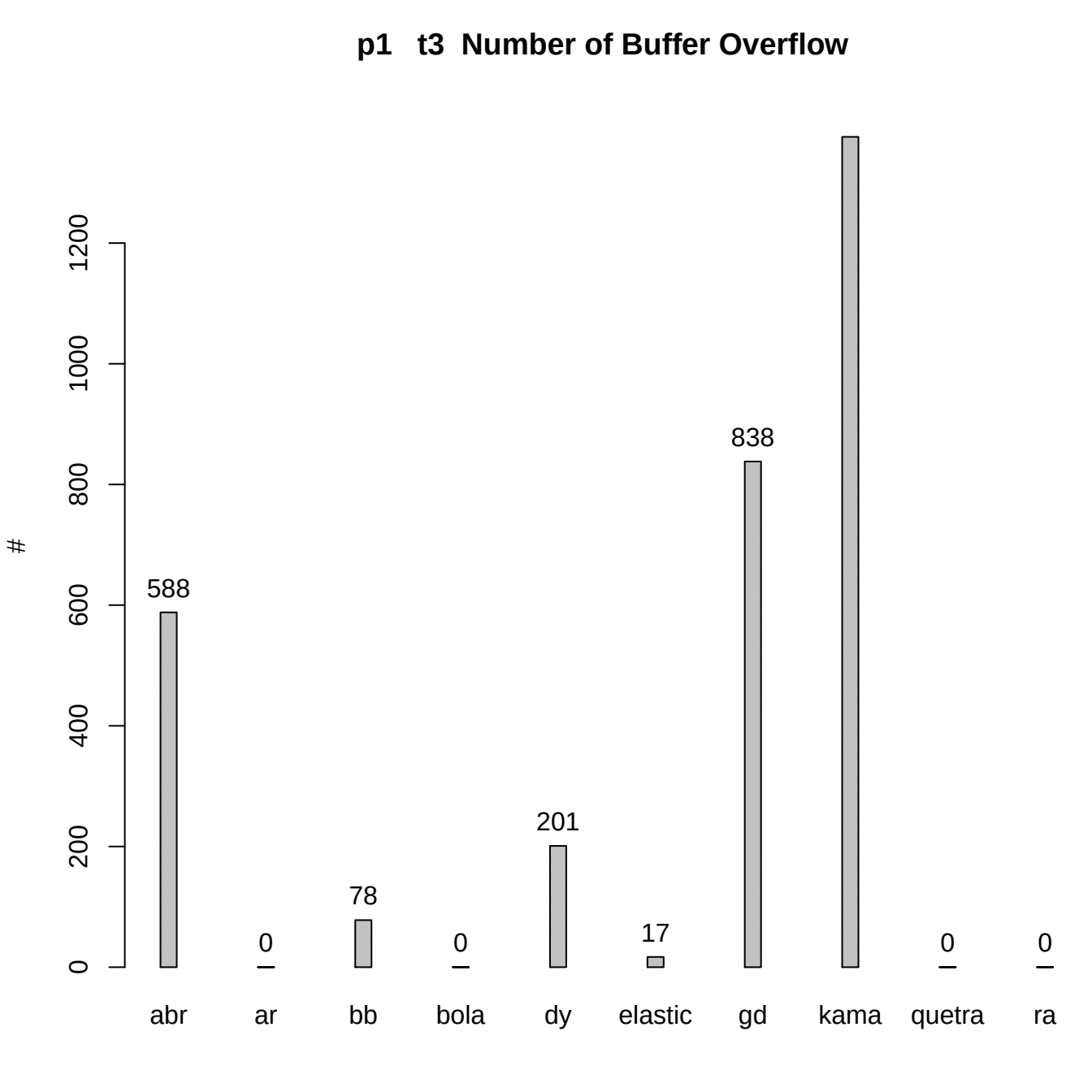

p1 t3 Inefficiency
Inefficiency
1.0
0.8
0.6
0.4
0.2
0.0
.296171
0.323687
0.387939
0.325825
0.418031
0.262131
0.51243
0.495838
0.312958
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

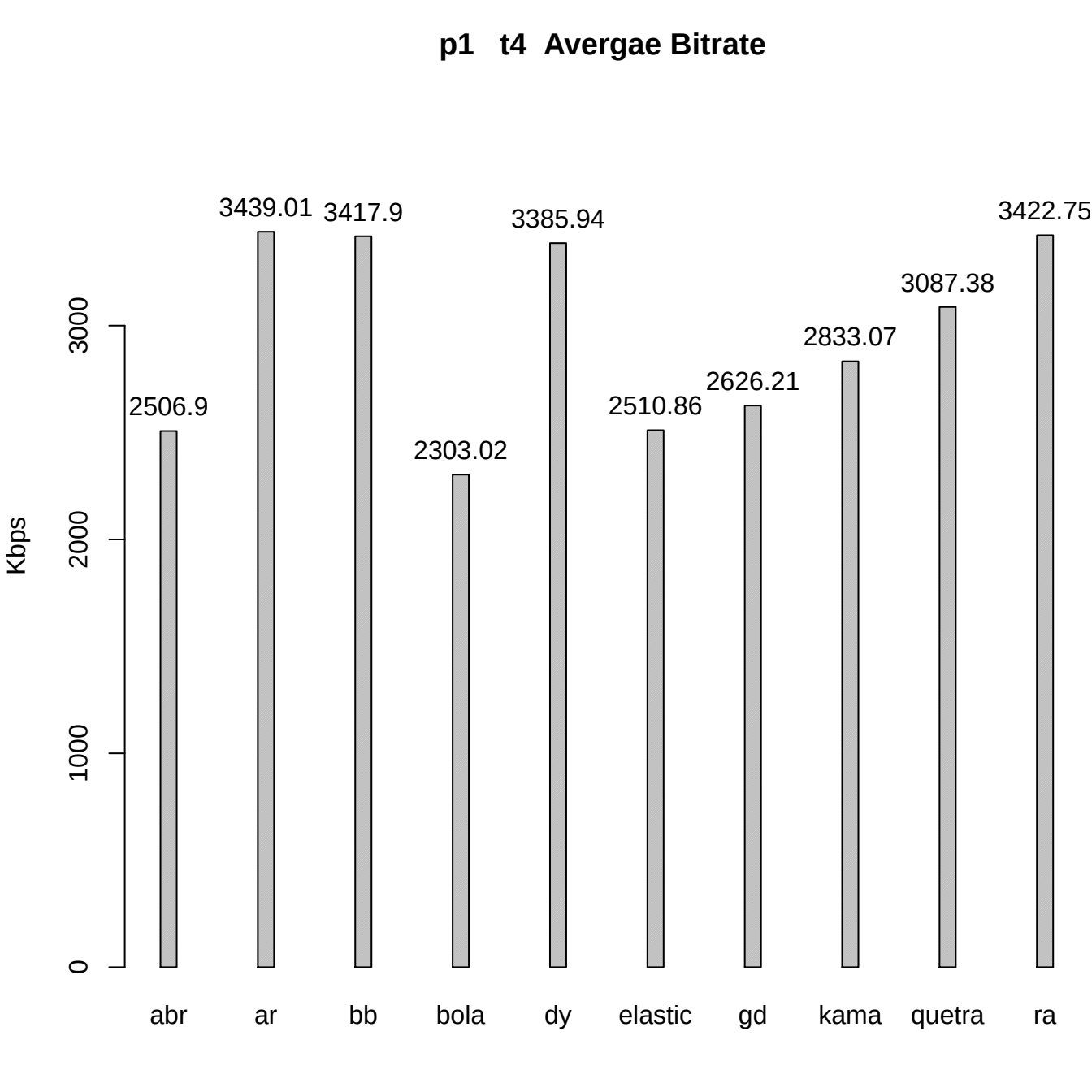

p1 t3 Total Stall
Sec
0
5
10
15
20
0
0
0
0
0
0
0
0
0
0

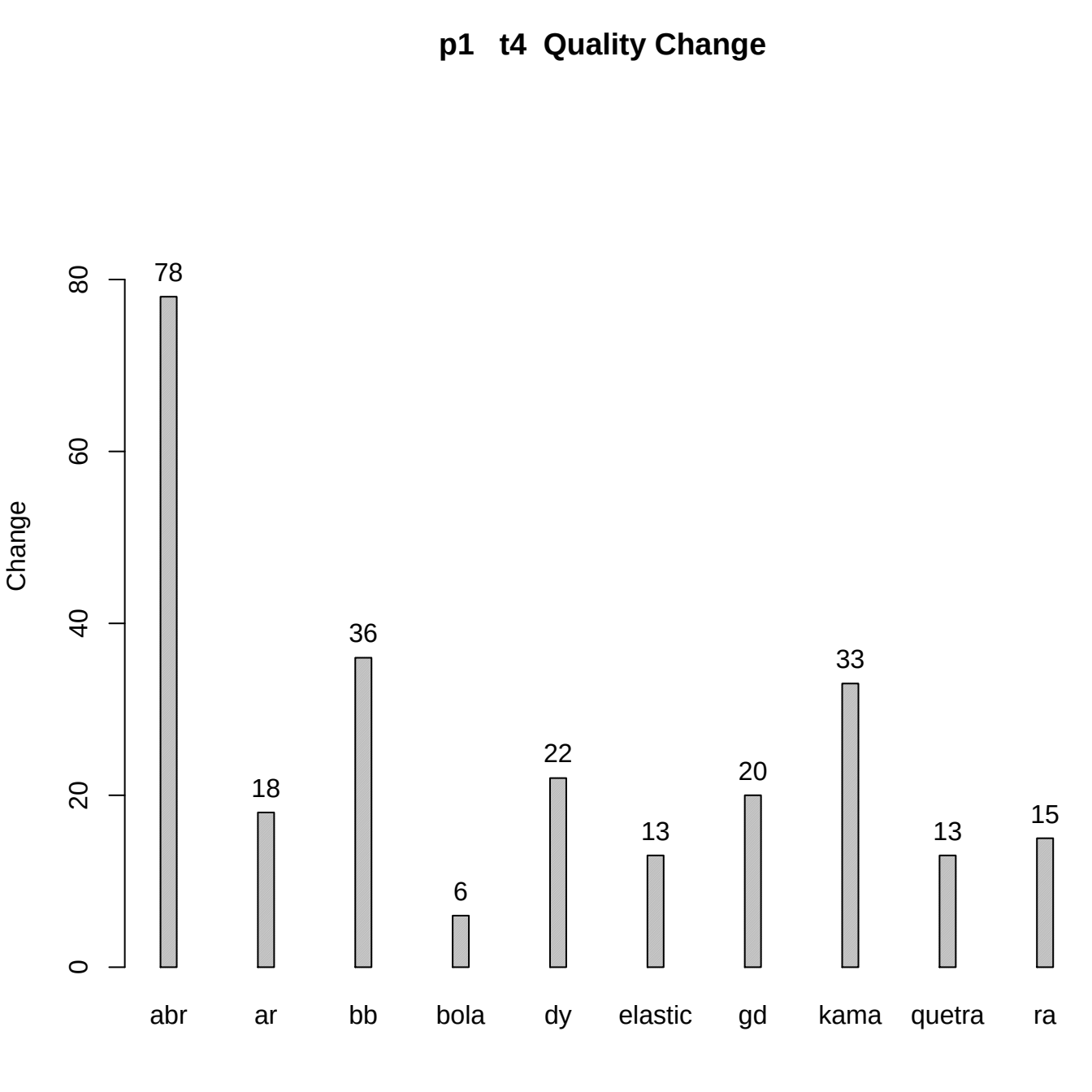

p1 t3 Number of Stall
#
0
5
10
15
20
0
0
0
0
0
0
0
0
0
0

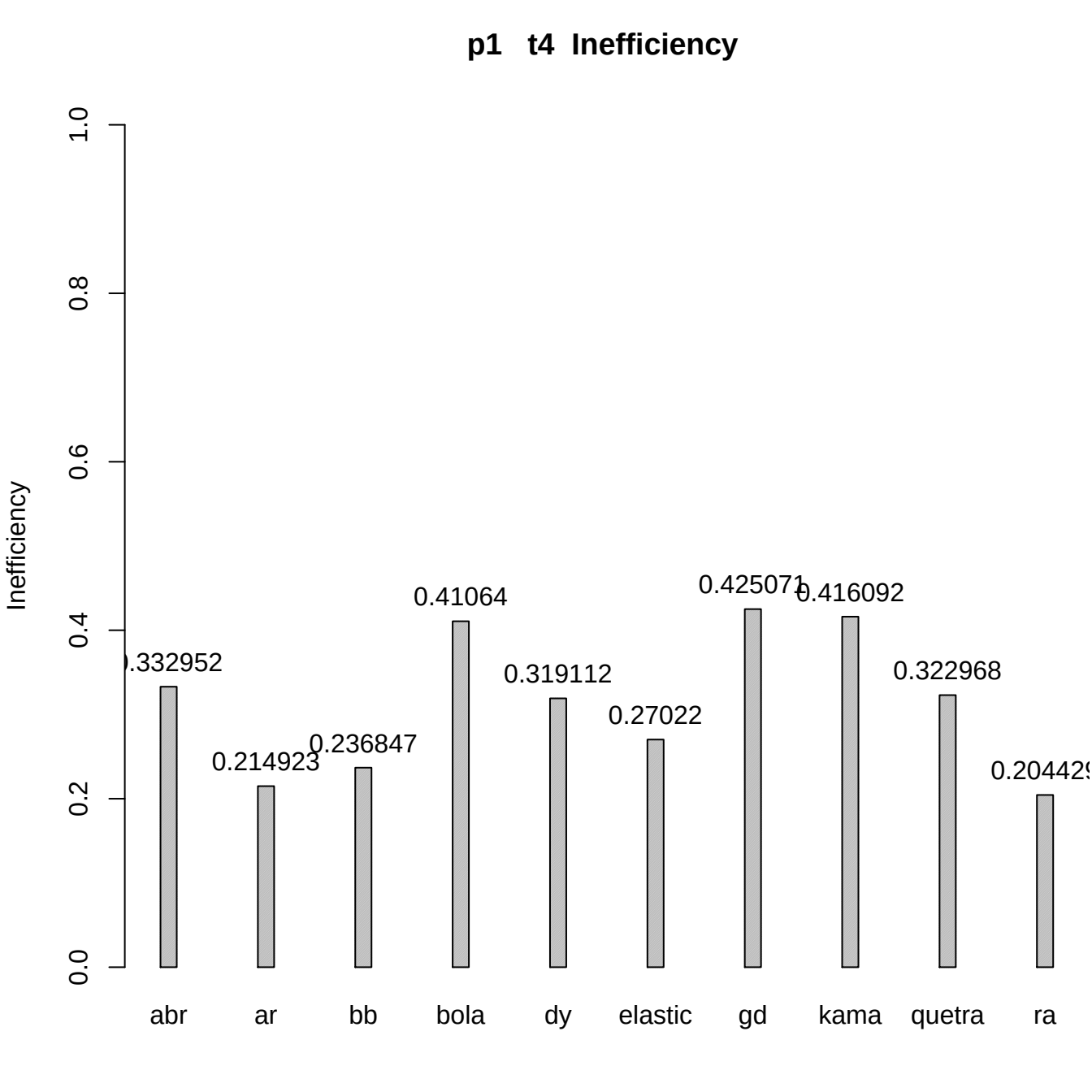

p1 t3 Average Stall
Sec
0
1
2
3
4
5
0
0
0
0
0
0
0
0
0
0

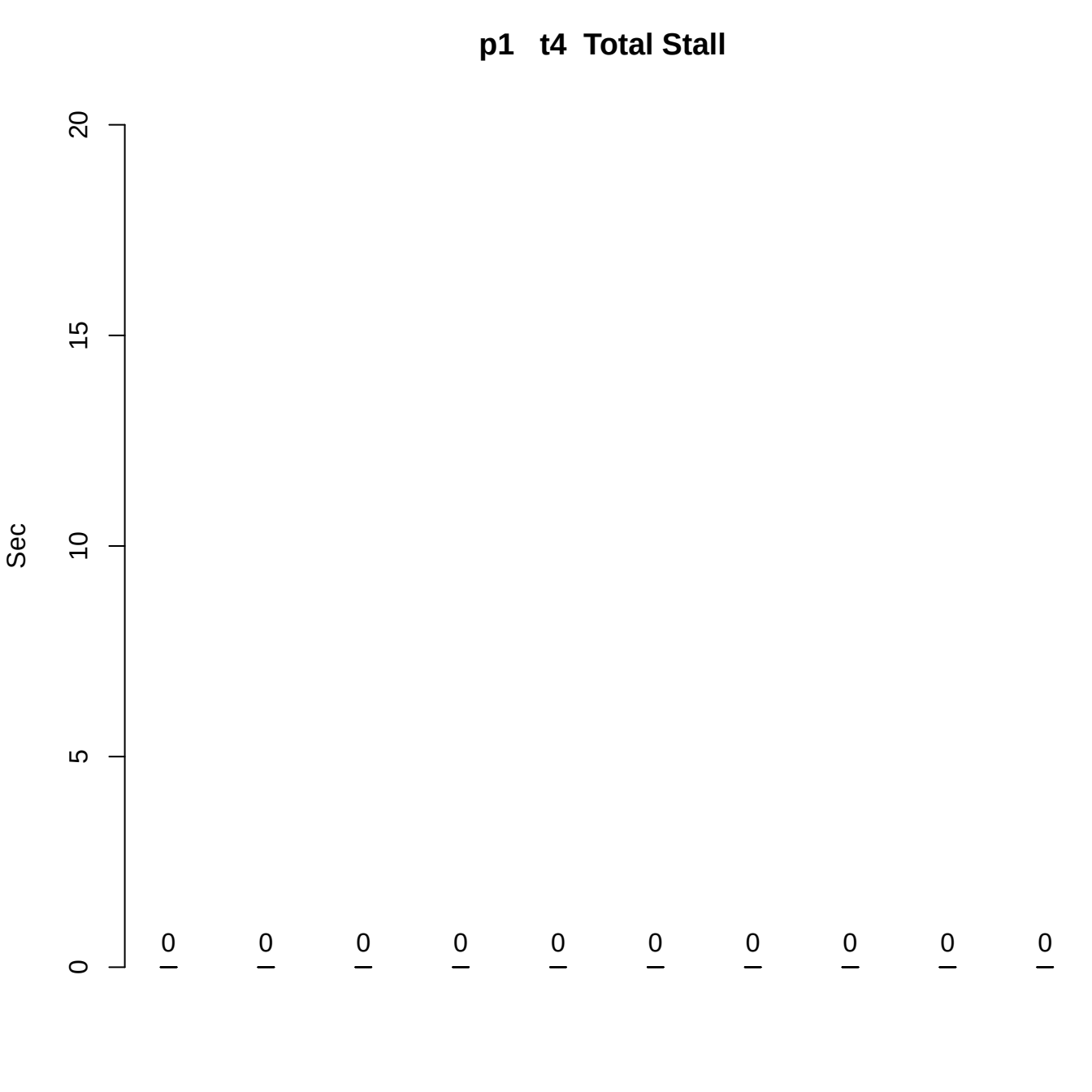

p1 t3 Buffer Overflow
Sec
0
50
100
150
200
250
121.116
0
16.487
0
45.78
2.605
177.75
269.662
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

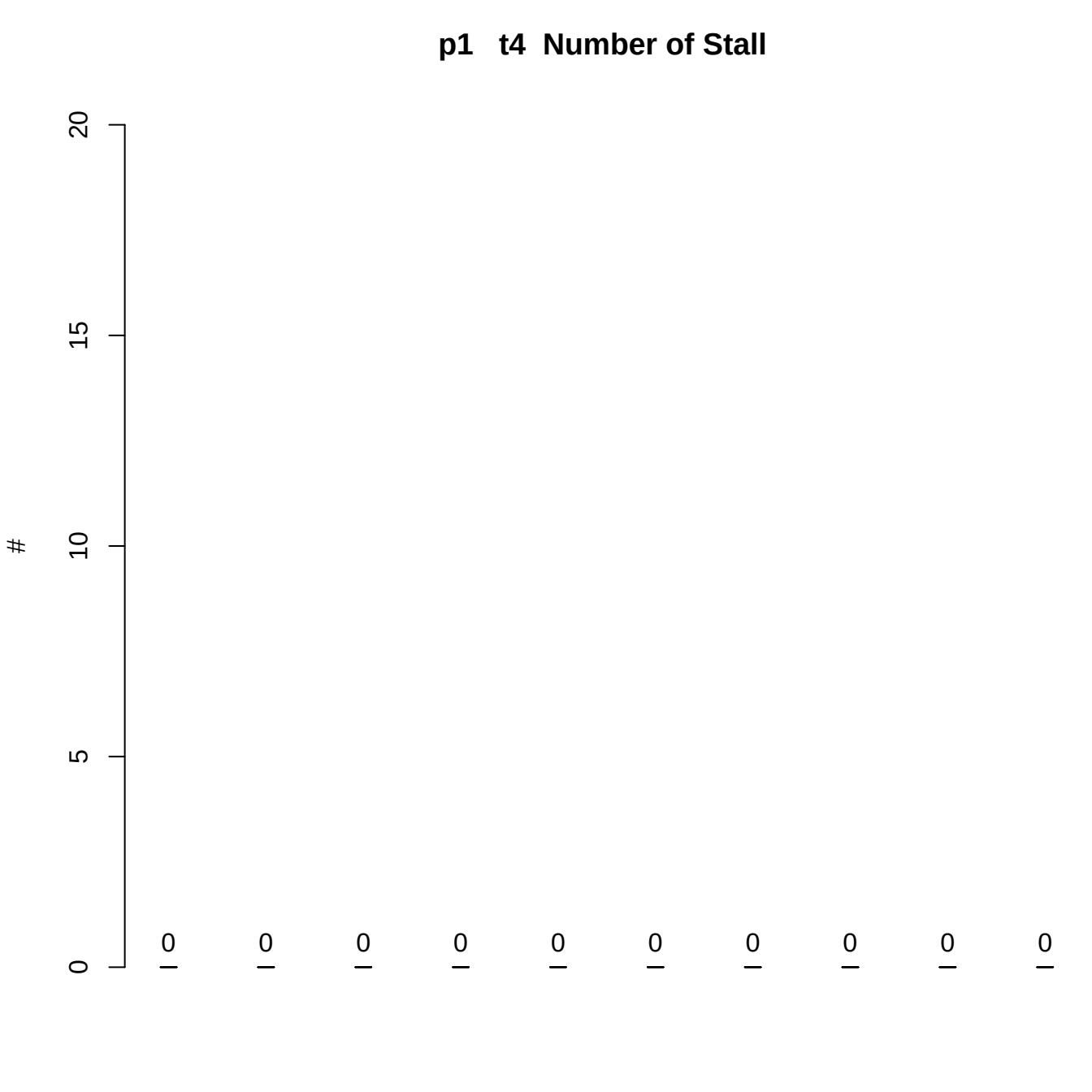

p1 t3 Number of Buffer Overflow
#
0
200
400
600
800
1000
1200
588
0
78
0
201
17
838
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

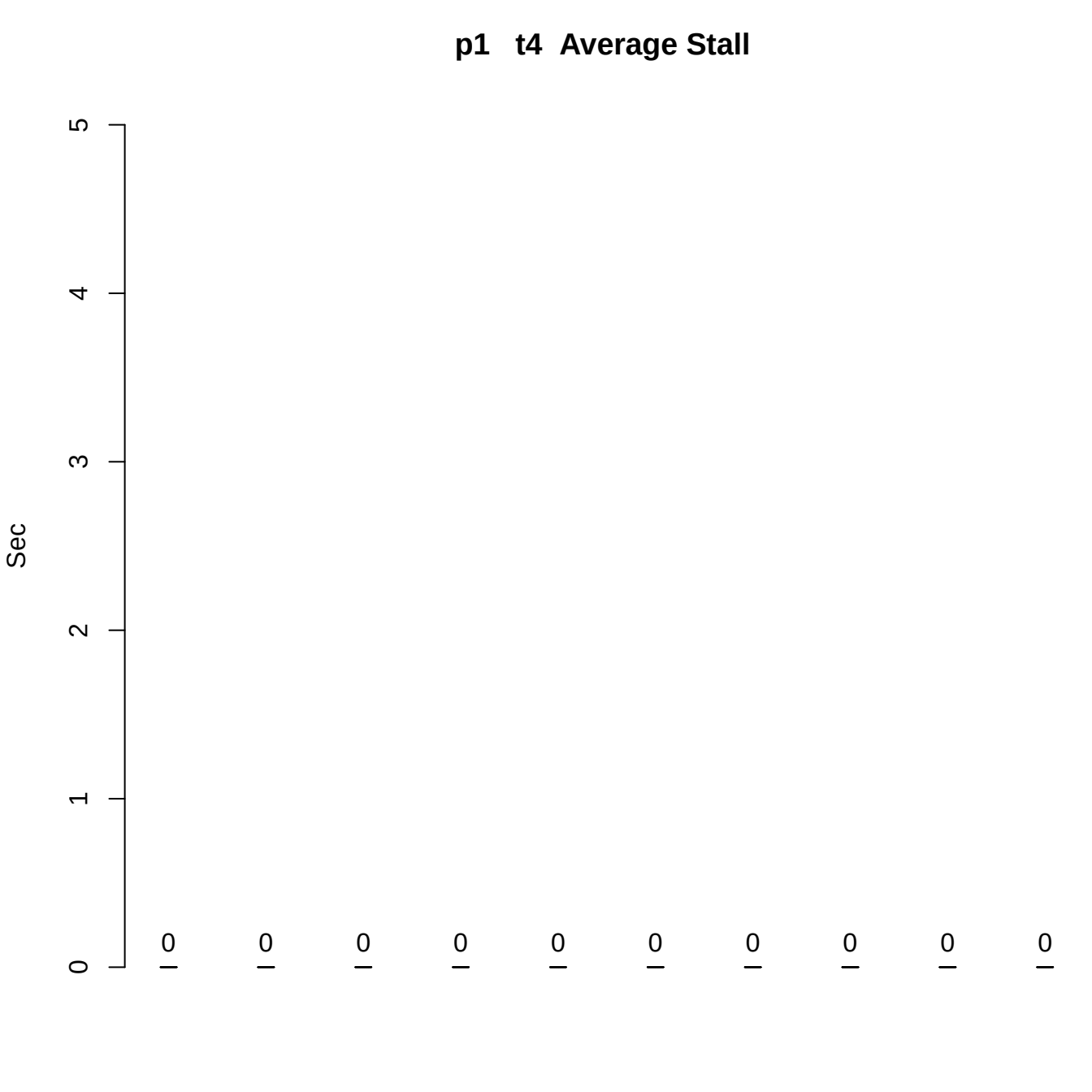

p1 t4 Avergae Bitrate
Kbps
0
1000
2000
3000
2506.9
3439.01
3417.9
2303.02
3385.94
2510.86
2626.21
2833.07
3087.38
3422.75
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

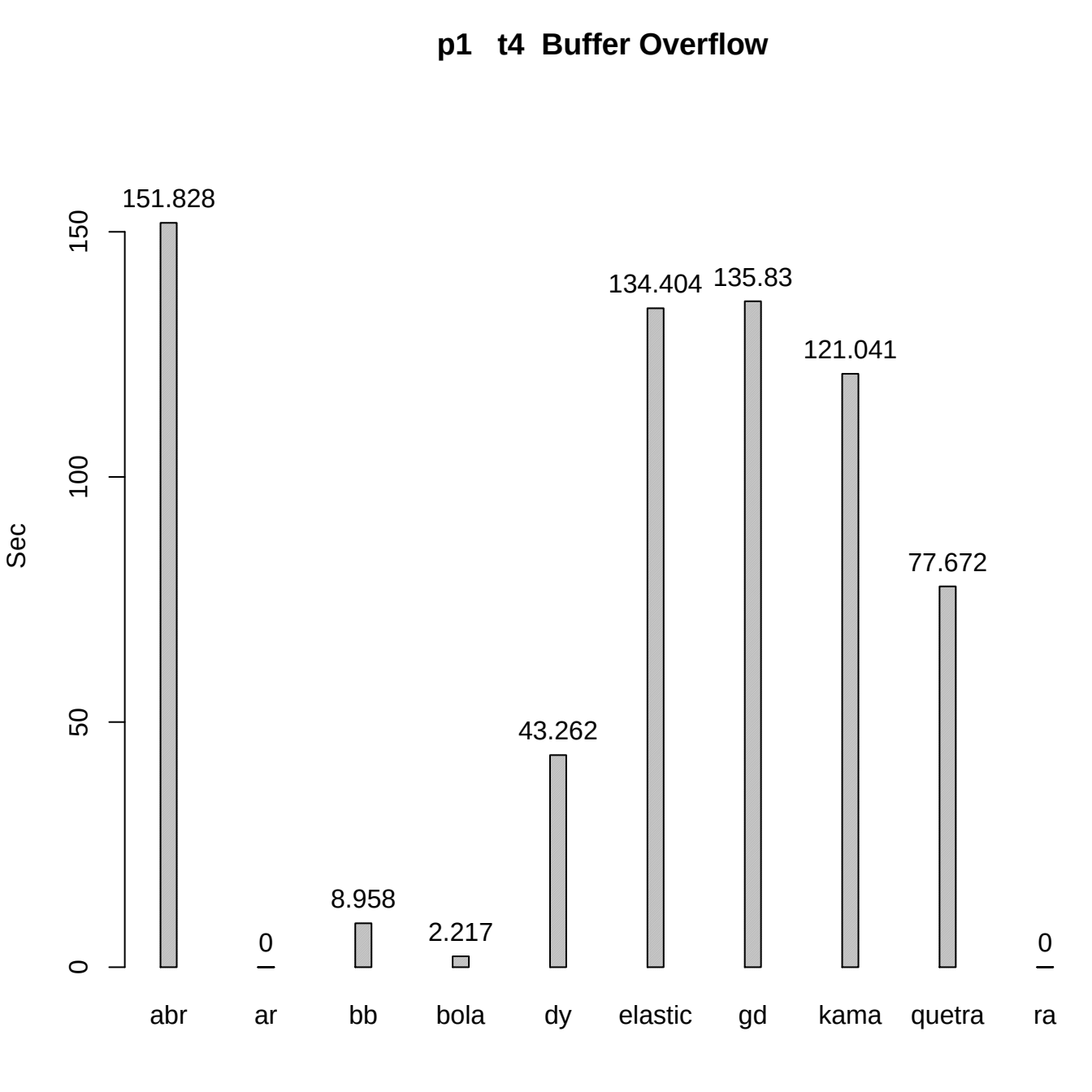

p1 t4 Quality Change
Change
0
20
40
60
80
78
18
36
6
22
13
20
33
13
15
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

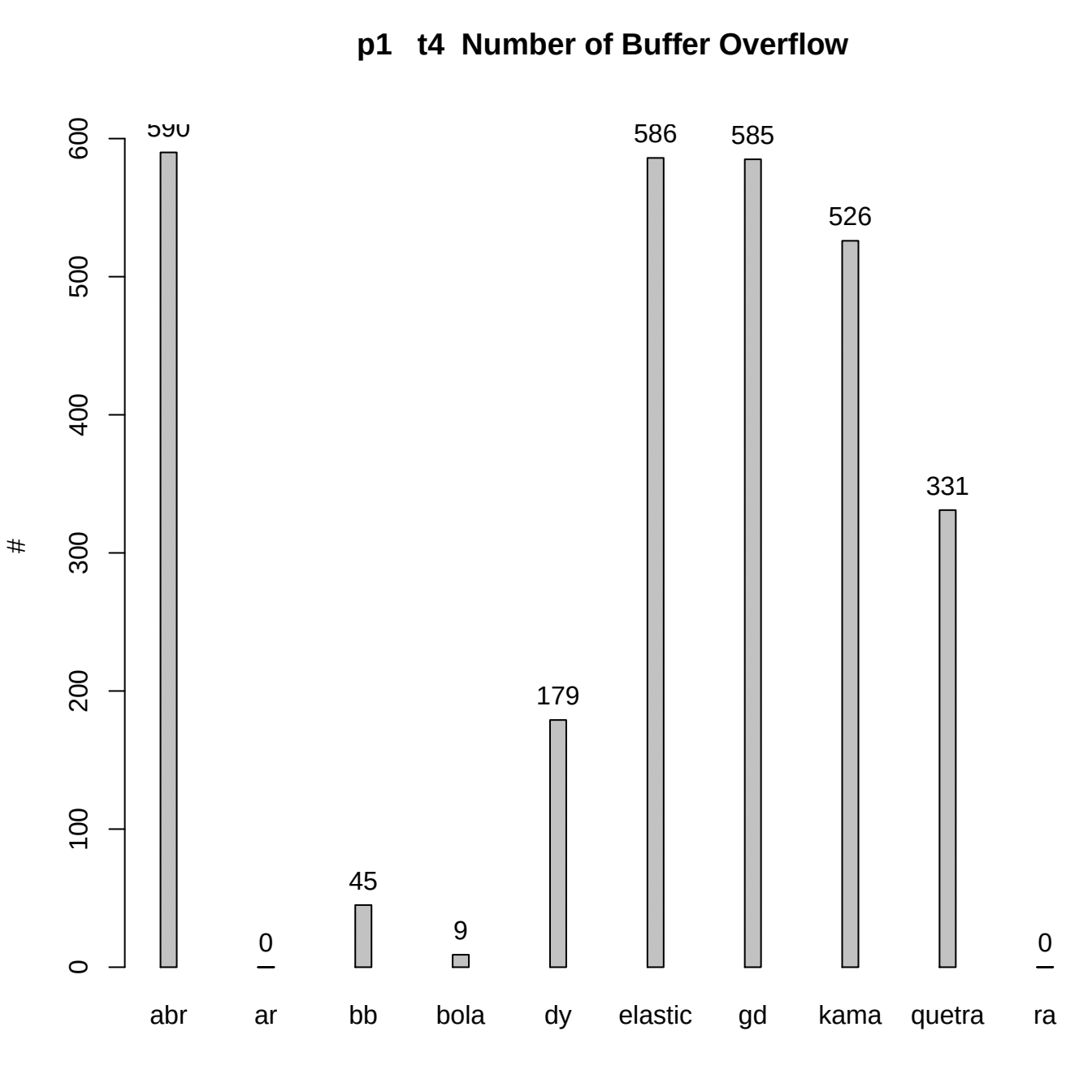

p1 t4 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.332952
0.214923
0.236847
0.41064
0.319112
0.27022
0.425071
0.416092
0.322968
0.20442
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

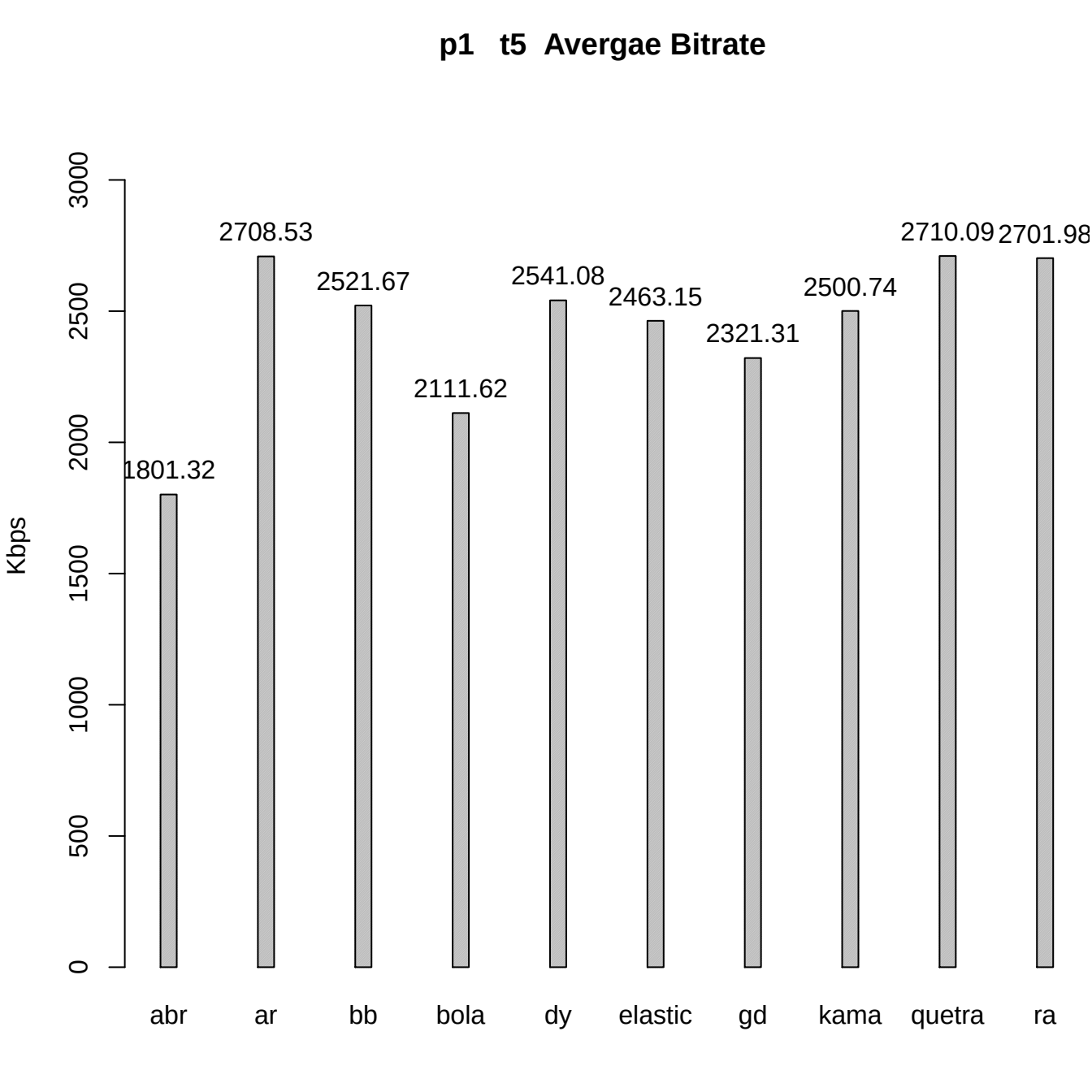

p1 t4 Total Stall
Sec
0
5
10
15
20
0
0
0
0
0
0
0
0
0
0

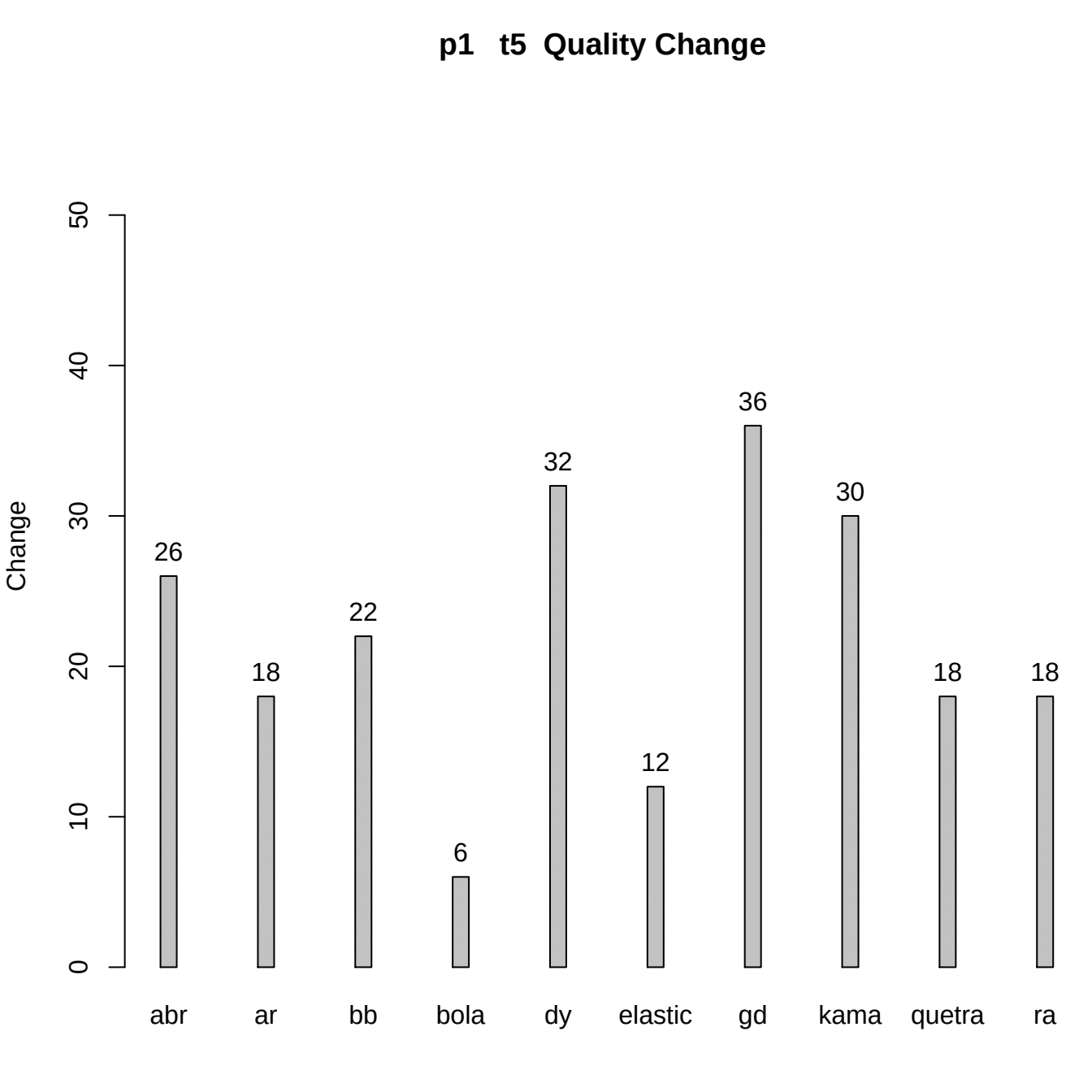

p1 t4 Number of Stall
#
0
5
10
15
20
0
0
0
0
0
0
0
0
0
0

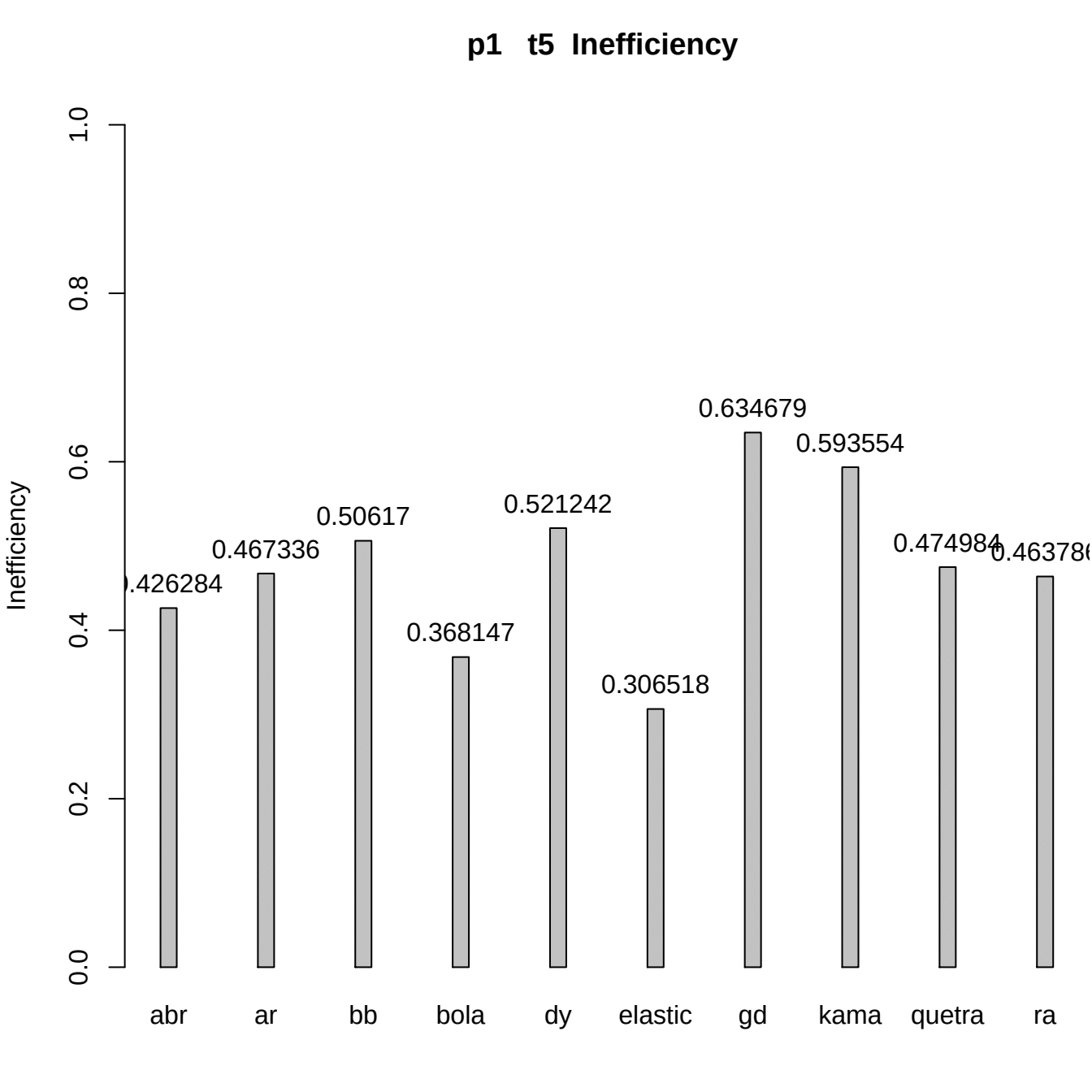

p1 t4 Average Stall
Sec
0
1
2
3
4
5
0
0
0
0
0
0
0
0
0
0

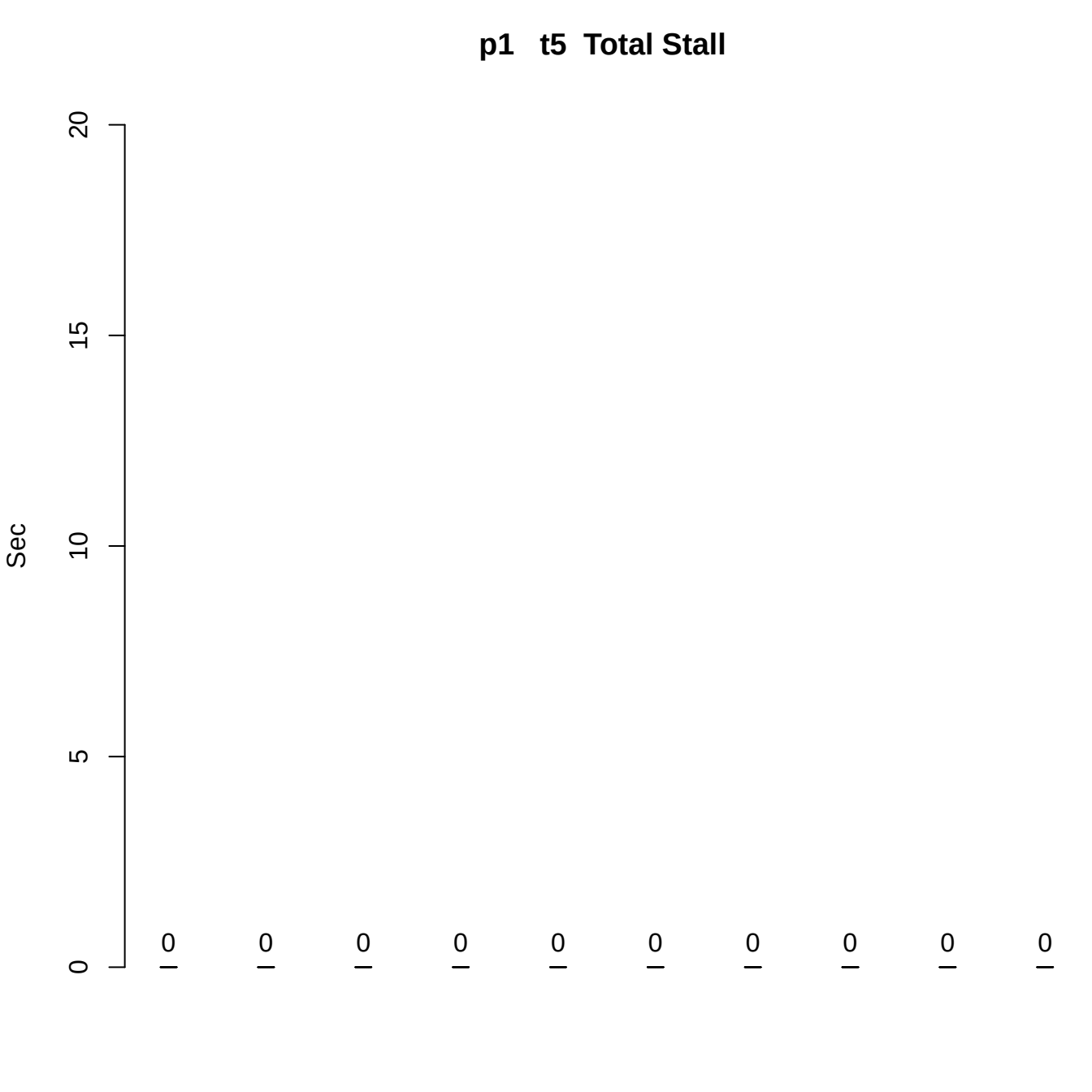

p1 t4 Buffer Overflow
Sec
0
50
100
150
151.828
0
8.958
2.217
43.262
134.404
135.83
121.041
77.672
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

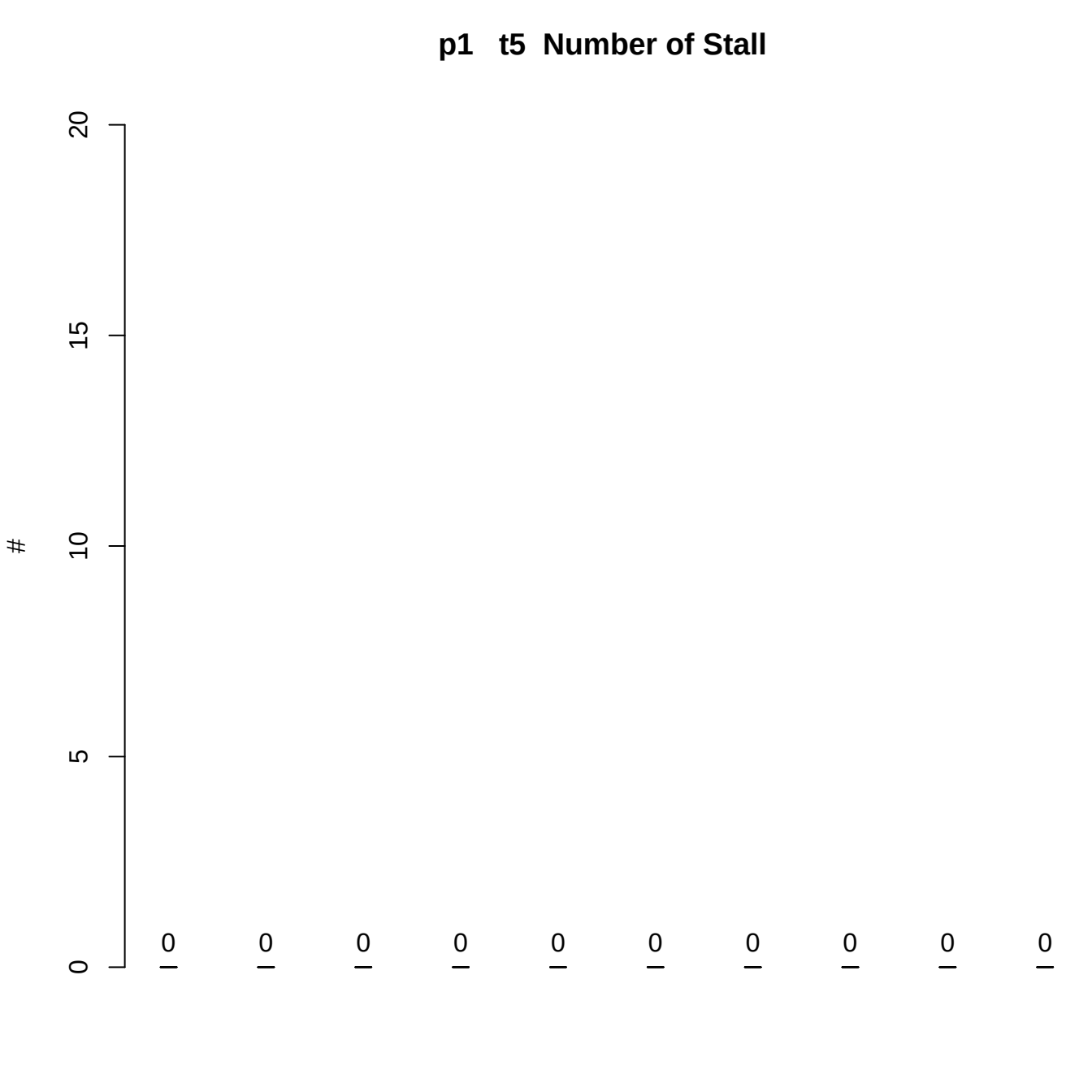

p1 t4 Number of Buffer Overflow
#
0
100
200
300
400
500
600
590
0
45
9
179
586
585
526
331
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

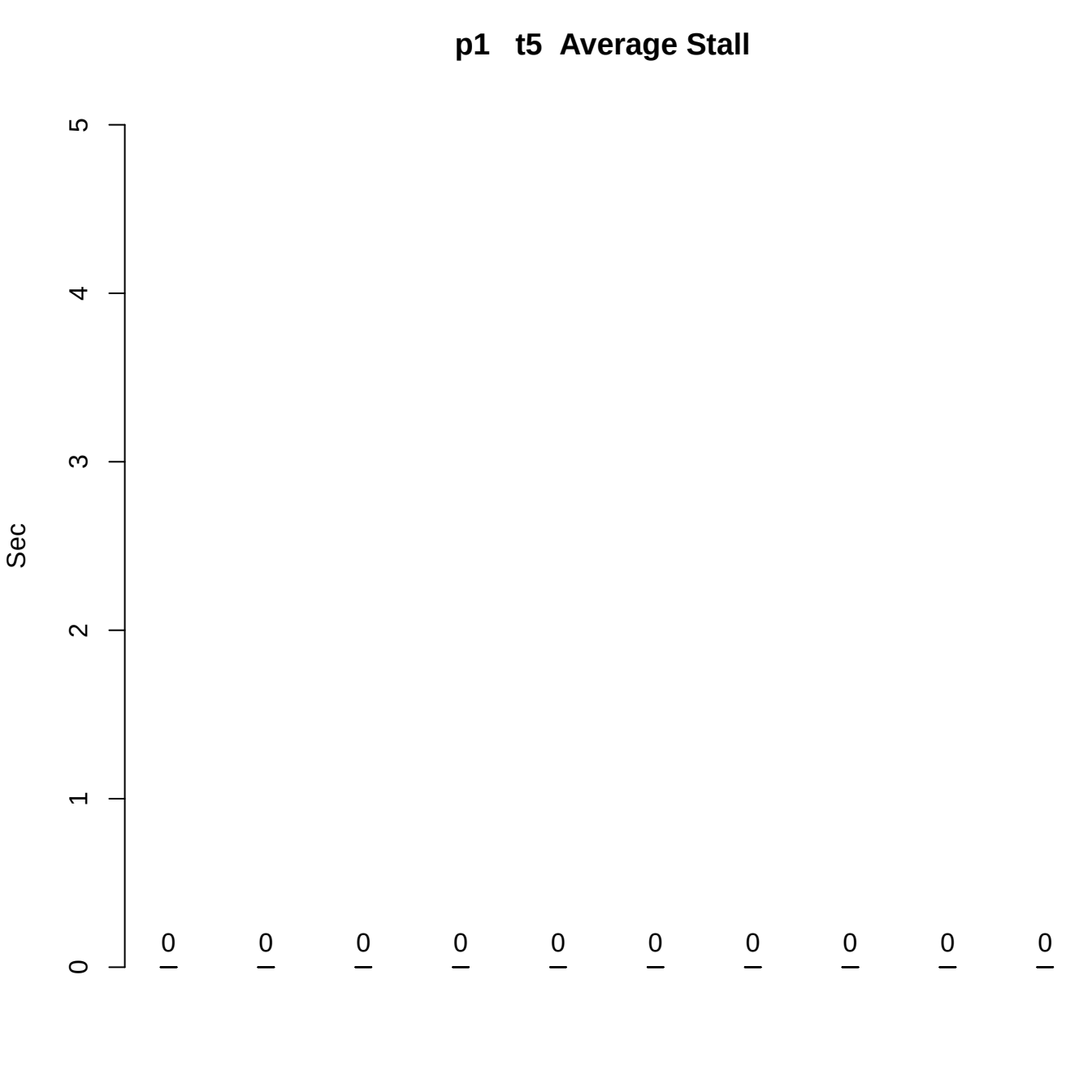

p1 t5 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
3000
1801.32
2708.53
2521.67
2111.62
2541.08
2463.15
2321.31
2500.74
2710.09
2701.98
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

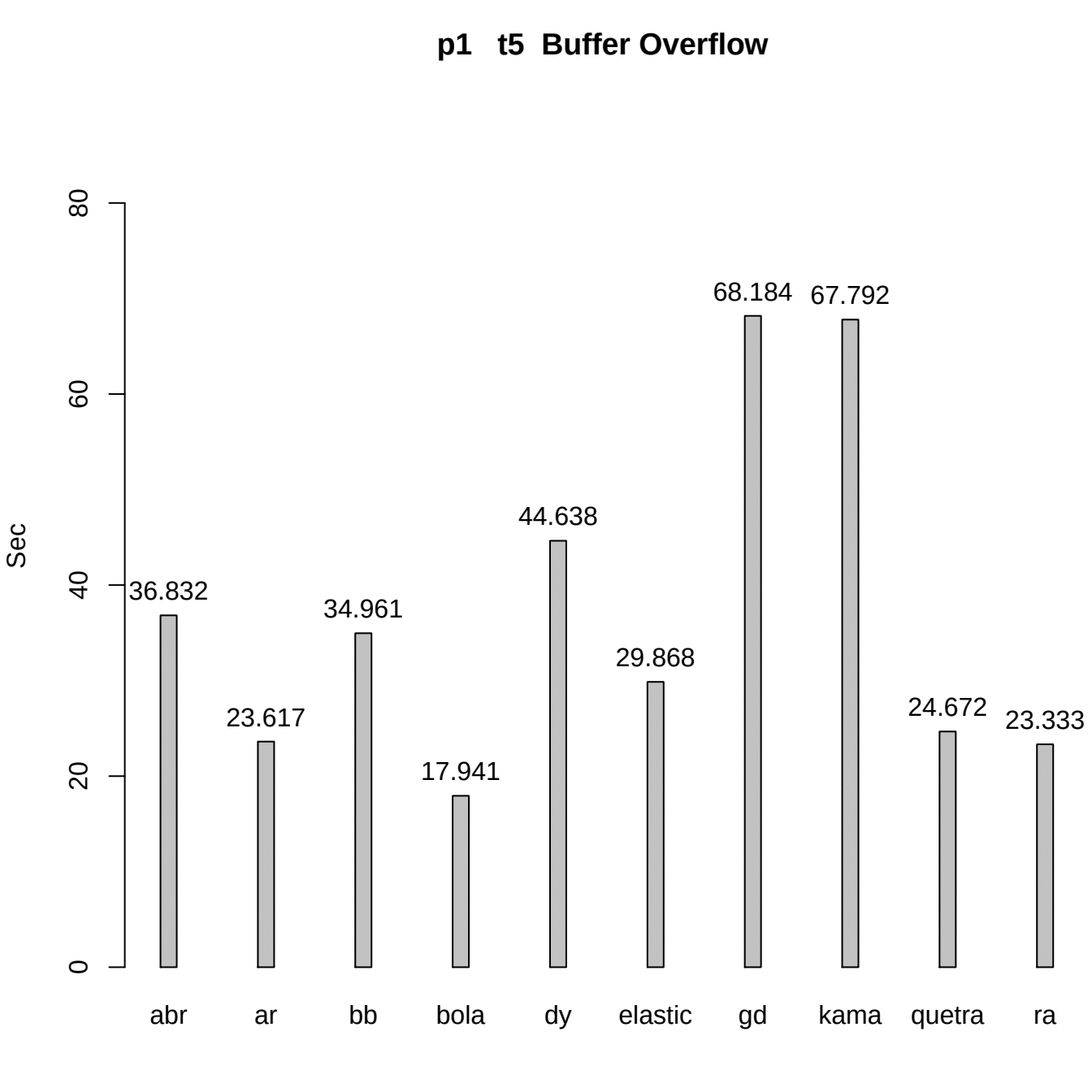

p1 t5 Quality Change
Change
0
10
20
30
40
50
26
18
22
6
32
12
36
30
18
18
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

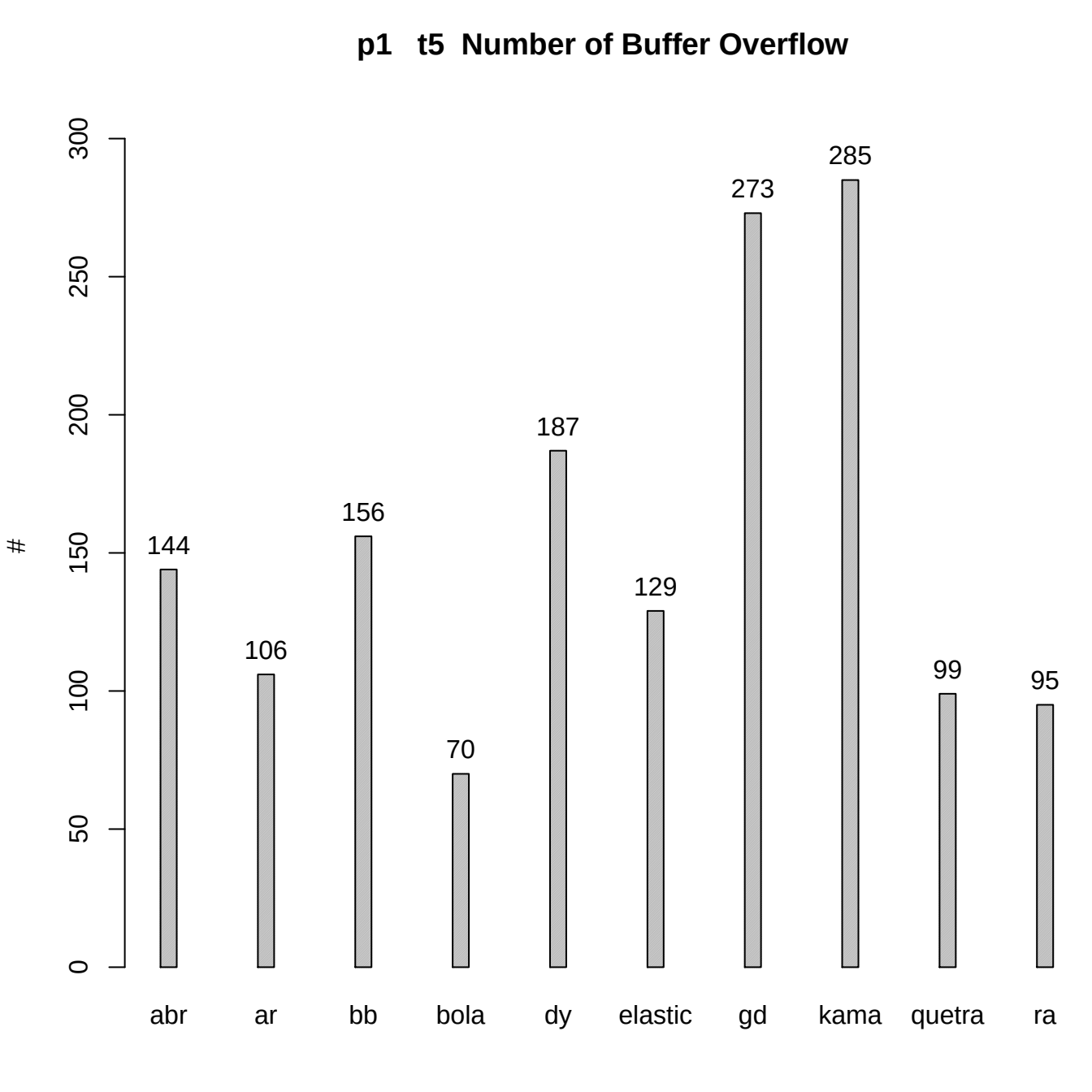

p1 t5 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.426284
0.467336
0.50617
0.368147
0.521242
0.306518
0.634679
0.593554
0.474984
0.463786
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

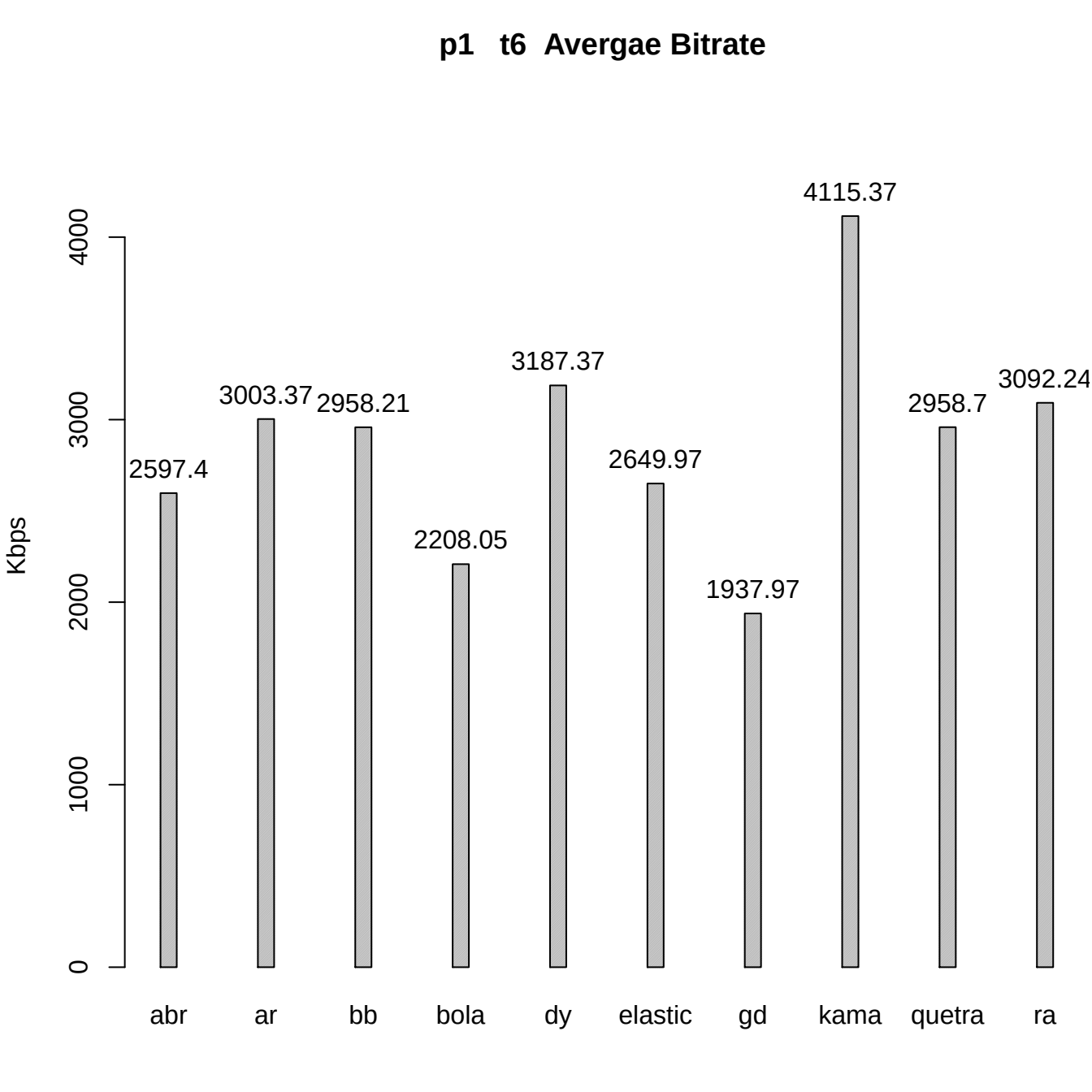

p1 t5 Total Stall
Sec
0
5
10
15
20
0
0
0
0
0
0
0
0
0
0

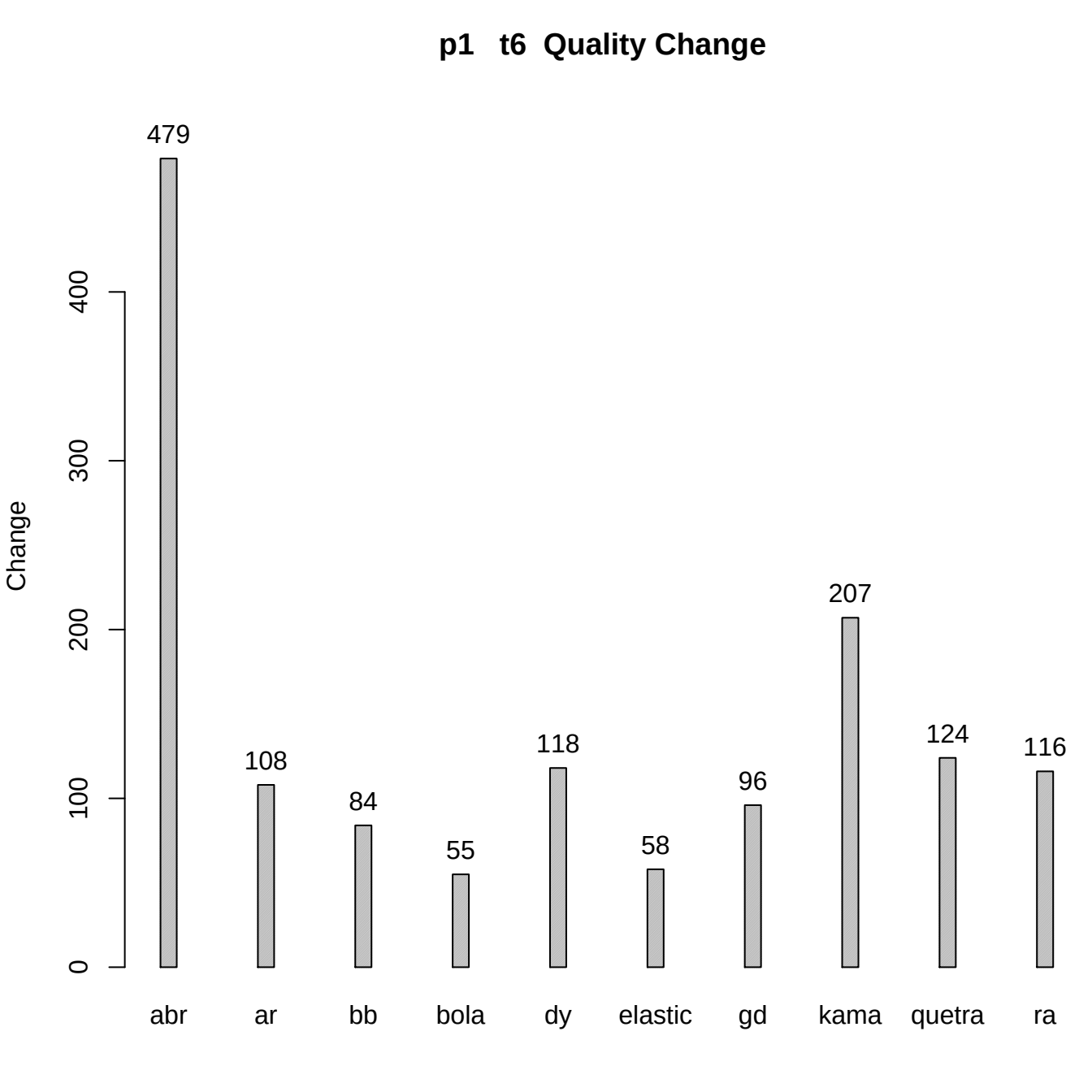

p1 t5 Number of Stall
#
0
5
10
15
20
0
0
0
0
0
0
0
0
0
0

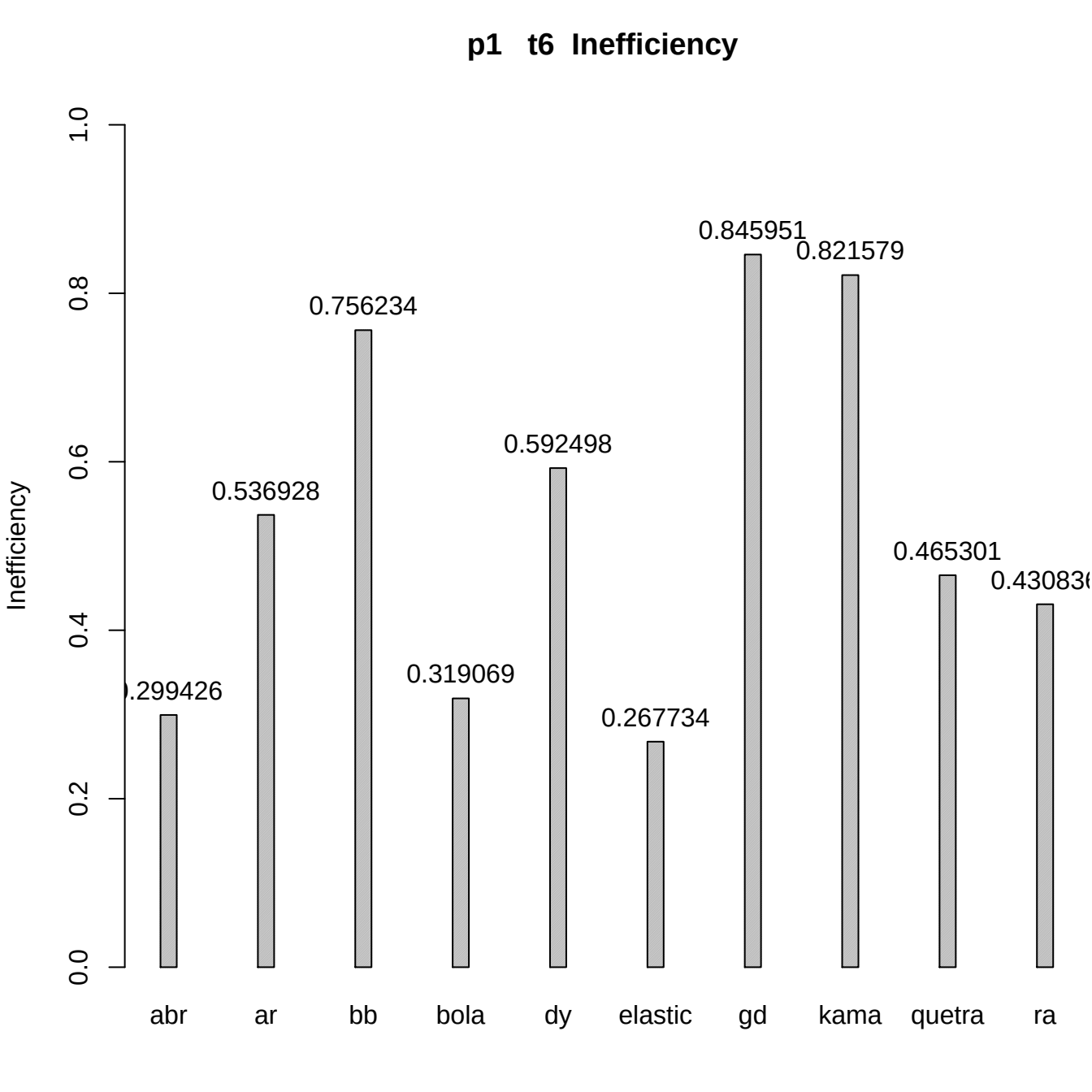

p1 t5 Average Stall
Sec
0
1
2
3
4
5
0
0
0
0
0
0
0
0
0
0

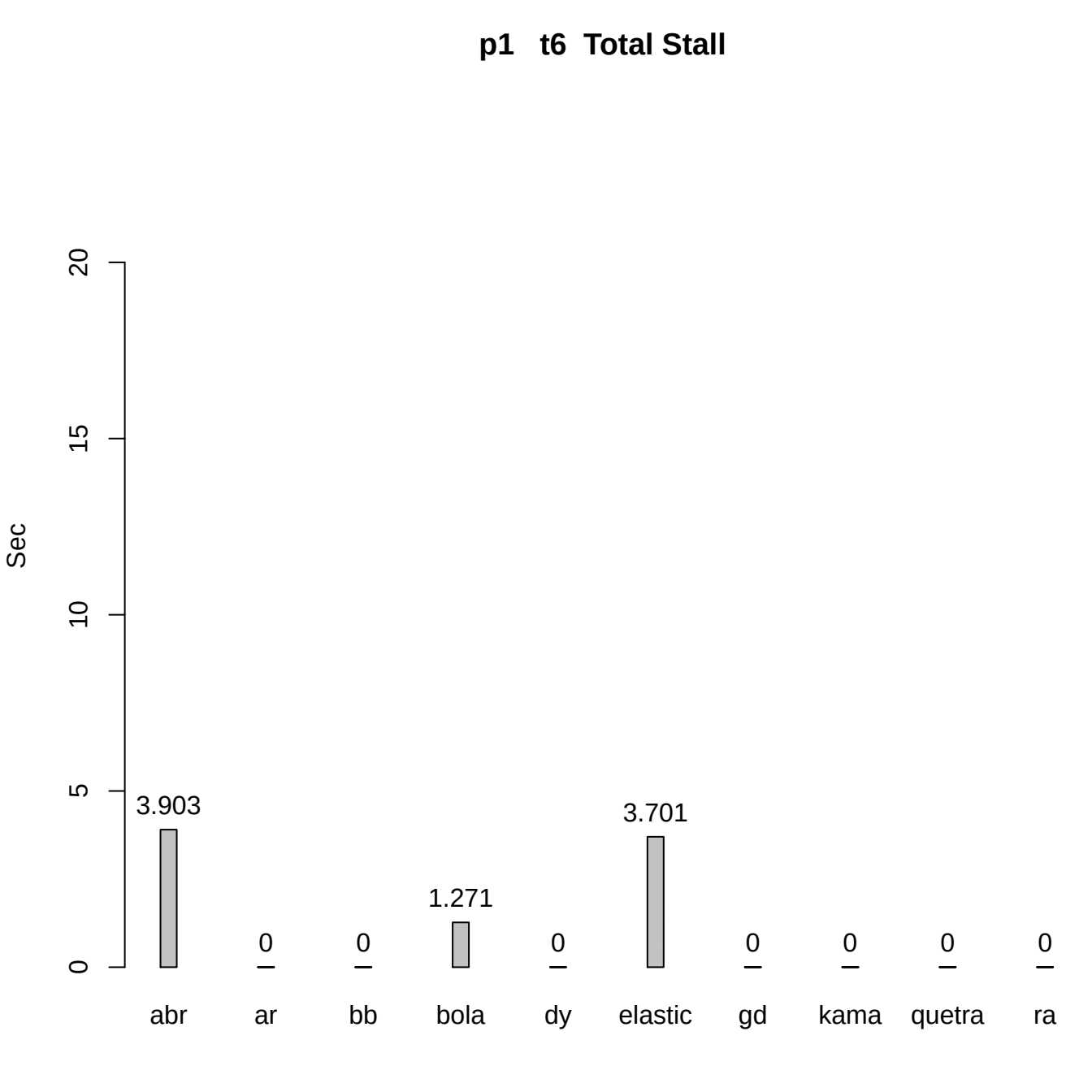

p1 t5 Buffer Overflow
Sec
0
20
40
60
80
36.832
23.617
34.961
17.941
44.638
29.868
68.184
67.792
24.672
23.333
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

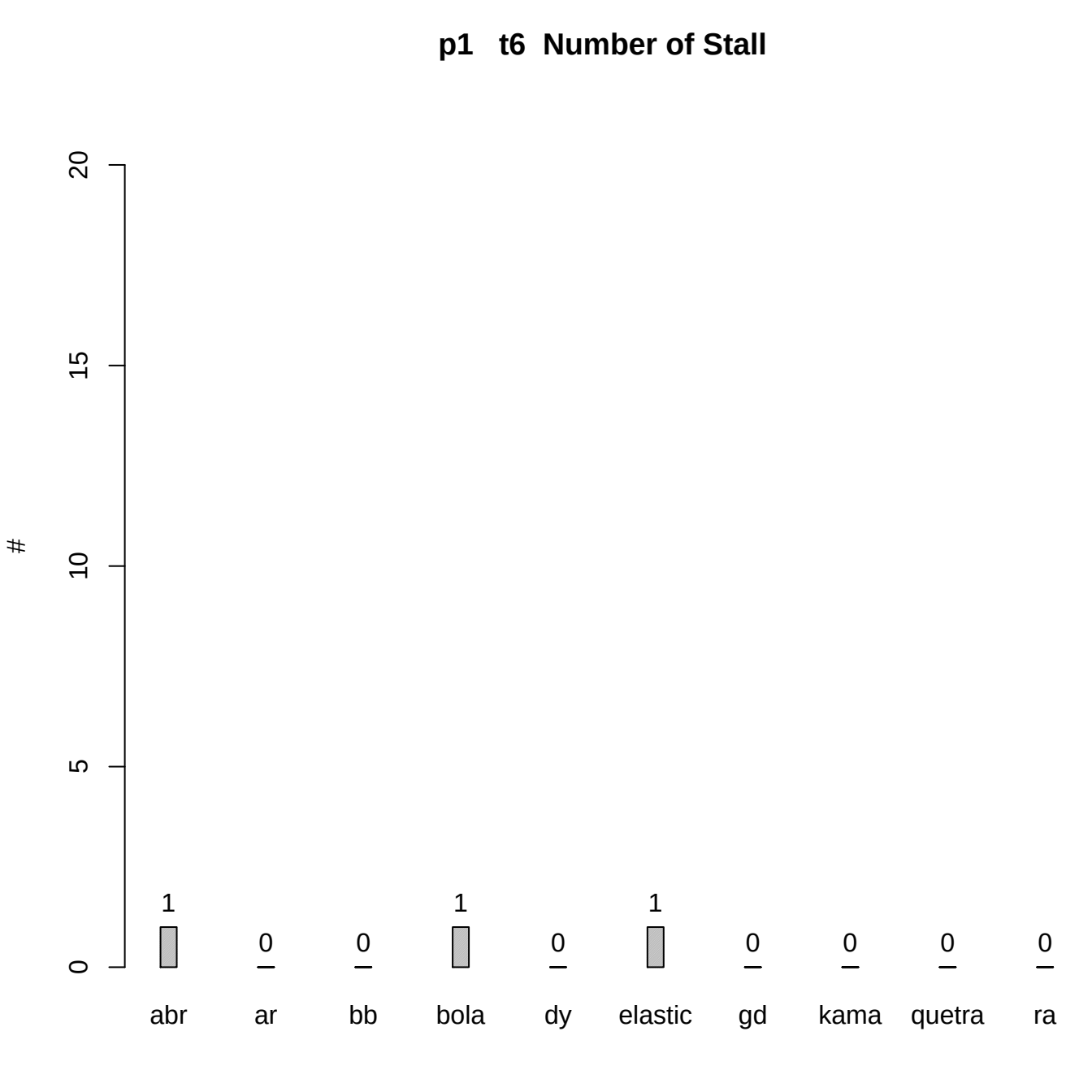

p1 t5 Number of Buffer Overflow
#
0
50
100
150
200
250
300
144
106
156
70
187
129
273
285
99
95
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

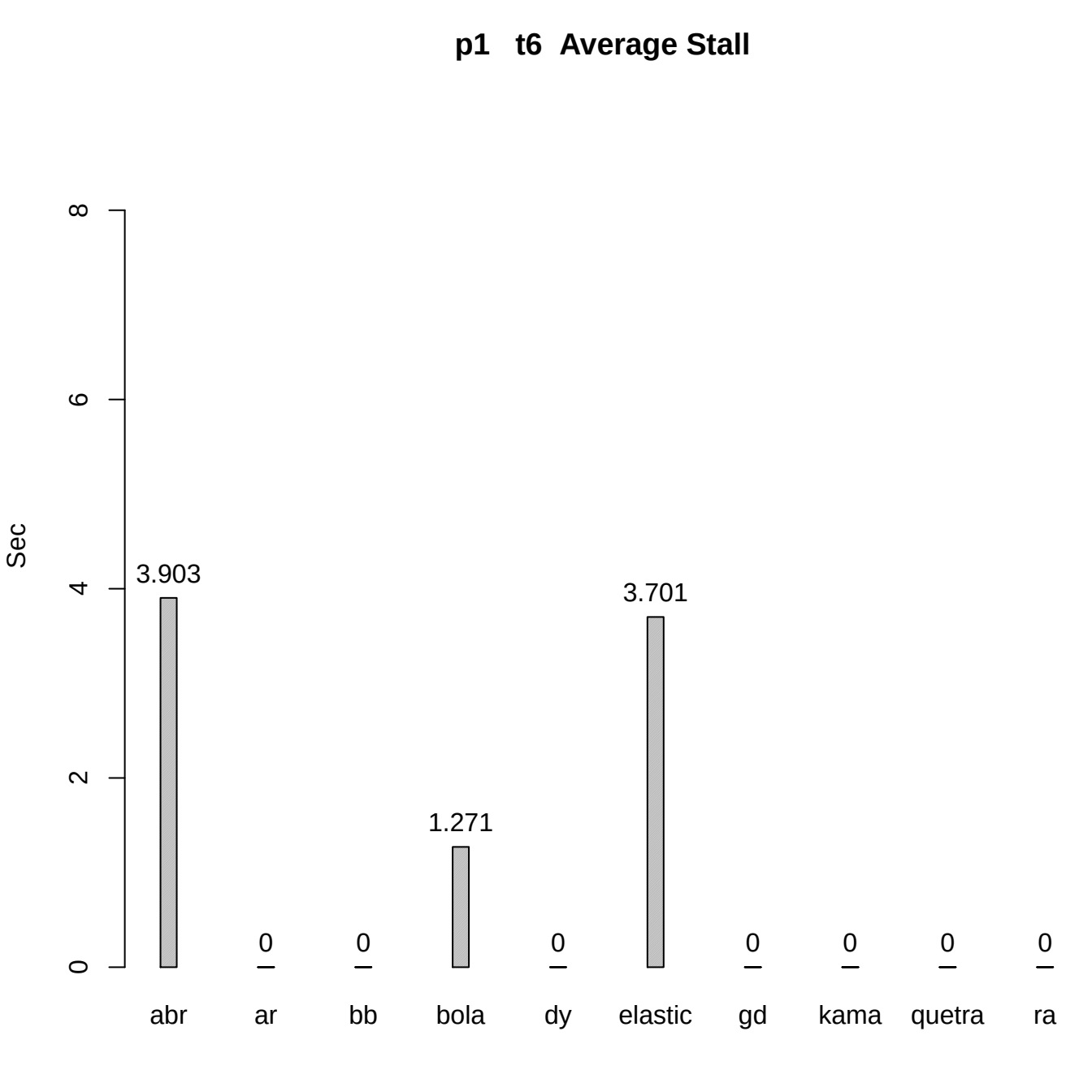

p1 t6 Avergae Bitrate
Kbps
0
1000
2000
3000
4000
2597.4
3003.37
2958.21
2208.05
3187.37
2649.97
1937.97
4115.37
2958.7
3092.24
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

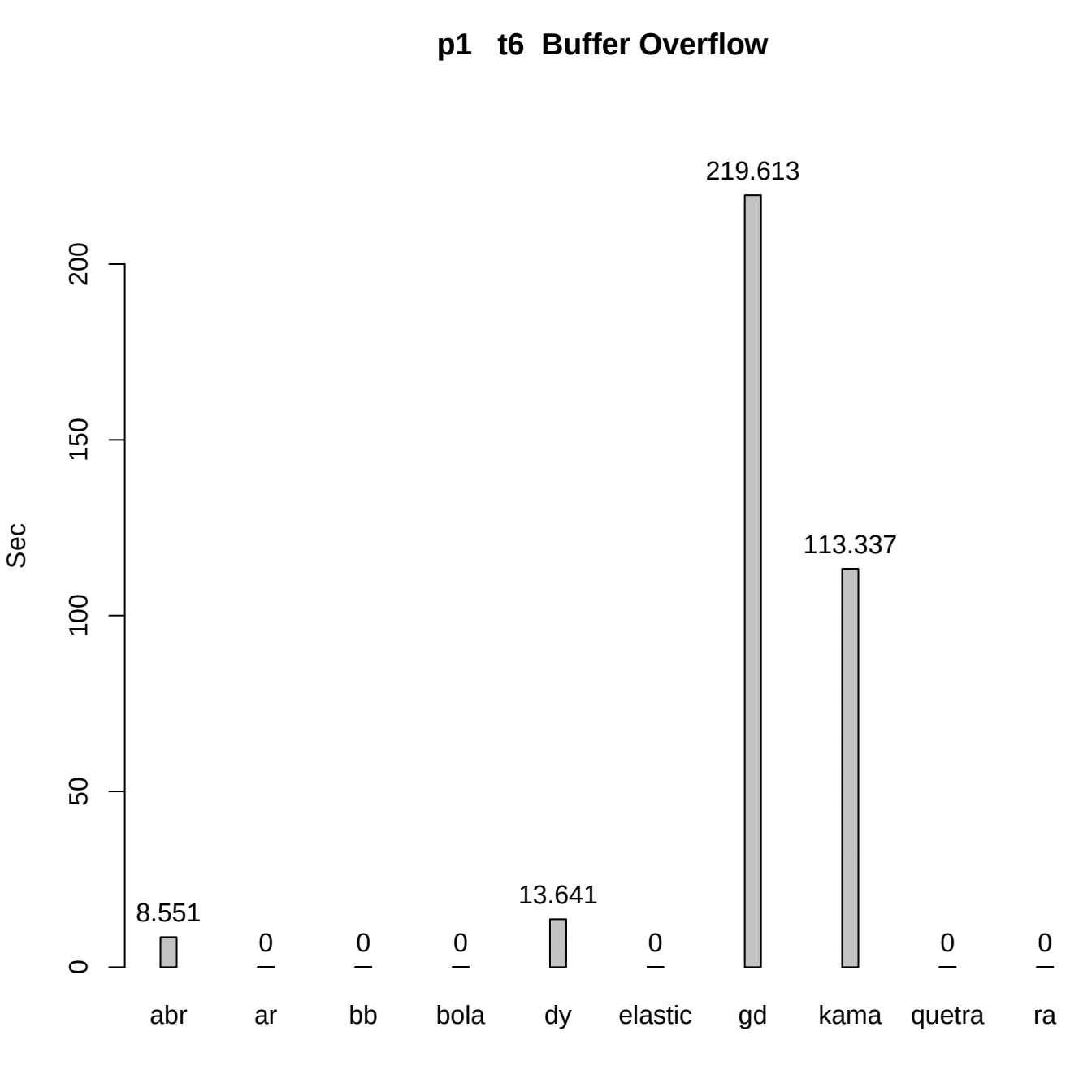

p1 t6 Quality Change
Change
0
100
200
300
400
479
108
84
55
118
58
96
207
124
116
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

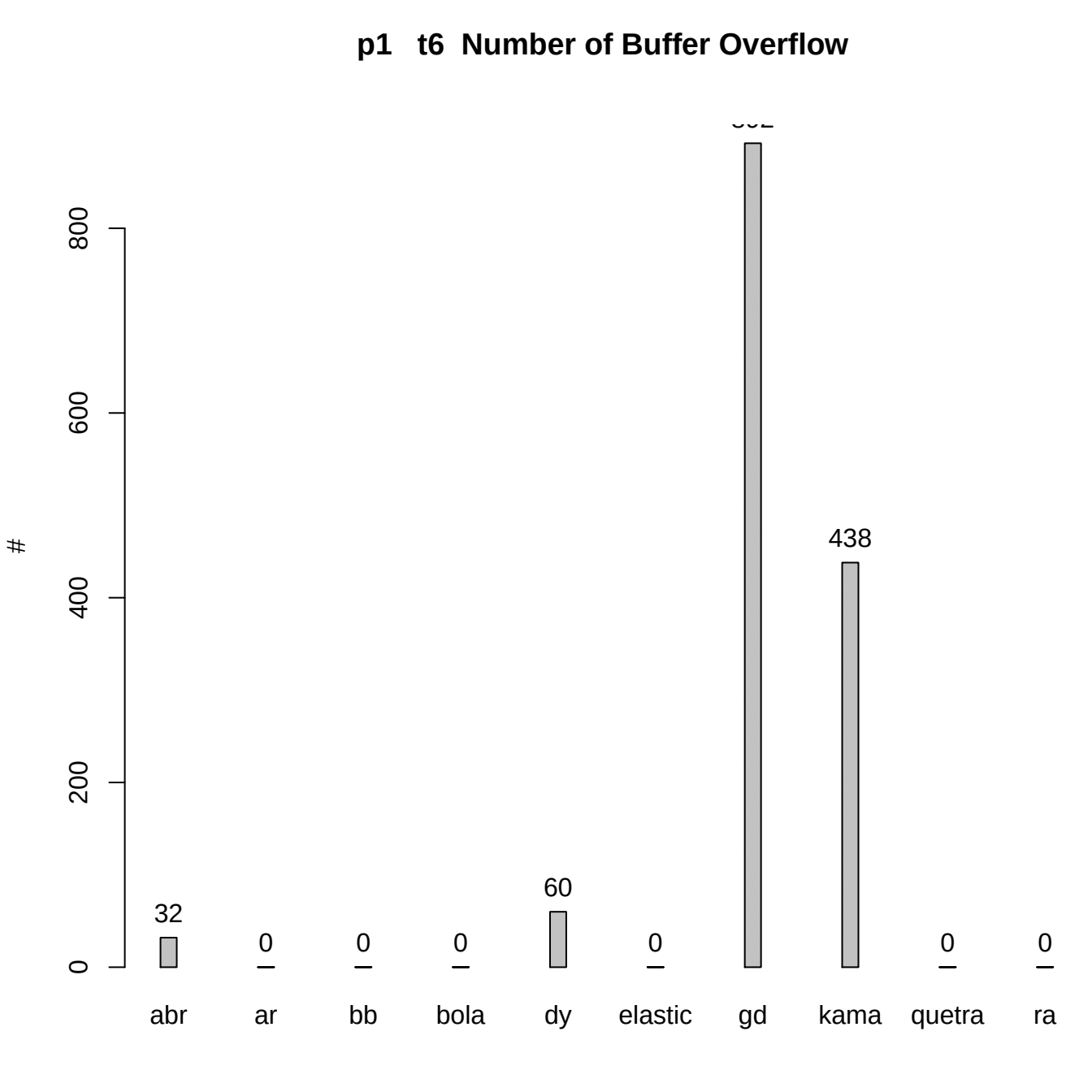

p1 t6 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.299426
0.536928
0.756234
0.319069
0.592498
0.267734
0.845951
0.821579
0.465301
0.43083
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

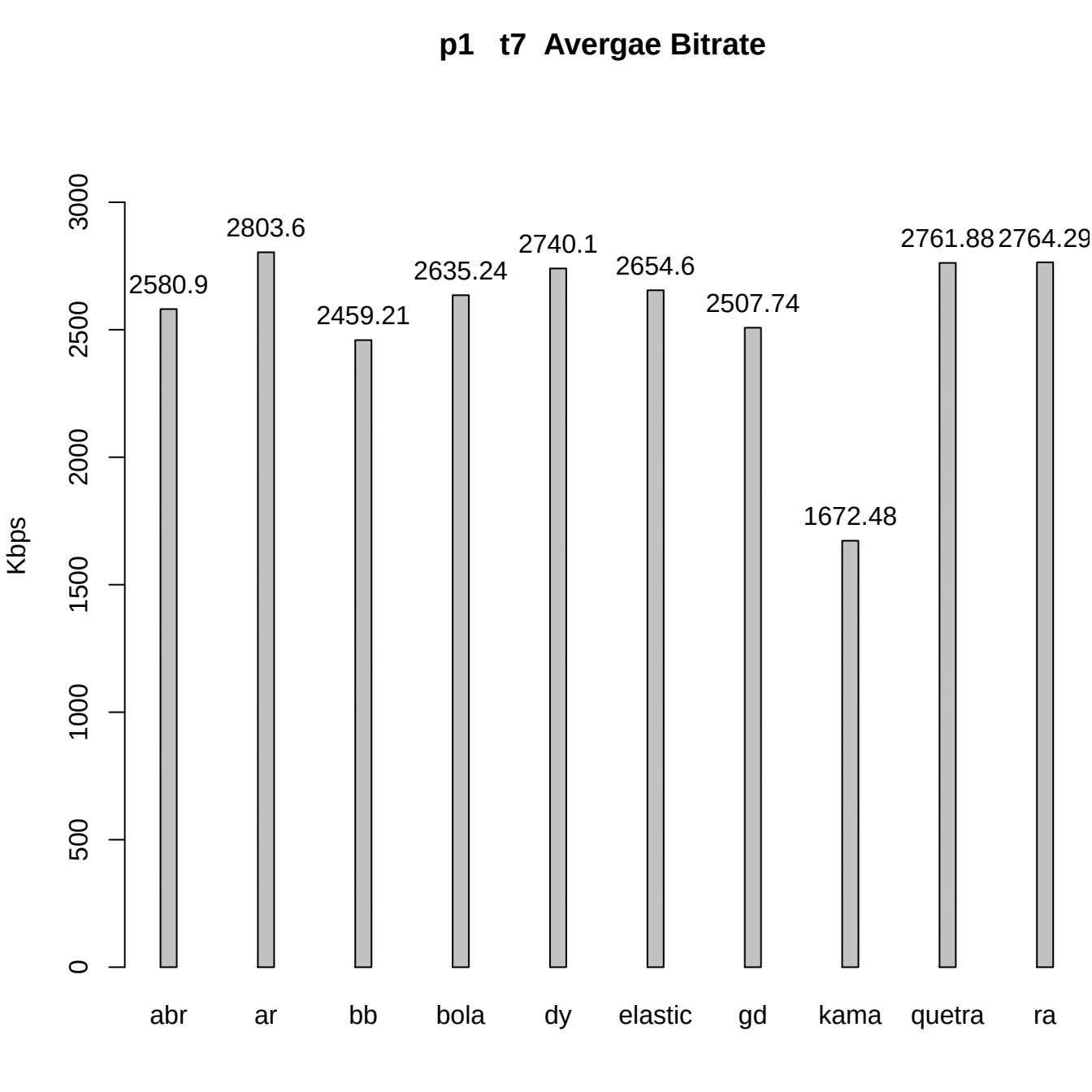

p1 t6 Total Stall
Sec
0
5
10
15
20
3.903
0
0
1.271
0
3.701
0
0
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

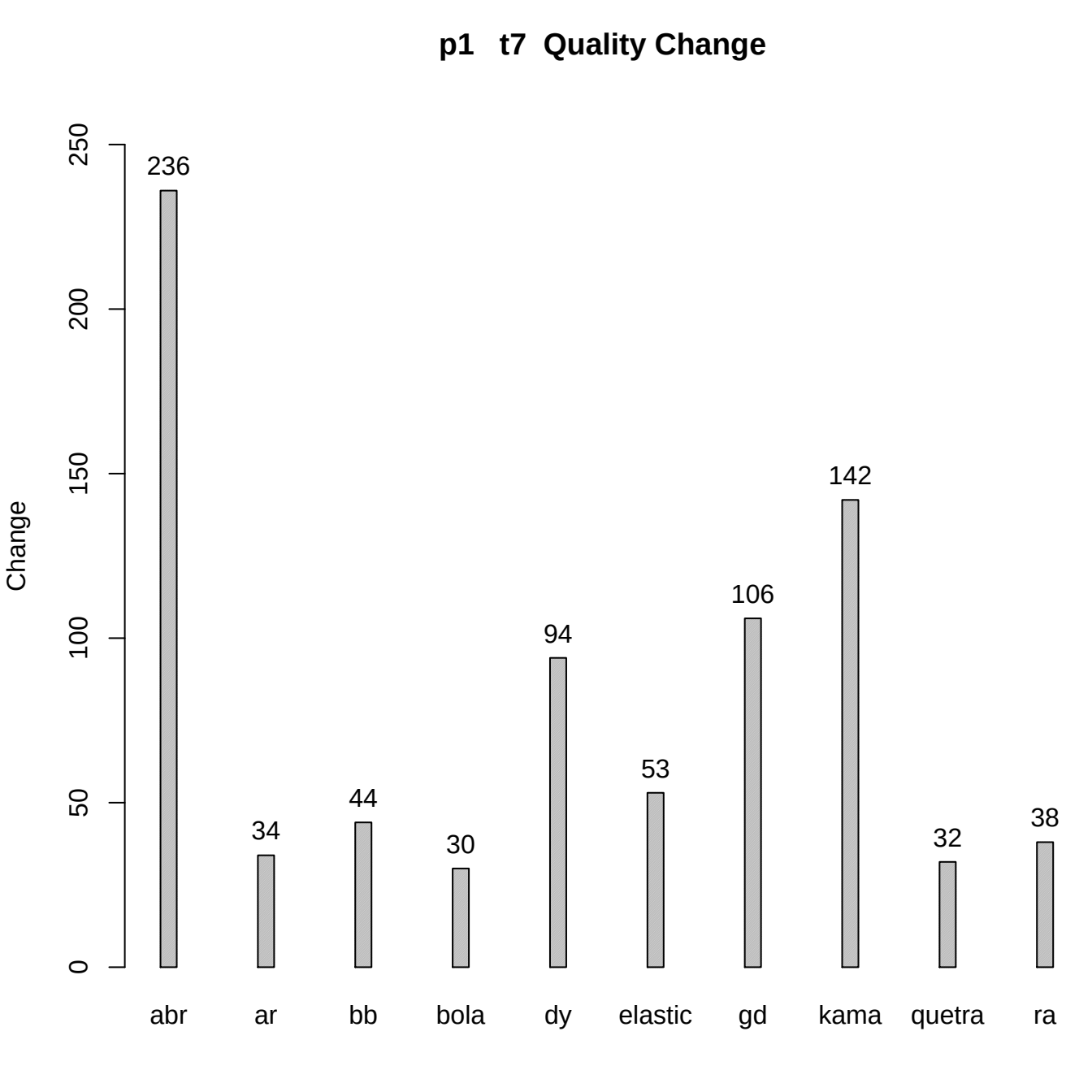

p1 t6 Number of Stall
#
0
5
10
15
20
1
0
0
1
0
1
0
0
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

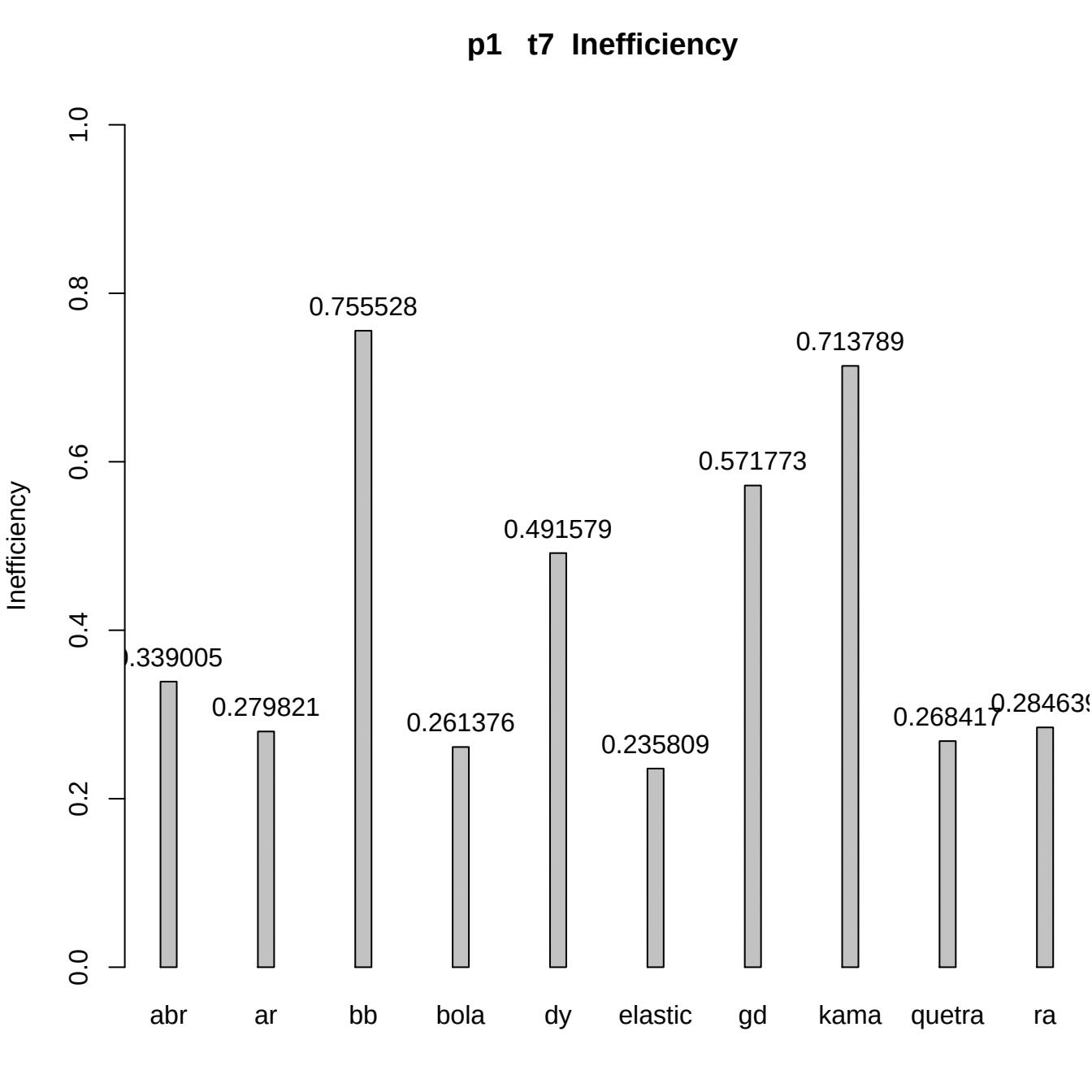

p1 t6 Average Stall
Sec
0
2
4
6
8
3.903
0
0
1.271
0
3.701
0
0
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

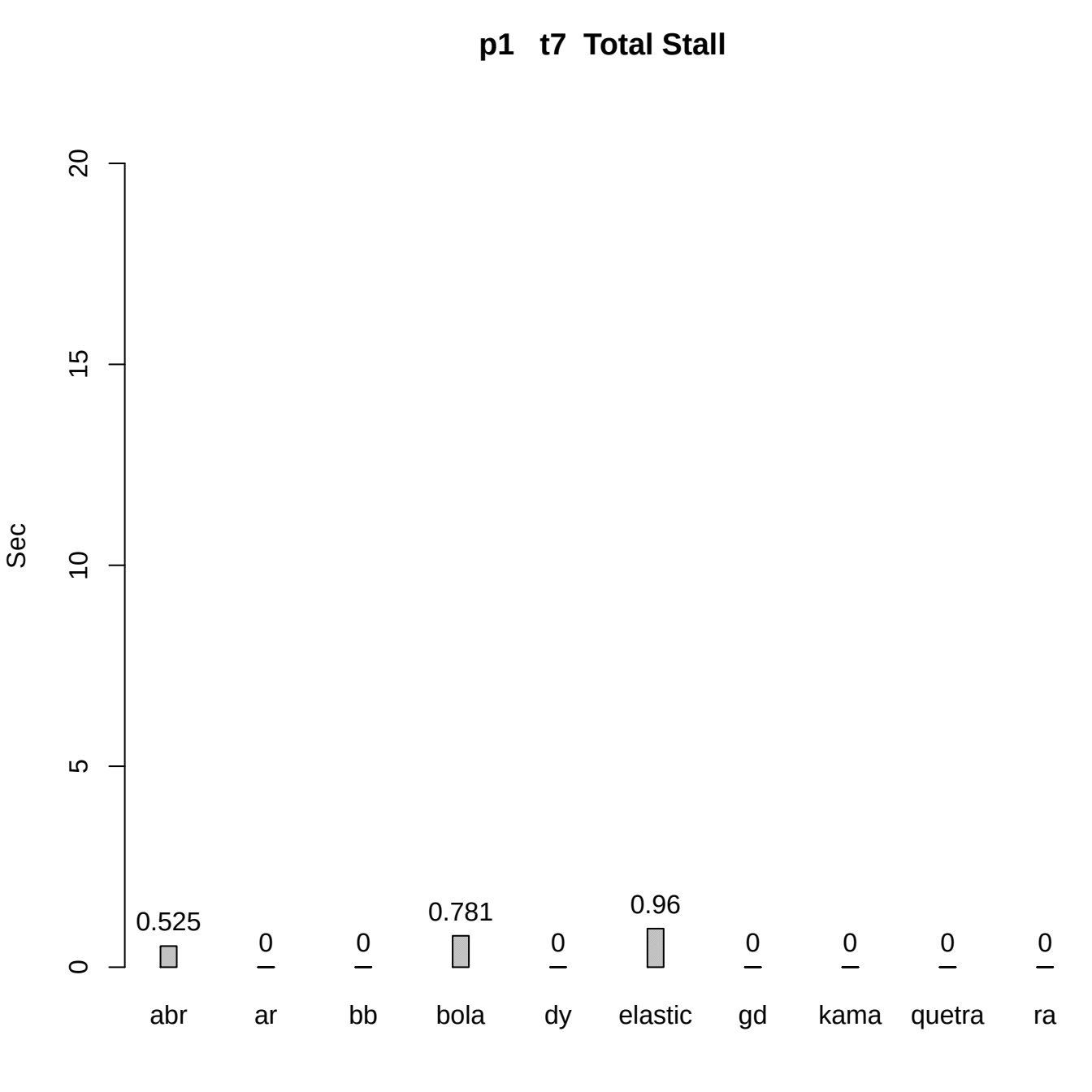

p1 t6 Buffer Overflow
Sec
0
50
100
150
200
8.551
0
0
0
13.641
0
219.613
113.337
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

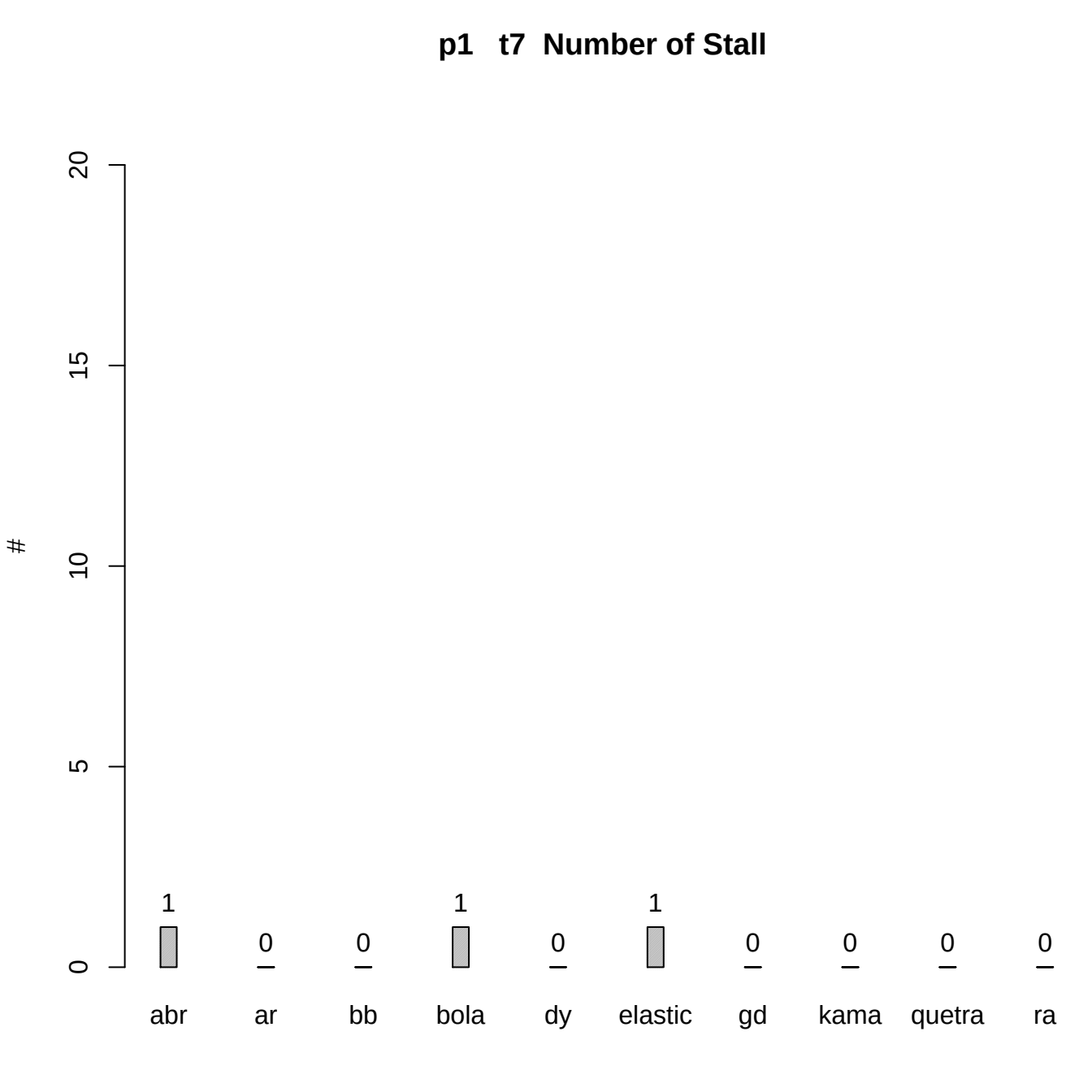

p1 t6 Number of Buffer Overflow
#
0
200
400
600
800
32
0
0
0
60
0
438
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

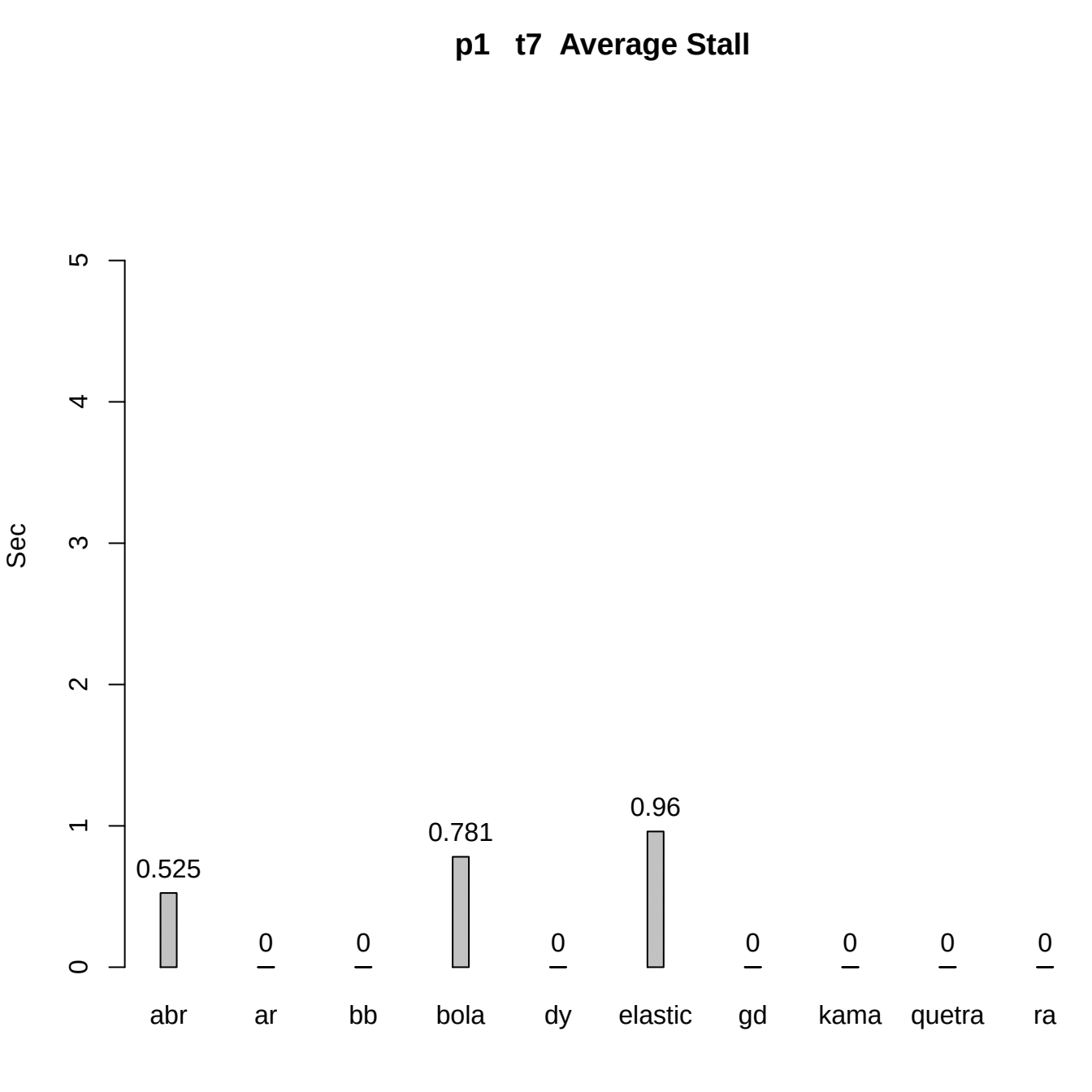

p1 t7 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
3000
2580.9
2803.6
2459.21
2635.24
2740.1
2654.6
2507.74
1672.48
2761.88
2764.29
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

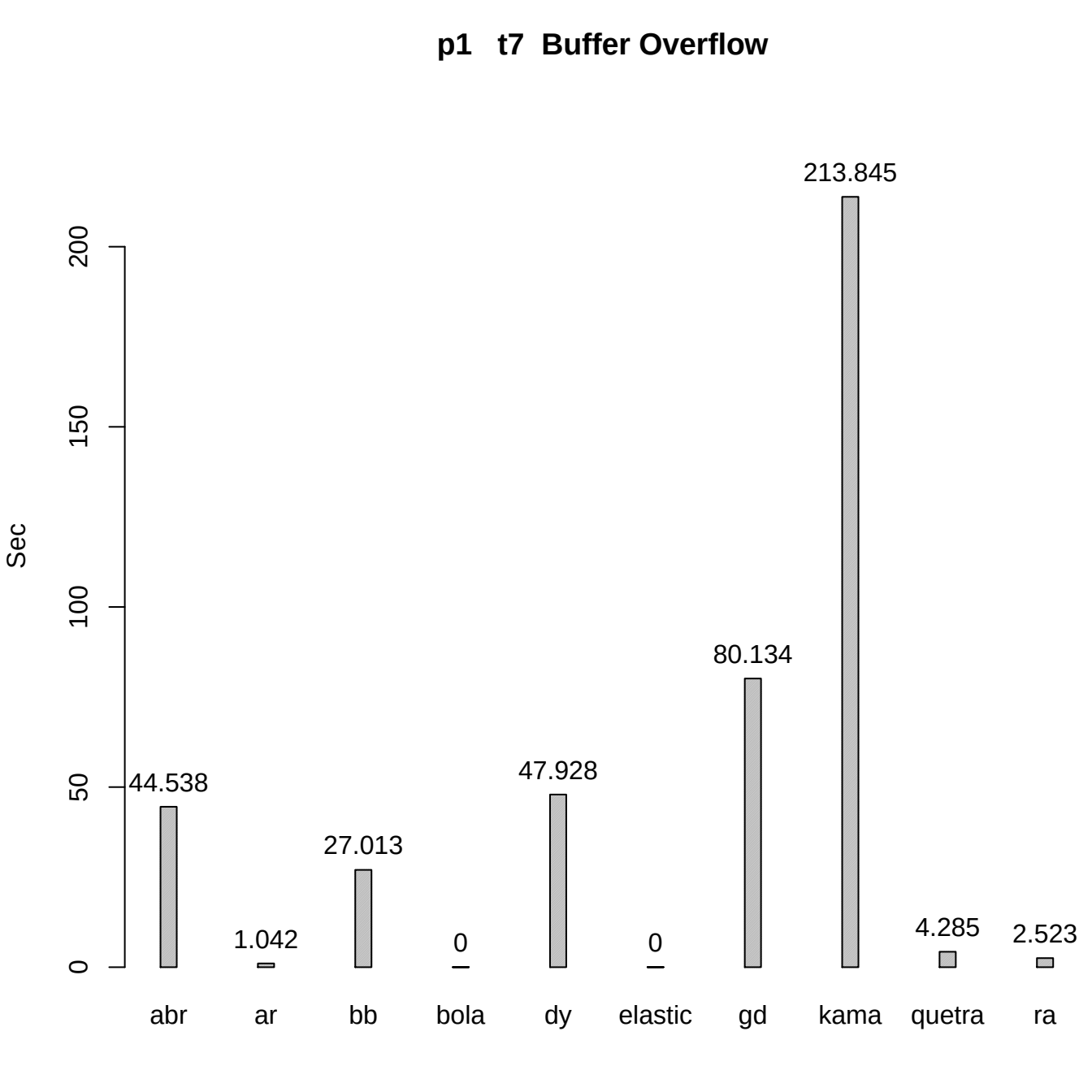

p1 t7 Quality Change
Change
0
50
100
150
200
250
236
34
44
30
94
53
106
142
32
38
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

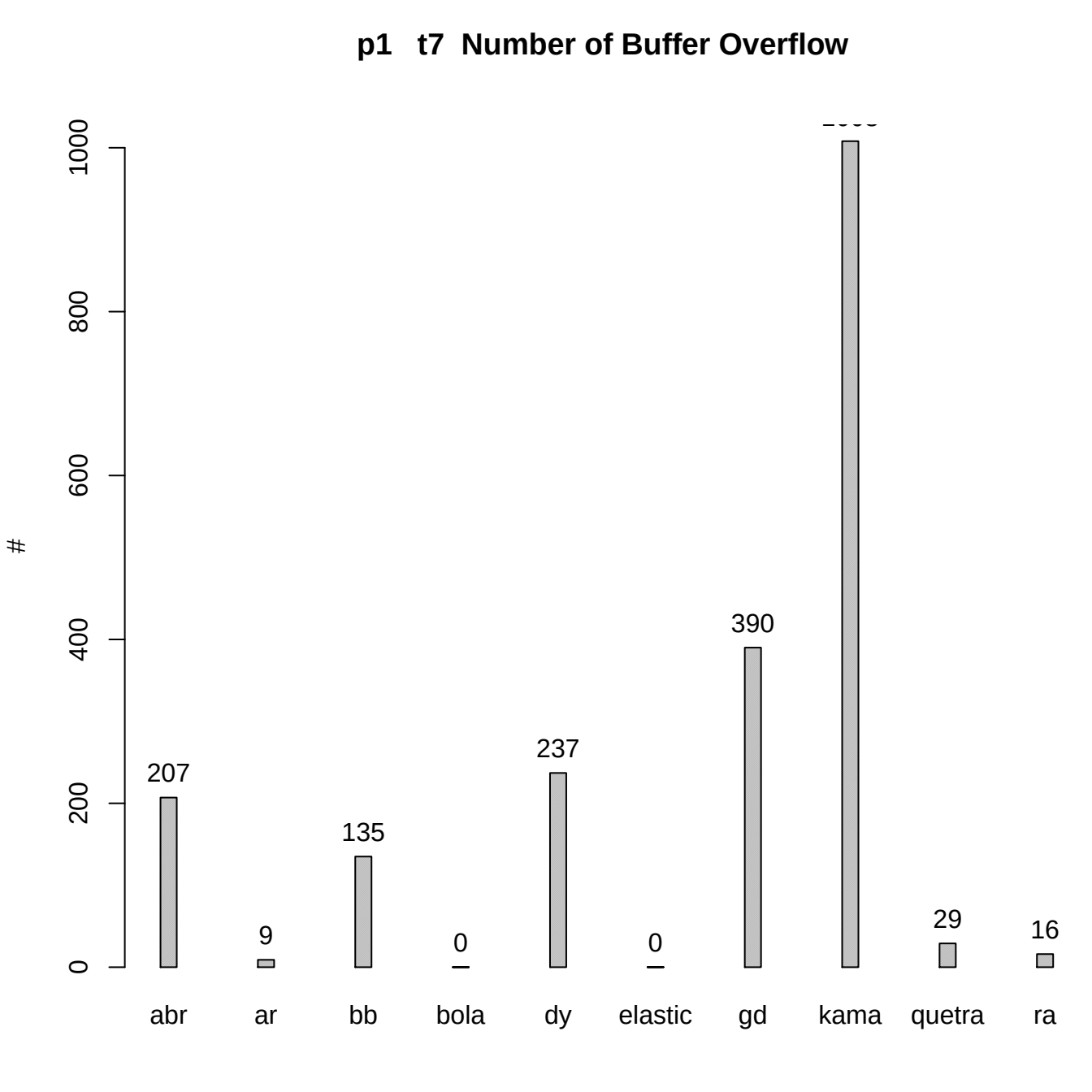

p1 t7 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.339005
0.279821
0.755528
0.261376
0.491579
0.235809
0.571773
0.713789
0.268417
0.28463
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

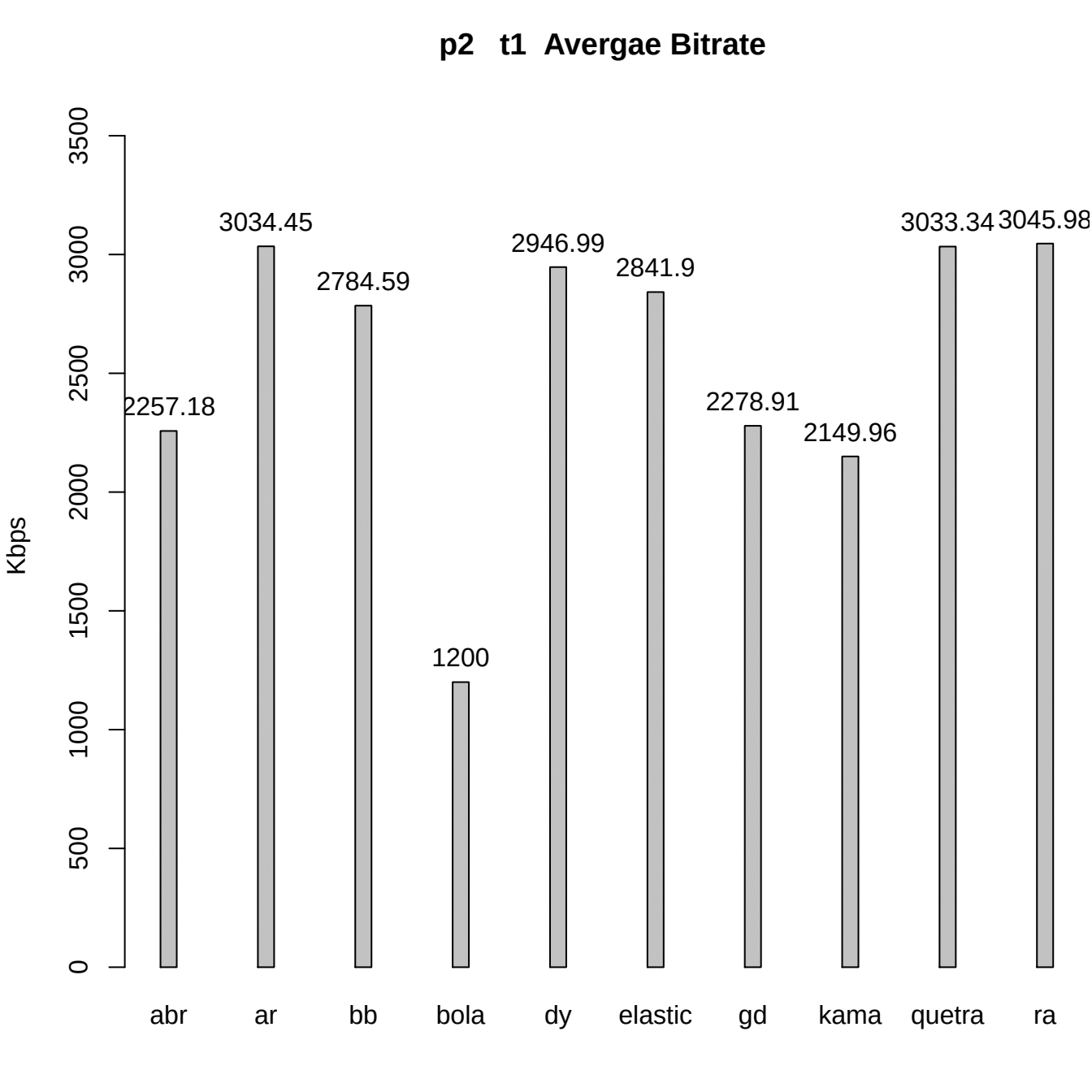

p1 t7 Total Stall
Sec
0
5
10
15
20
0.525
0
0
0.781
0
0.96
0
0
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

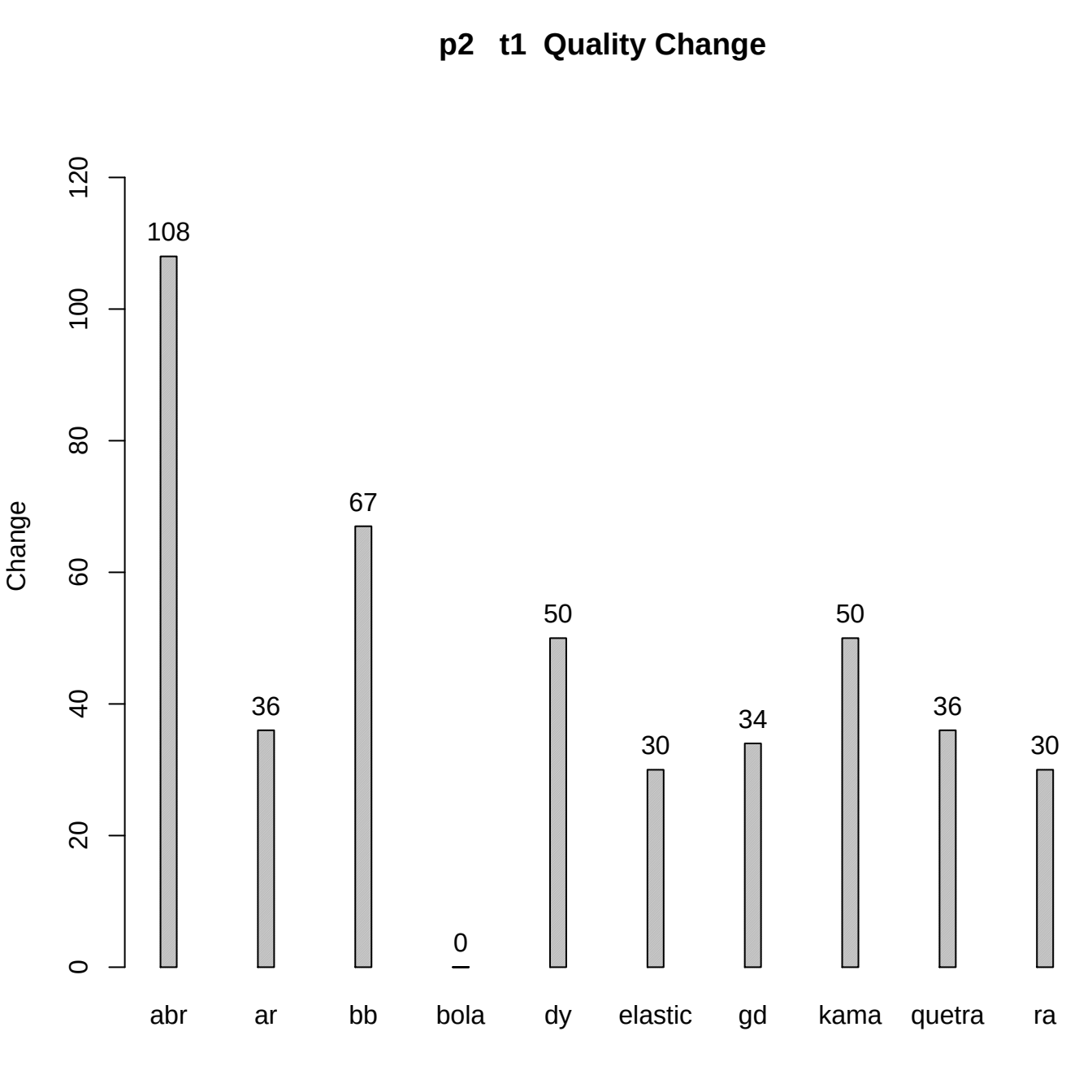

p1 t7 Number of Stall
#
0
5
10
15
20
1
0
0
1
0
1
0
0
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

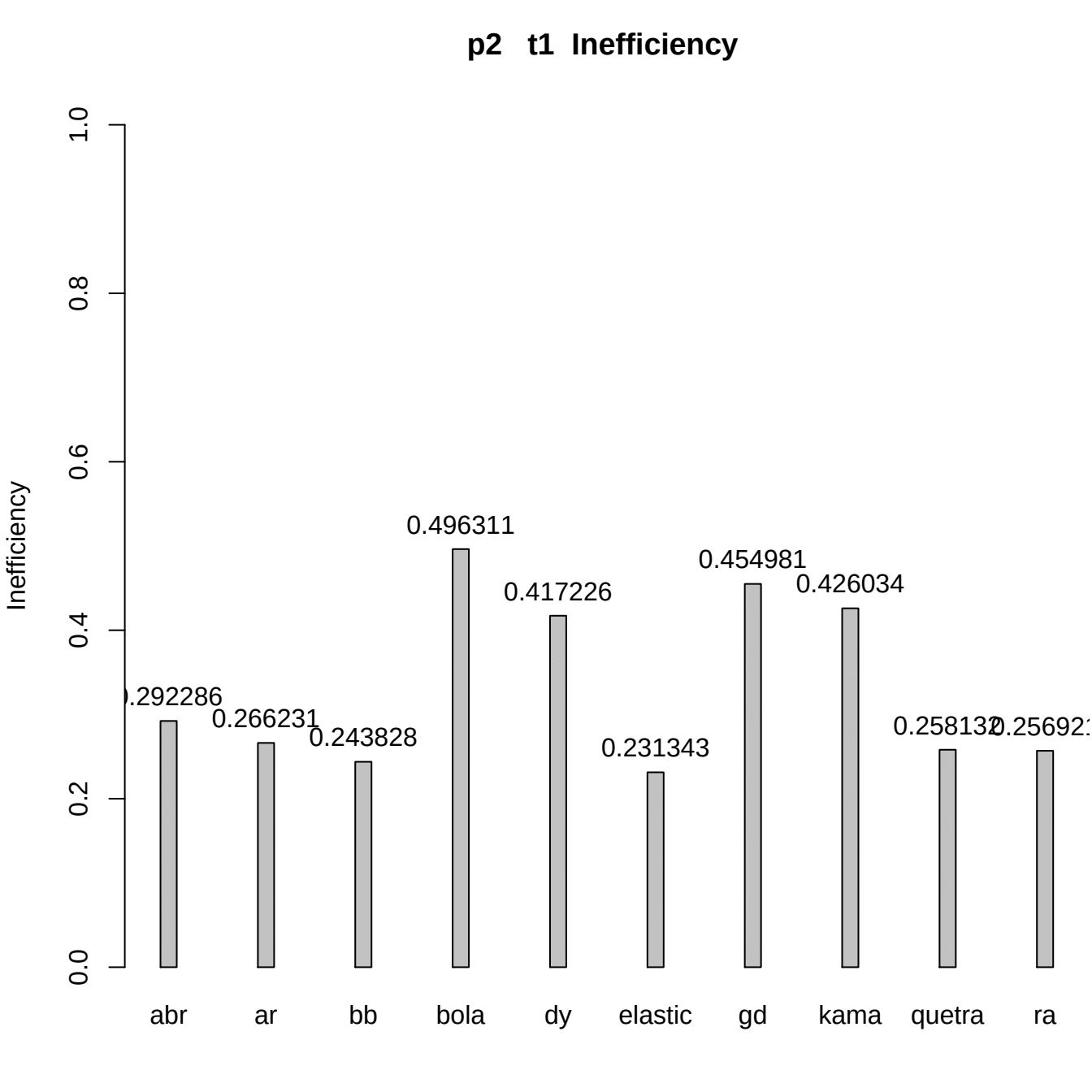

p1 t7 Average Stall
Sec
0
1
2
3
4
5
0.525
0
0
0.781
0
0.96
0
0
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

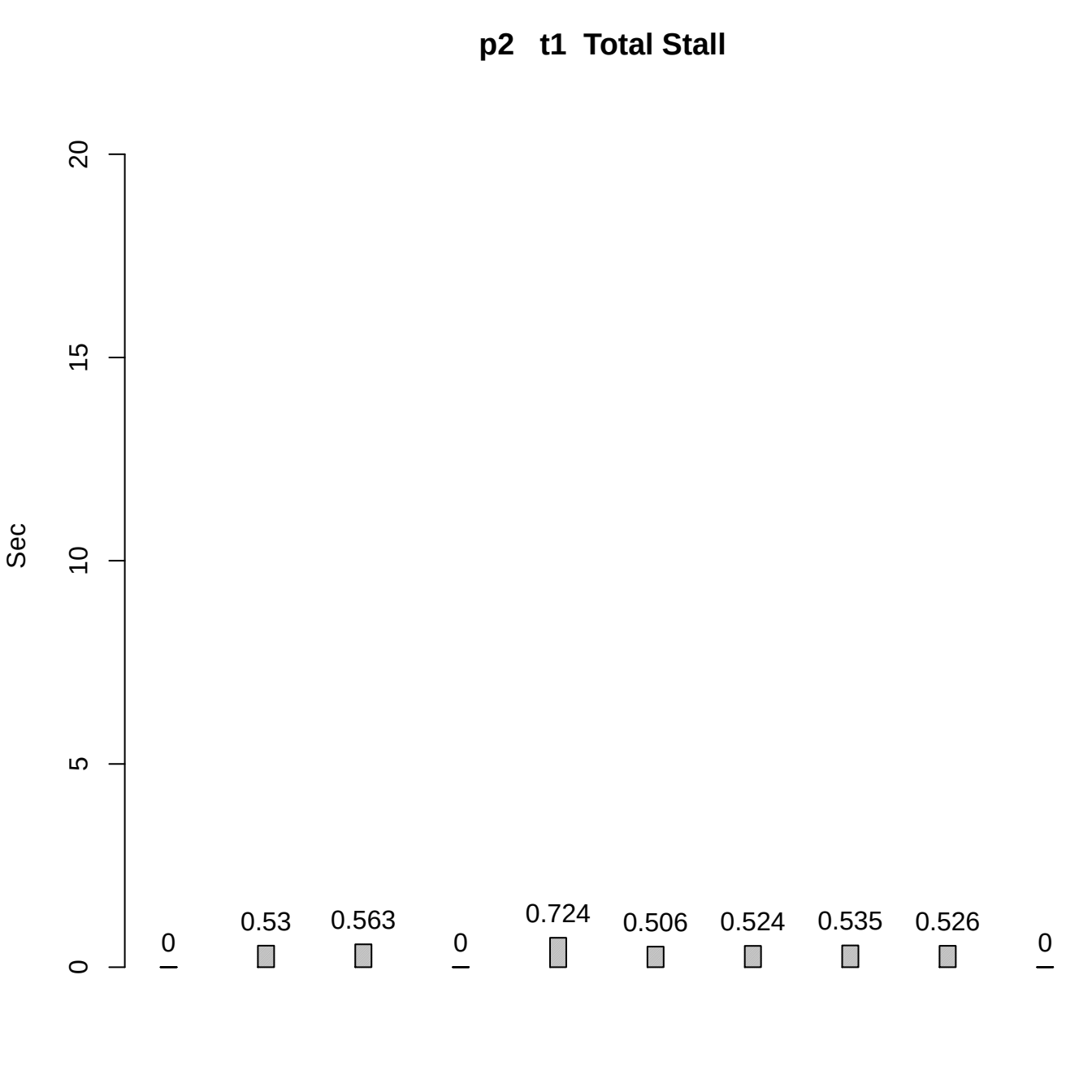

p1 t7 Buffer Overflow
Sec
0
50
100
150
200
44.538
1.042
27.013
0
47.928
0
80.134
213.845
4.285
2.523
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

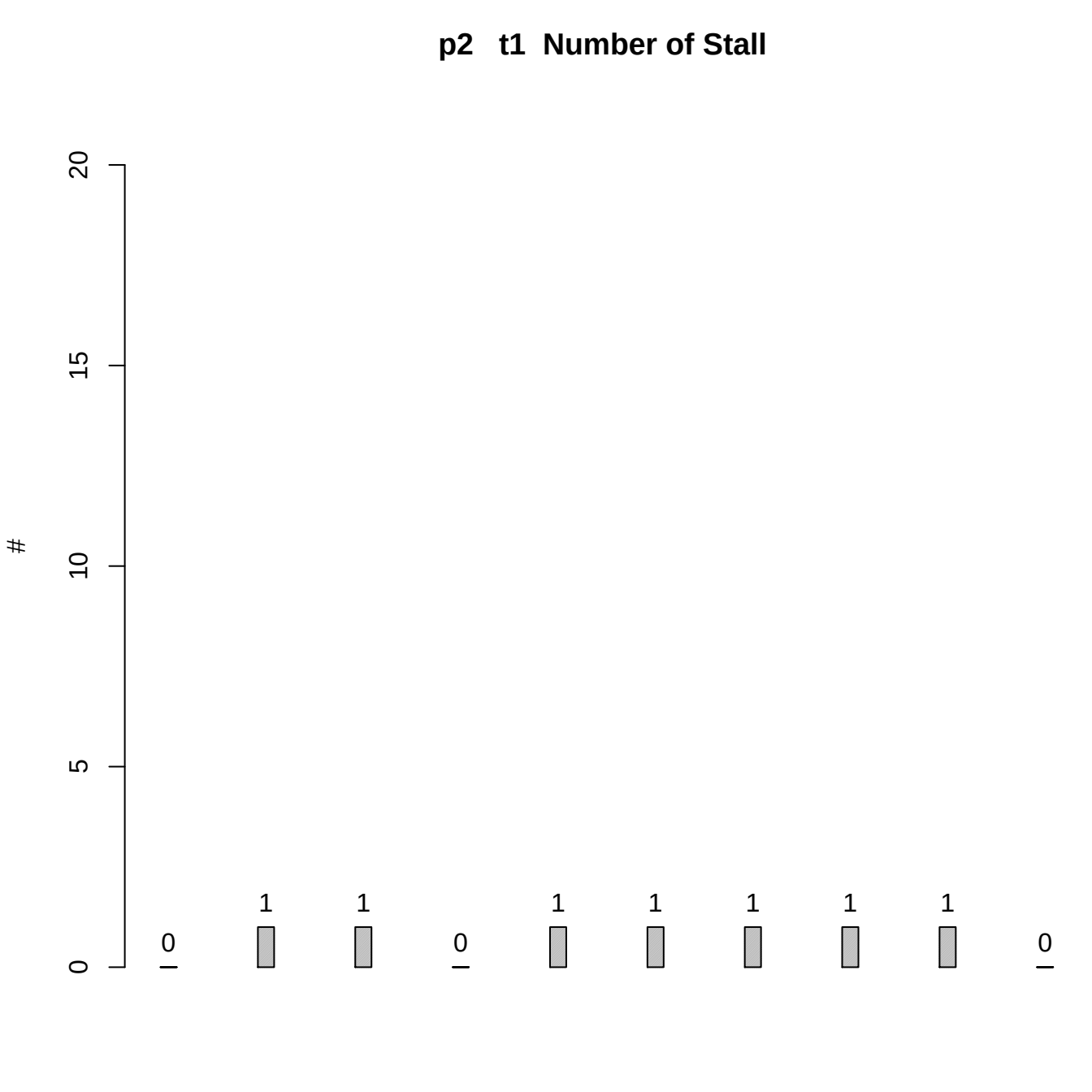

p1 t7 Number of Buffer Overflow
#
0
200
400
600
800
1000
207
9
135
0
237
0
390
29
16
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

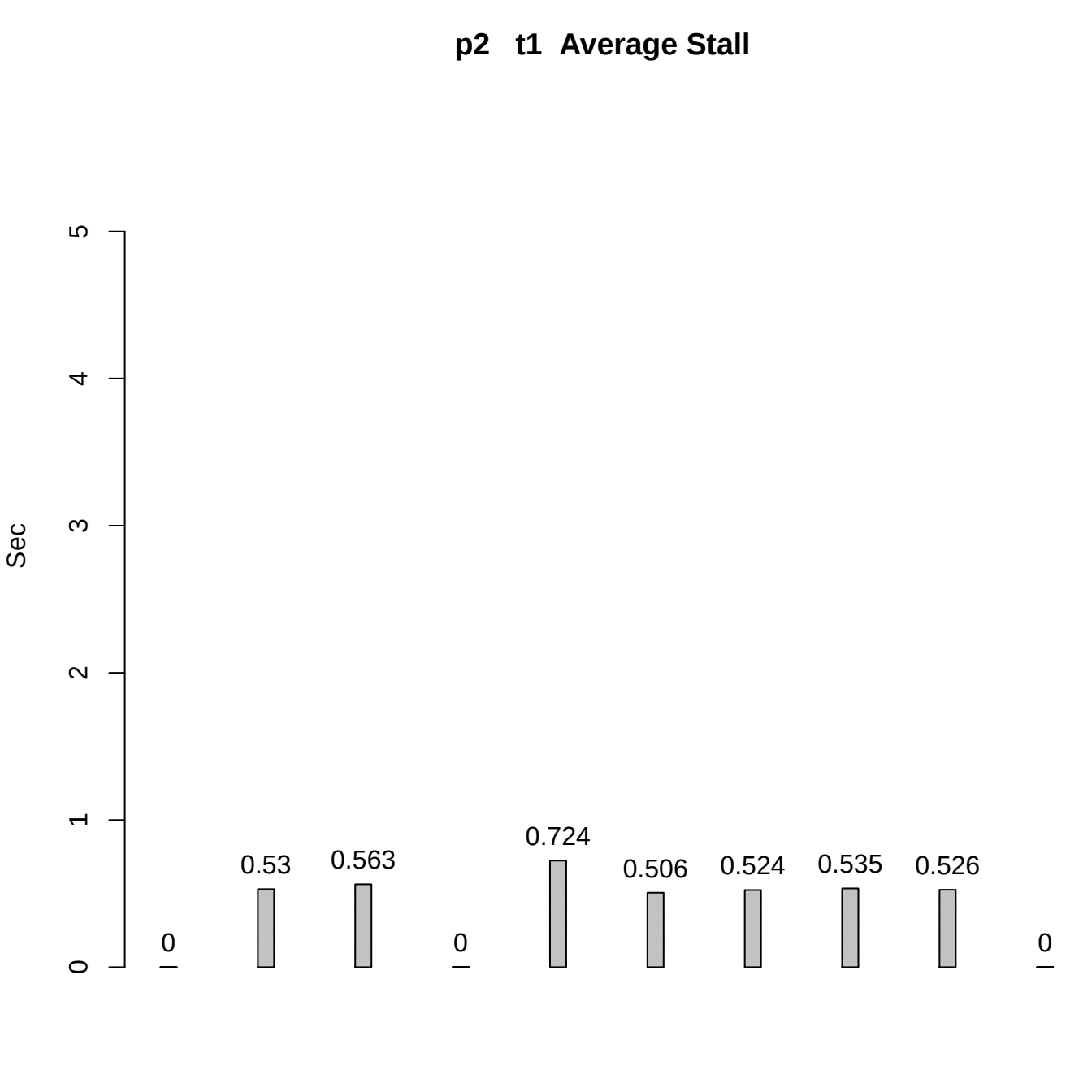

p2 t1 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
3000
3500
2257.18
3034.45
2784.59
1200
2946.99
2841.9
2278.91
2149.96
3033.34
3045.98
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

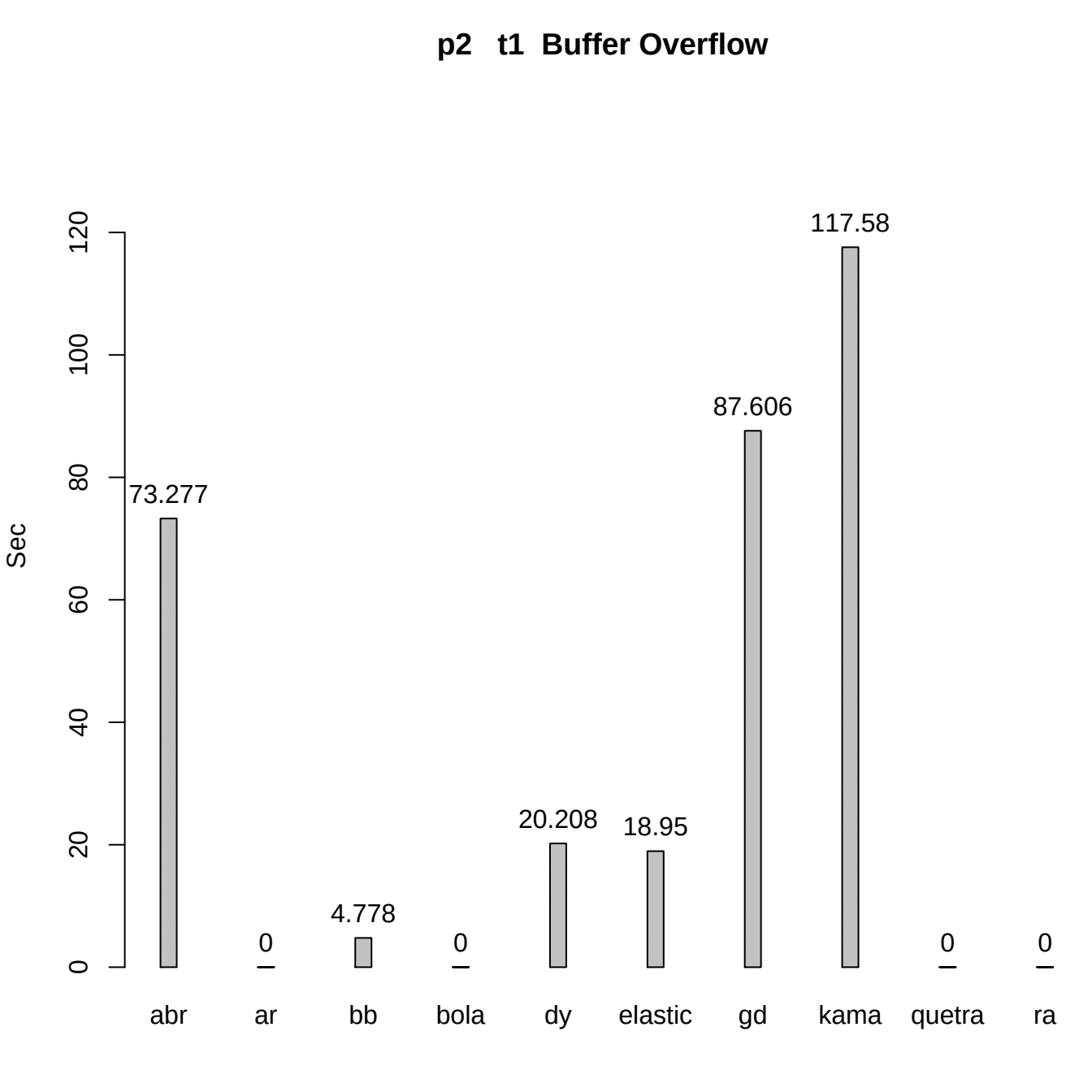

p2 t1 Quality Change
Change
0
20
40
60
80
100
120
108
36
67
0
50
30
34
50
36
30
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

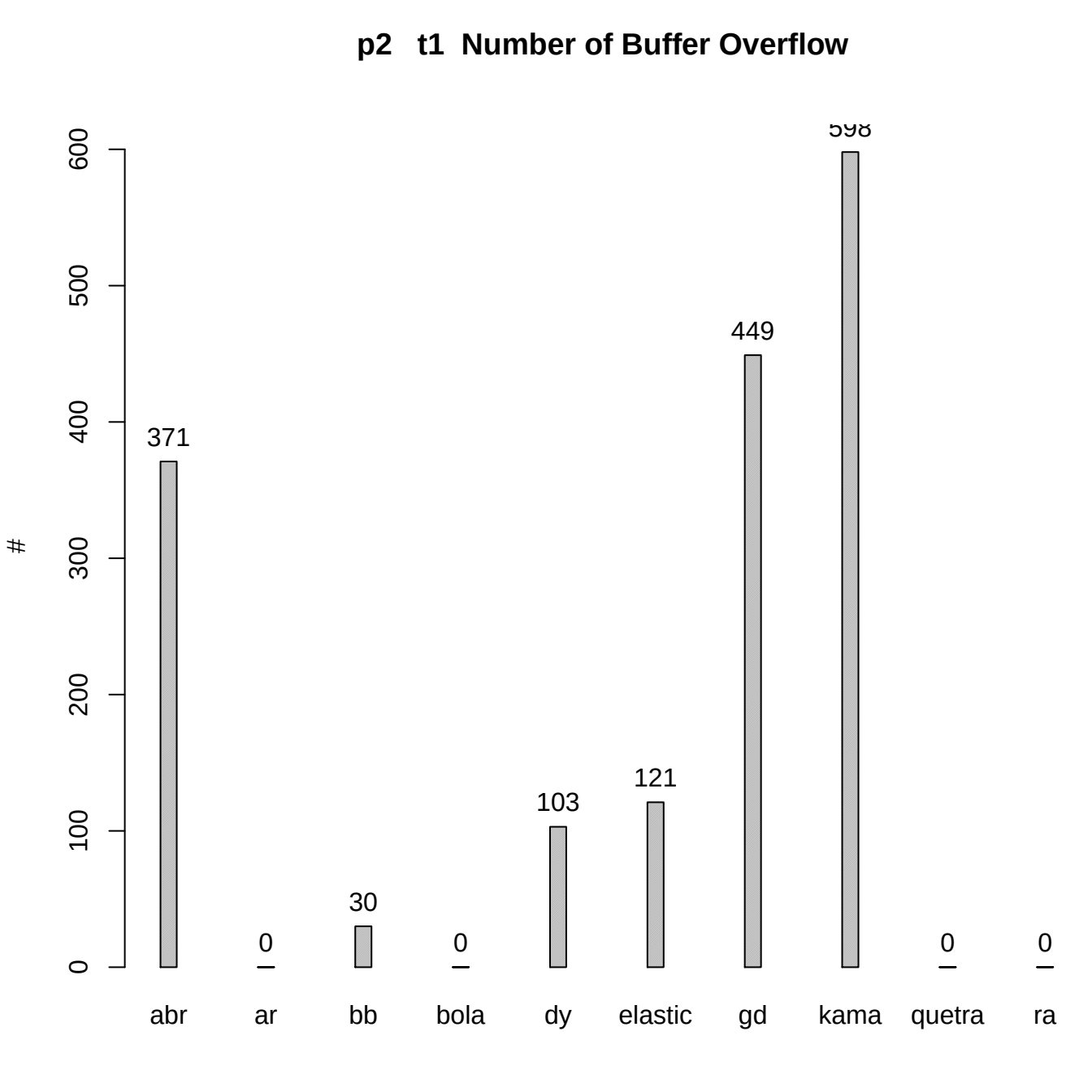

p2 t1 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.292286
0.266231
0.243828
0.496311
0.417226
0.231343
0.454981
0.426034
0.258132
0.25692
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

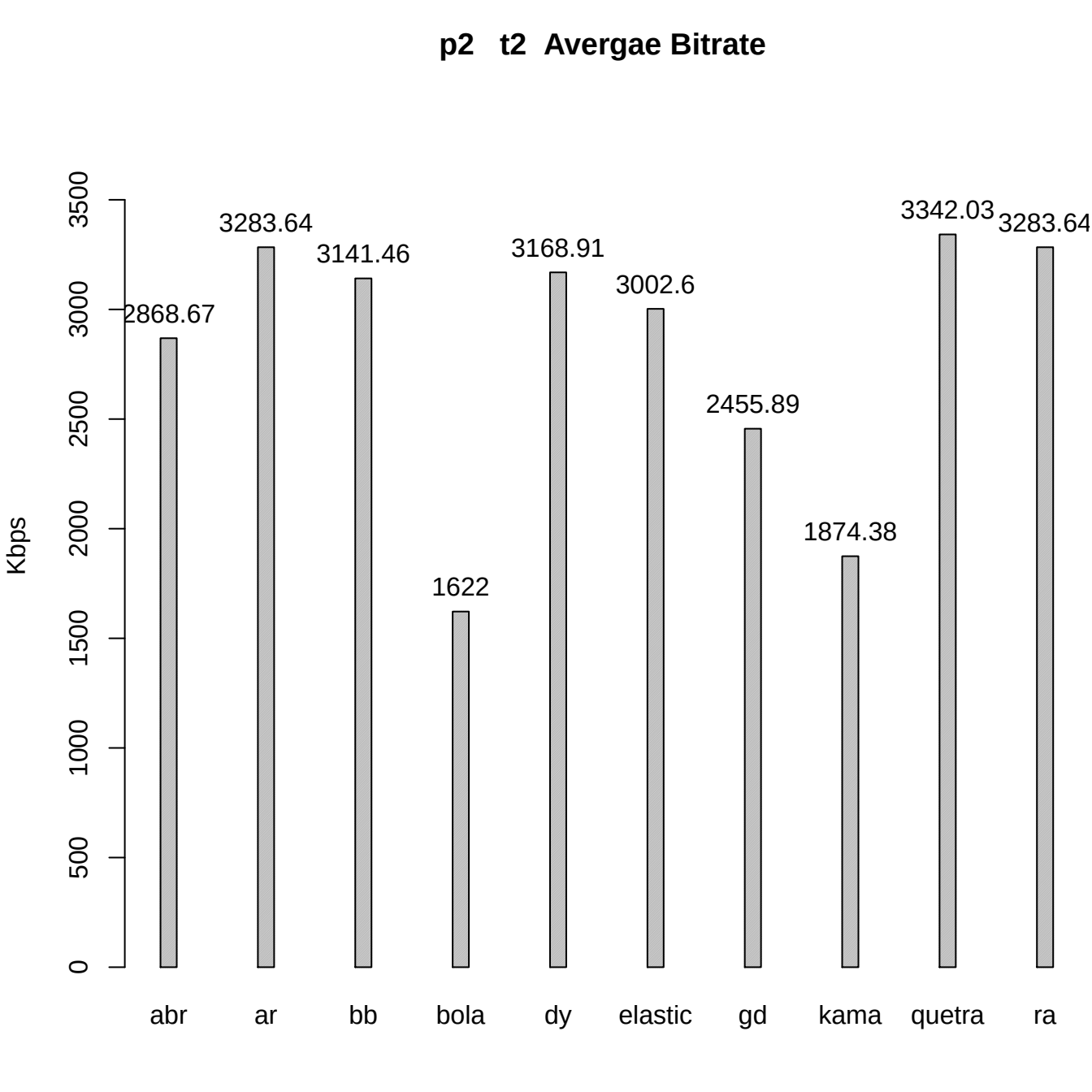

p2 t1 Total Stall
Sec
0
5
10
15
20
0
0.53
0.563
0
0.724
0.506
0.524
0.535
0.526
0

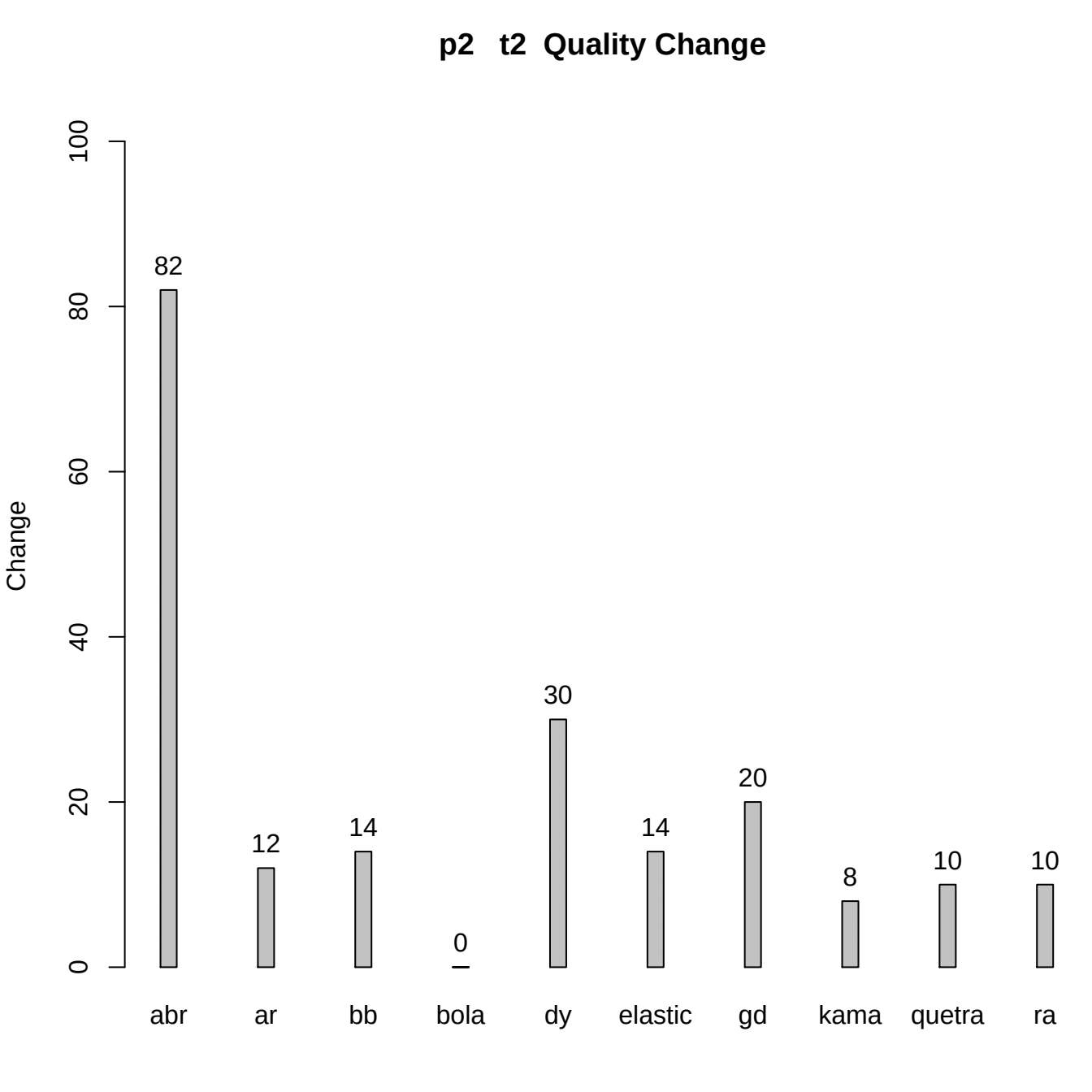

p2 t1 Number of Stall
#
0
5
10
15
20
0
1
1
0
1
1
1
1
1
0

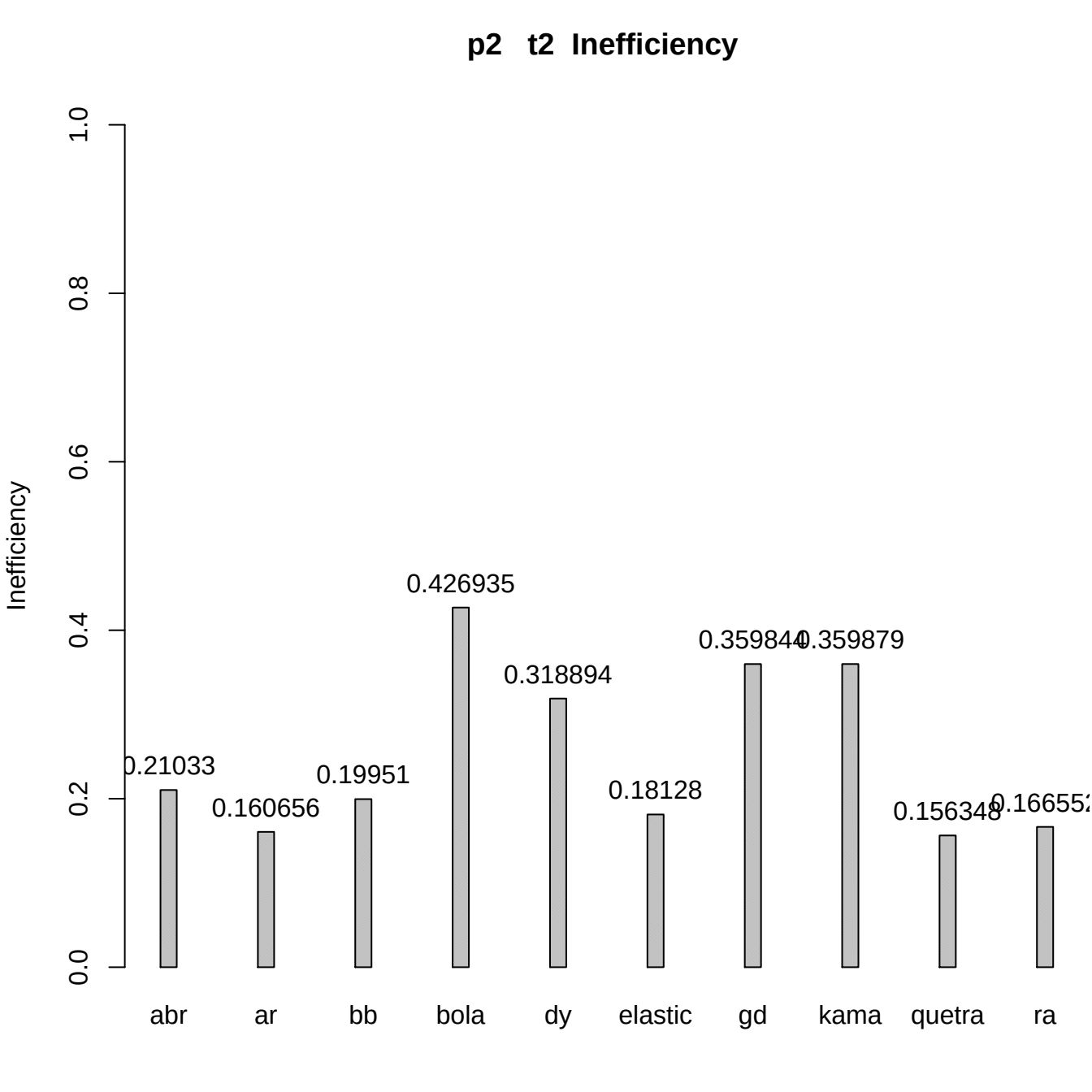

p2 t1 Average Stall
Sec
0
1
2
3
4
5
0
0.53
0.563
0
0.724
0.506
0.524
0.535
0.526
0

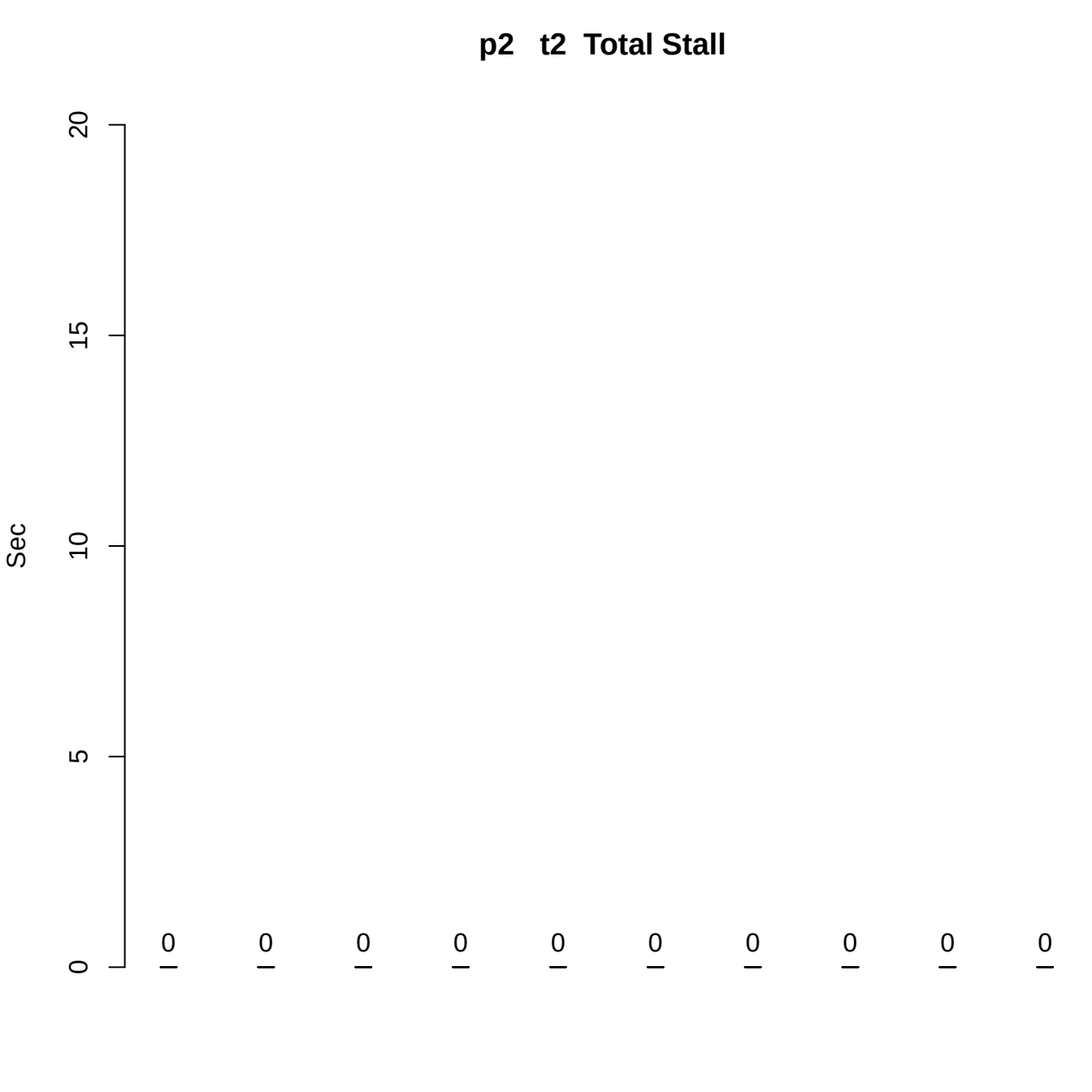

p2 t1 Buffer Overflow
Sec
0
20
40
60
80
100
120
73.277
0
4.778
0
20.208
18.95
87.606
117.58
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

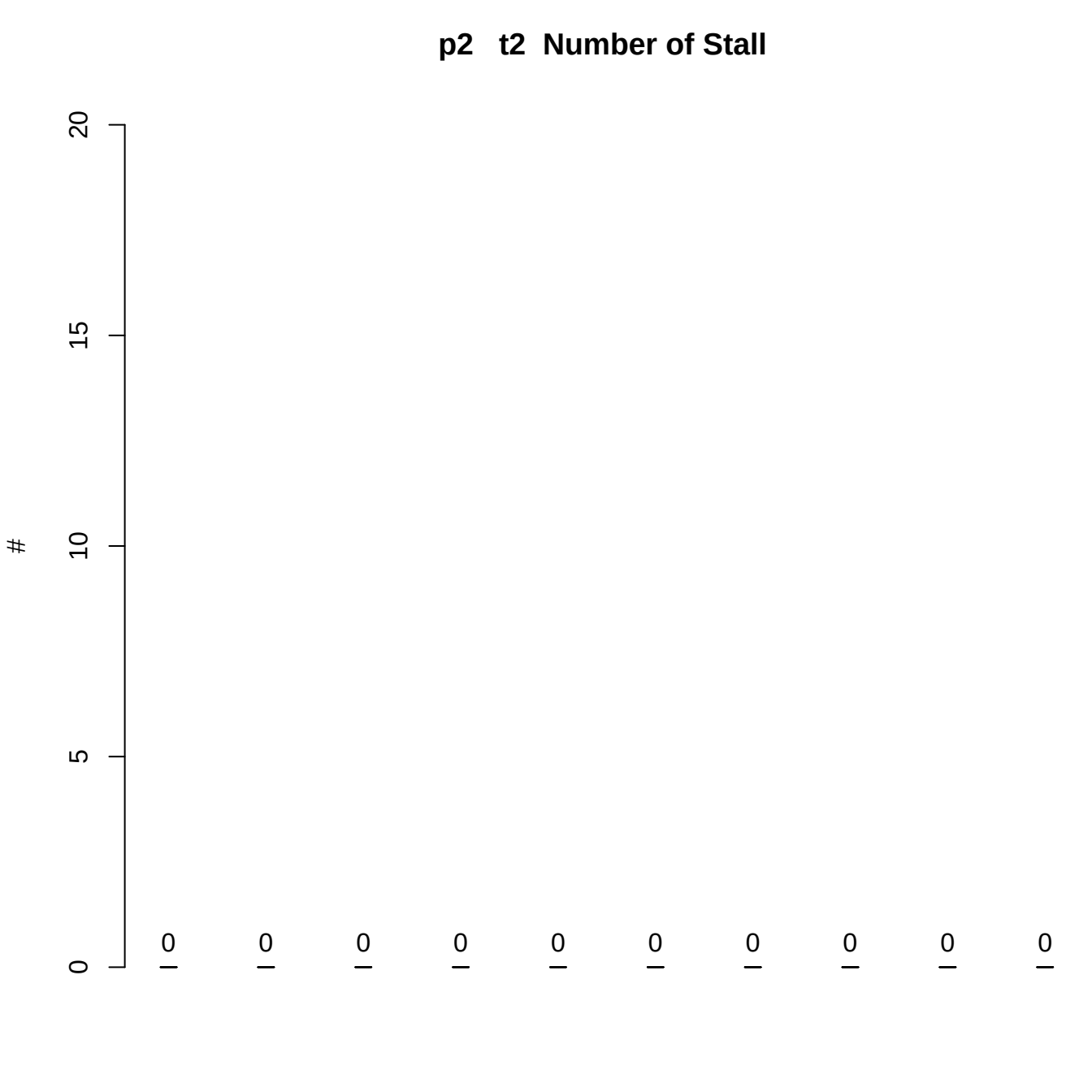

p2 t1 Number of Buffer Overflow
#
0
100
200
300
400
500
600
371
0
30
0
103
121
449
598
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

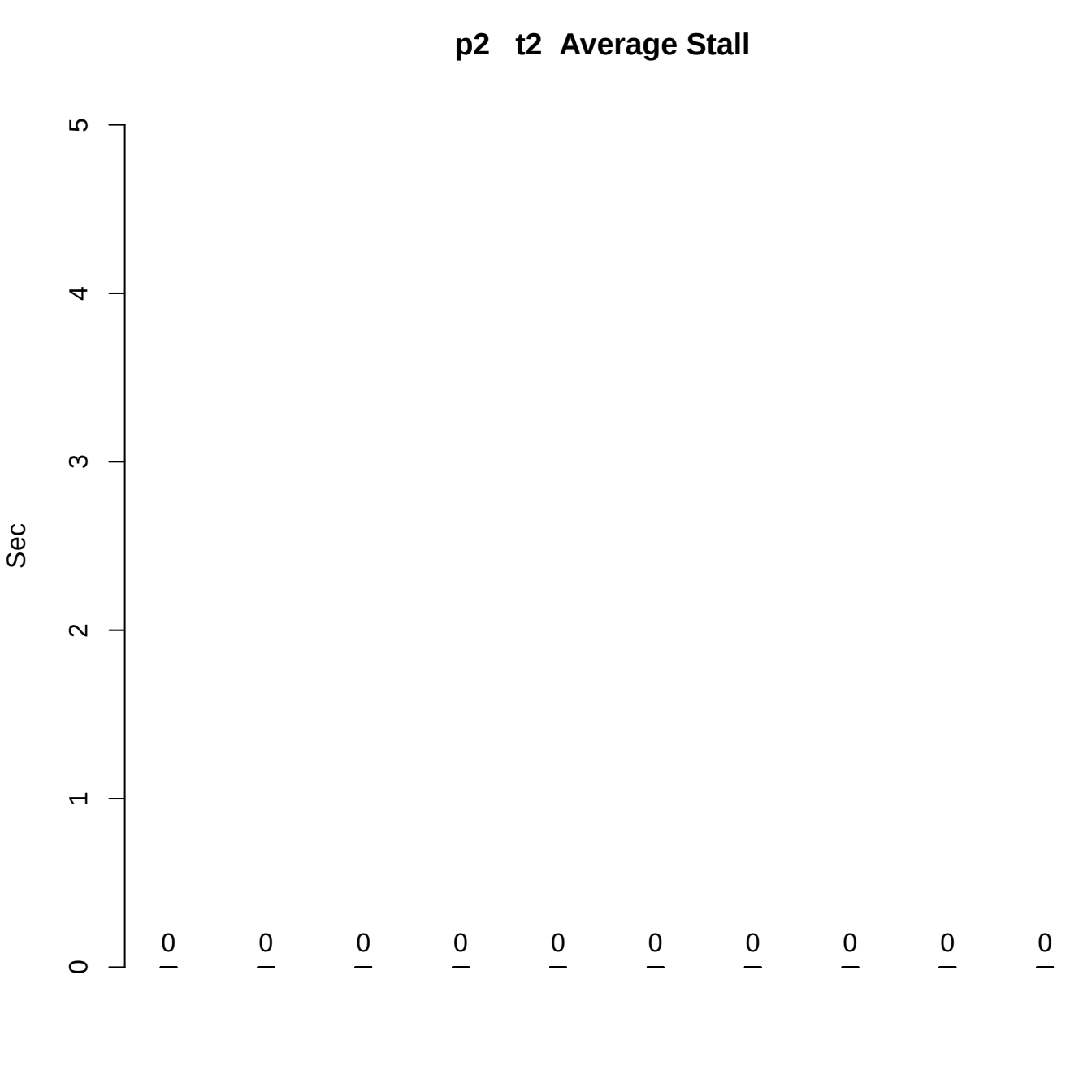

p2 t2 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
3000
3500
2868.67
3283.64
3141.46
1622
3168.91
3002.6
2455.89
1874.38
3342.03
3283.64
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

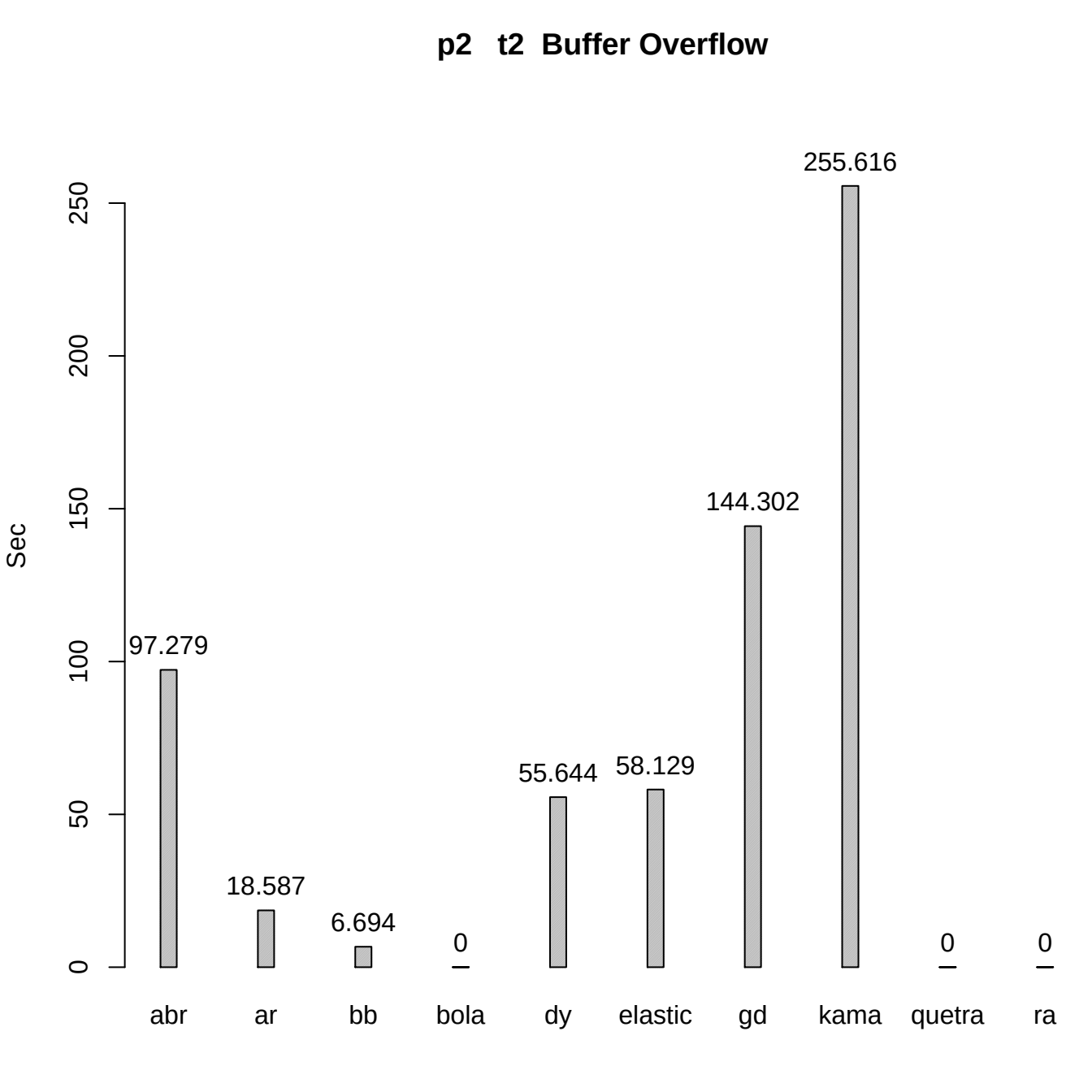

p2 t2 Quality Change
Change
0
20
40
60
80
100
82
12
14
0
30
14
20
8
10
10
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

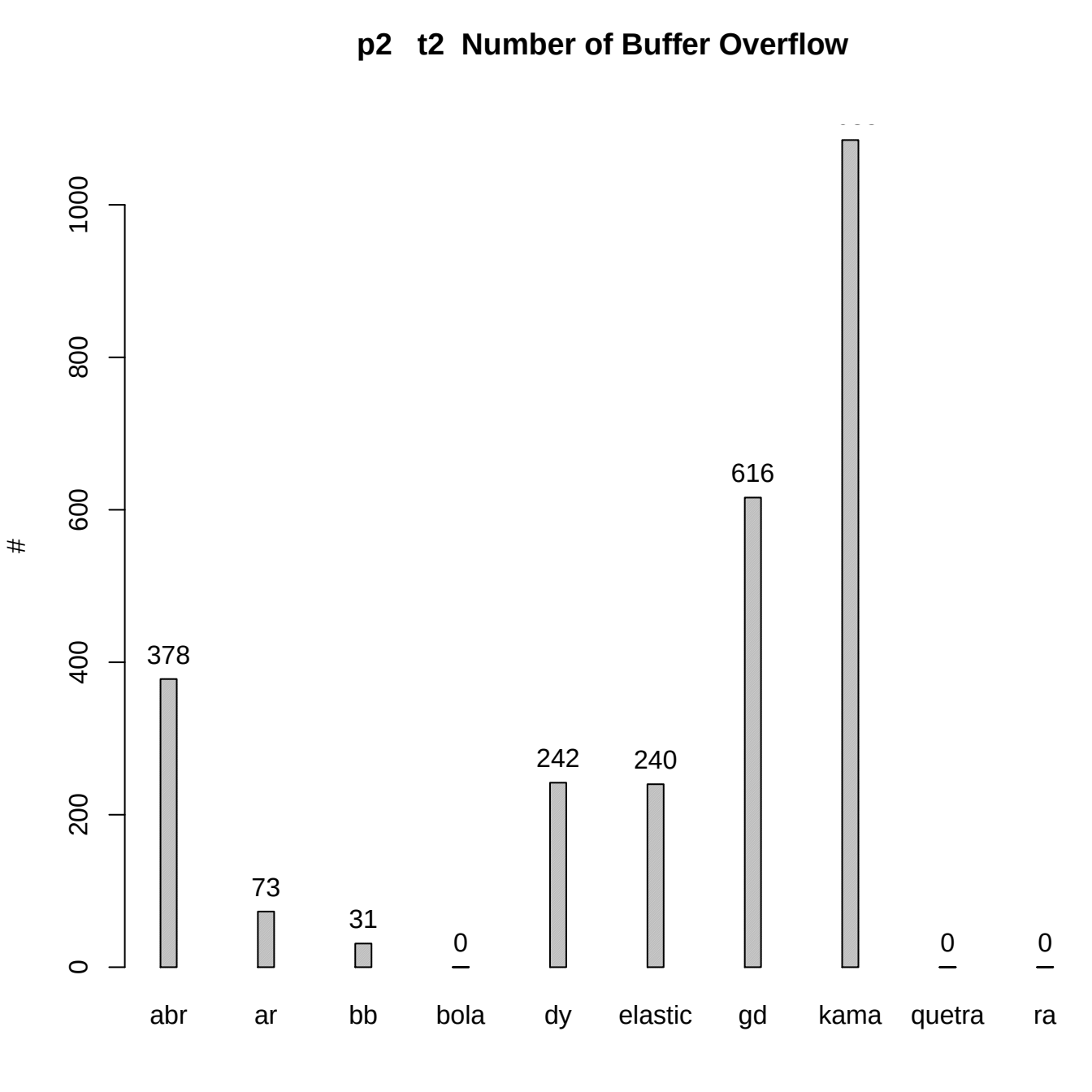

p2 t2 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
0.21033
0.160656
0.19951
0.426935
0.318894
0.18128
0.359844
0.359879
0.156348
0.166552
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

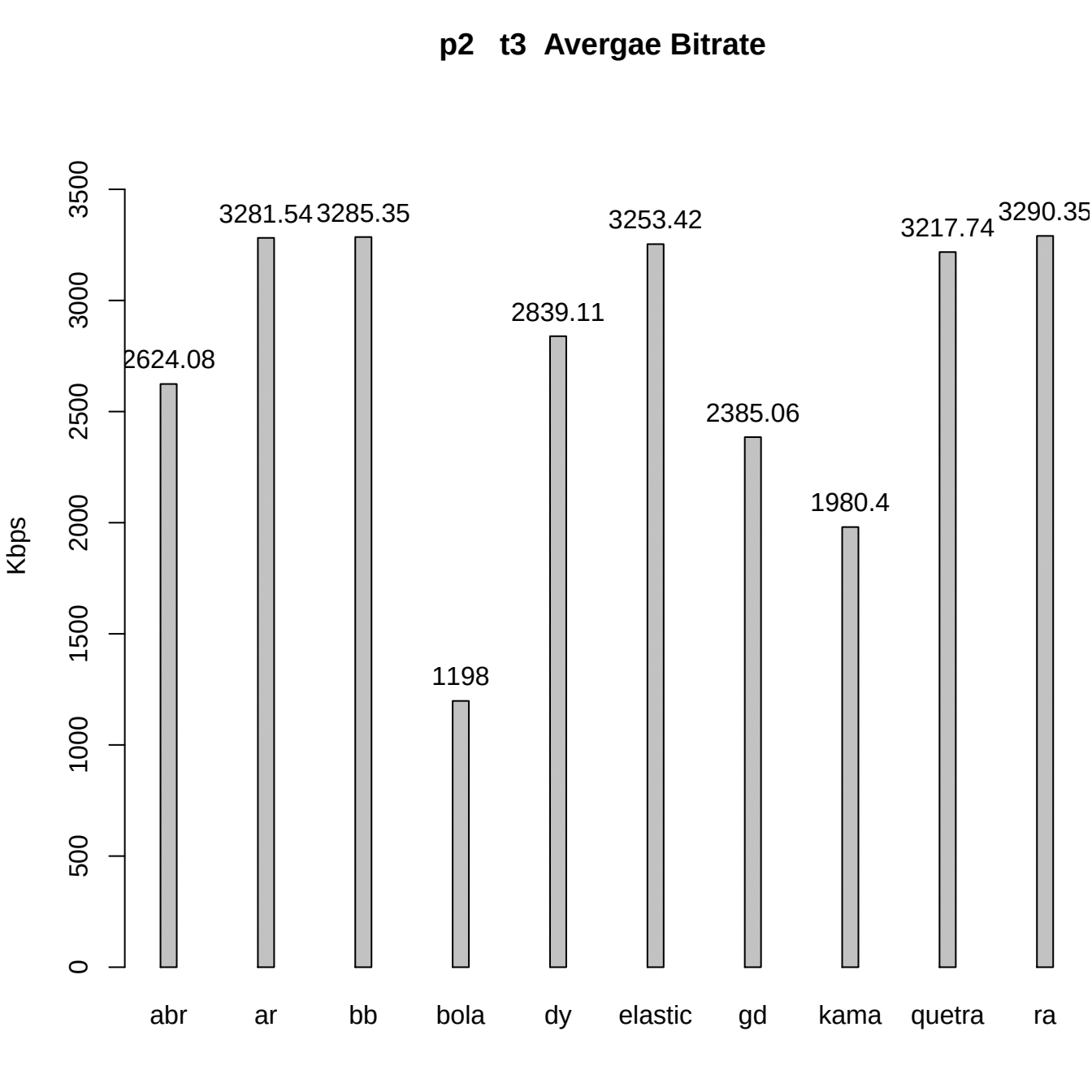

p2 t2 Total Stall
Sec
0
5
10
15
20
0
0
0
0
0
0
0
0
0
0

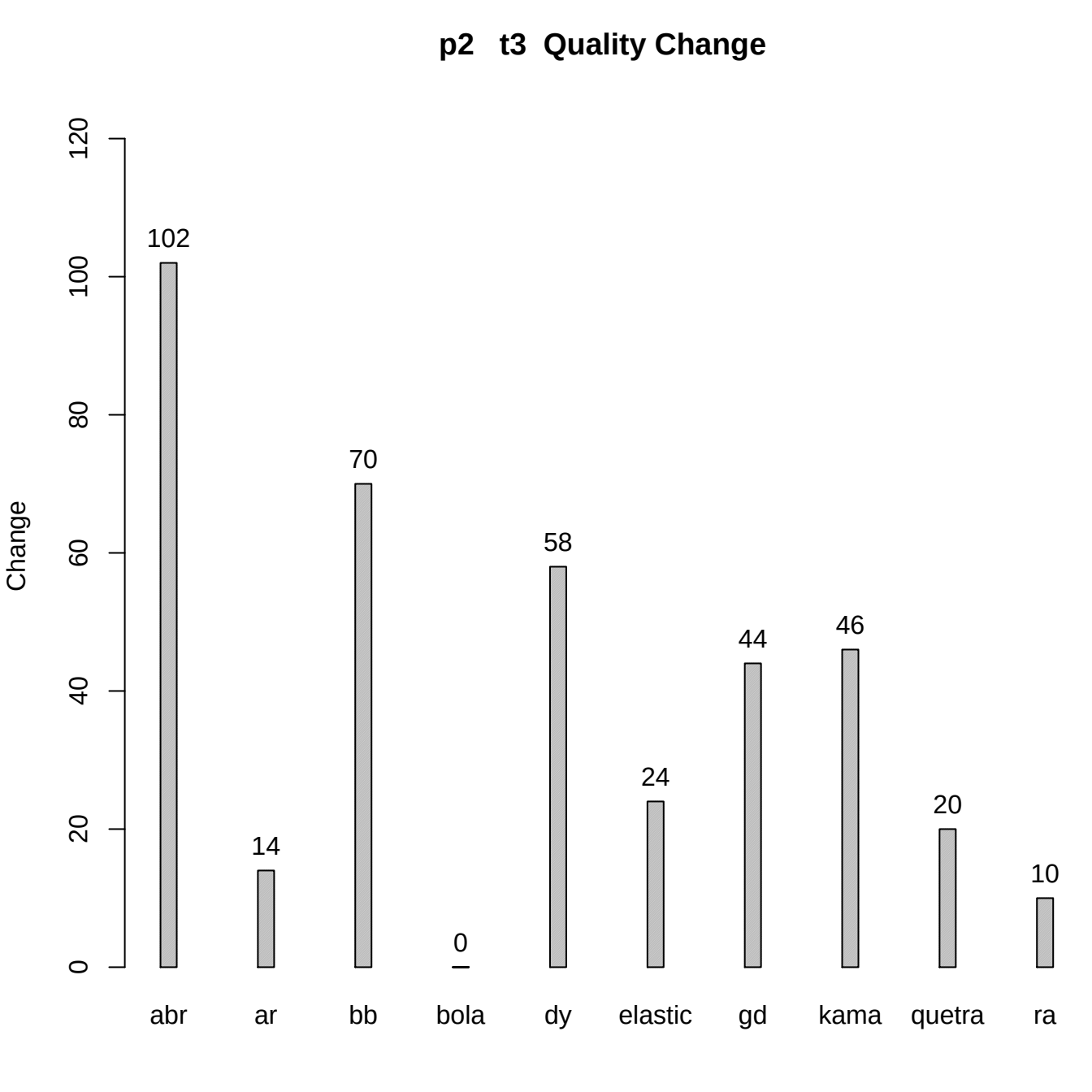

p2 t2 Number of Stall
#
0
5
10
15
20
0
0
0
0
0
0
0
0
0
0

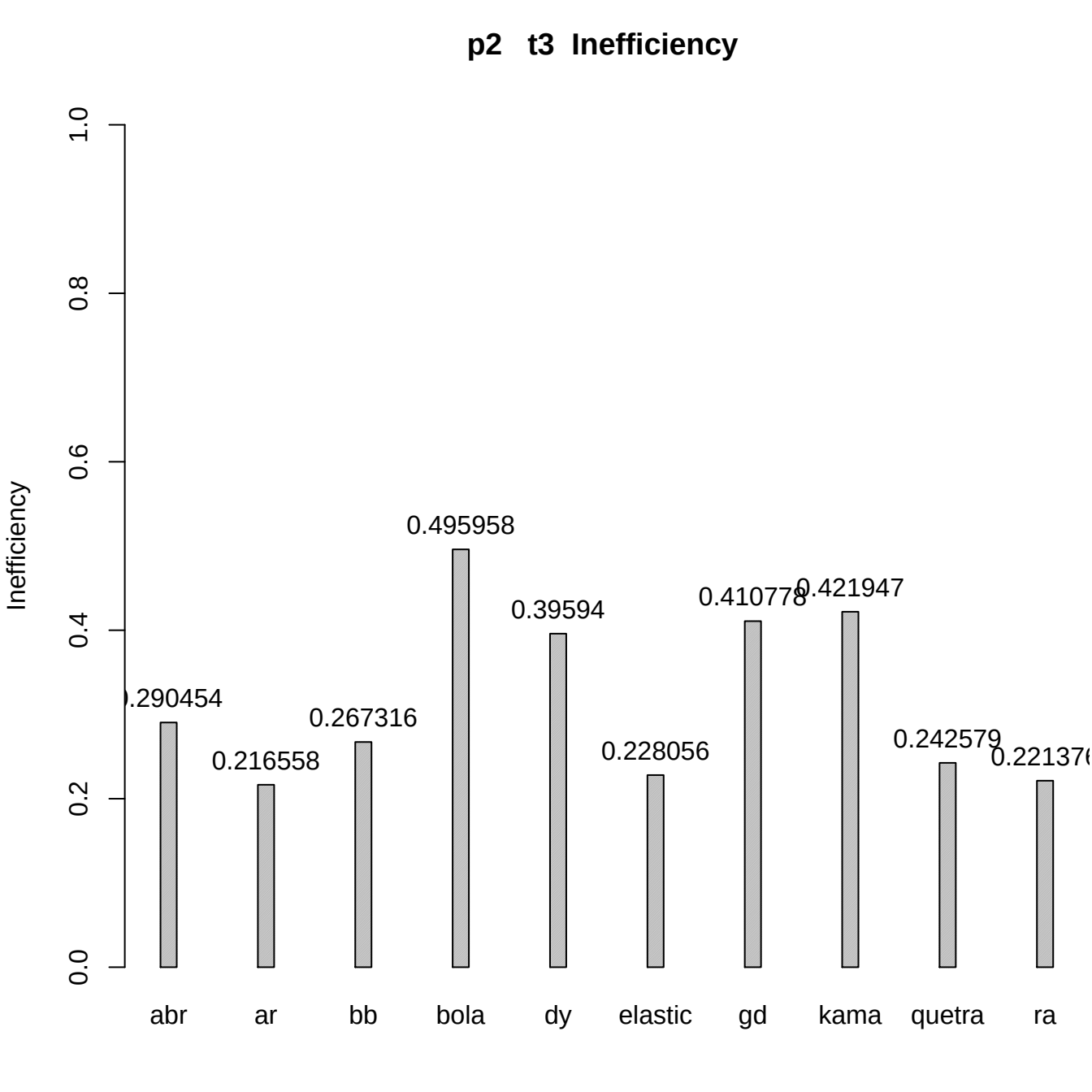

p2 t2 Average Stall
Sec
0
1
2
3
4
5
0
0
0
0
0
0
0
0
0
0

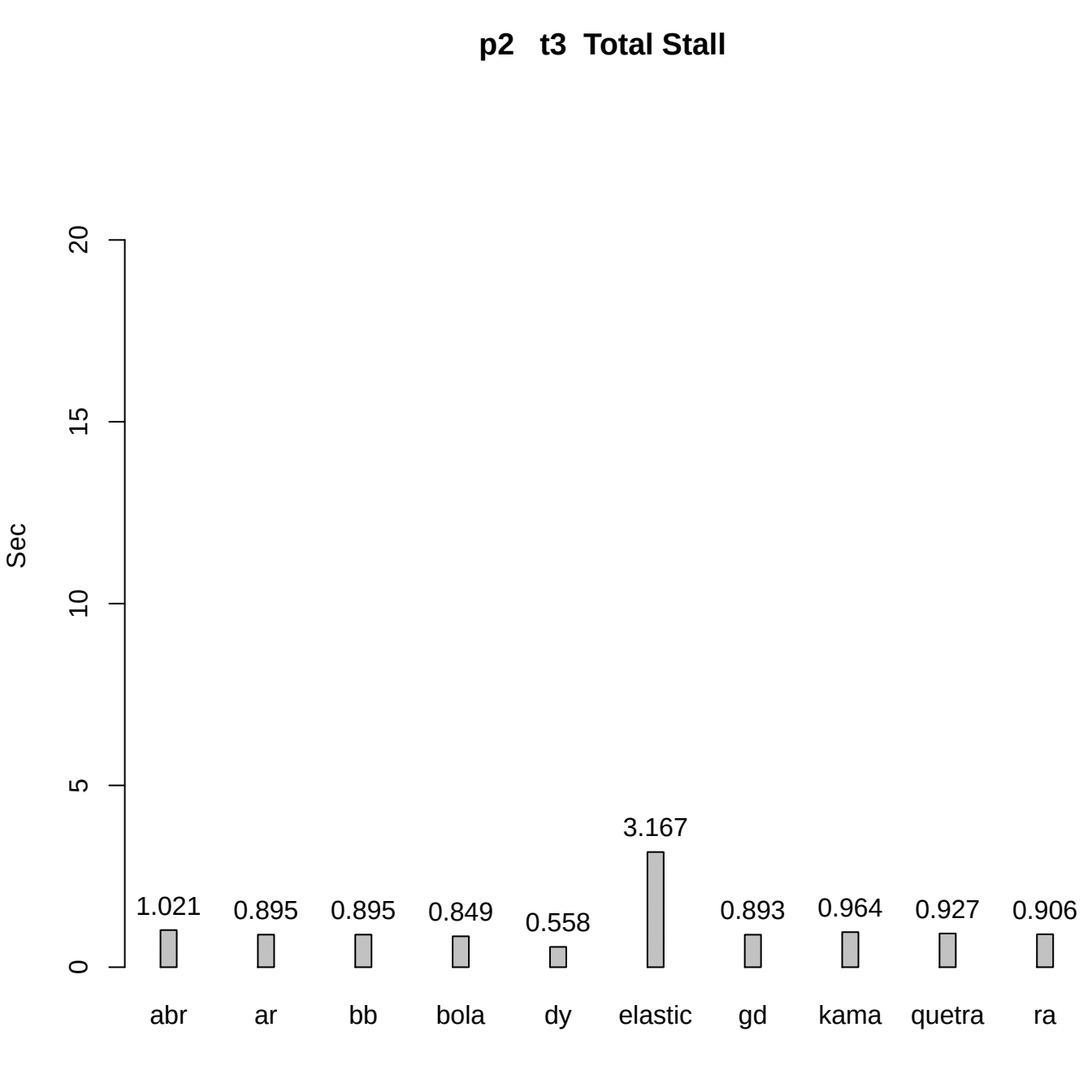

p2 t2 Buffer Overflow
Sec
0
50
100
150
200
250
97.279
18.587
6.694
0
55.644
58.129
144.302
255.616
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

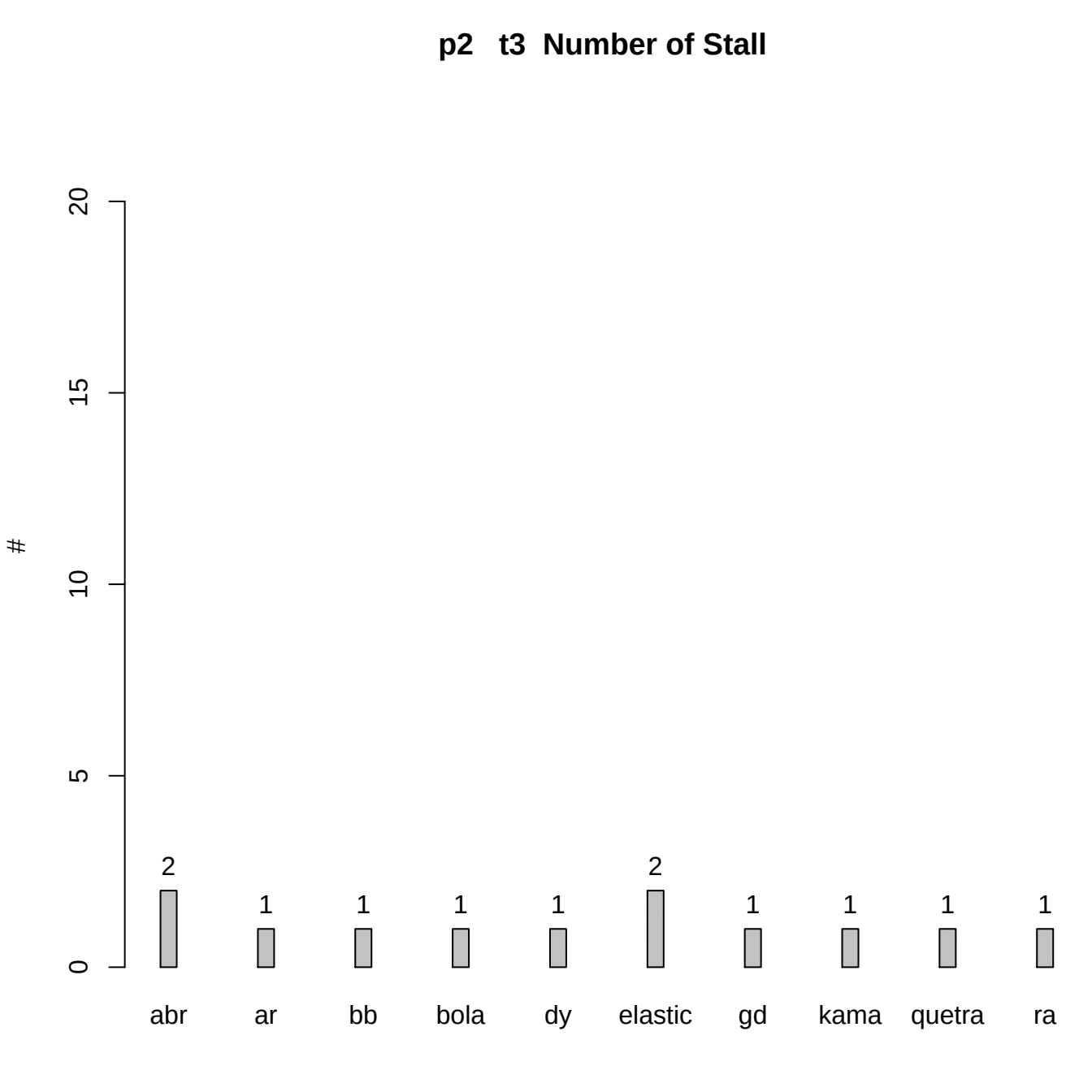

p2 t2 Number of Buffer Overflow
#
0
200
400
600
800
1000
378
73
31
0
242
240
616
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

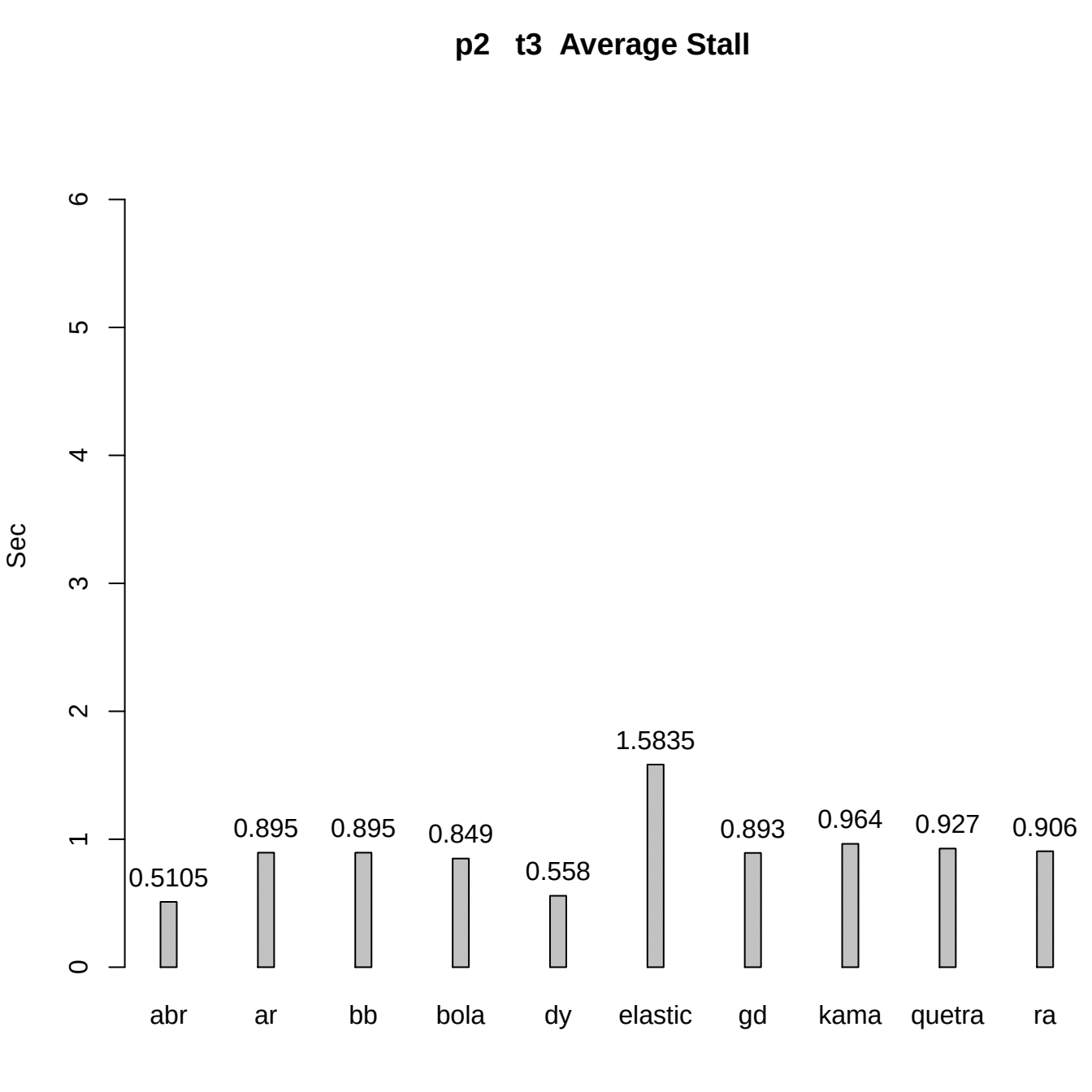

p2 t3 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
3000
3500
2624.08
3281.54
3285.35
1198
2839.11
3253.42
2385.06
1980.4
3217.74
3290.35
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

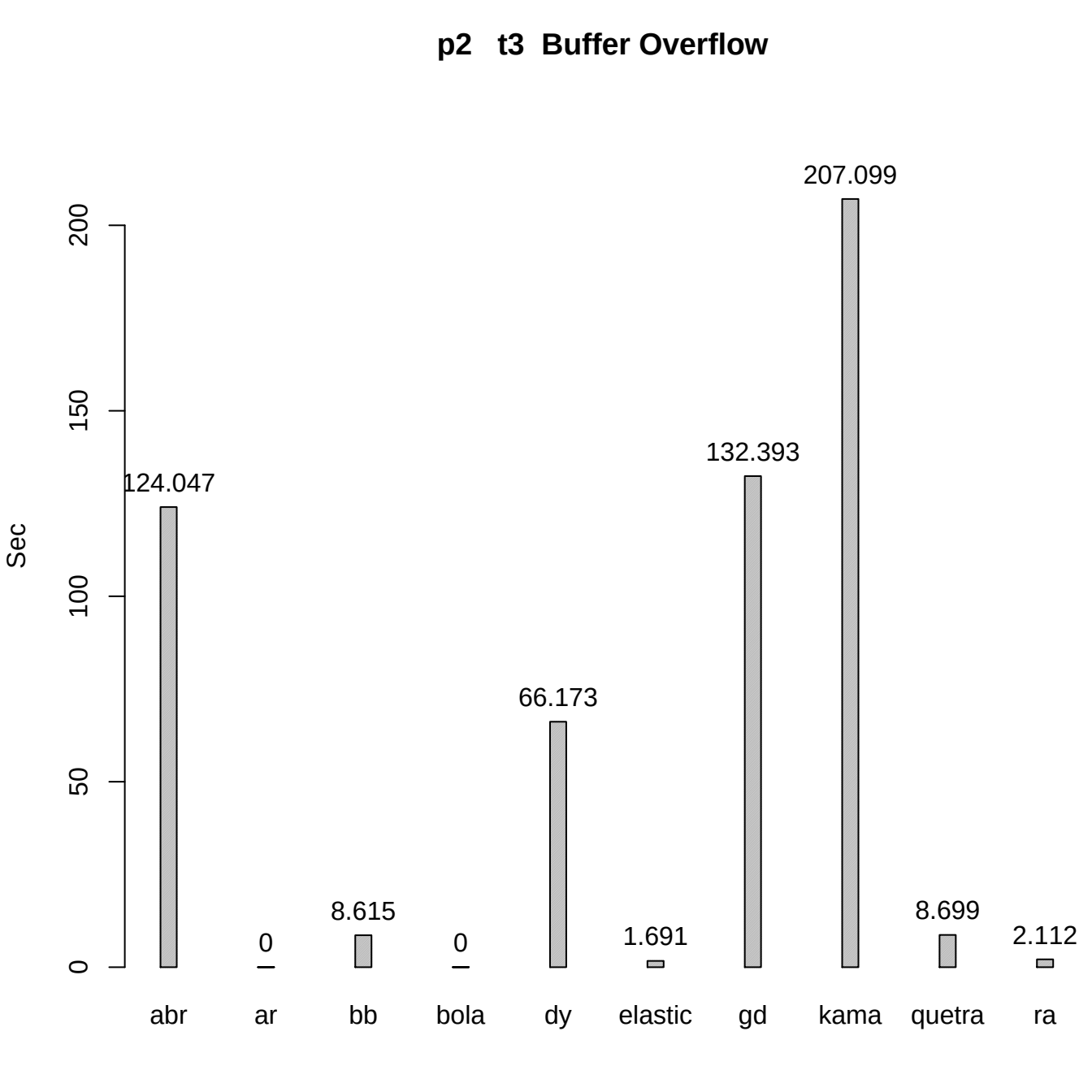

p2 t3 Quality Change
Change
0
20
40
60
80
100
120
102
14
70
0
58
24
44
46
20
10
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

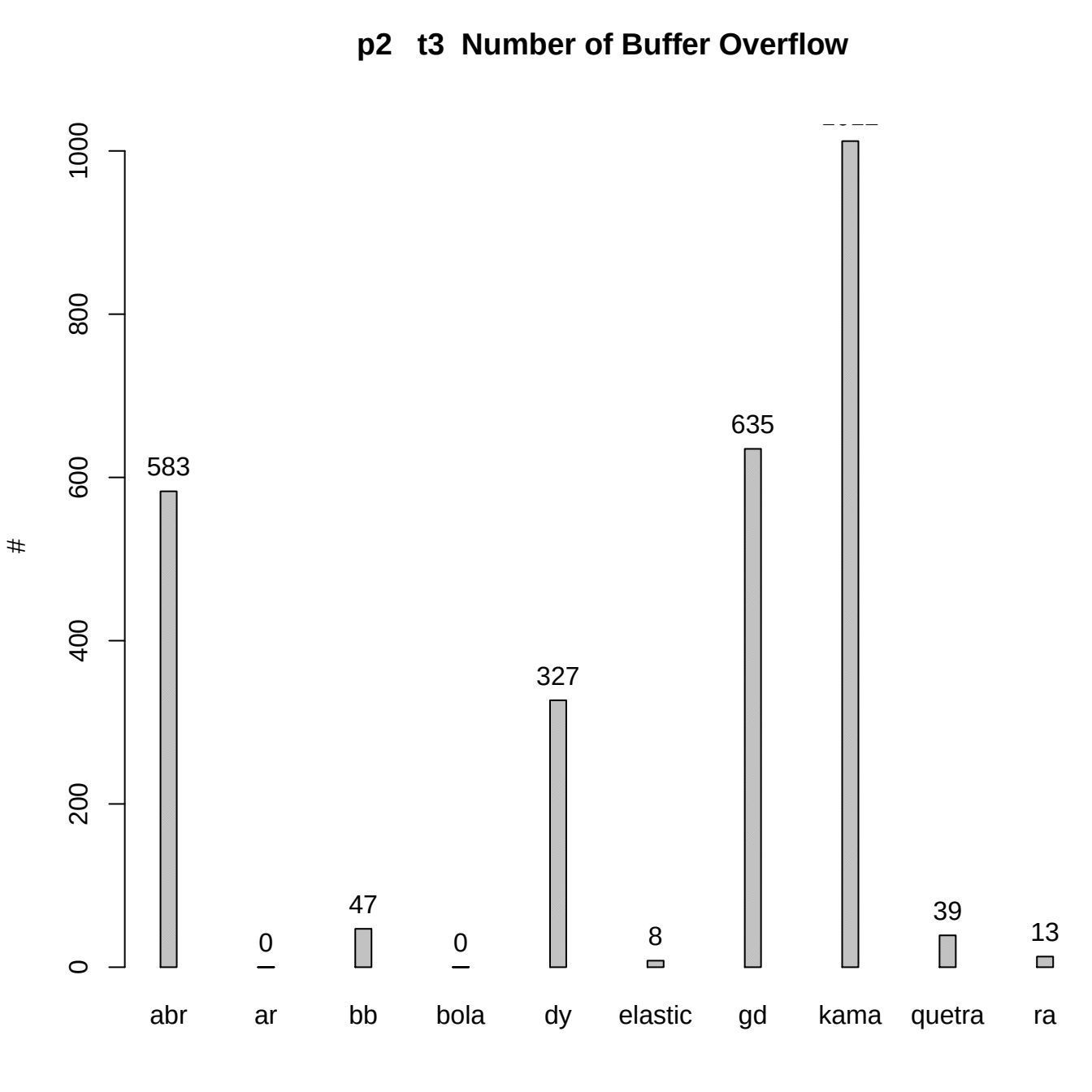

p2 t3 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.290454
0.216558
0.267316
0.495958
0.39594
0.228056
0.410778
0.421947
0.242579
0.22137
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

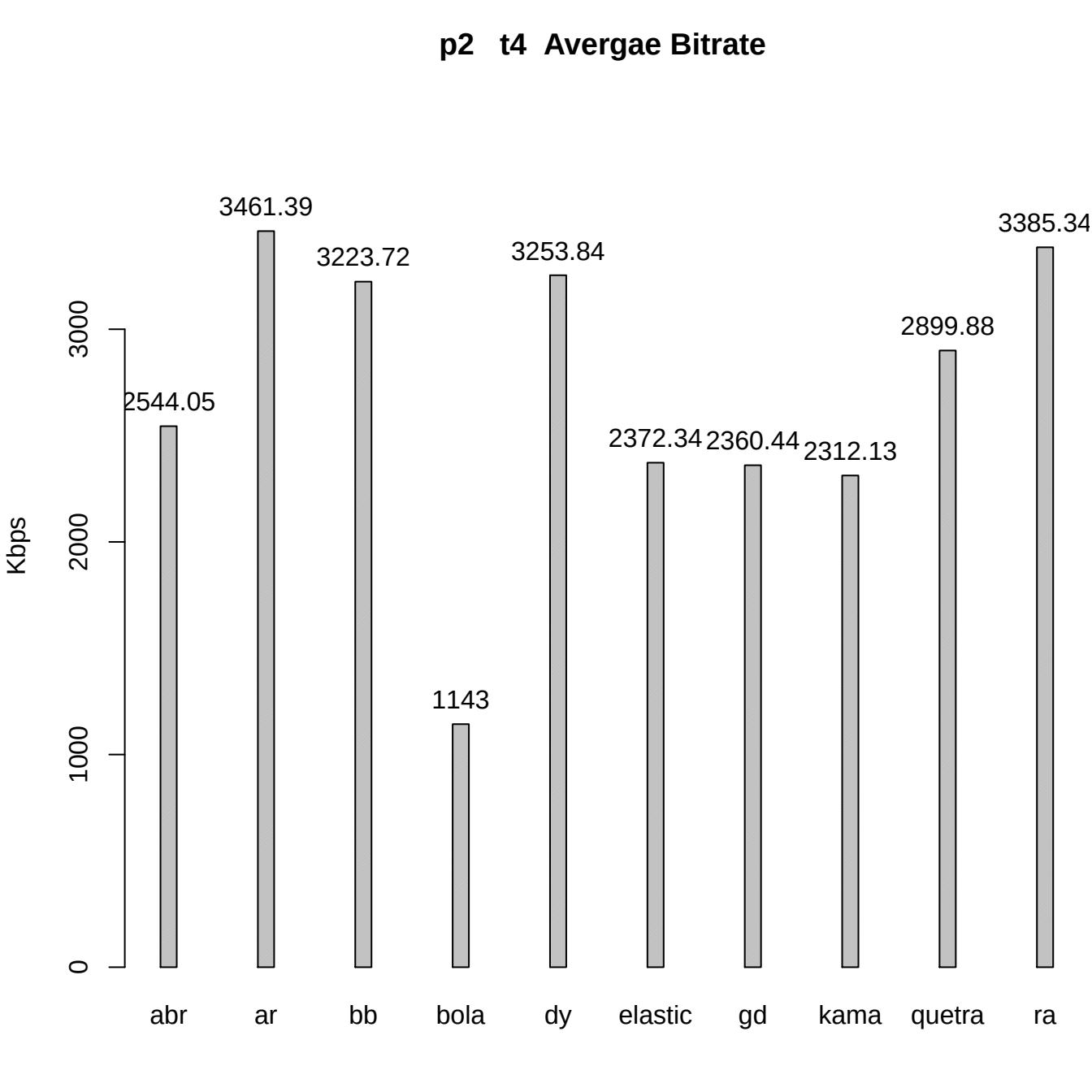

p2 t3 Total Stall
Sec
0
5
10
15
20
1.021
0.895
0.895
0.849
0.558
3.167
0.893
0.964
0.927
0.906
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

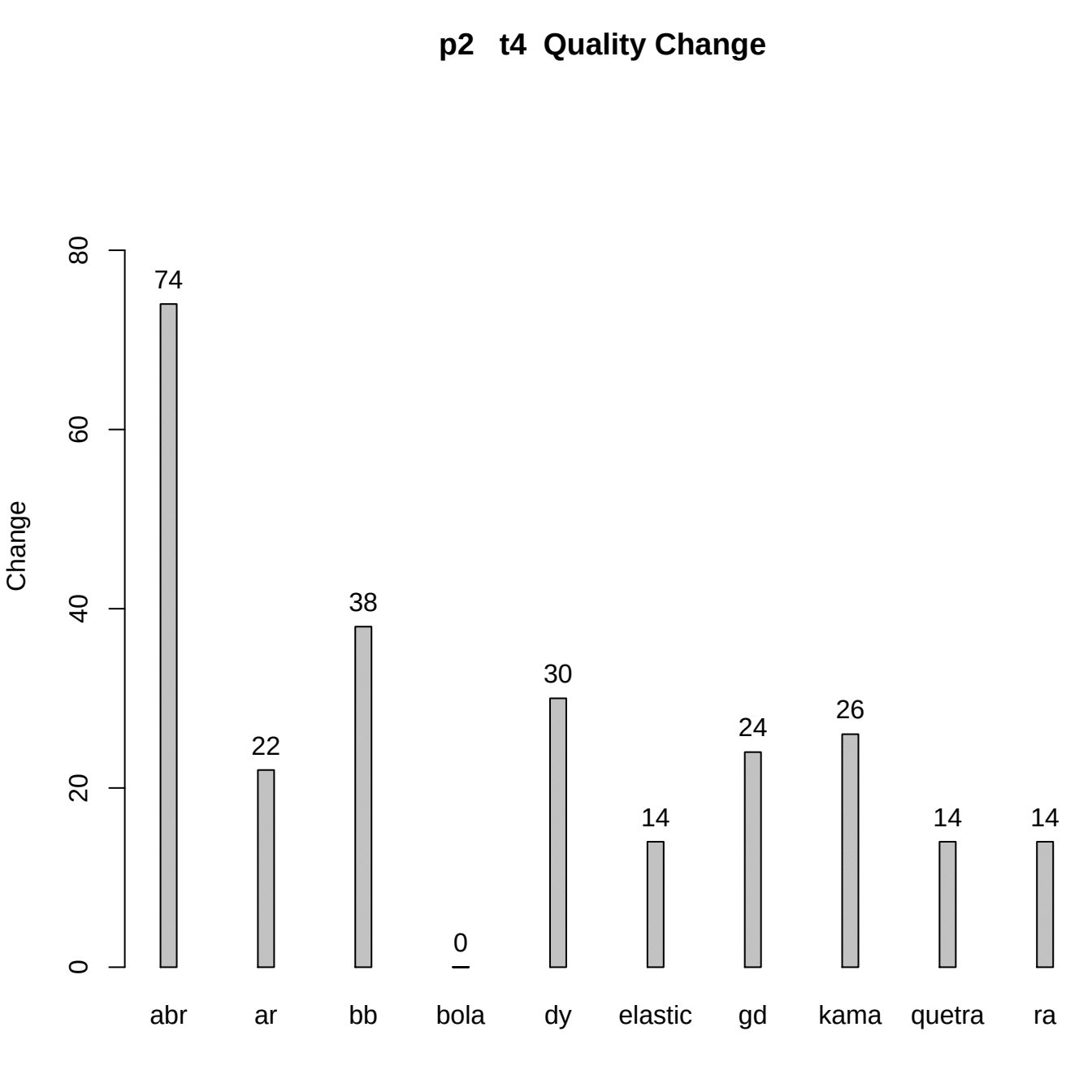

p2 t3 Number of Stall
#
0
5
10
15
20
2
1
1
1
1
2
1
1
1
1
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

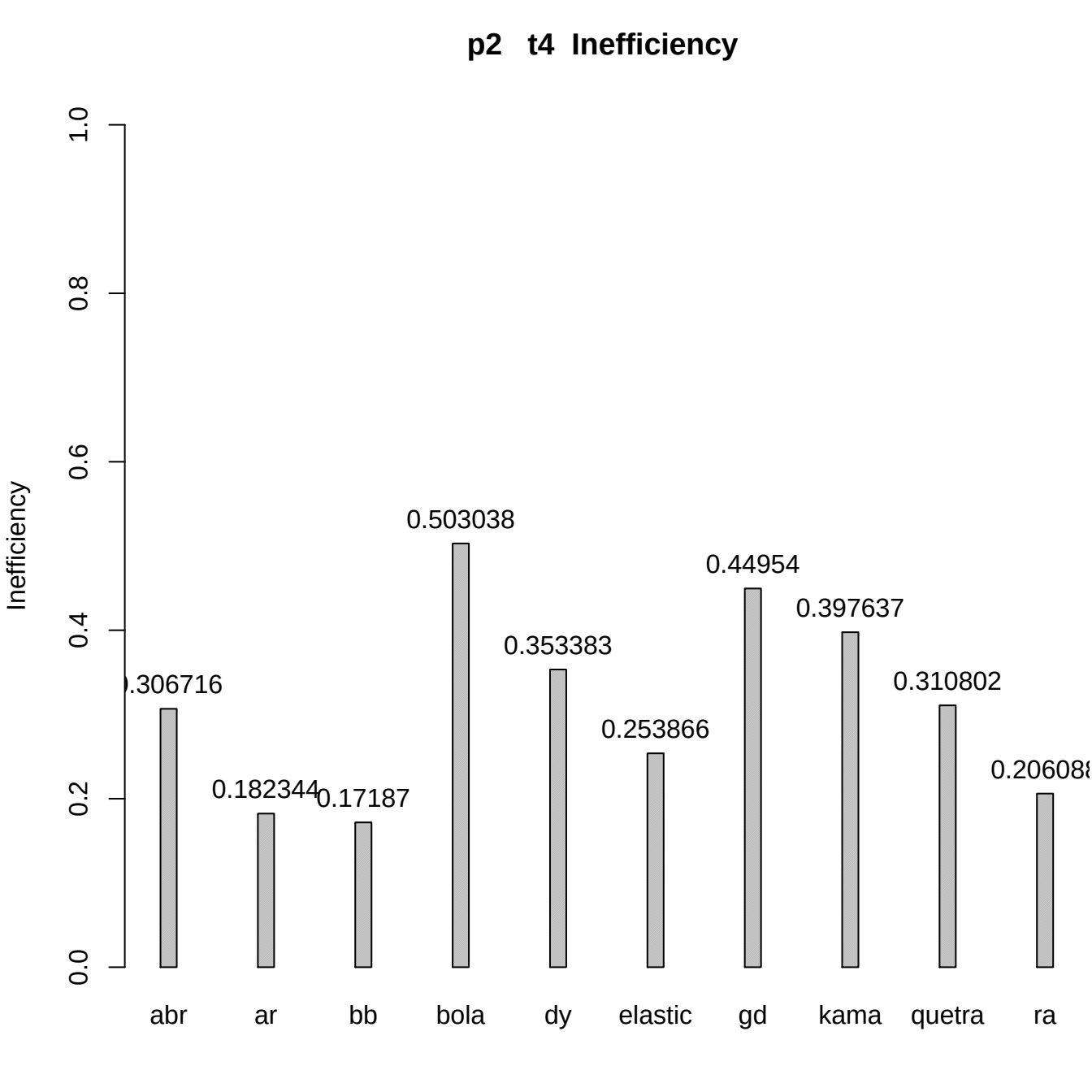

p2 t3 Average Stall
Sec
0
1
2
3
4
5
6
0.5105
0.895
0.895
0.849
0.558
1.5835
0.893
0.964
0.927
0.906
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

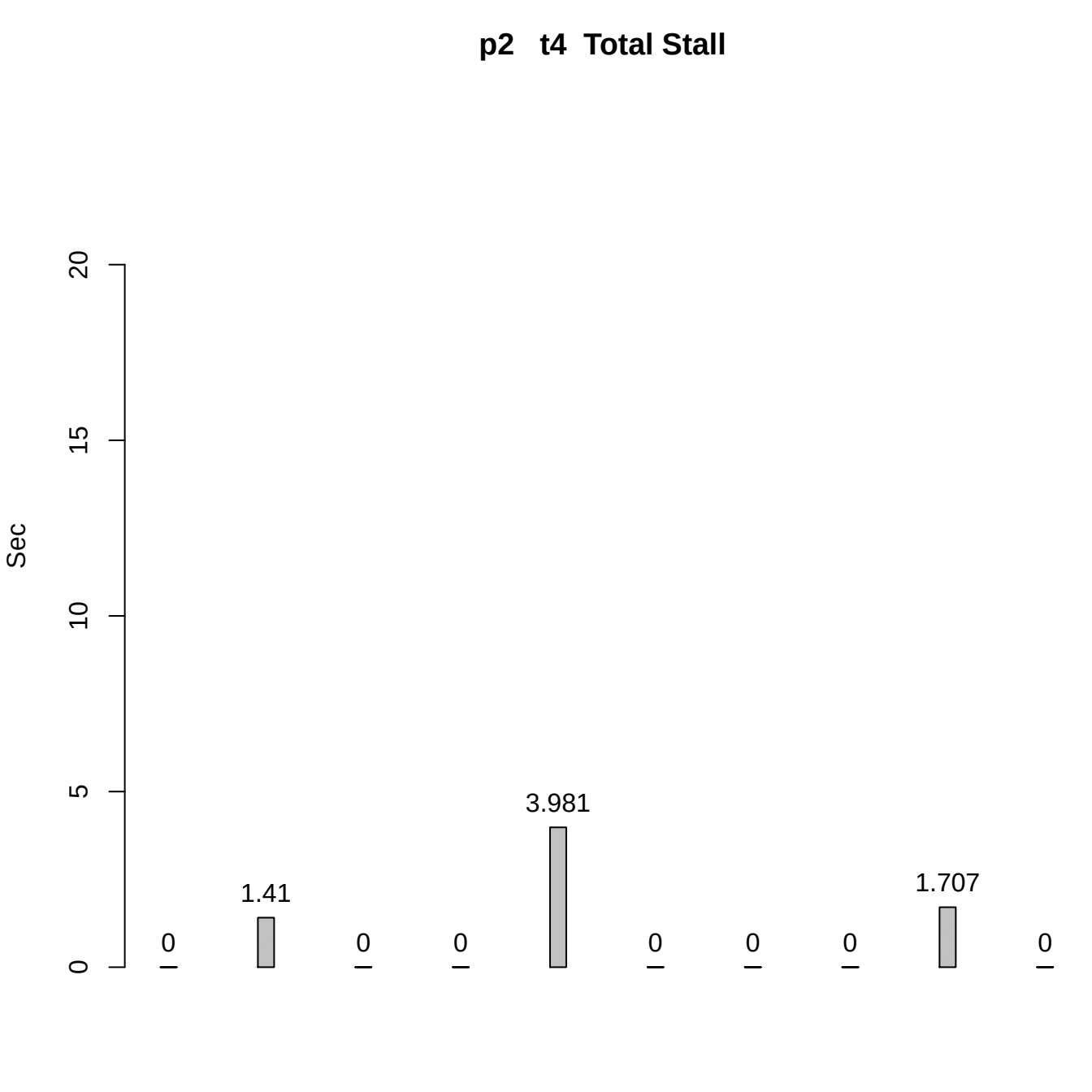

p2 t3 Buffer Overflow
Sec
0
50
100
150
200
124.047
0
8.615
0
66.173
1.691
132.393
207.099
8.699
2.112
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

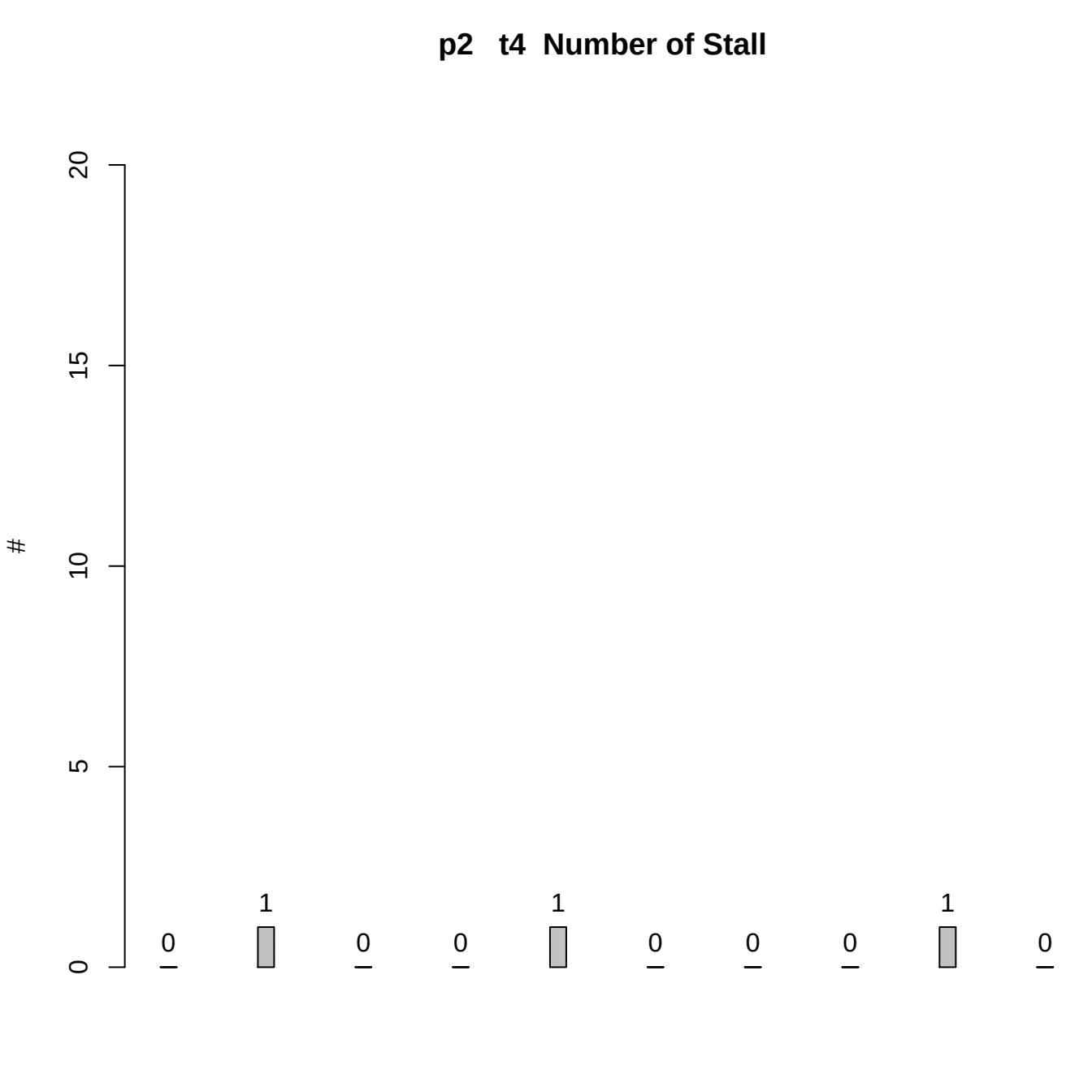

p2 t3 Number of Buffer Overflow
#
0
200
400
600
800
1000
583
0
47
0
327
8
635
39
13
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

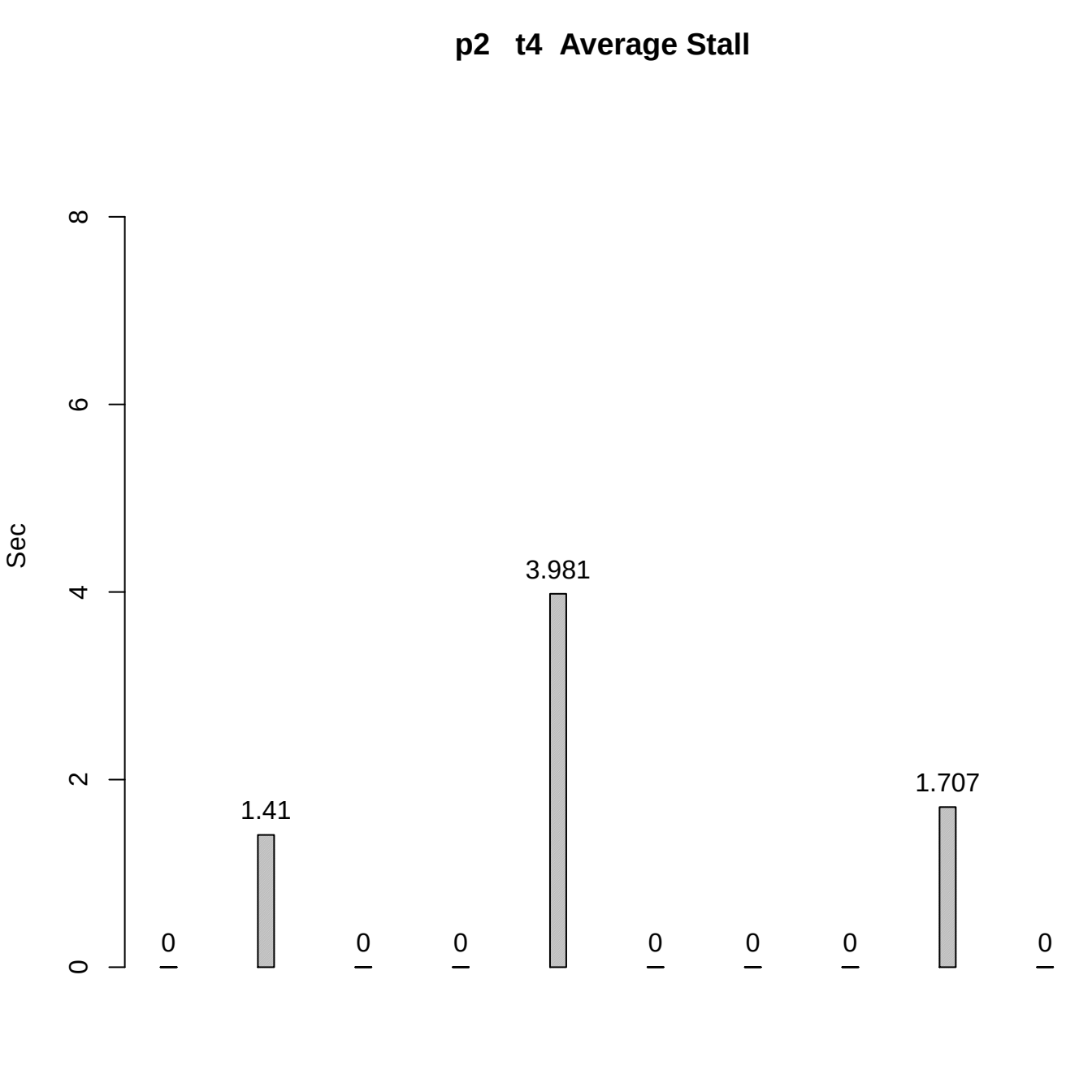

p2 t4 Avergae Bitrate
Kbps
0
1000
2000
3000
2544.05
3461.39
3223.72
1143
3253.84
2372.34
2360.44
2312.13
2899.88
3385.34
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

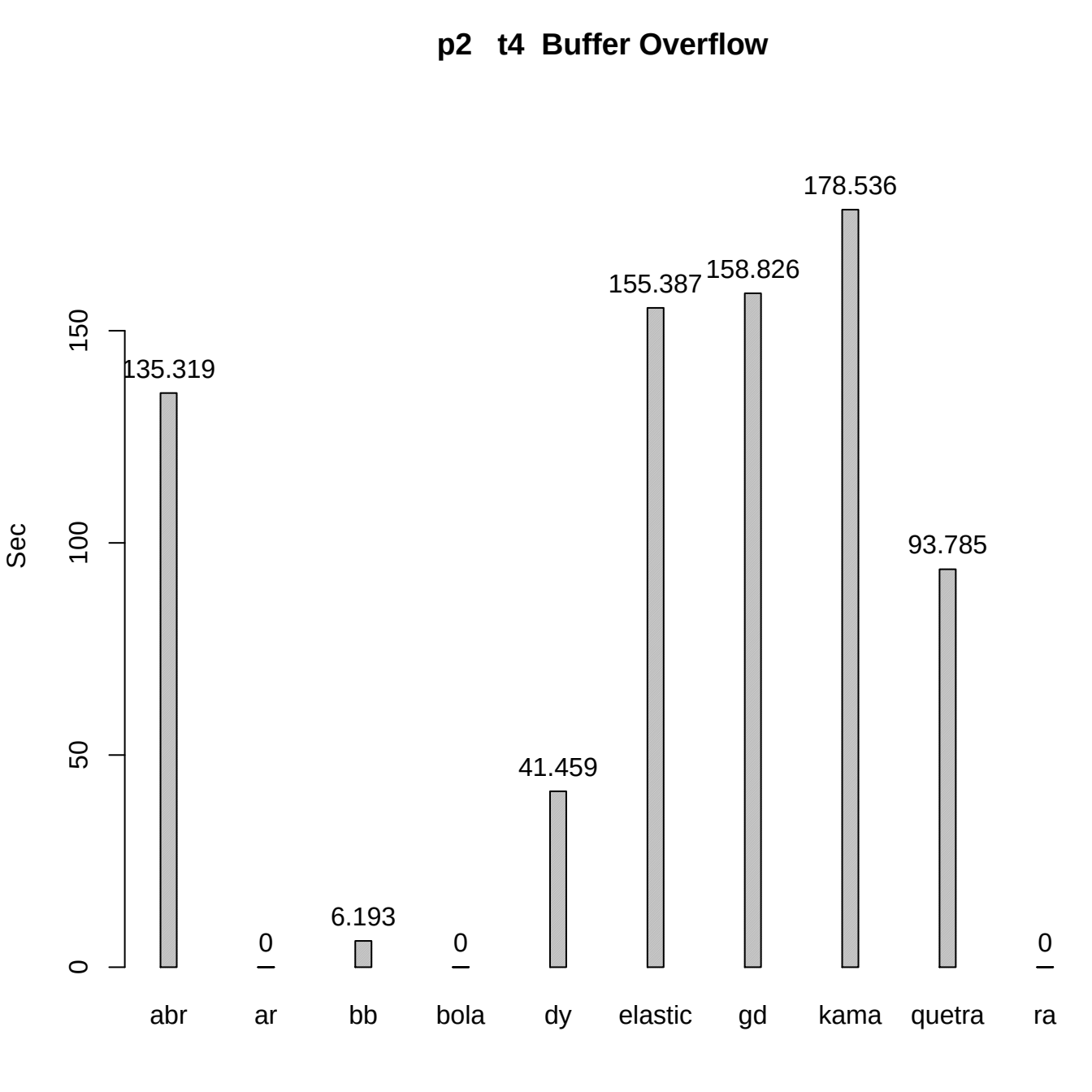

p2 t4 Quality Change
Change
0
20
40
60
80
74
22
38
0
30
14
24
26
14
14
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

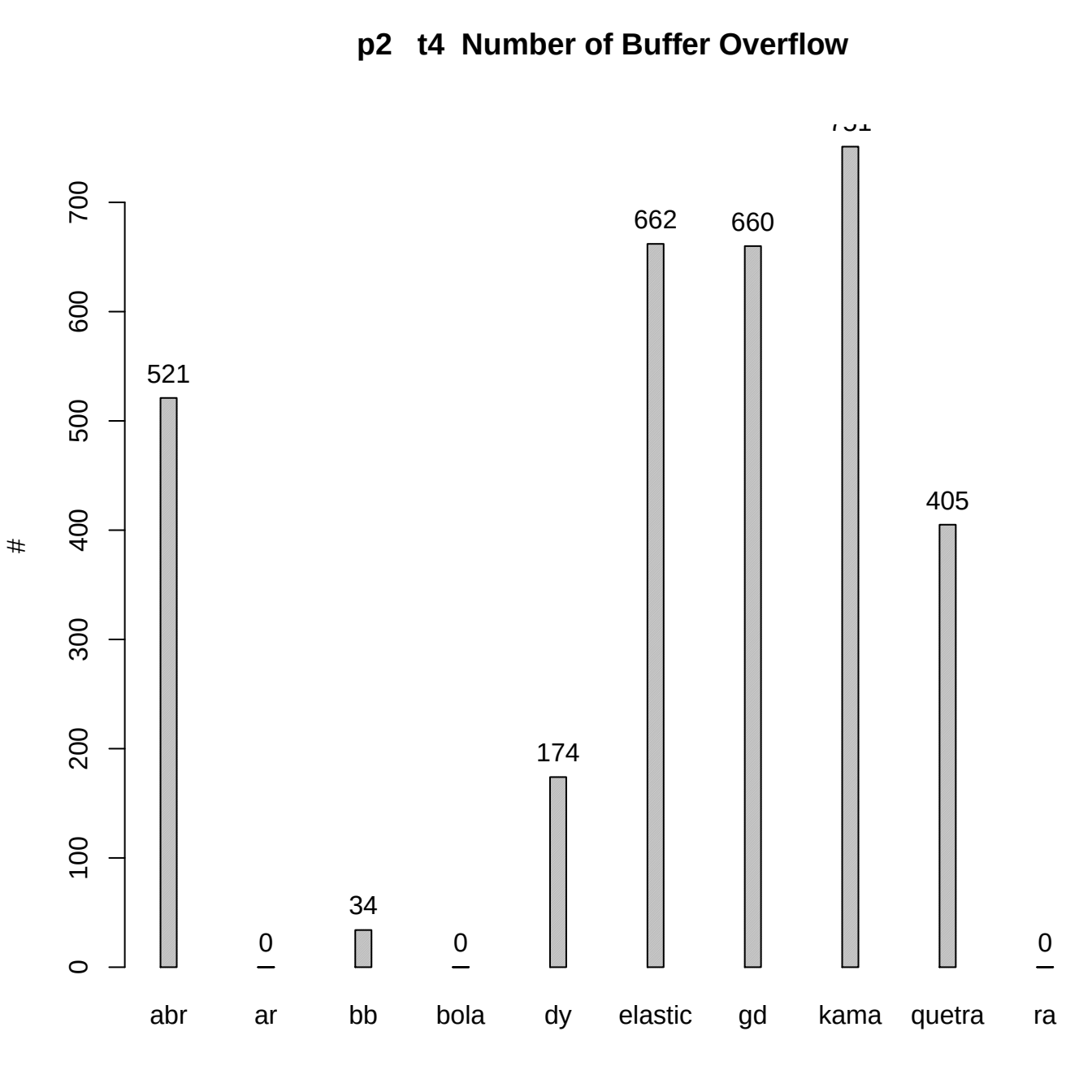

p2 t4 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.306716
0.182344
0.17187
0.503038
0.353383
0.253866
0.44954
0.397637
0.310802
0.206088
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

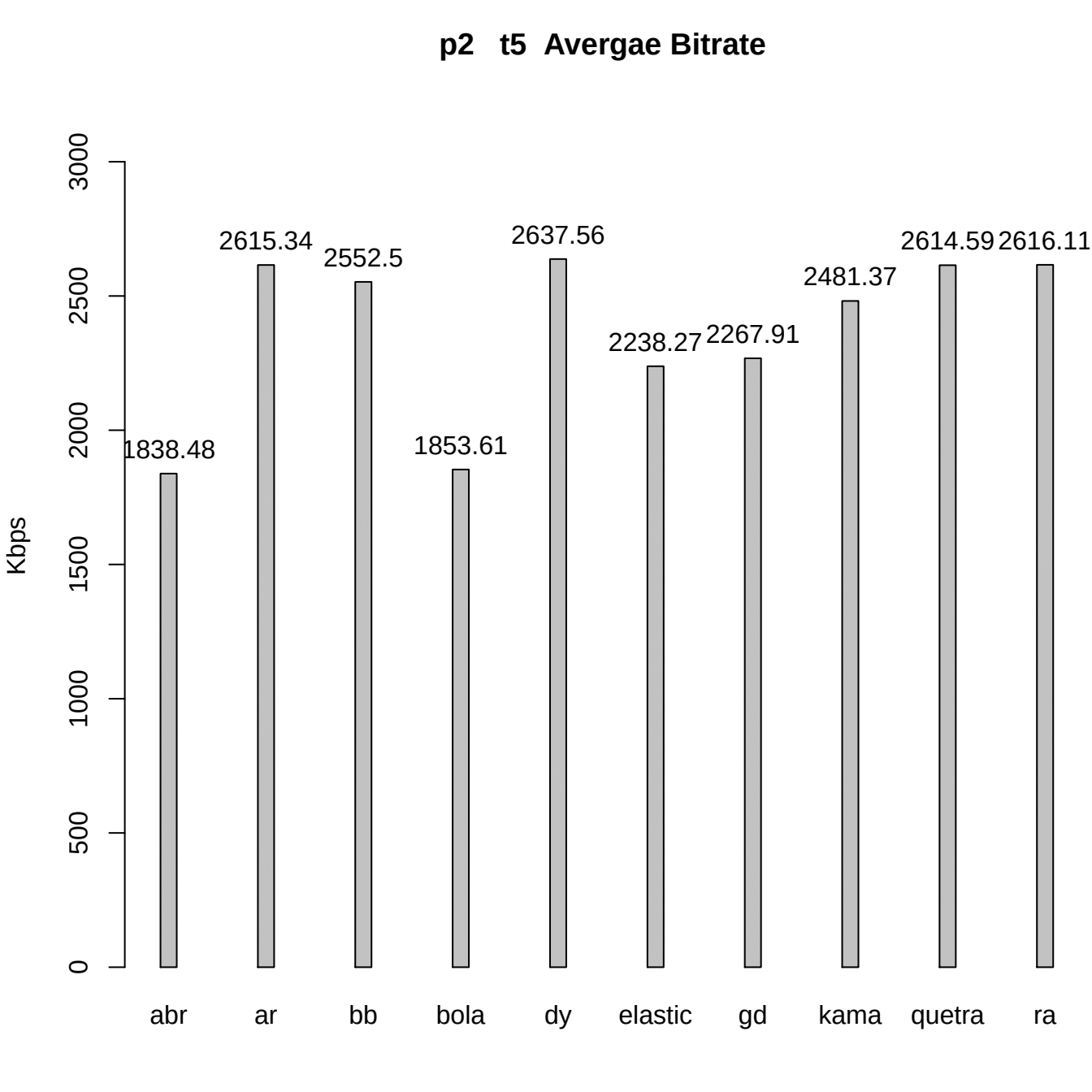

p2 t4 Total Stall
Sec
0
5
10
15
20
0
1.41
0
0
3.981
0
0
0
1.707
0

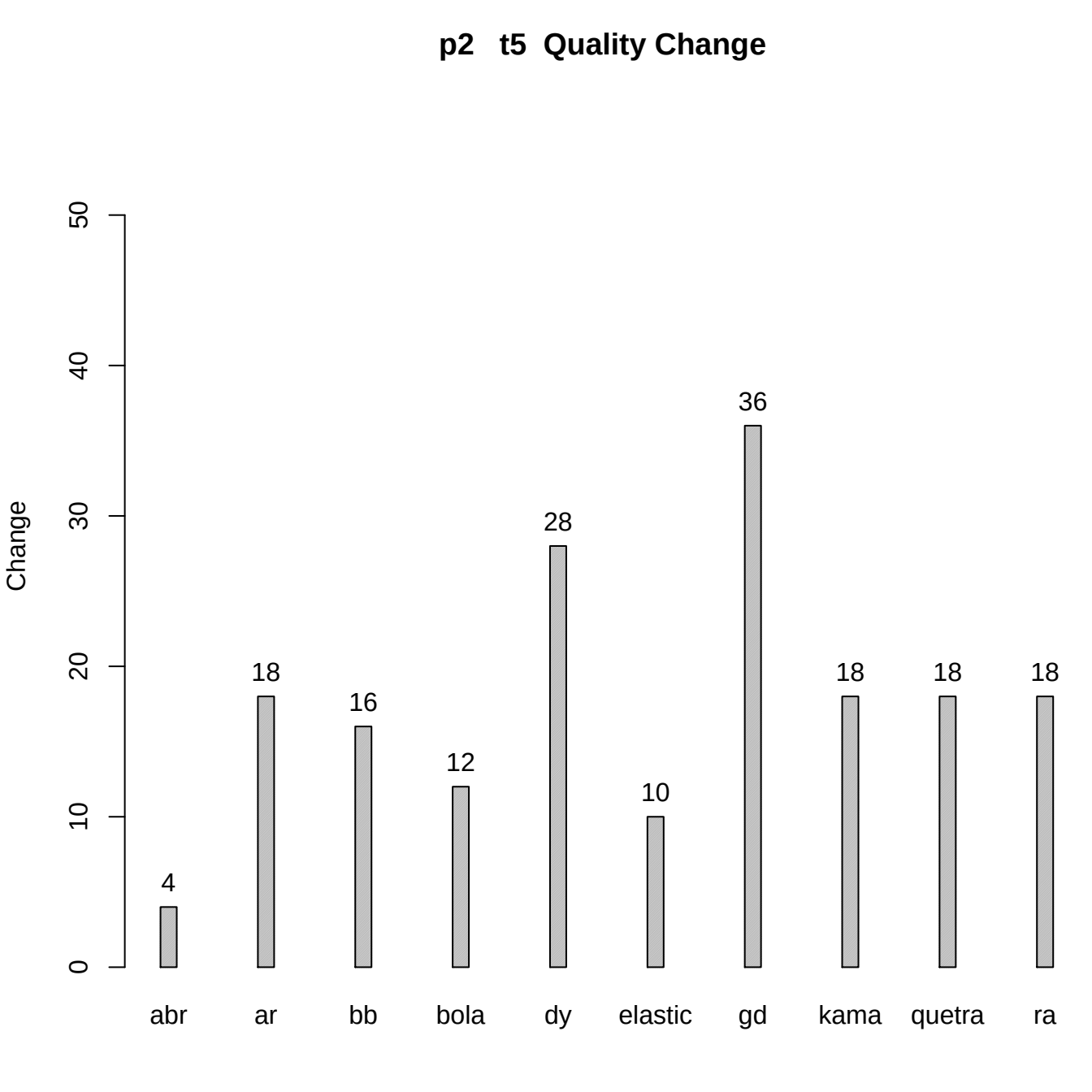

p2 t4 Number of Stall
#
0
5
10
15
20
0
1
0
0
1
0
0
0
1
0

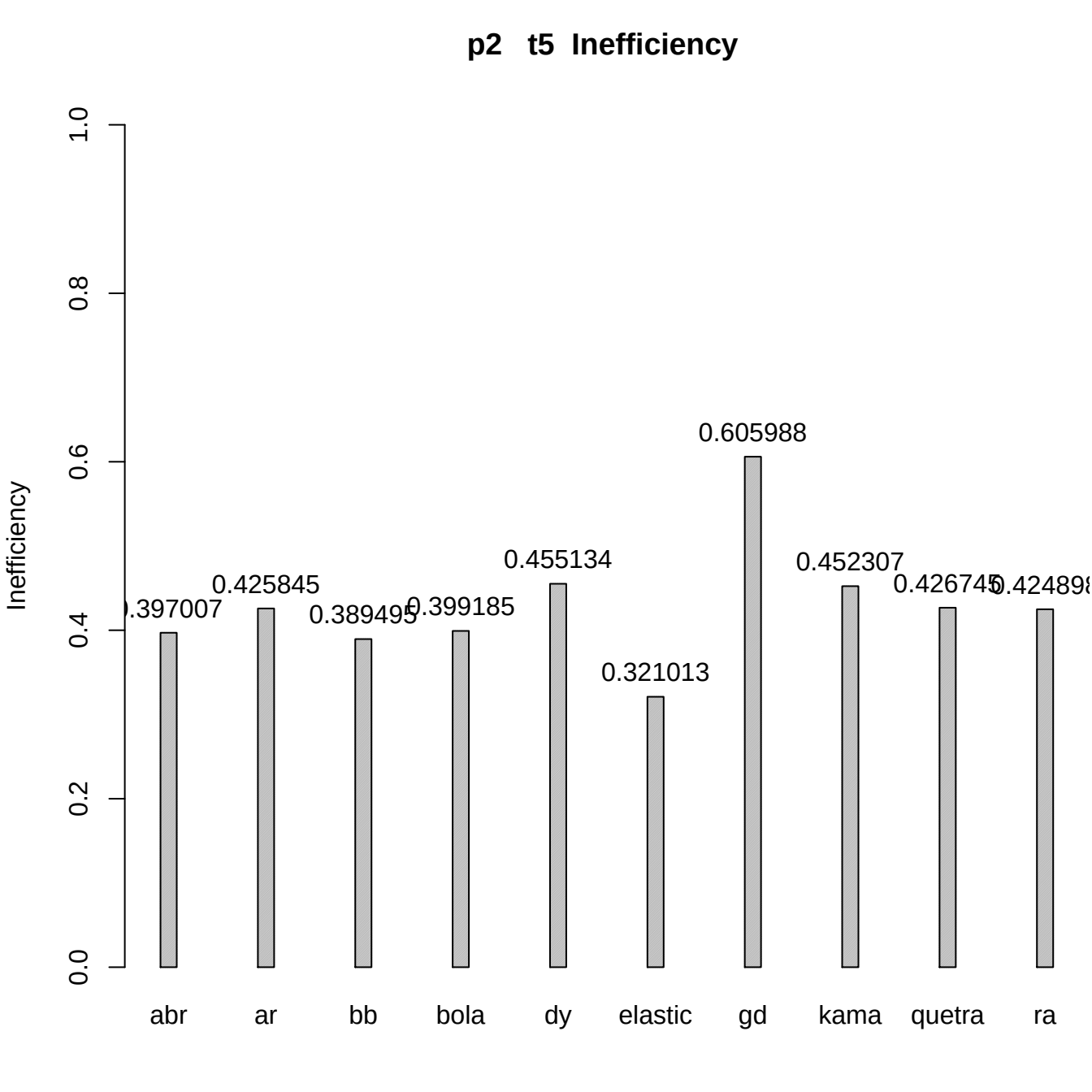

p2 t4 Average Stall
Sec
0
2
4
6
8
0
1.41
0
0
3.981
0
0
0
1.707
0

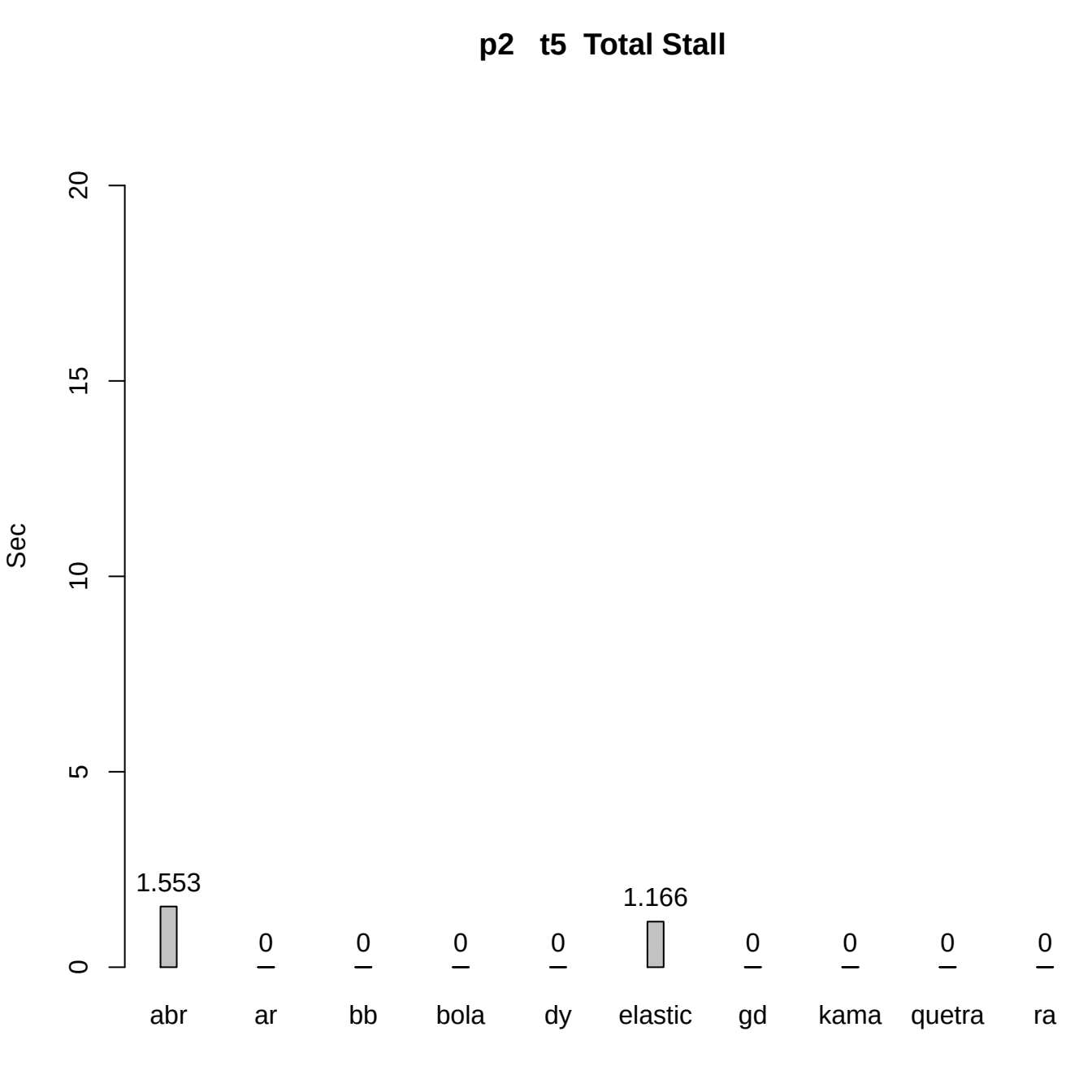

p2 t4 Buffer Overflow
Sec
0
50
100
150
135.319
0
6.193
0
41.459
155.387
158.826
178.536
93.785
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

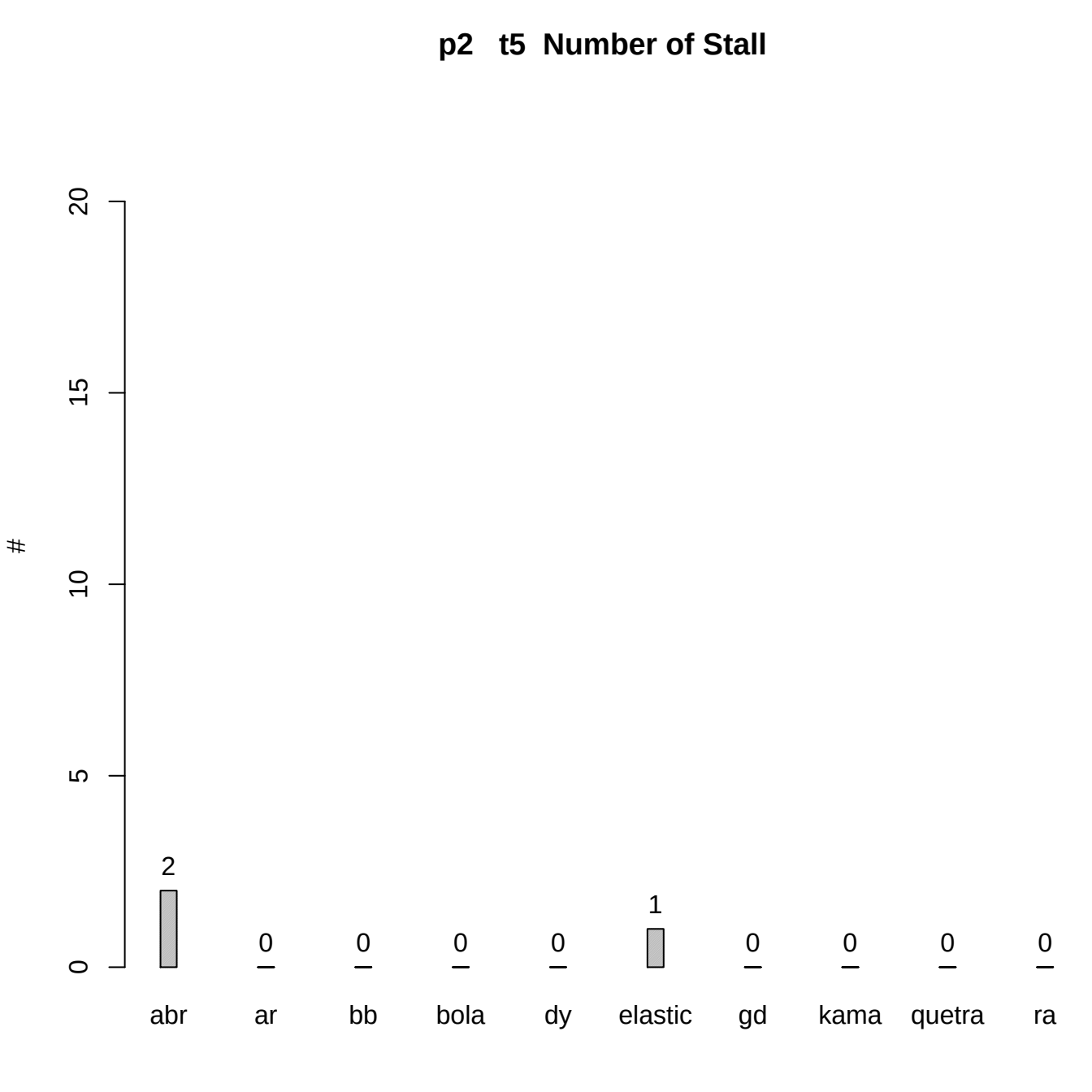

p2 t4 Number of Buffer Overflow
#
0
100
200
300
400
500
600
700
521
0
34
0
174
662
660
731
405
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

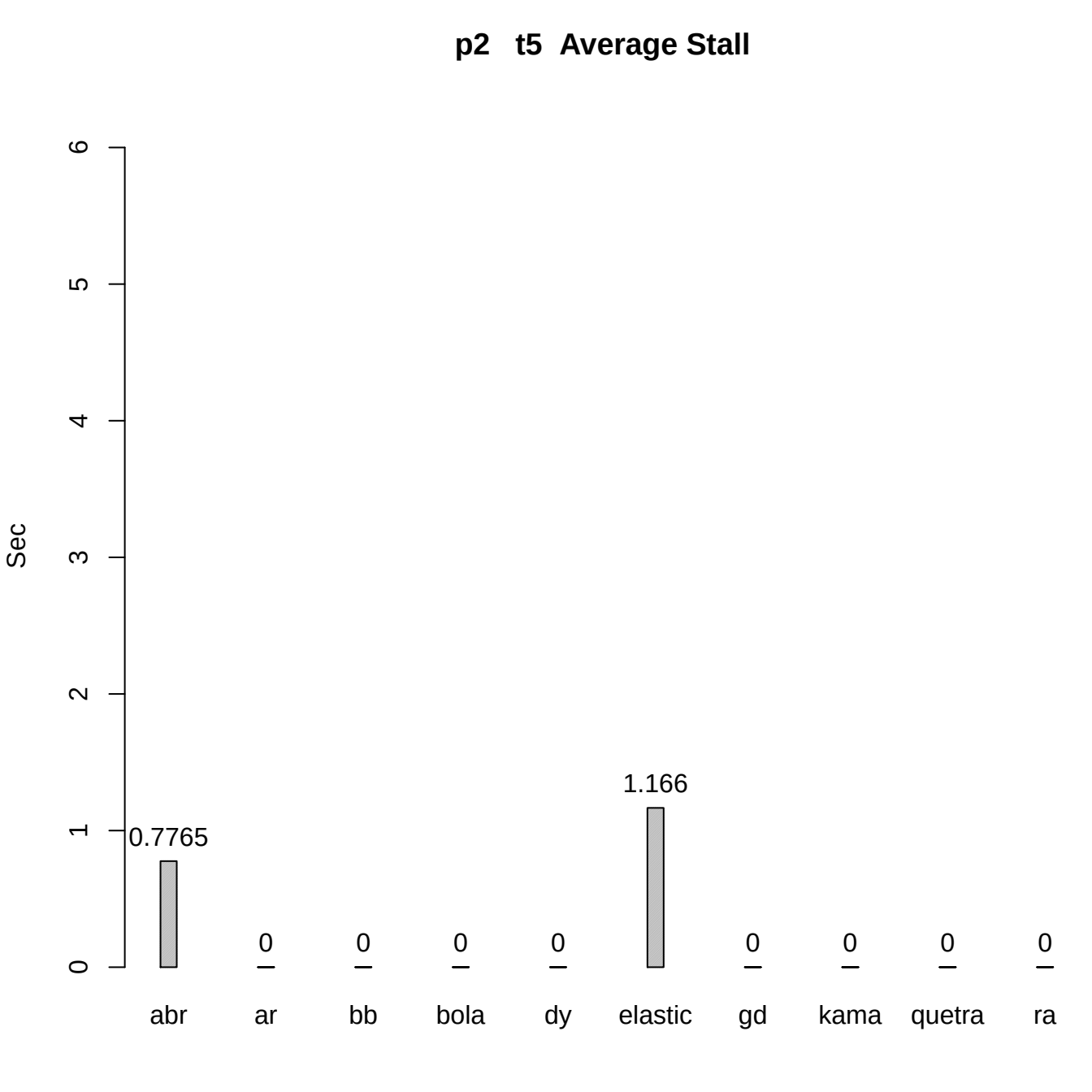

p2 t5 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
3000
1838.48
2615.34
2552.5
1853.61
2637.56
2238.27
2267.91
2481.37
2614.59
2616.11
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

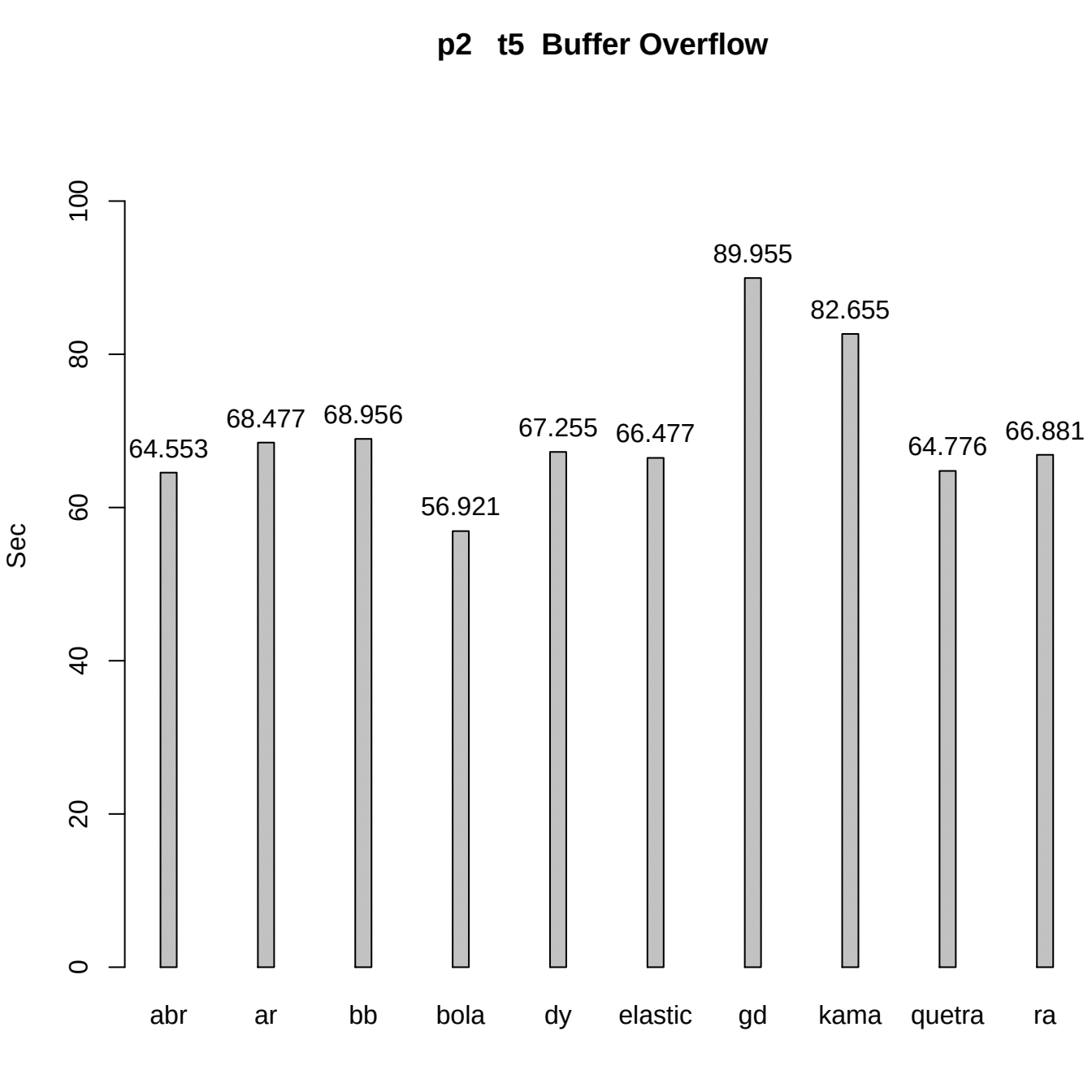

p2 t5 Quality Change
Change
0
10
20
30
40
50
4
18
16
12
28
10
36
18
18
18
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

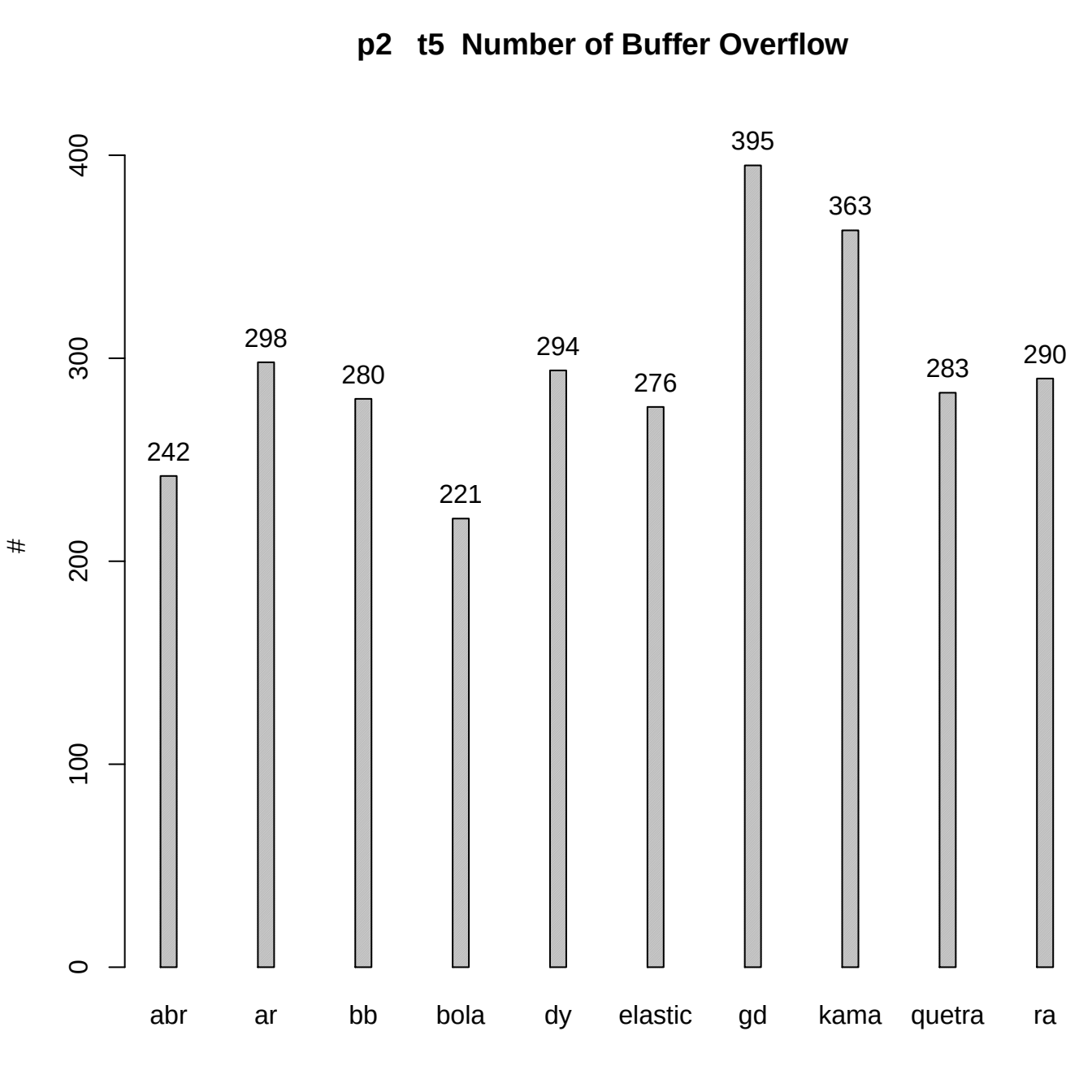

p2 t5 Inefficiency
Inefficiency
1.0
0.8
0.6
0.4
0.2
0.0
0.397007
0.425845
0.389495
0.399185
0.455134
0.321013
0.605988
0.452307
0.426745
0.424898
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

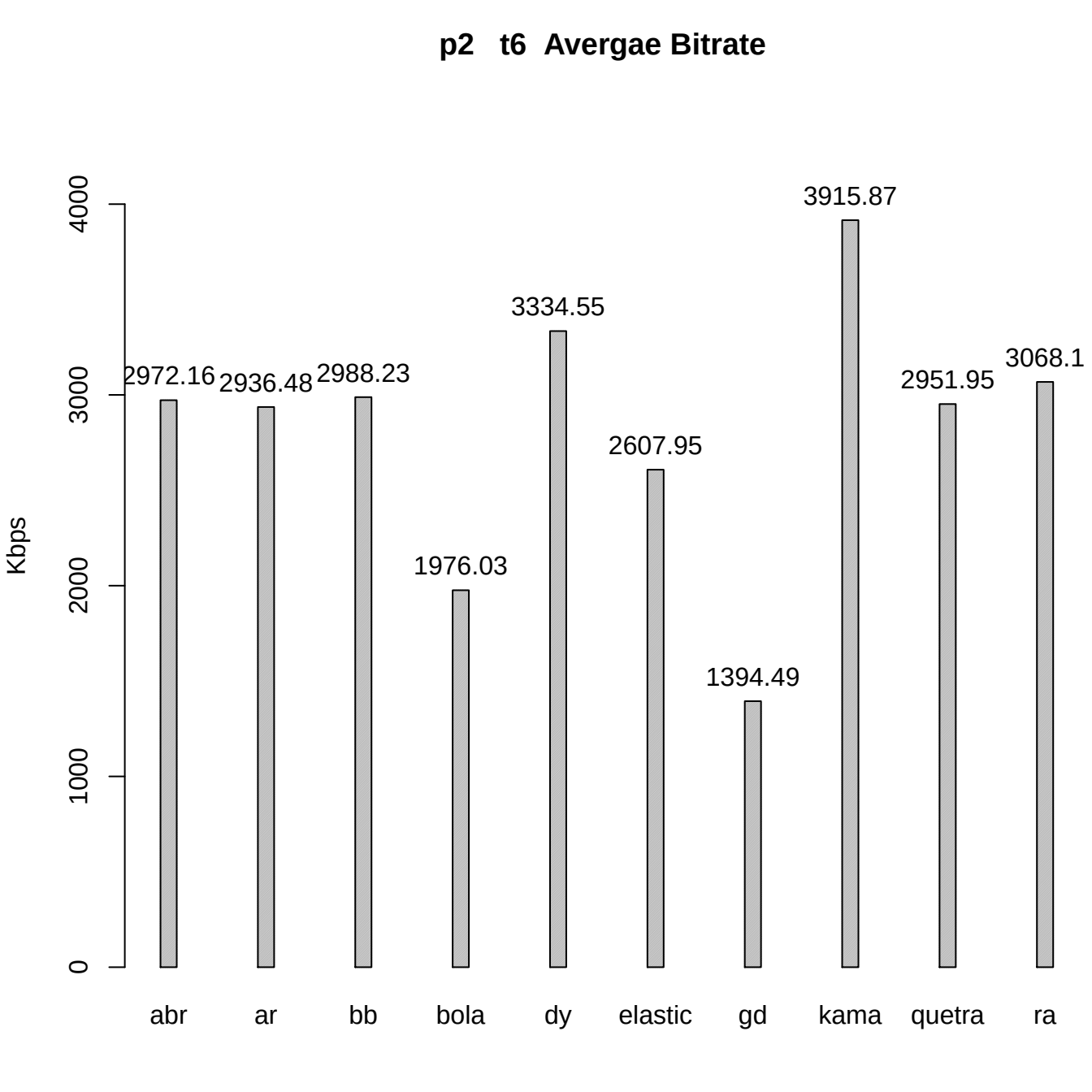

p2 t5 Total Stall
Sec
0
5
10
15
20
1.553
0
0
0
0
1.166
0
0
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

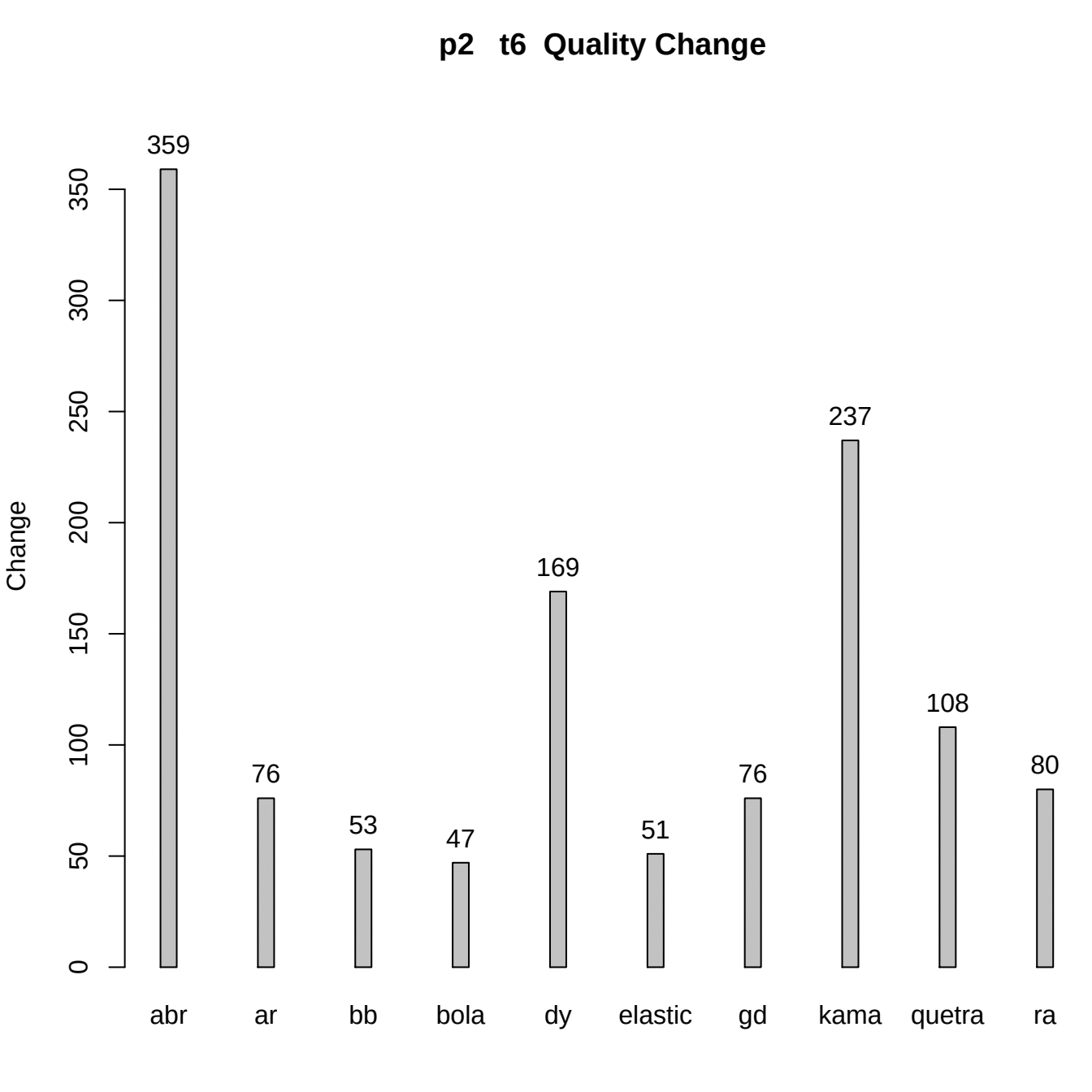

p2 t5 Number of Stall
#
0
5
10
15
20
2
0
0
0
0
1
0
0
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

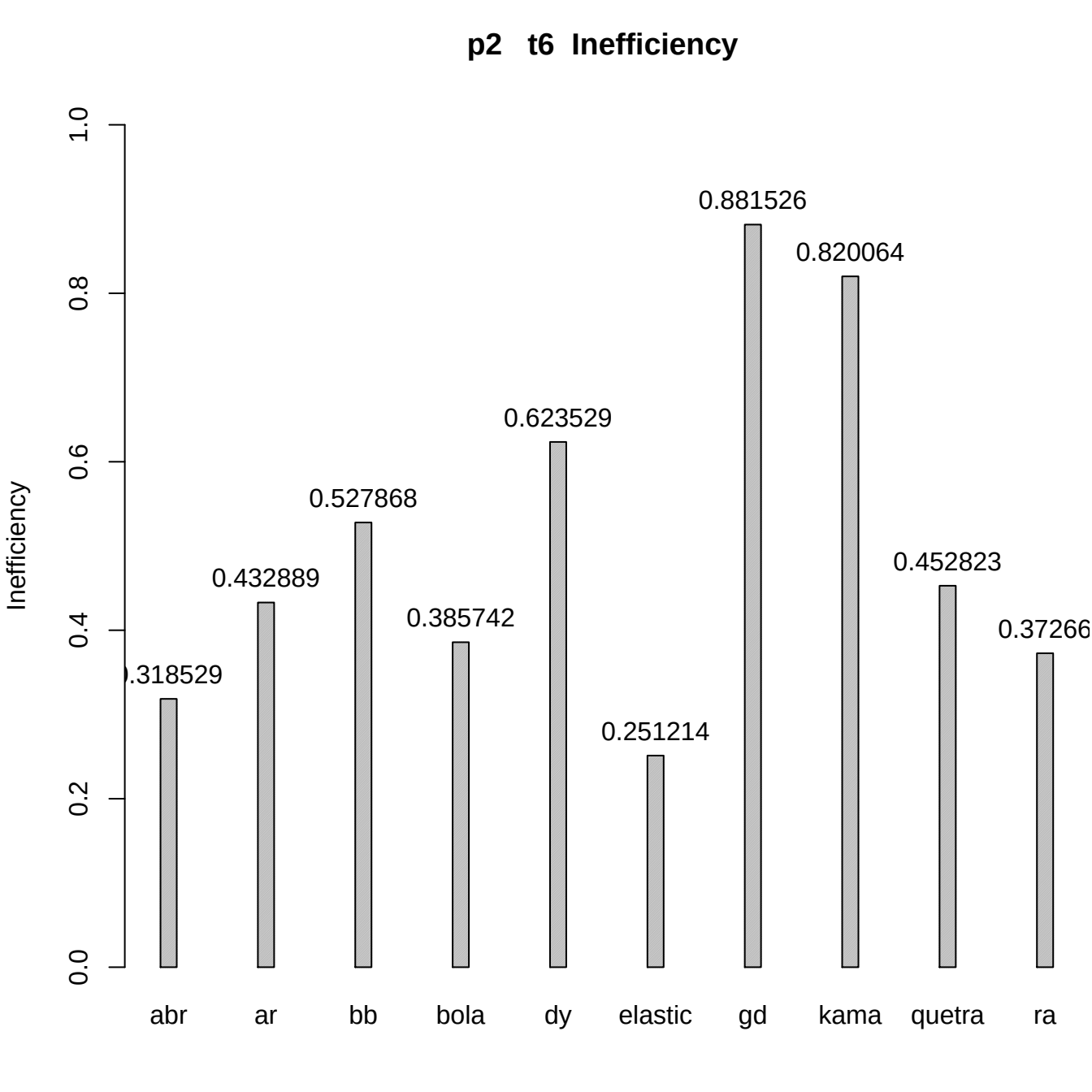

p2 t5 Average Stall
Sec
0
1
2
3
4
5
6
0.7765
0
0
0
0
1.166
0
0
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

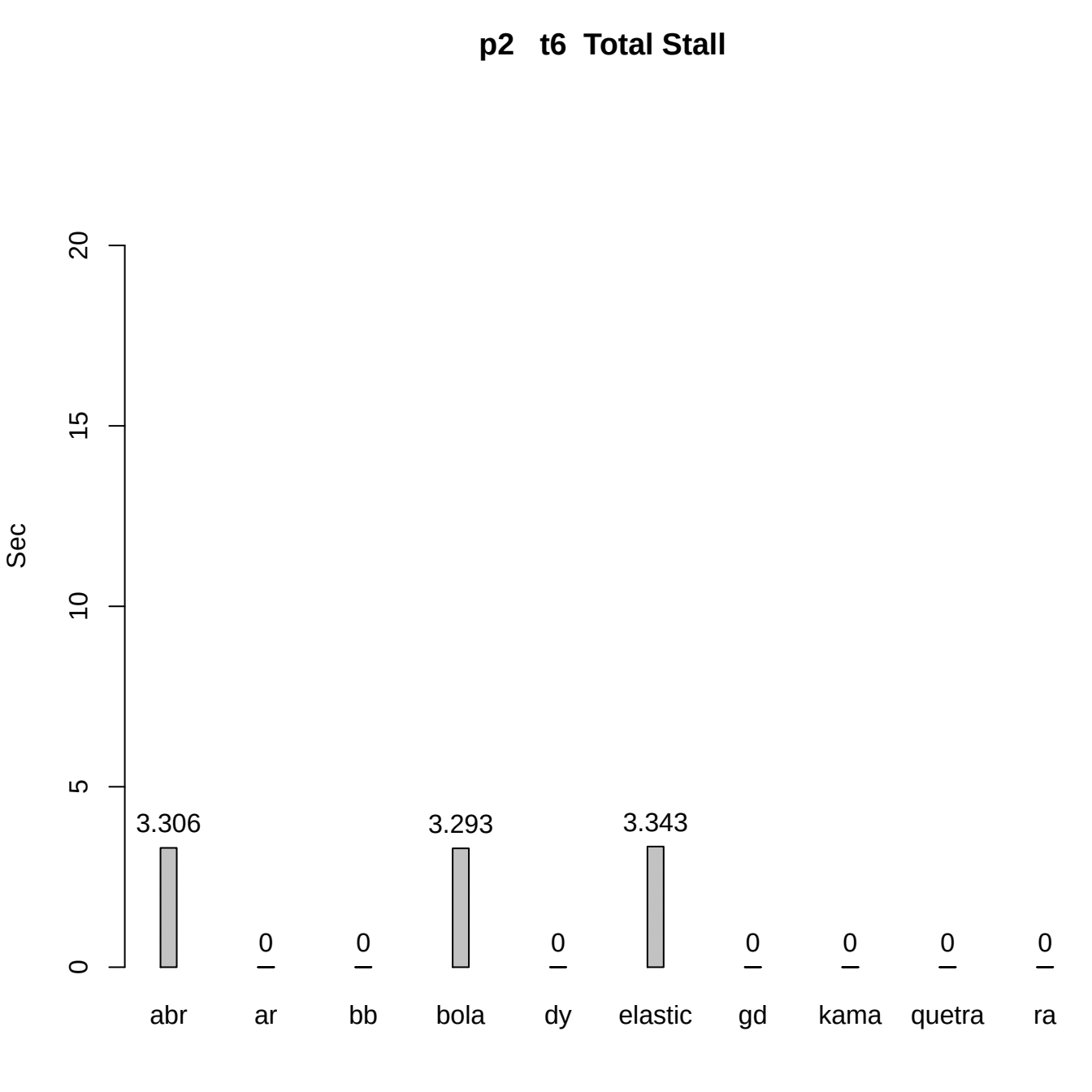

p2 t5 Buffer Overflow
Sec
0
20
40
60
80
100
64.553
68.477
68.956
56.921
67.255
66.477
89.955
82.655
64.776
66.881
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

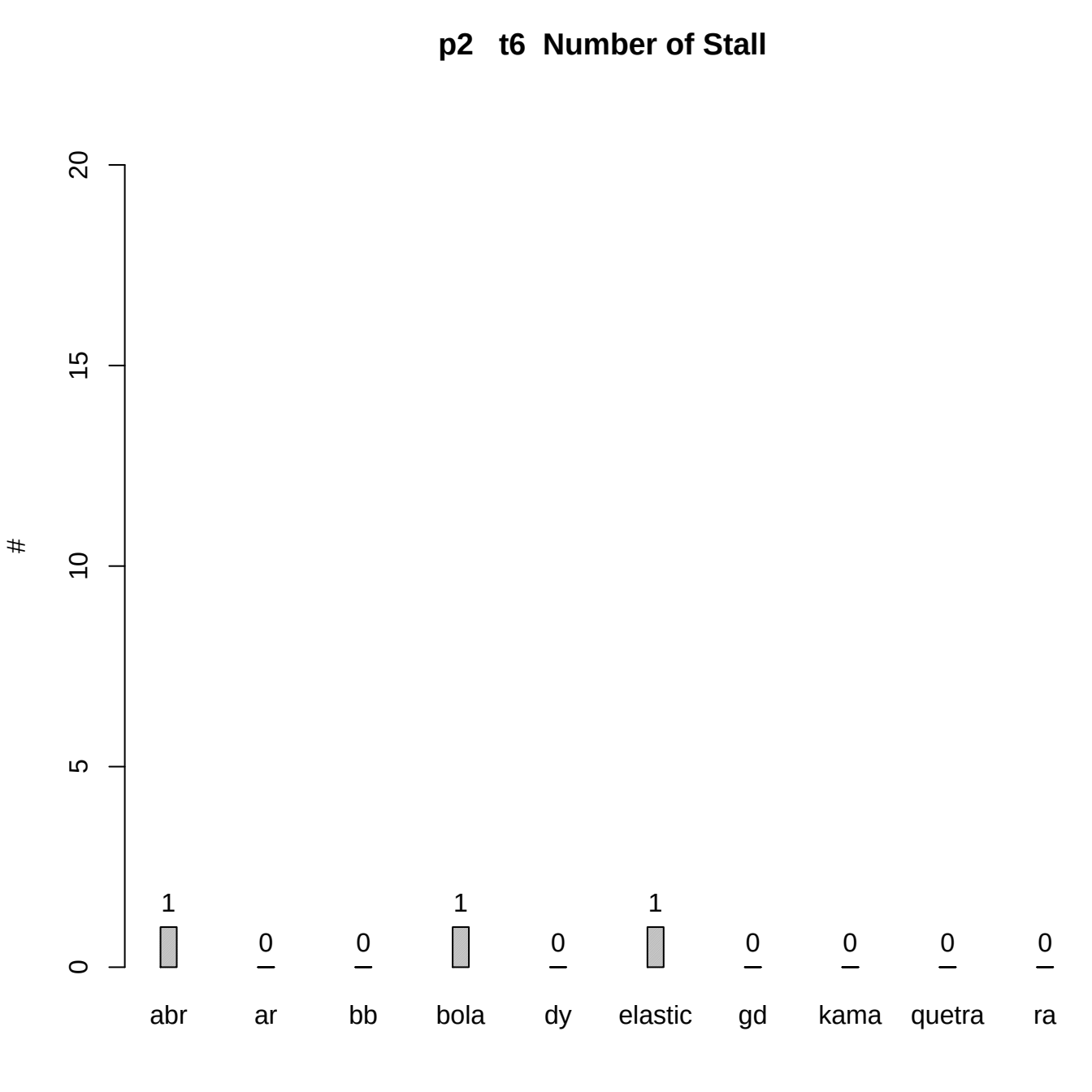

p2 t5 Number of Buffer Overflow
#
0
100
200
300
400
242
298
280
221
294
276
395
363
283
290
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

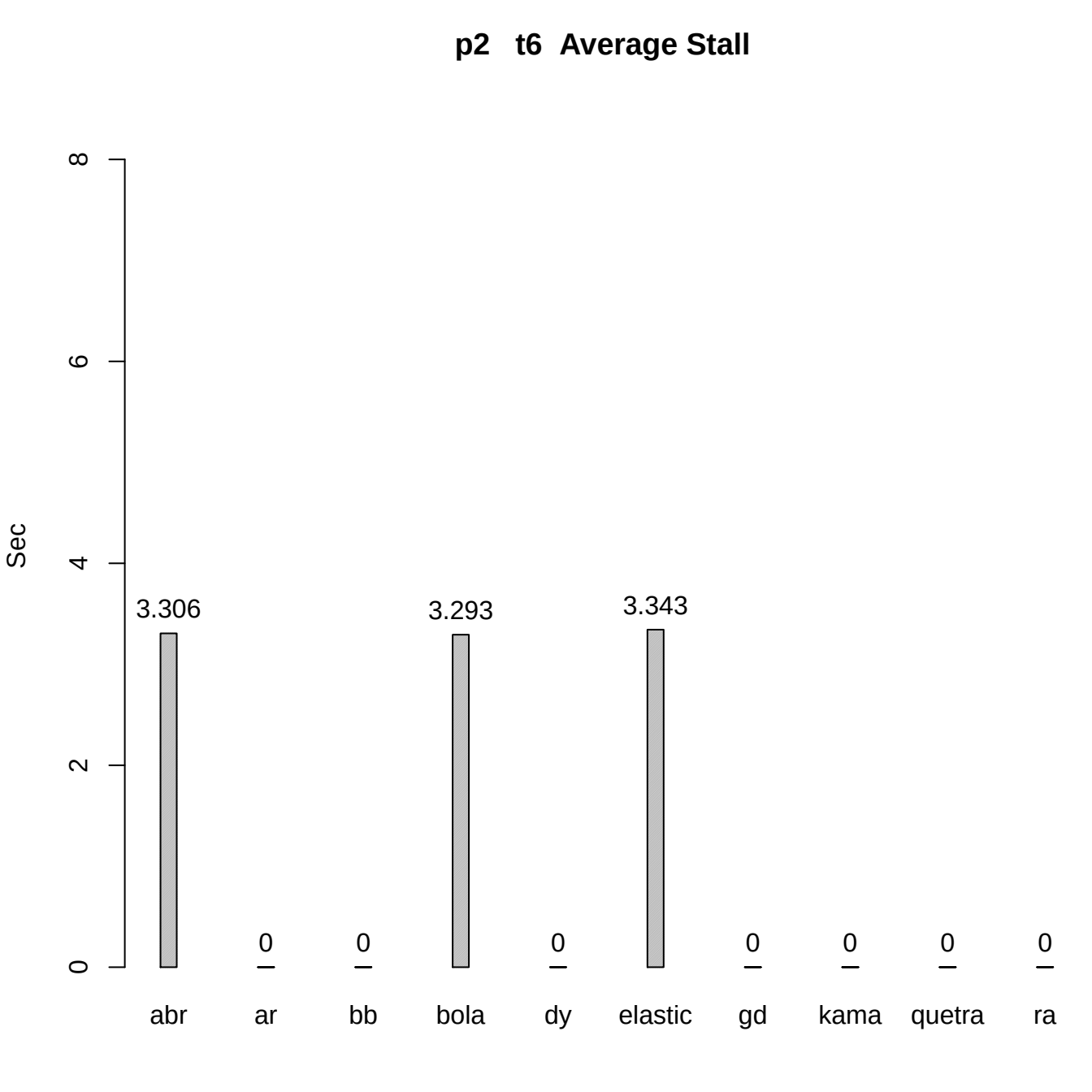

p2 t6 Avergae Bitrate
Kbps
0
1000
2000
3000
4000
2972.16
2936.48
2988.23
1976.03
3334.55
2607.95
1394.49
3915.87
2951.95
3068.1
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

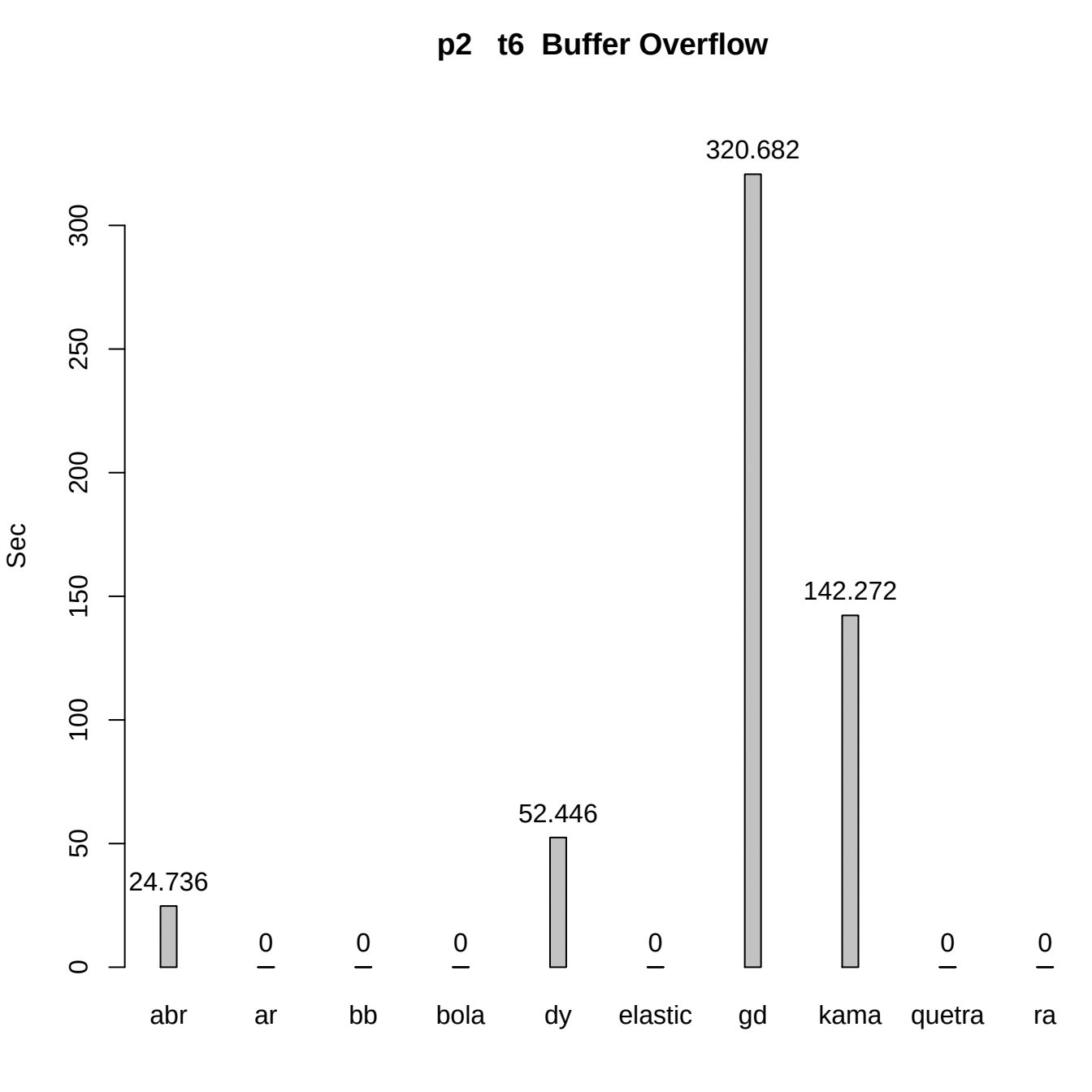

p2 t6 Quality Change
Change
0
50
100
150
200
250
300
350
359
76
53
47
169
51
76
237
108
80
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

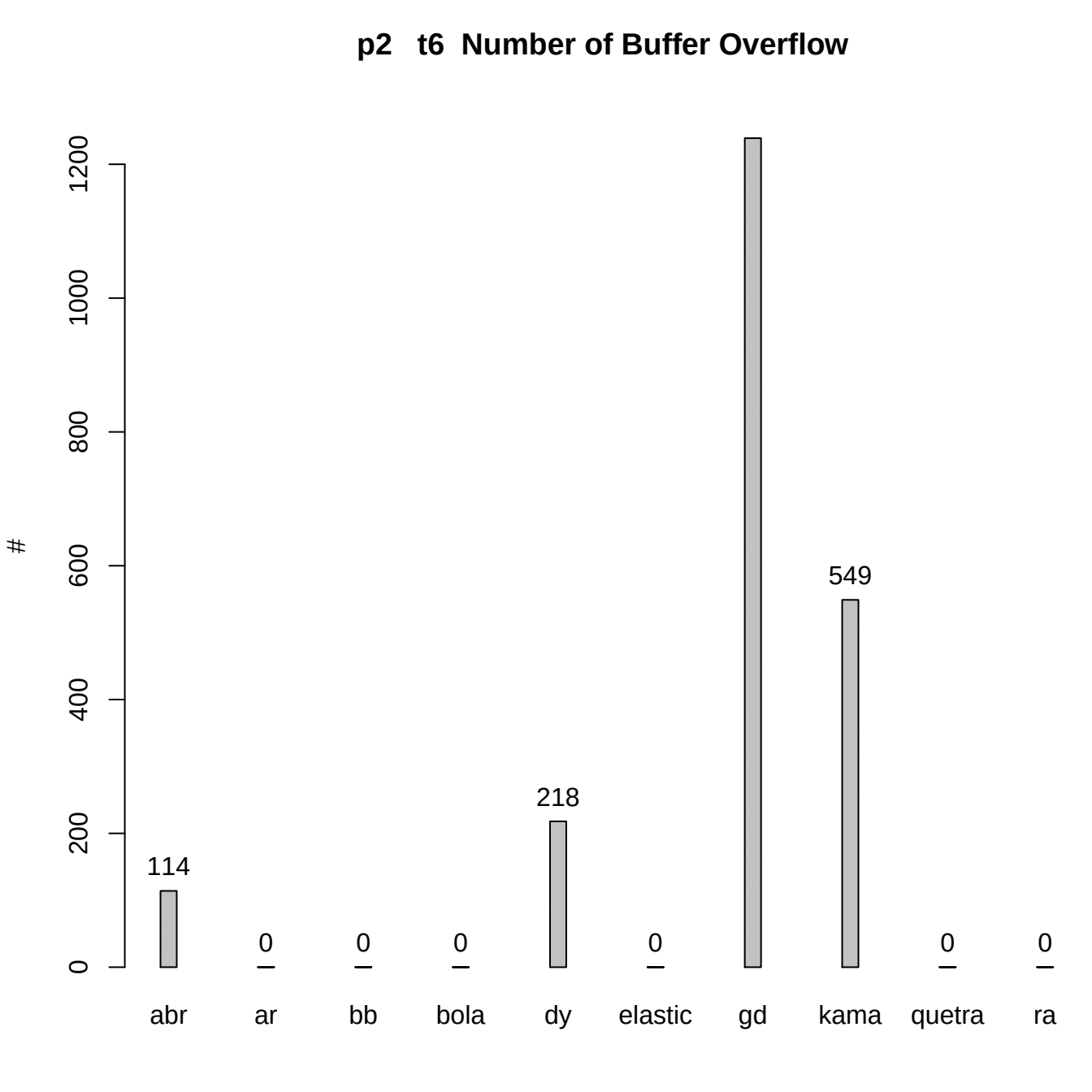

p2 t6 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.318529
0.432889
0.527868
0.385742
0.623529
0.251214
0.881526
0.820064
0.452823
0.37266
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

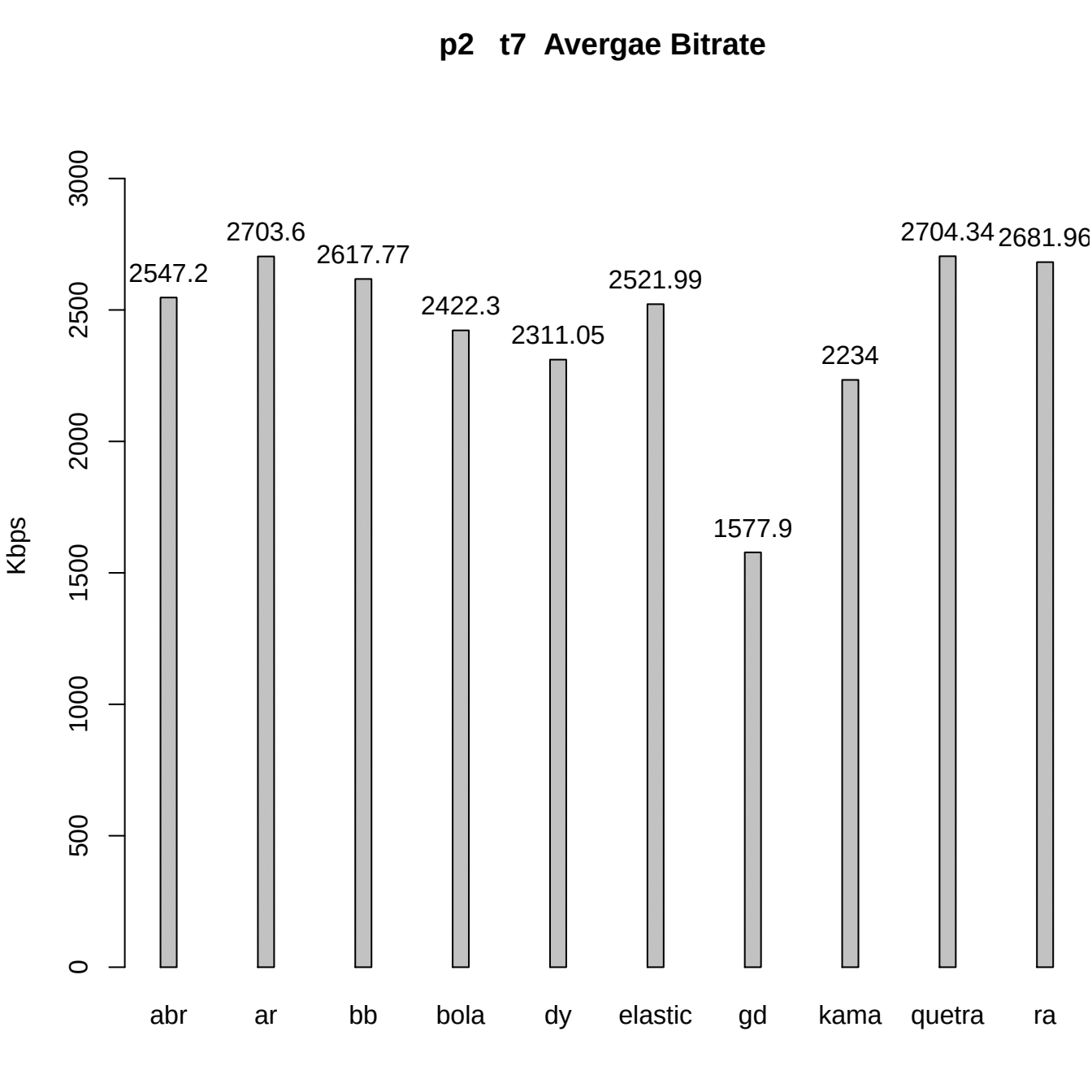

p2 t6 Total Stall
Sec
0
5
10
15
20
3.306
0
0
3.293
0
3.343
0
0
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

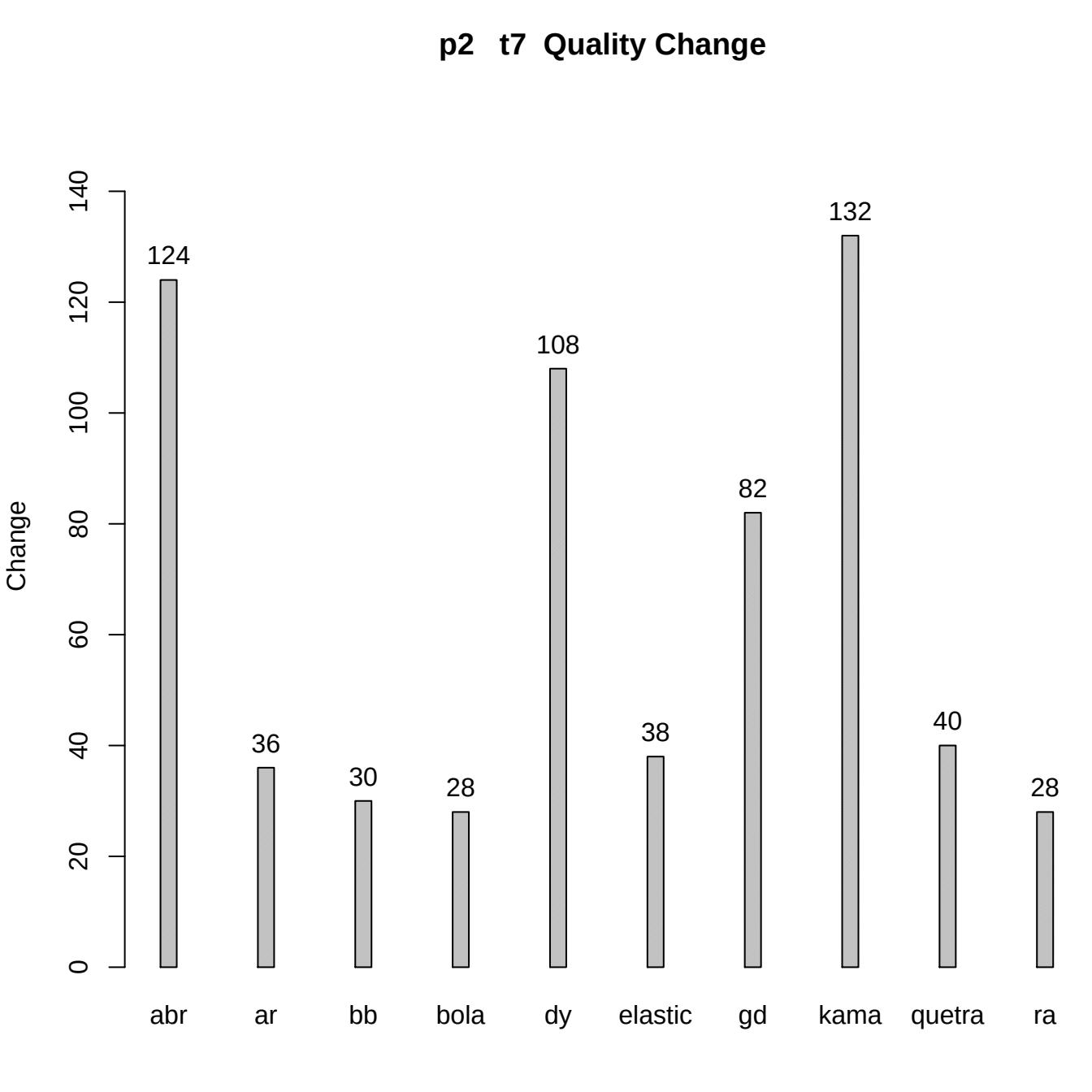

p2 t6 Number of Stall
#
0
5
10
15
20
1
0
0
1
0
1
0
0
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

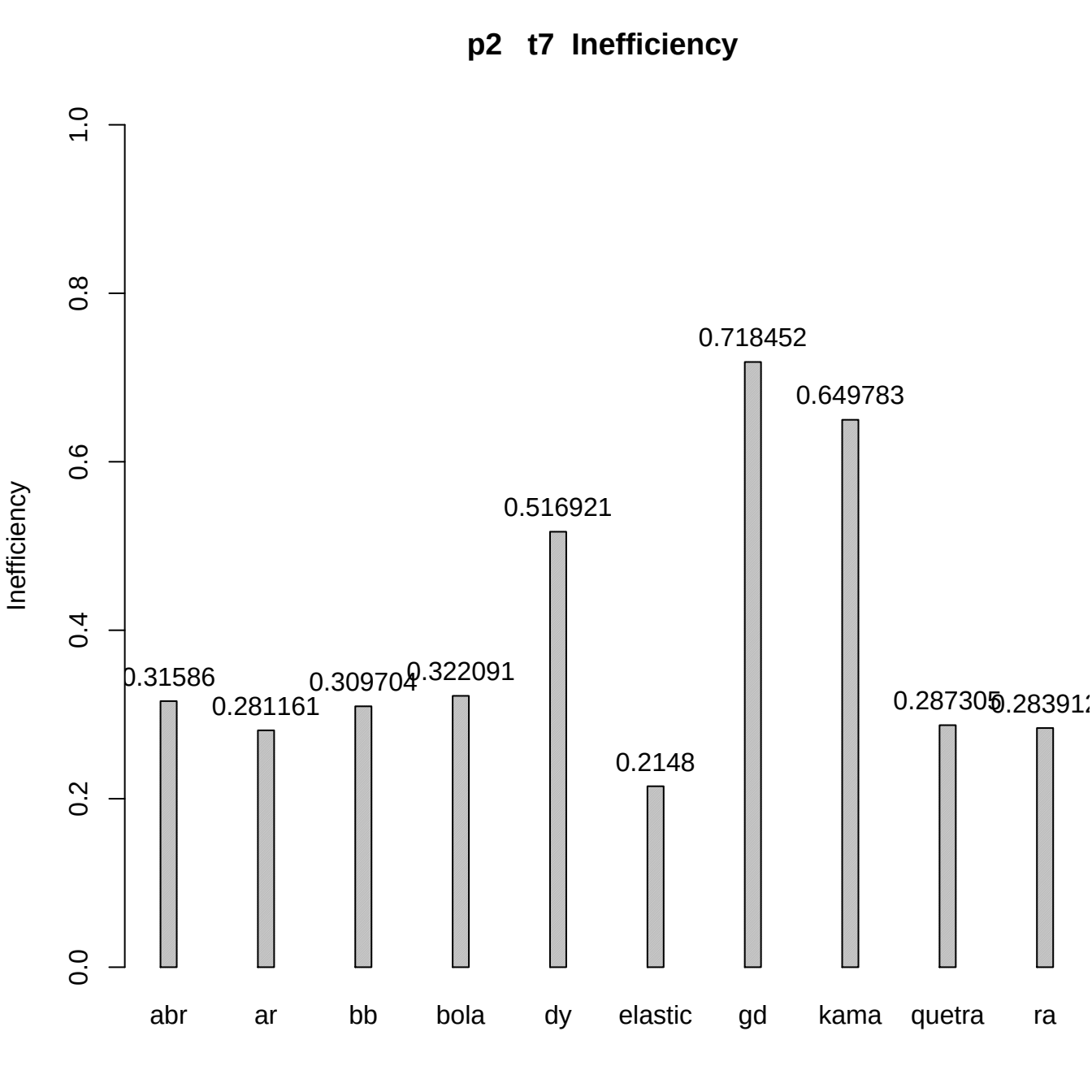

p2 t6 Average Stall
Sec
0
2
4
6
8
3.306
0
0
3.293
0
3.343
0
0
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

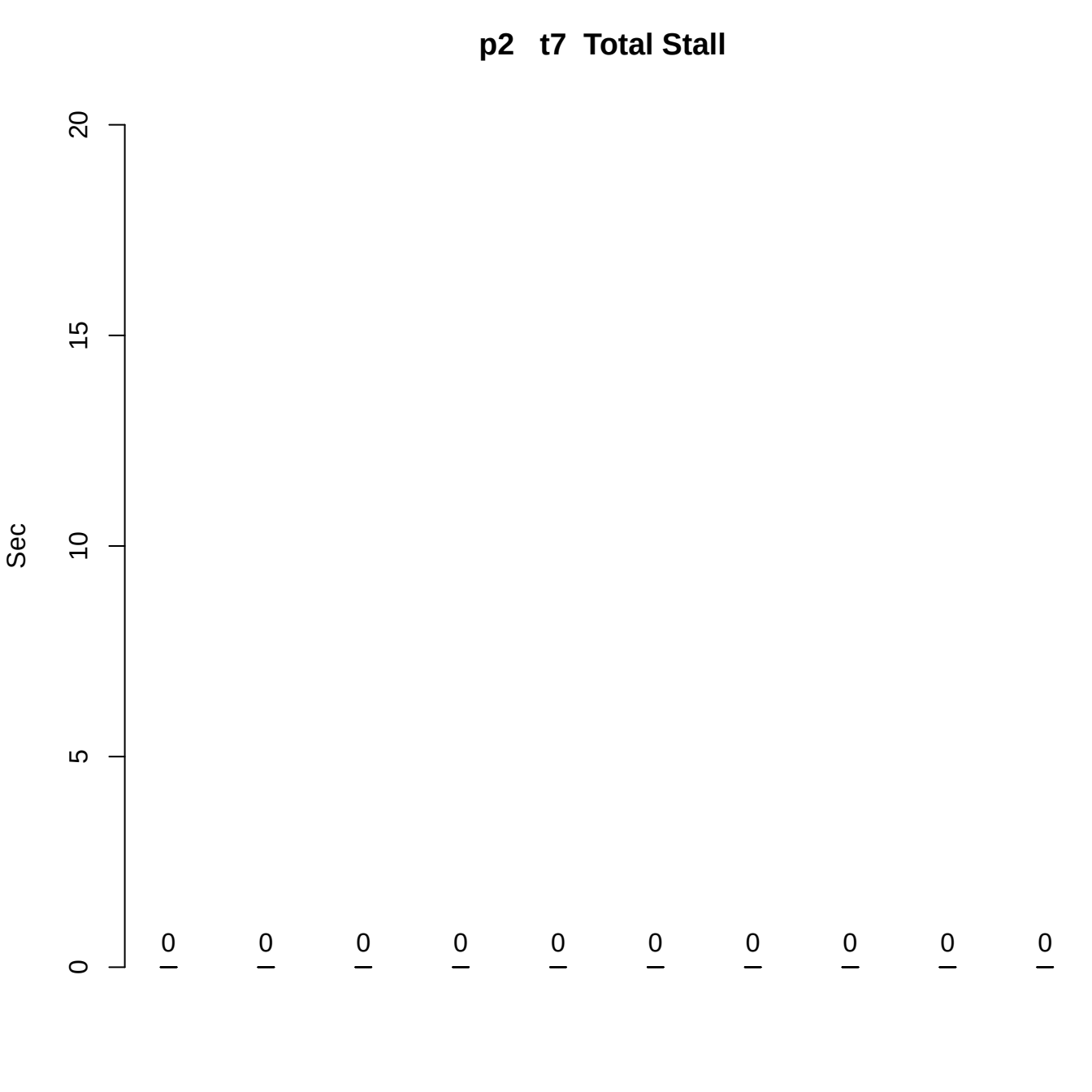

p2 t6 Buffer Overflow
Sec
0
50
100
150
200
250
300
24.736
0
0
0
52.446
0
320.682
142.272
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

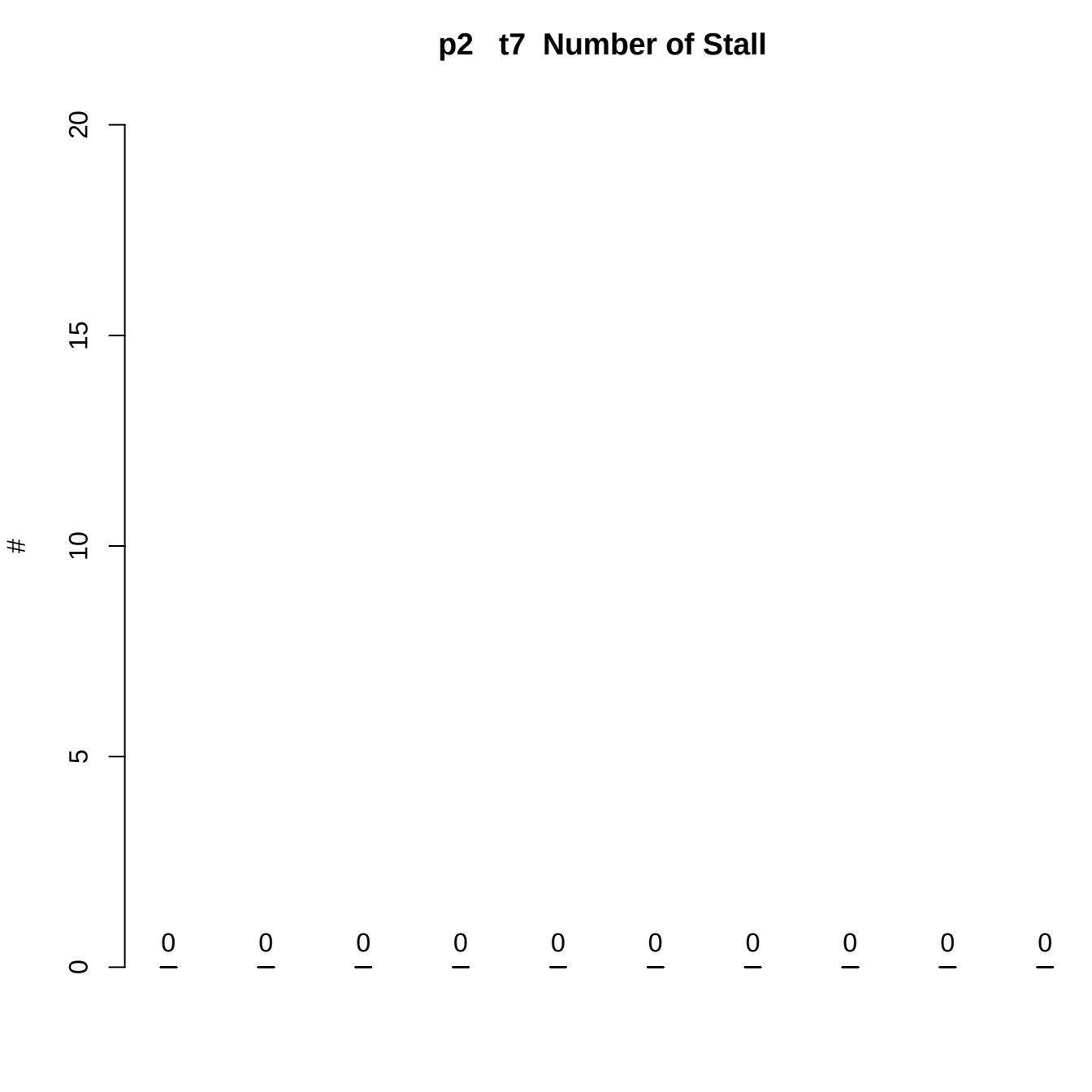

p2 t6 Number of Buffer Overflow
#
0
200
400
600
800
1000
1200
114
0
0
0
218
0
549
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

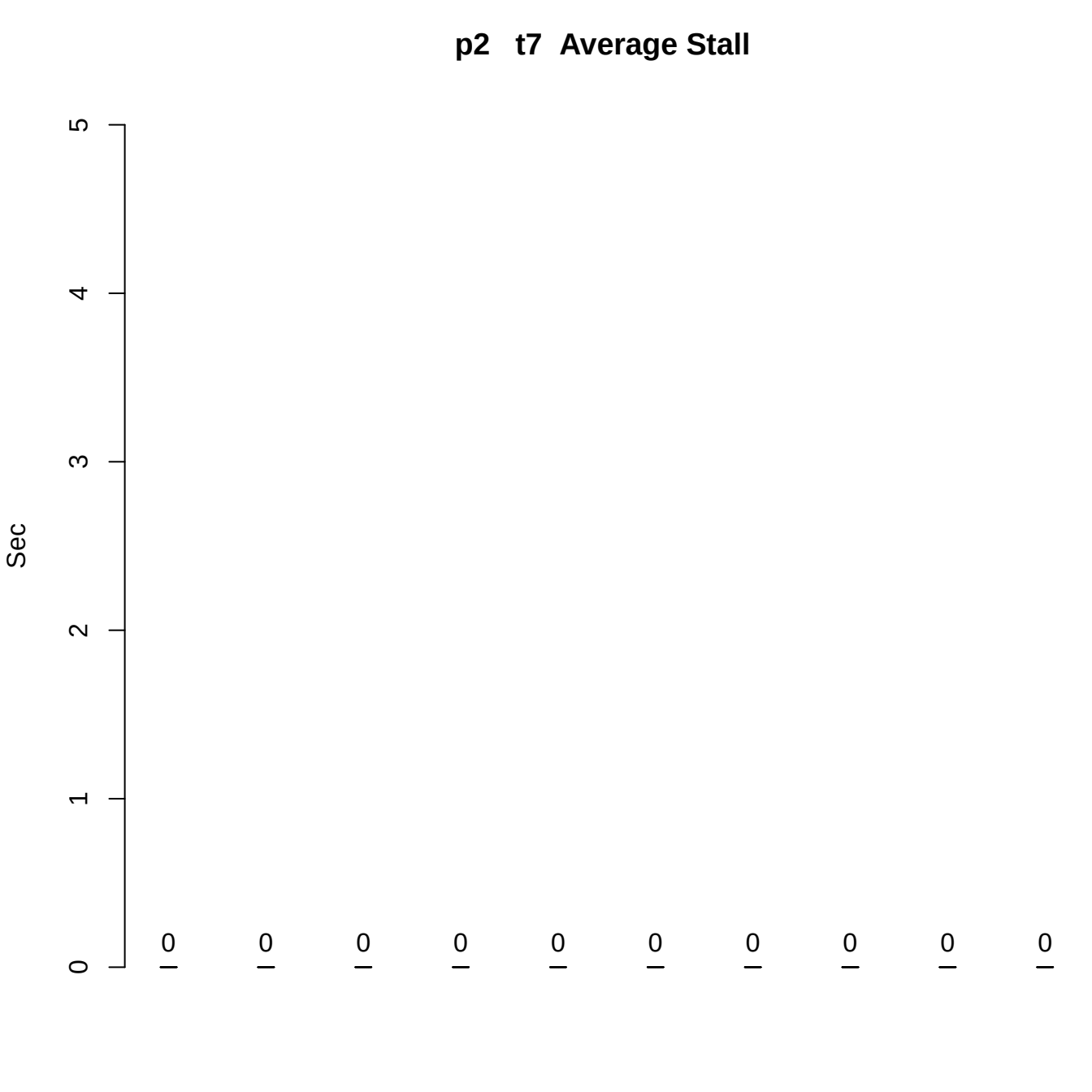

p2 t7 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
3000
2547.2
2703.6
2617.77
2422.3
2311.05
2521.99
1577.9
2234
2704.34
2681.96
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

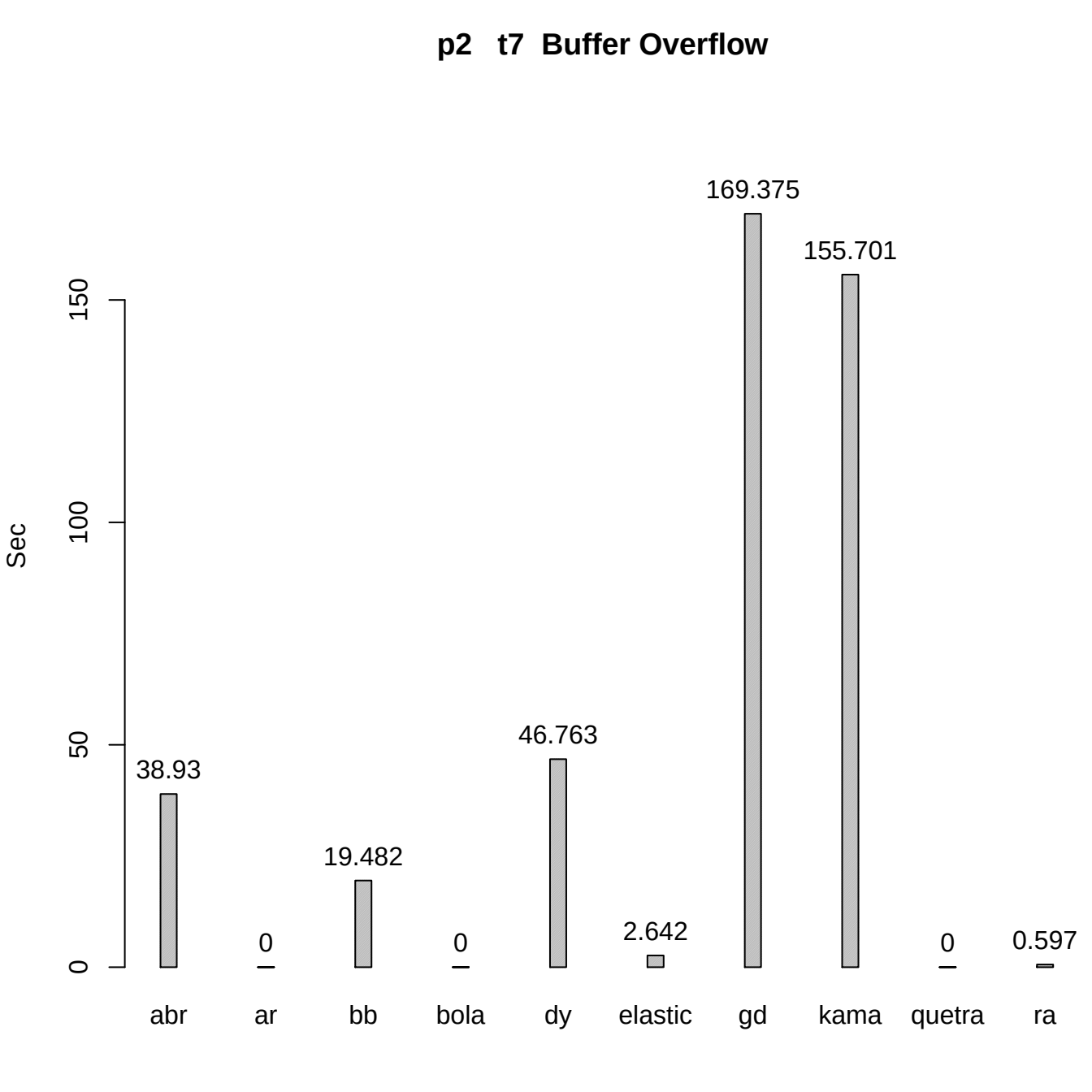

p2 t7 Quality Change
Change
0
20
40
60
80
100
120
140
124
36
30
28
108
38
82
132
40
28
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

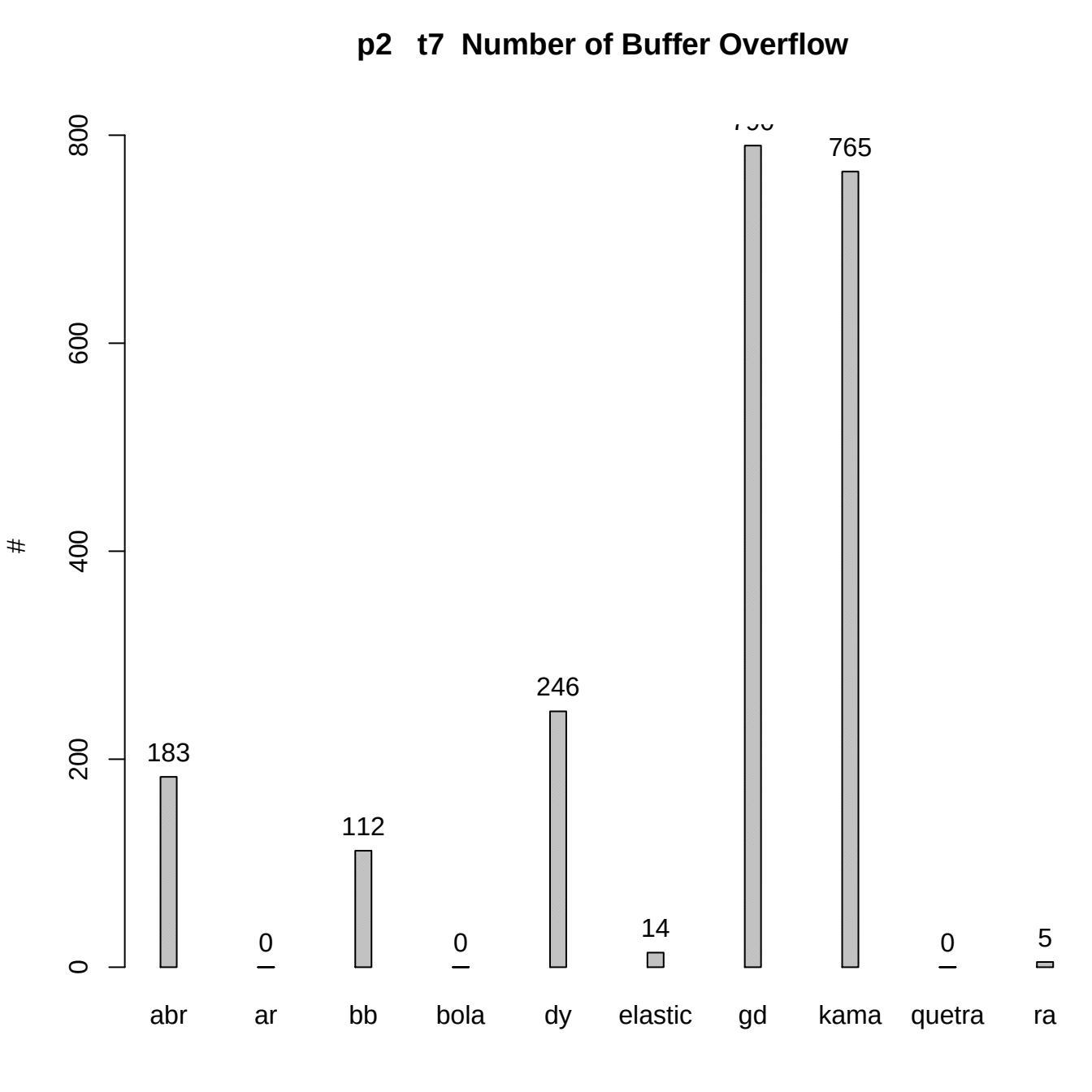

p2 t7 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
0.31586
0.281161
0.309704
0.322091
0.516921
0.2148
0.718452
0.649783
0.287305
0.283912
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

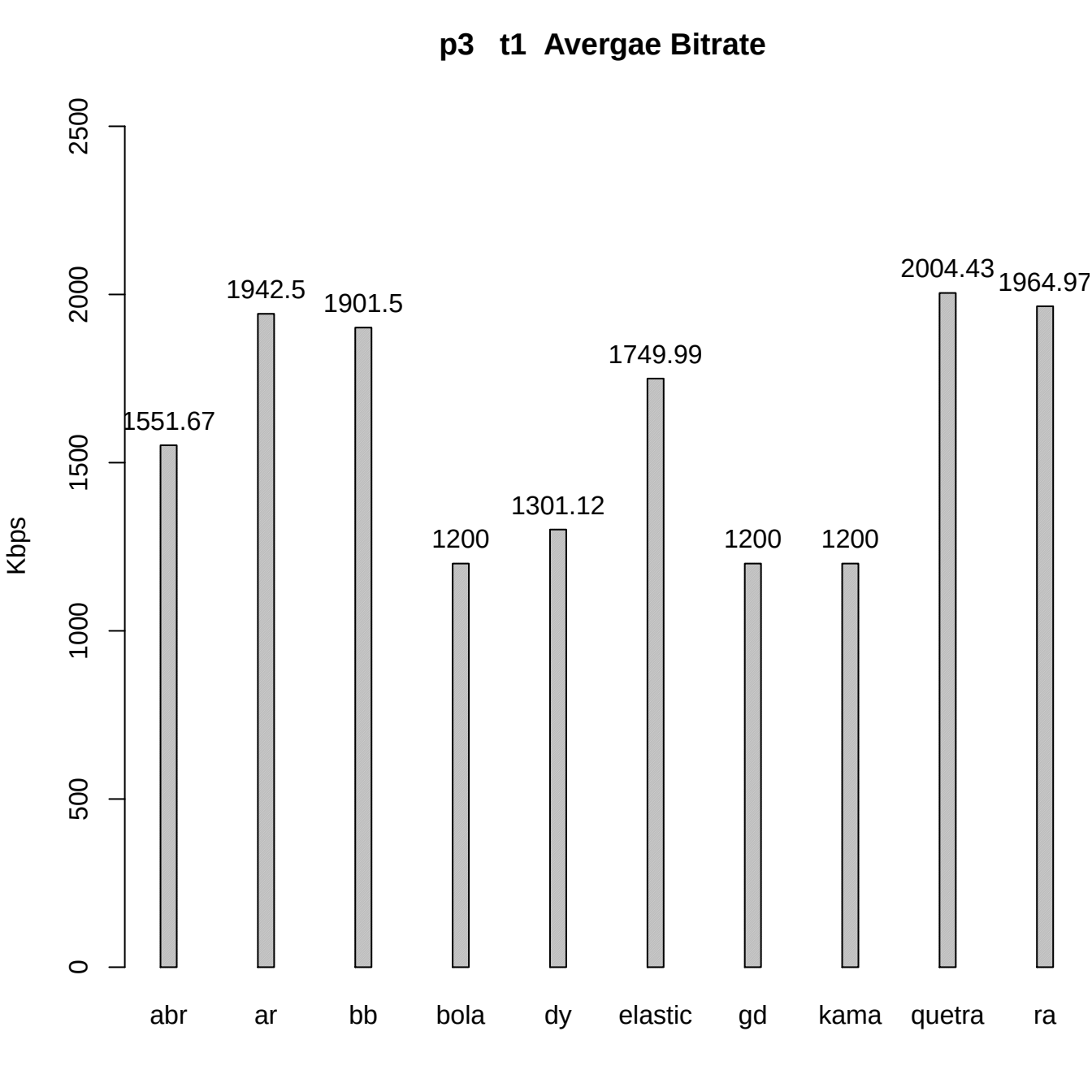

p2 t7 Total Stall
Sec
0
5
10
15
20
0
0
0
0
0
0
0
0
0
0

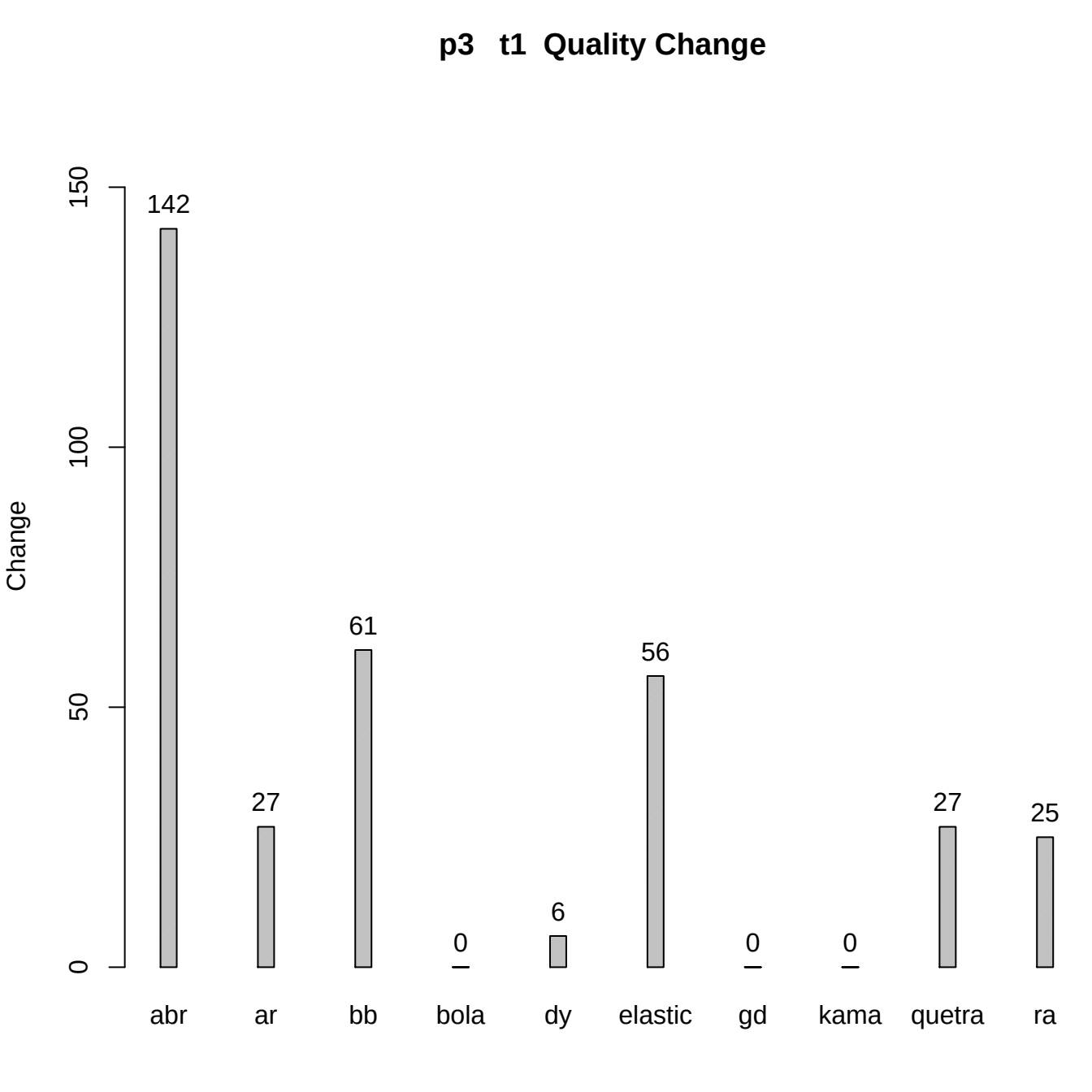

p2 t7 Number of Stall
#
0
5
10
15
20
0
0
0
0
0
0
0
0
0
0

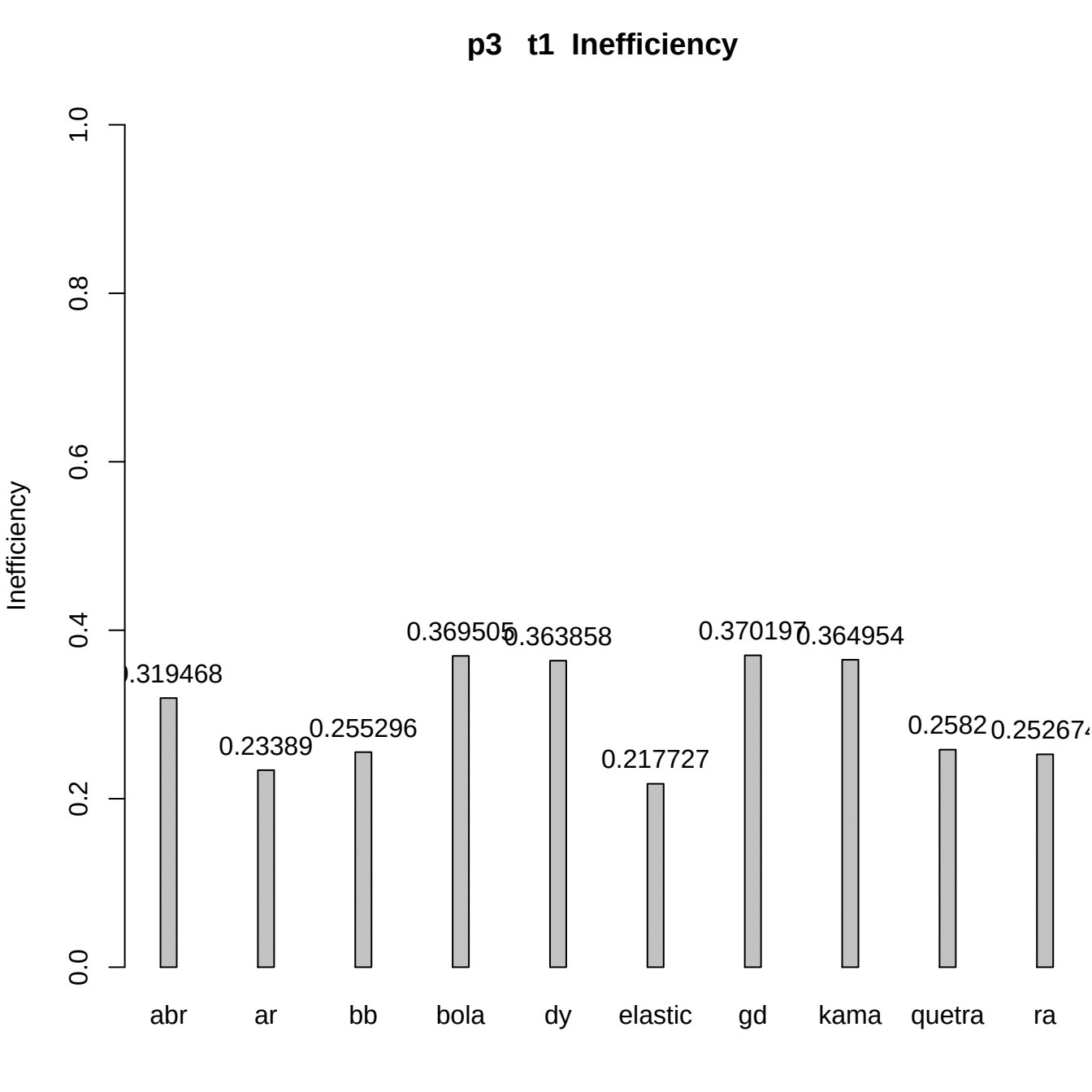

p2 t7 Average Stall
Sec
0
1
2
3
4
5
0
0
0
0
0
0
0
0
0
0

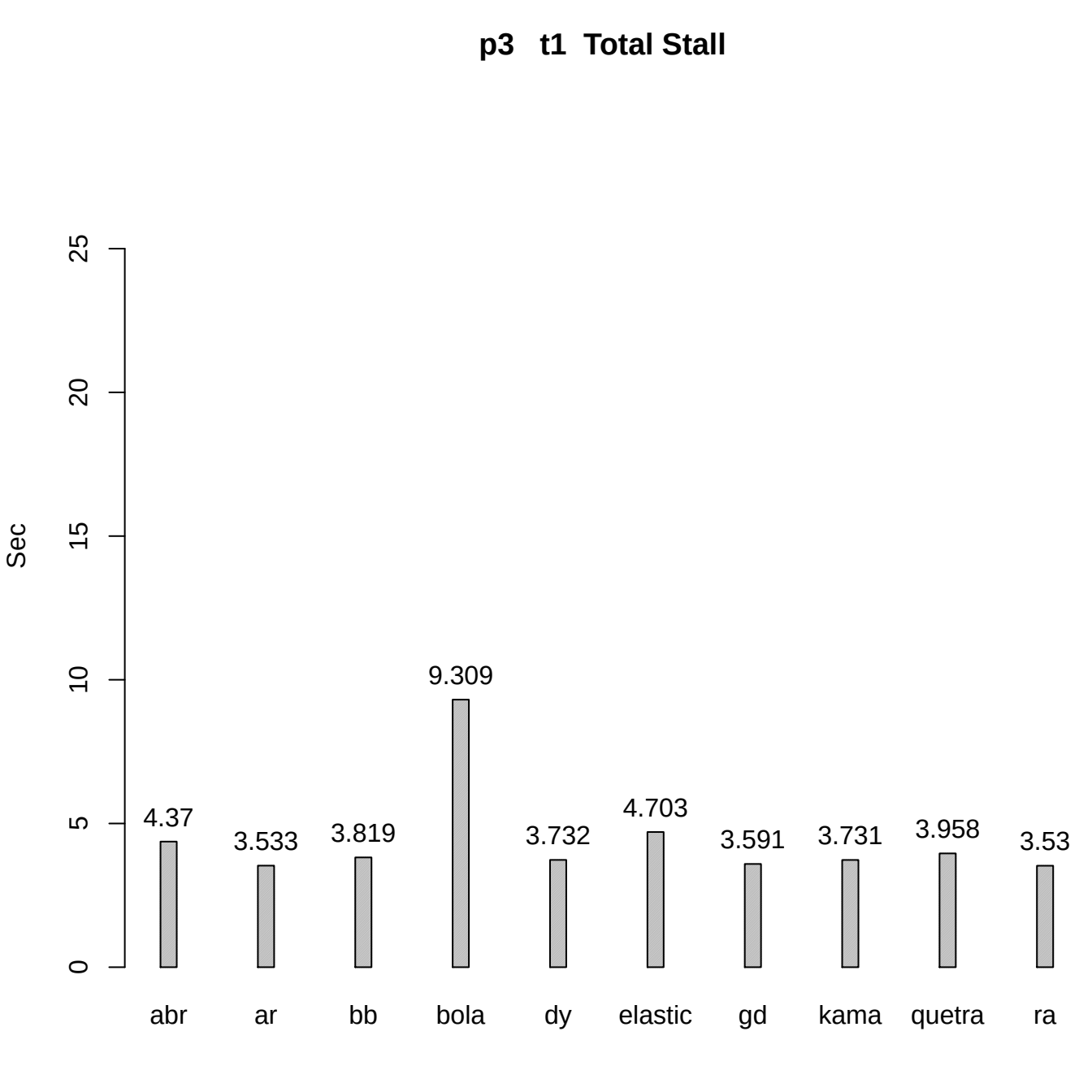

p2 t7 Buffer Overflow
Sec
0
50
100
150
38.93
0
19.482
0
46.763
2.642
169.375
155.701
0
0.597
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

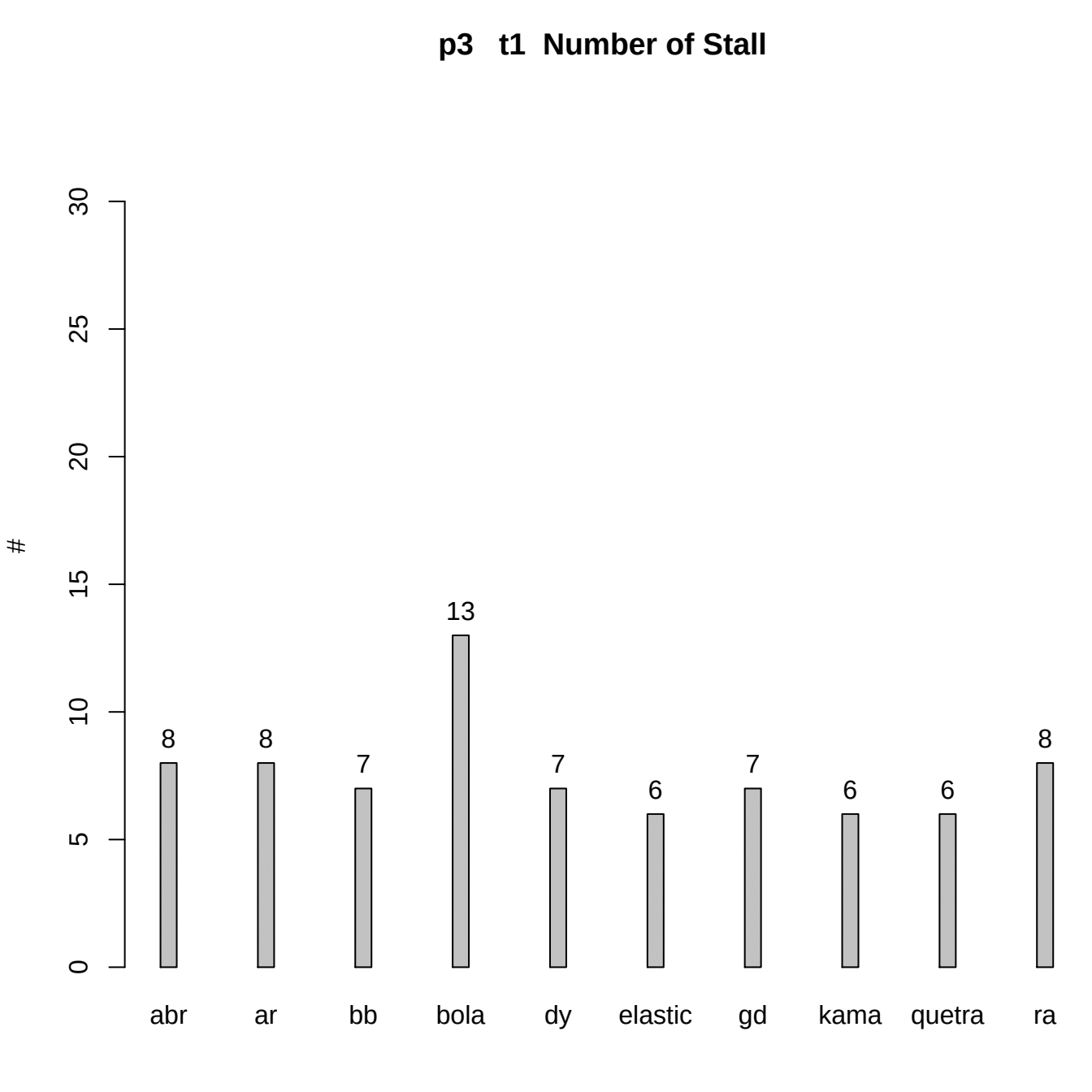

p2 t7 Number of Buffer Overflow
#
0
200
400
600
800
183
0
112
0
246
14
765
0
5
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

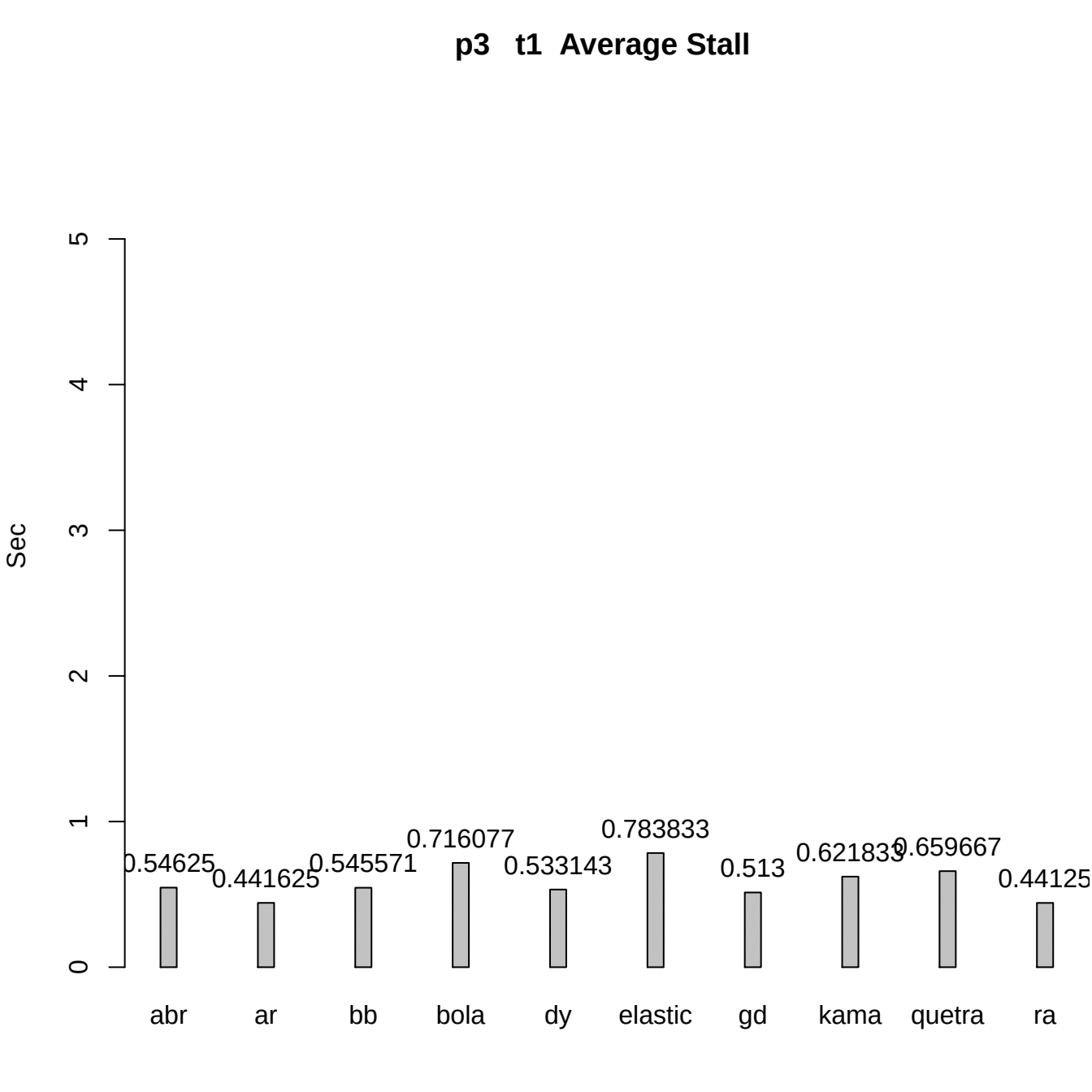

p3 t1 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
1551.67
1942.5
1901.5
1200
1301.12
1749.99
1200
1200
2004.43
1964.97
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

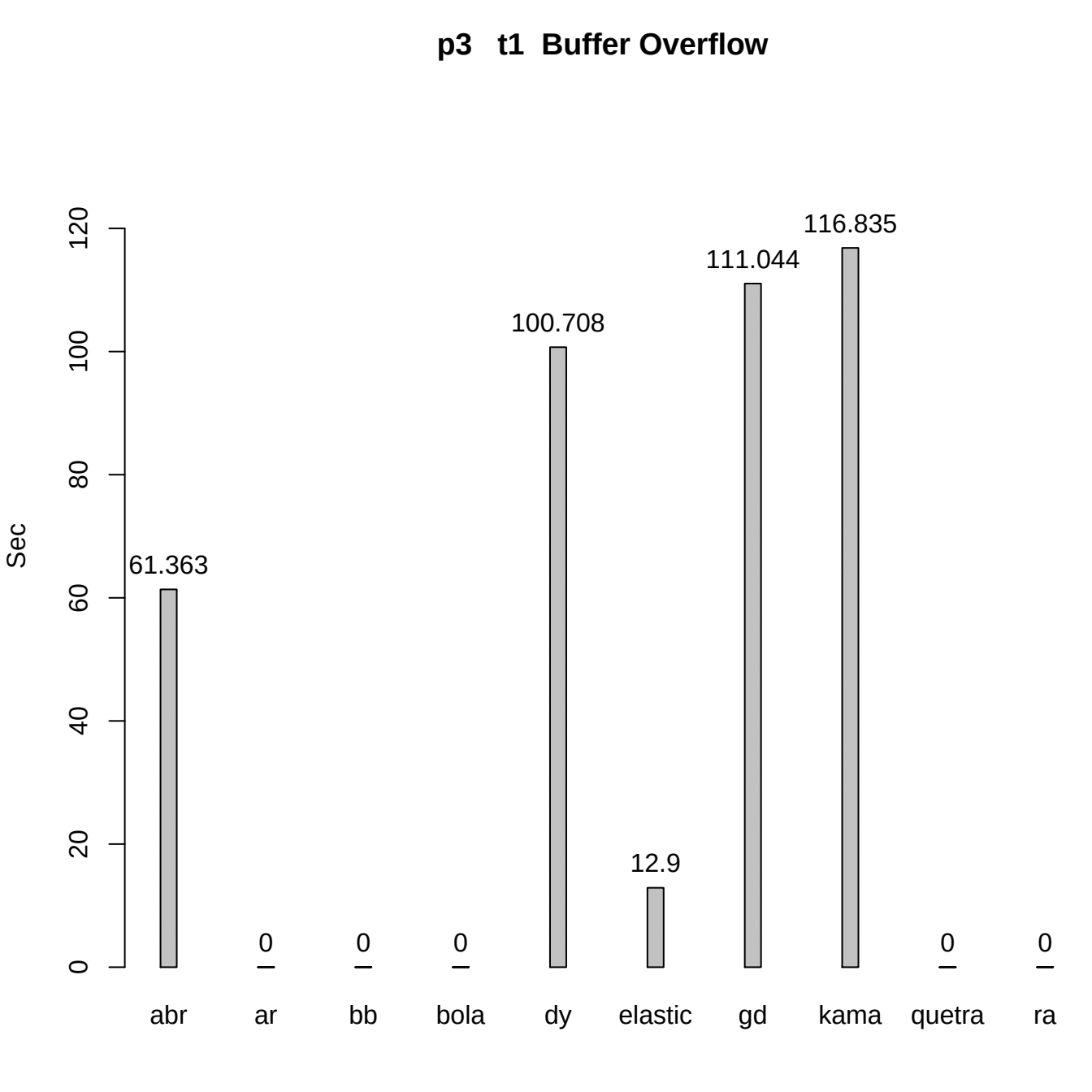

p3 t1 Quality Change
Change
0
50
100
150
142
27
61
0
6
56
0
0
27
25
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

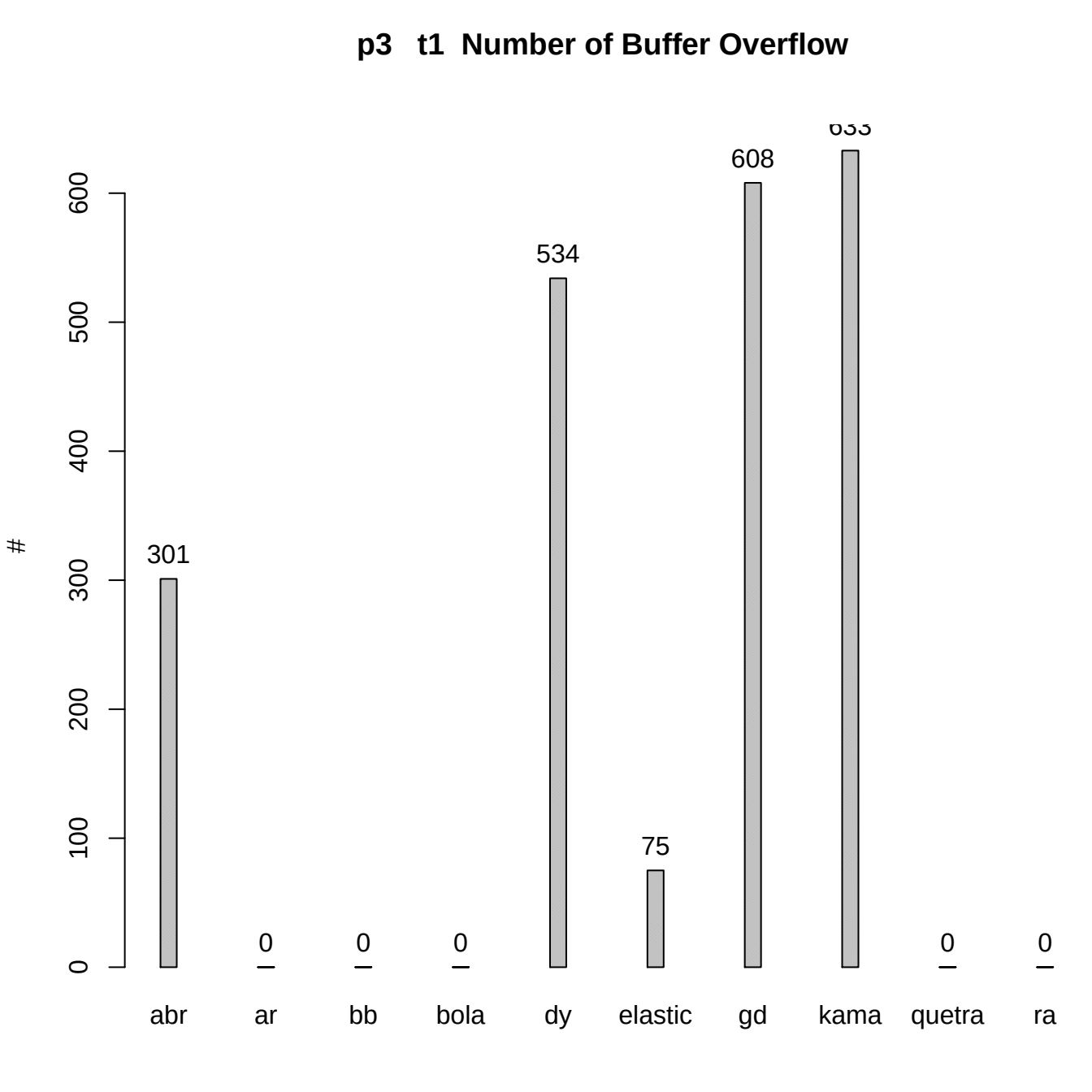

p3 t1 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.319468
0.23389
0.255296
0.369505
0.363858
0.217727
0.370197
0.364954
0.2582
0.25267
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

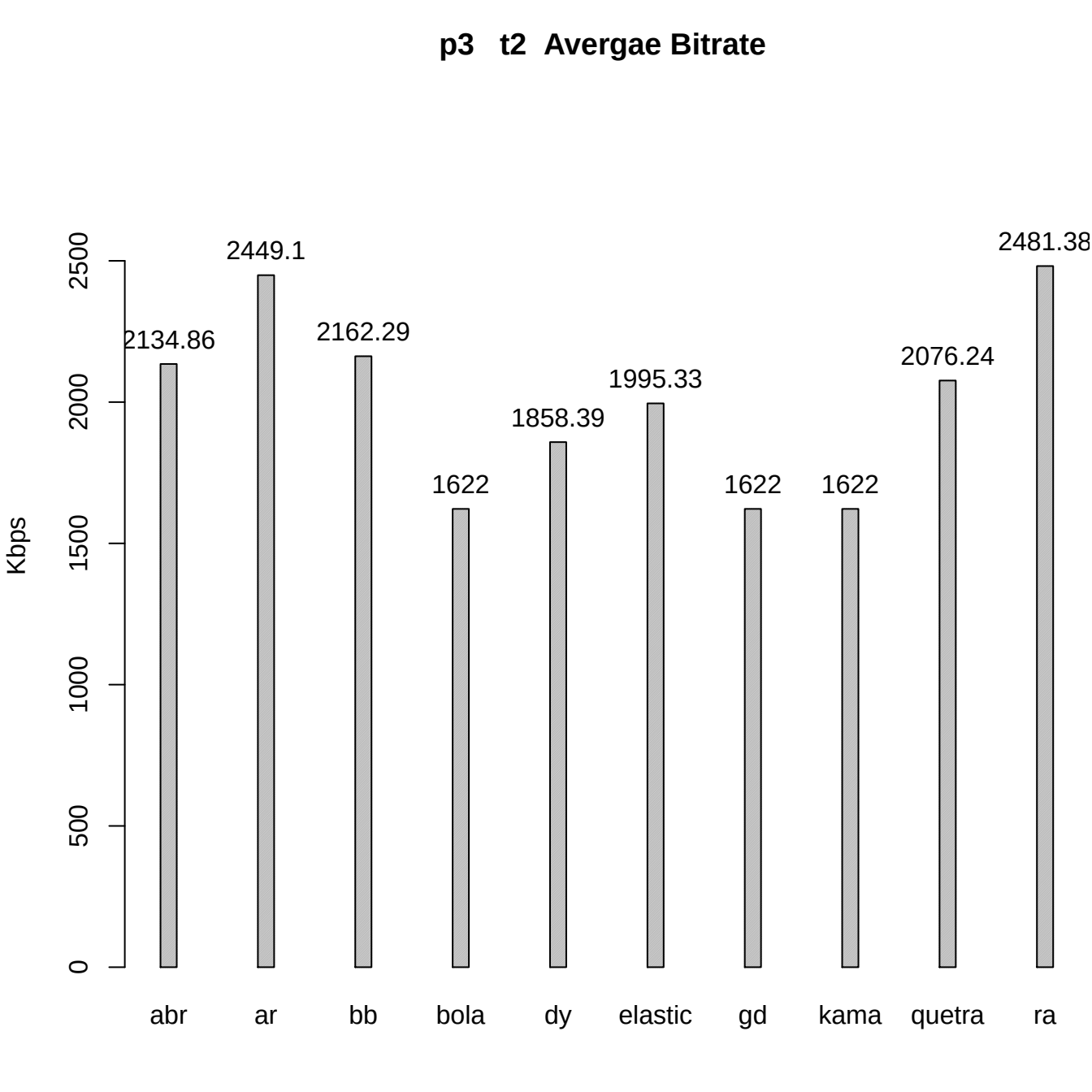

p3 t1 Total Stall
Sec
0
5
10
15
20
25
4.37
3.533
3.819
9.309
3.732
4.703
3.591
3.731
3.958
3.53
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

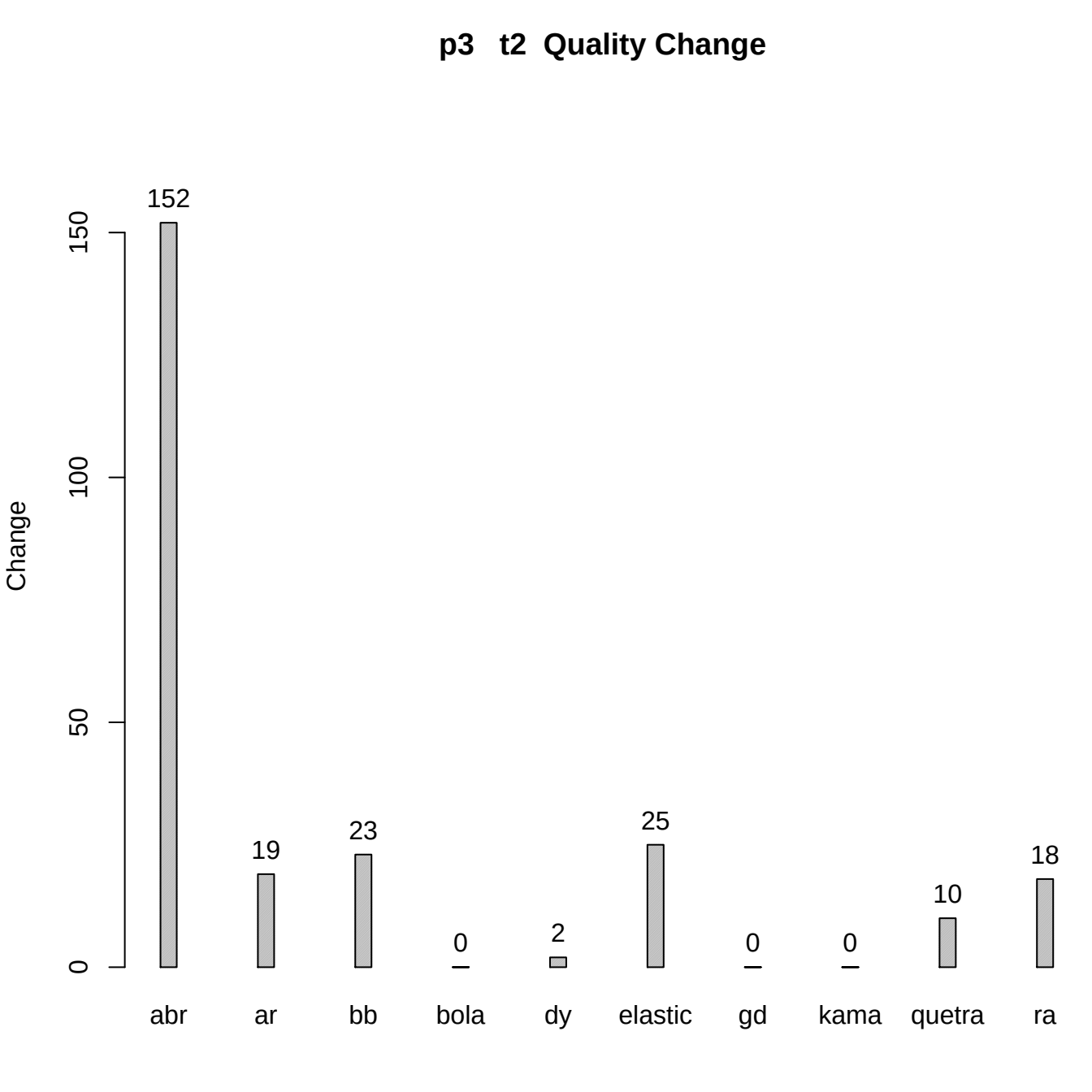

p3 t1 Number of Stall
#
0
5
10
15
20
25
30
8
8
7
13
7
6
7
6
6
8
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

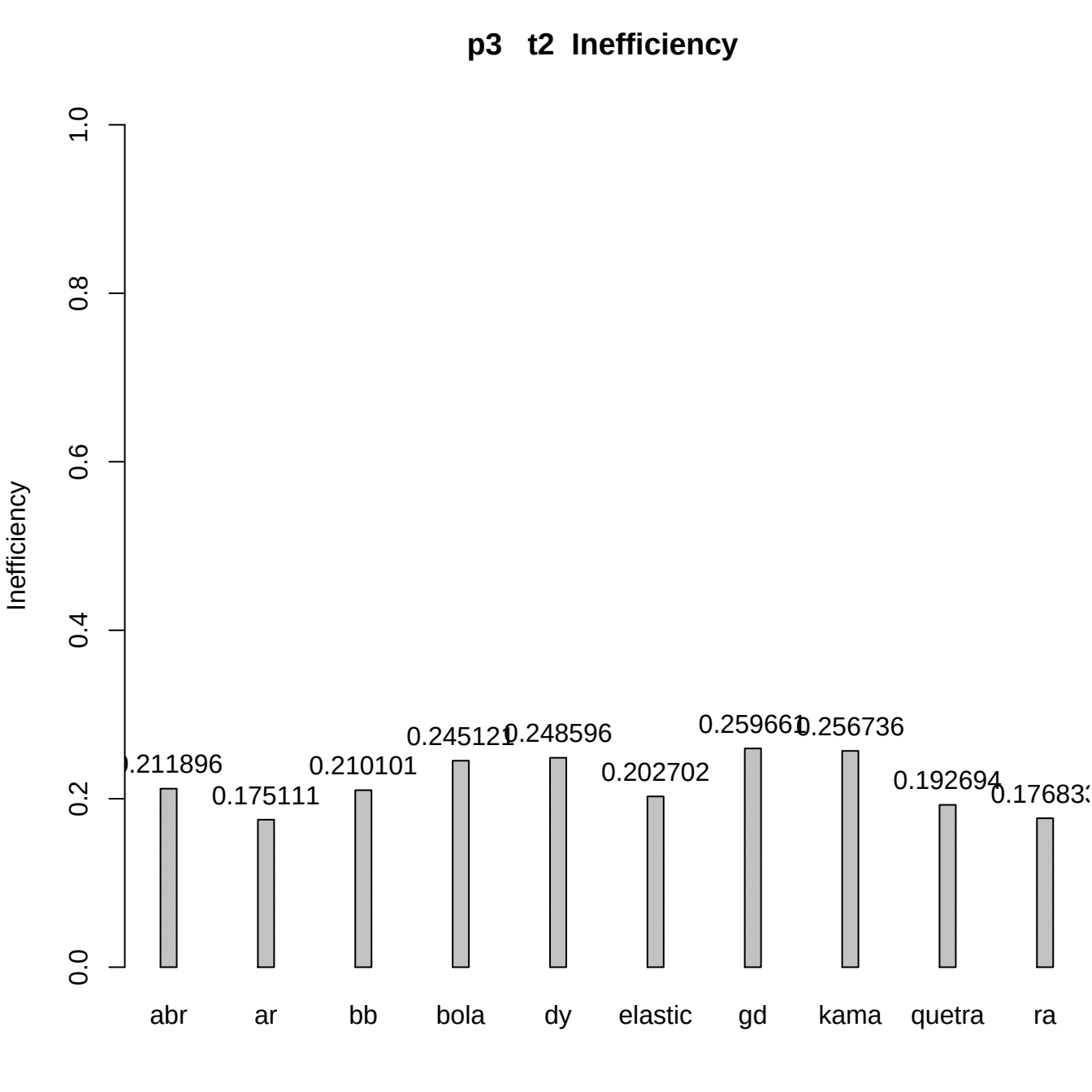

p3 t1 Average Stall
Sec
0
1
2
3
4
5
0.54625
0.441625
0.545571
0.716077
0.533143
0.783833
0.513
0.621833
0.659667
0.44125
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

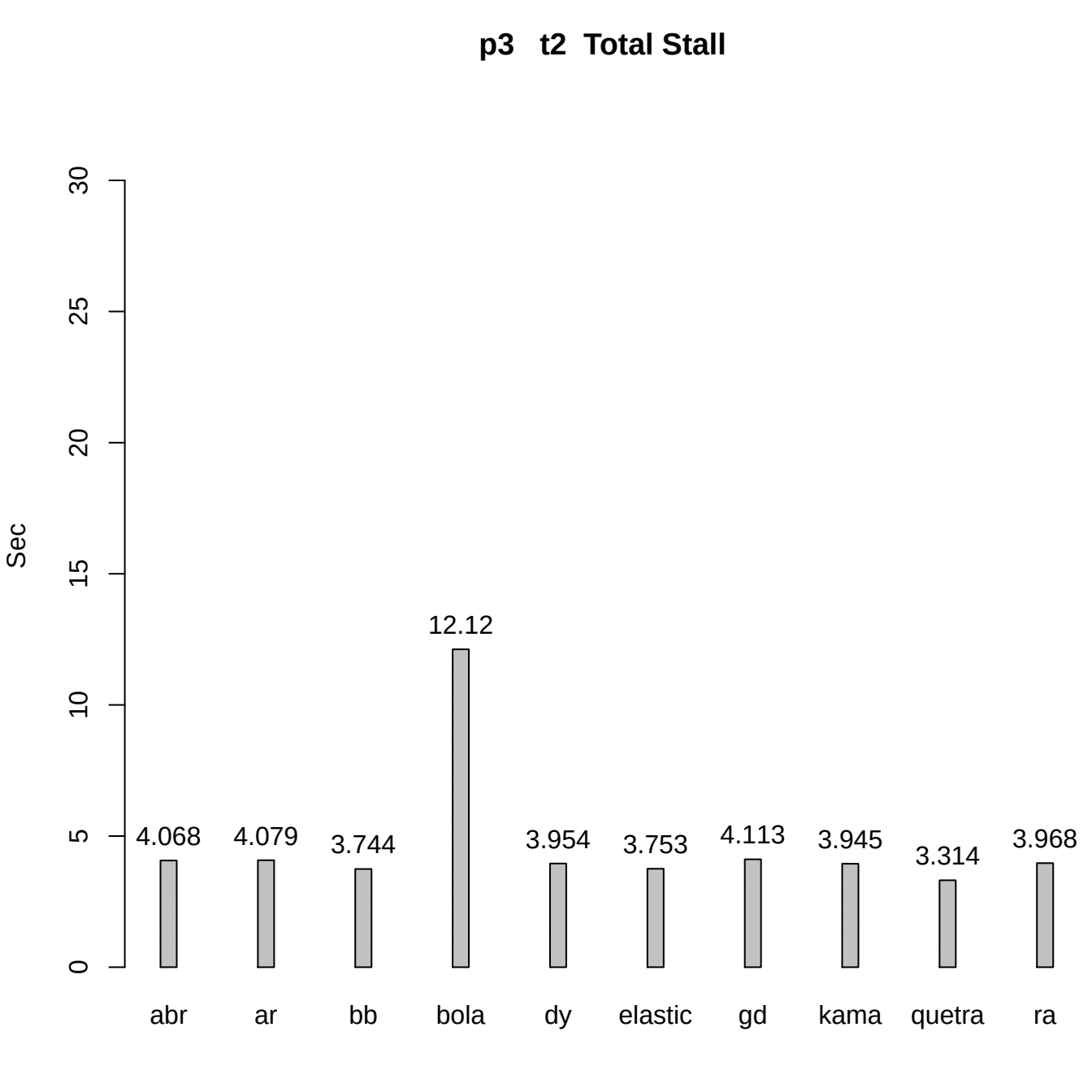

p3 t1 Buffer Overflow
Sec
0
20
40
60
80
100
120
61.363
0
0
0
100.708
12.9
111.044
116.835
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

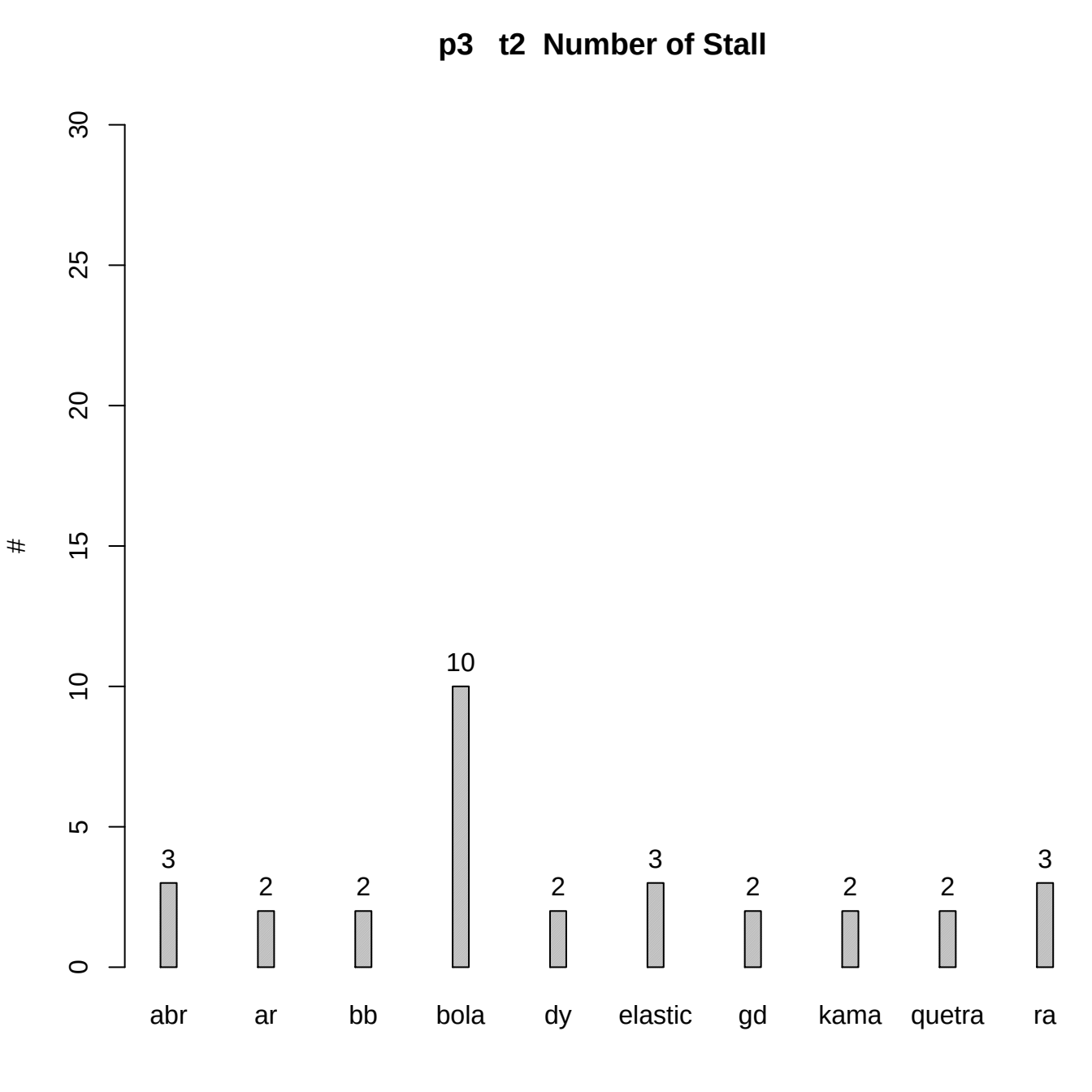

p3 t1 Number of Buffer Overflow
#
0
100
200
300
400
500
600
301
0
0
0
534
75
608
633
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

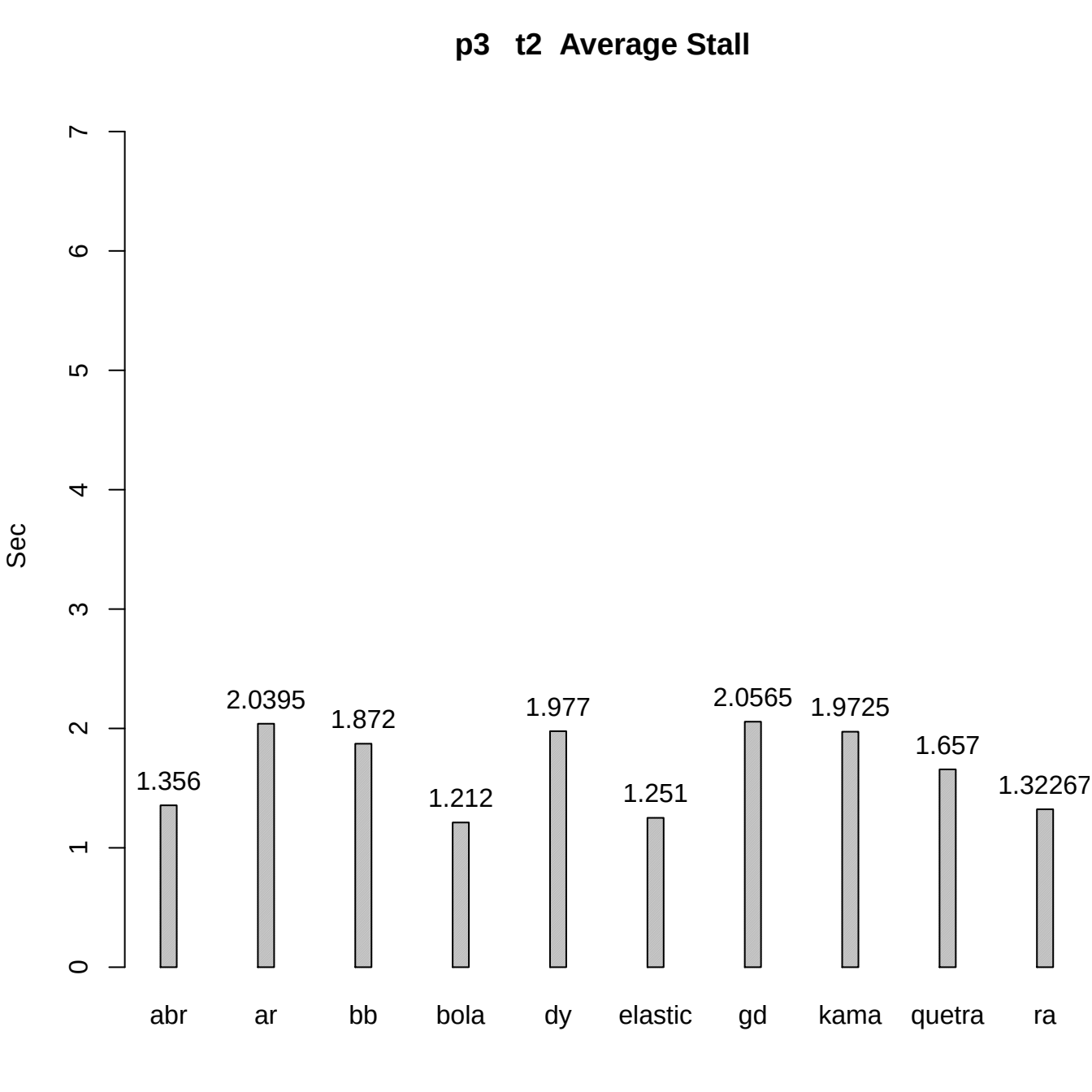

p3 t2 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
2134.86
2449.1
2162.29
1622
1858.39
1995.33
1622
1622
2076.24
2481.38
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

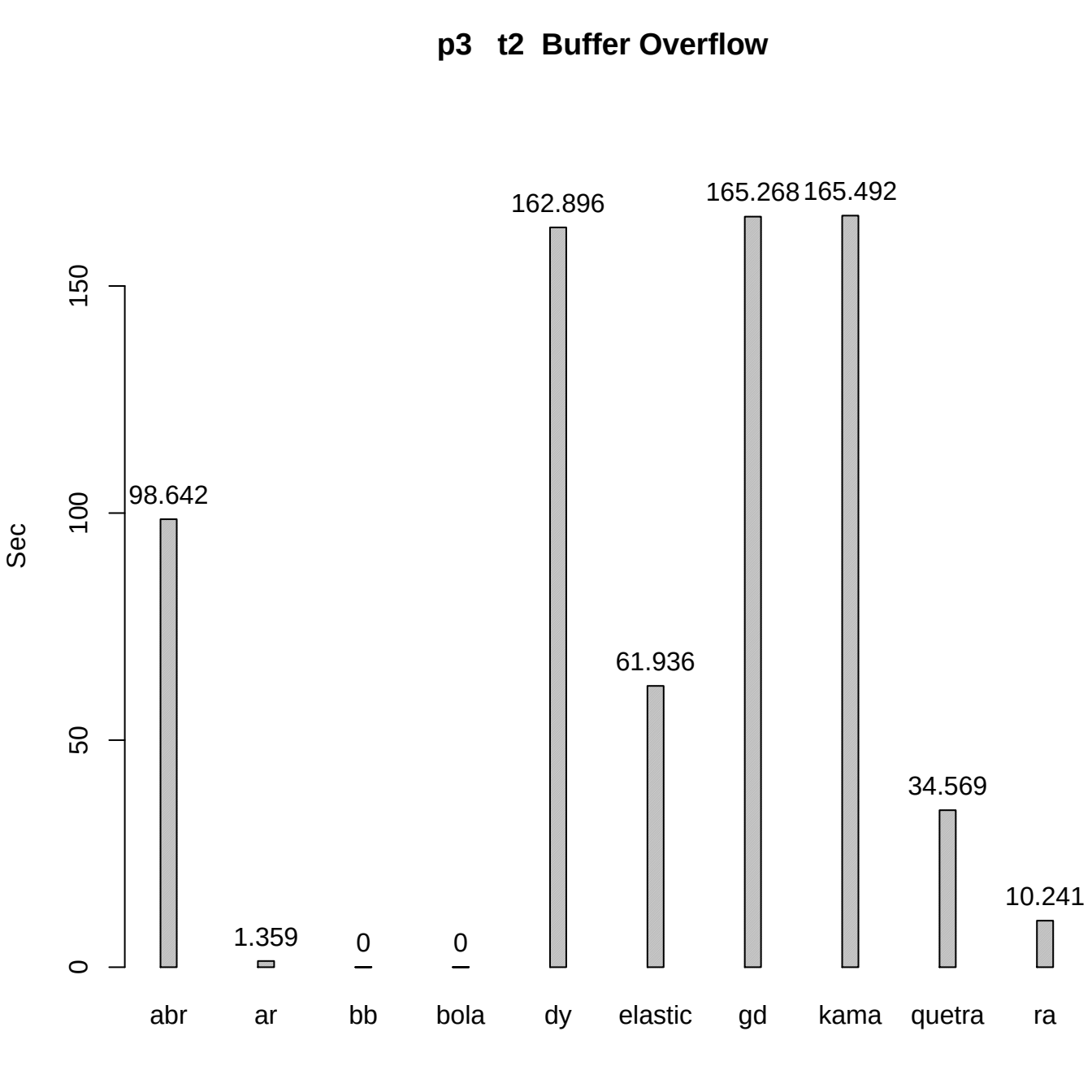

p3 t2 Quality Change
Change
0
50
100
150
152
19
23
0
2
25
0
0
10
18
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

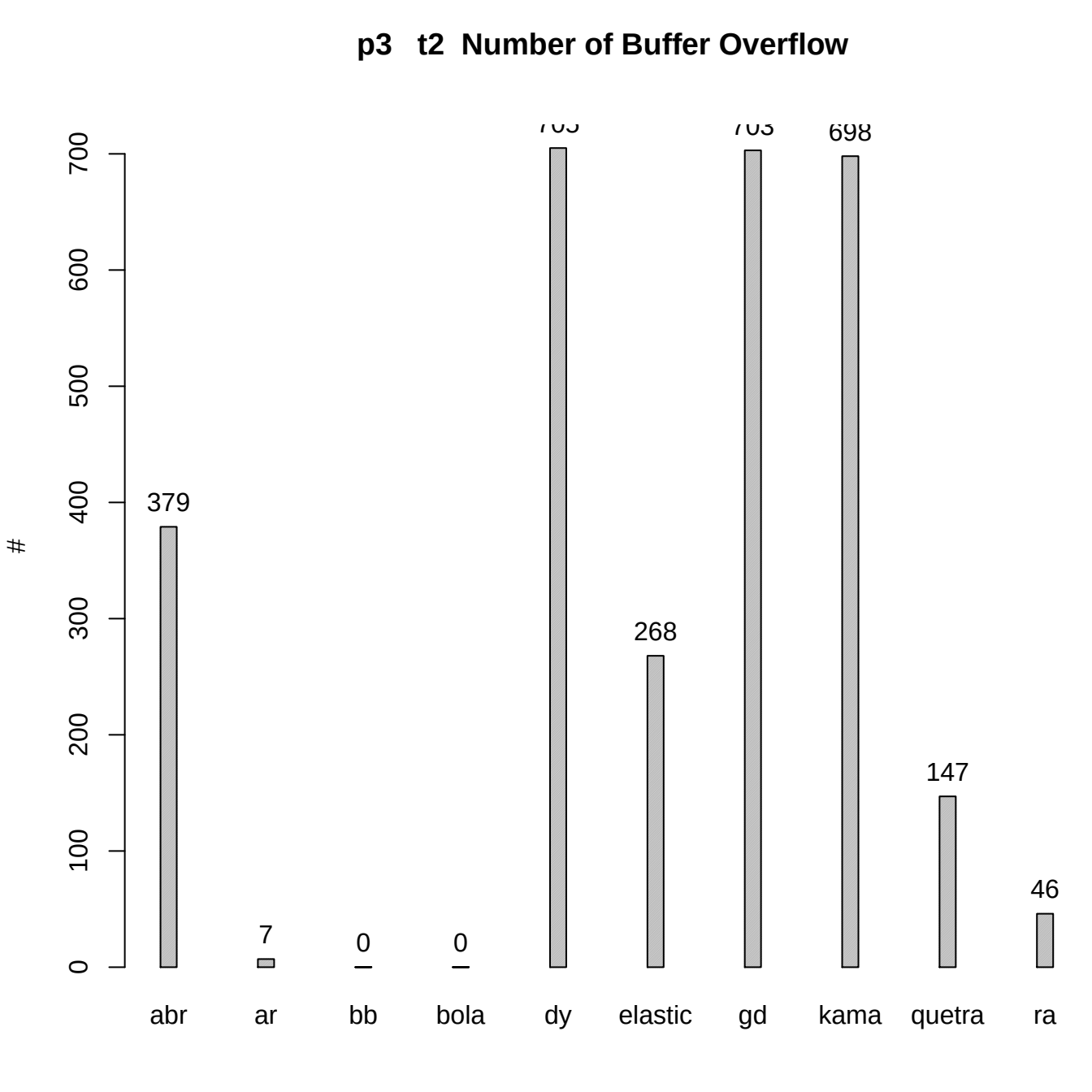

p3 t2 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.211896
0.175111
0.210101
0.245121
0.248596
0.202702
0.259661
0.256736
0.192694
0.17683
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

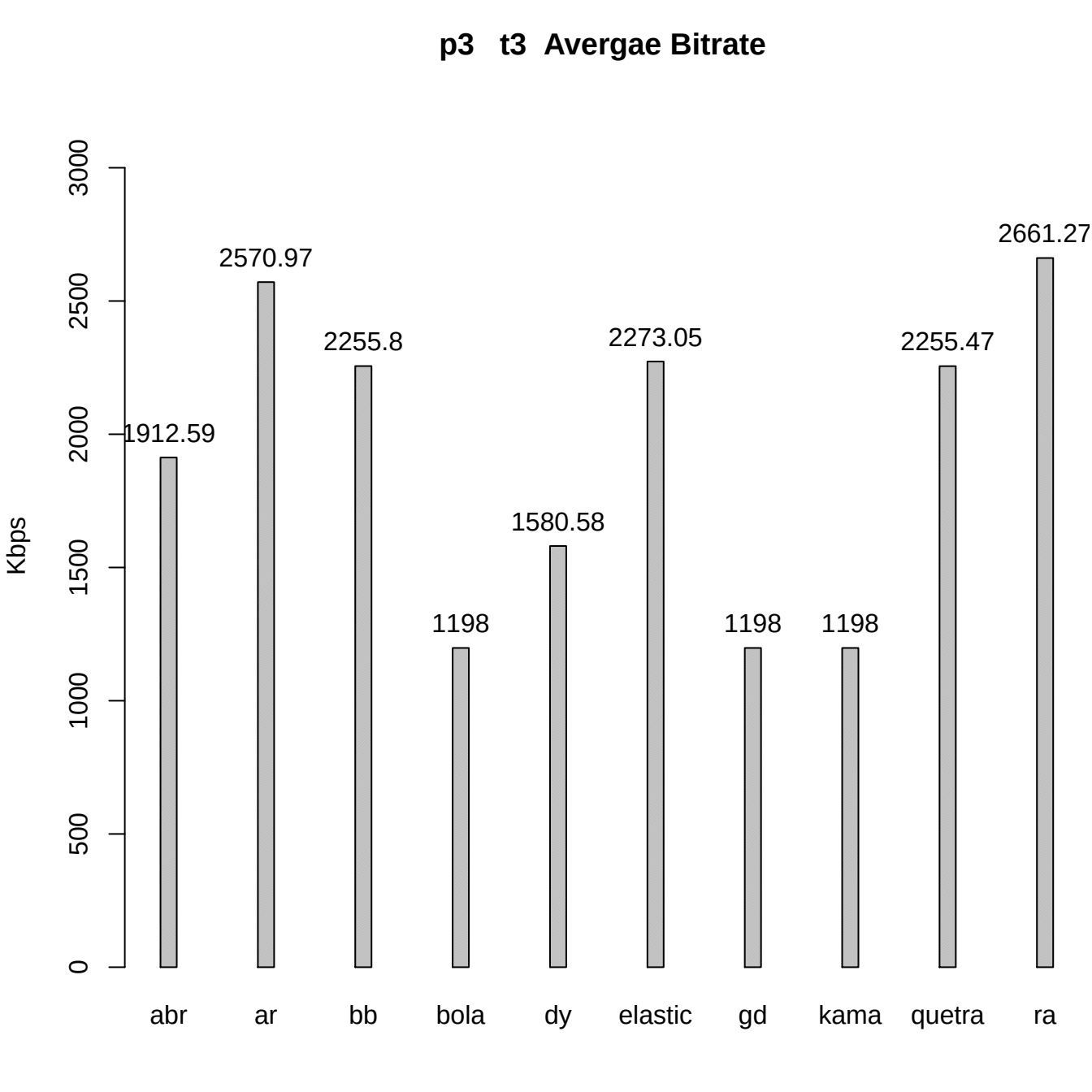

p3 t2 Total Stall
Sec
0
5
10
15
20
25
30
4.068
4.079
3.744
12.12
3.954
3.753
4.113
3.945
3.314
3.968
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

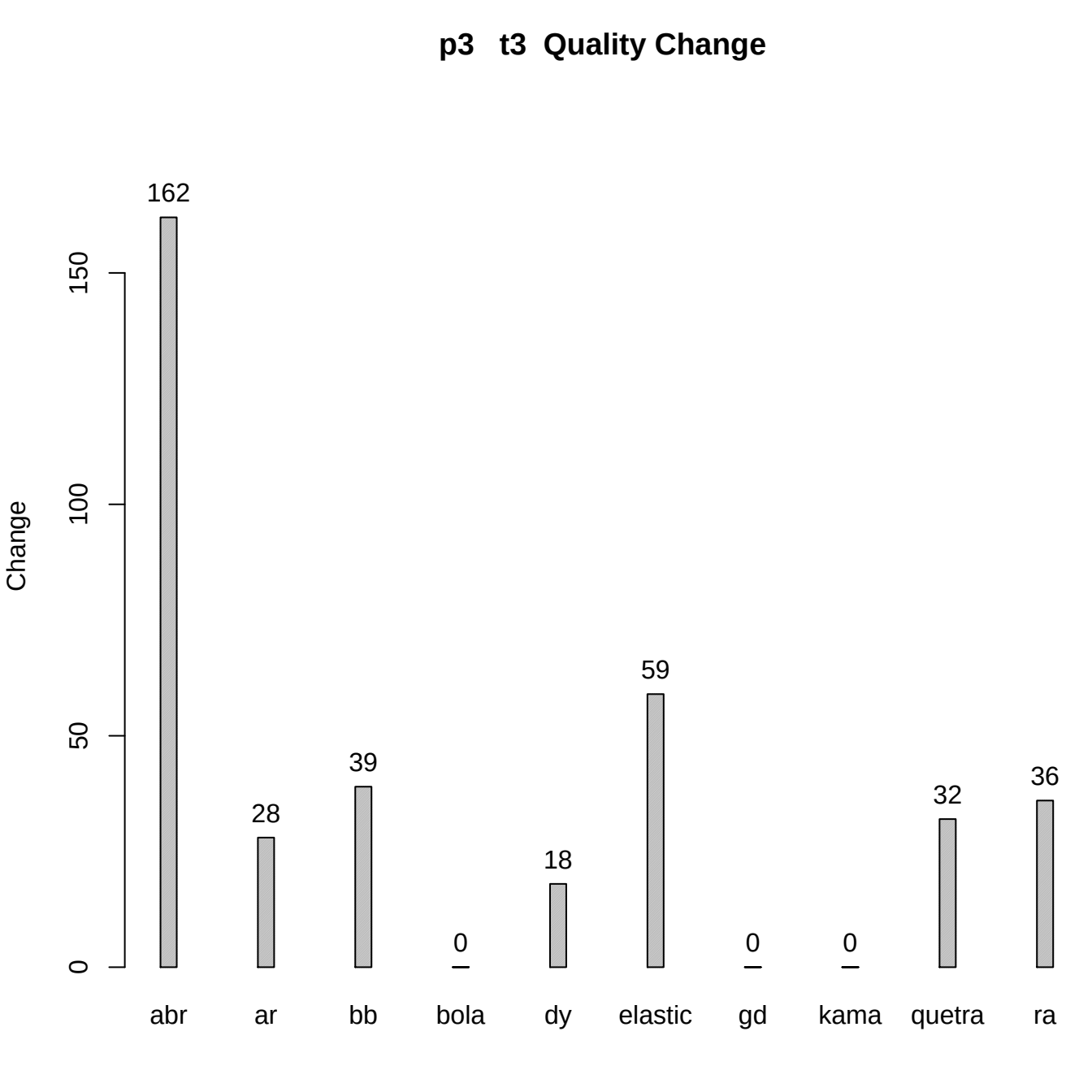

p3 t2 Number of Stall
#
0
5
10
15
20
25
30
3
2
2
10
2
3
2
2
2
3
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

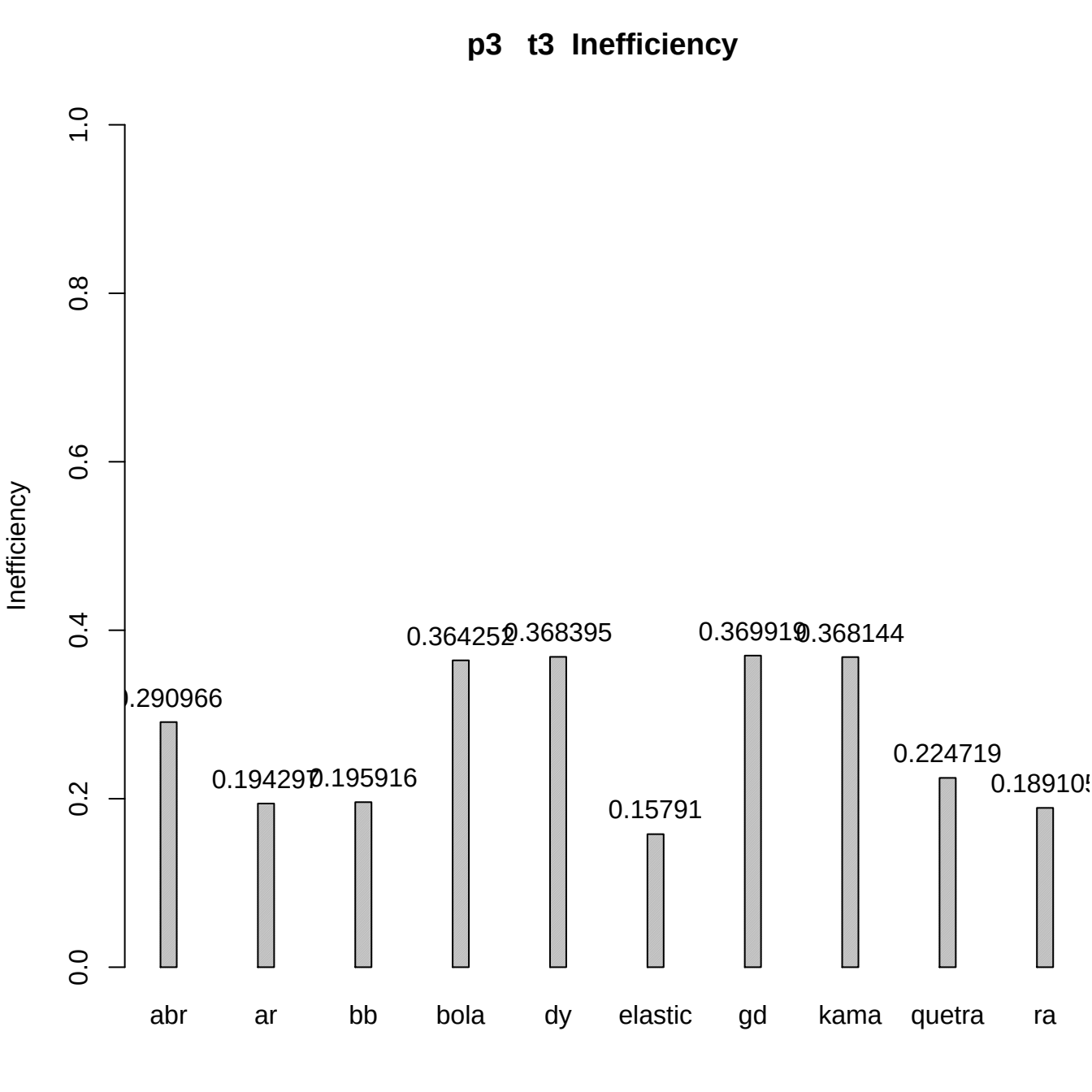

p3 t2 Average Stall
Sec
0
1
2
3
4
5
6
7
1.356
2.0395
1.872
1.212
1.977
1.251
2.0565
1.9725
1.657
1.32267
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

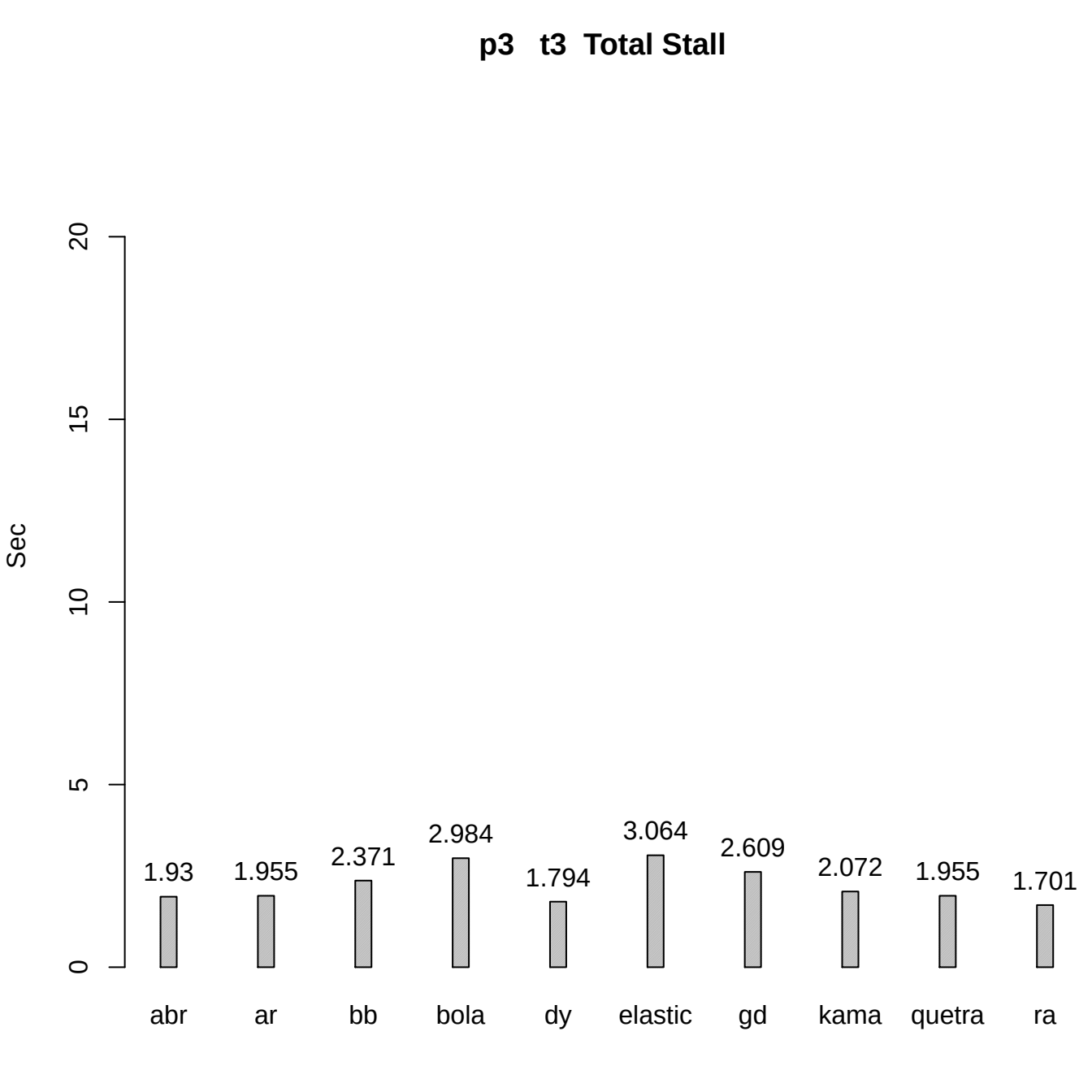

p3 t2 Buffer Overflow
Sec
0
50
100
150
98.642
1.359
0
0
162.896
61.936
165.268
165.492
34.569
10.241
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

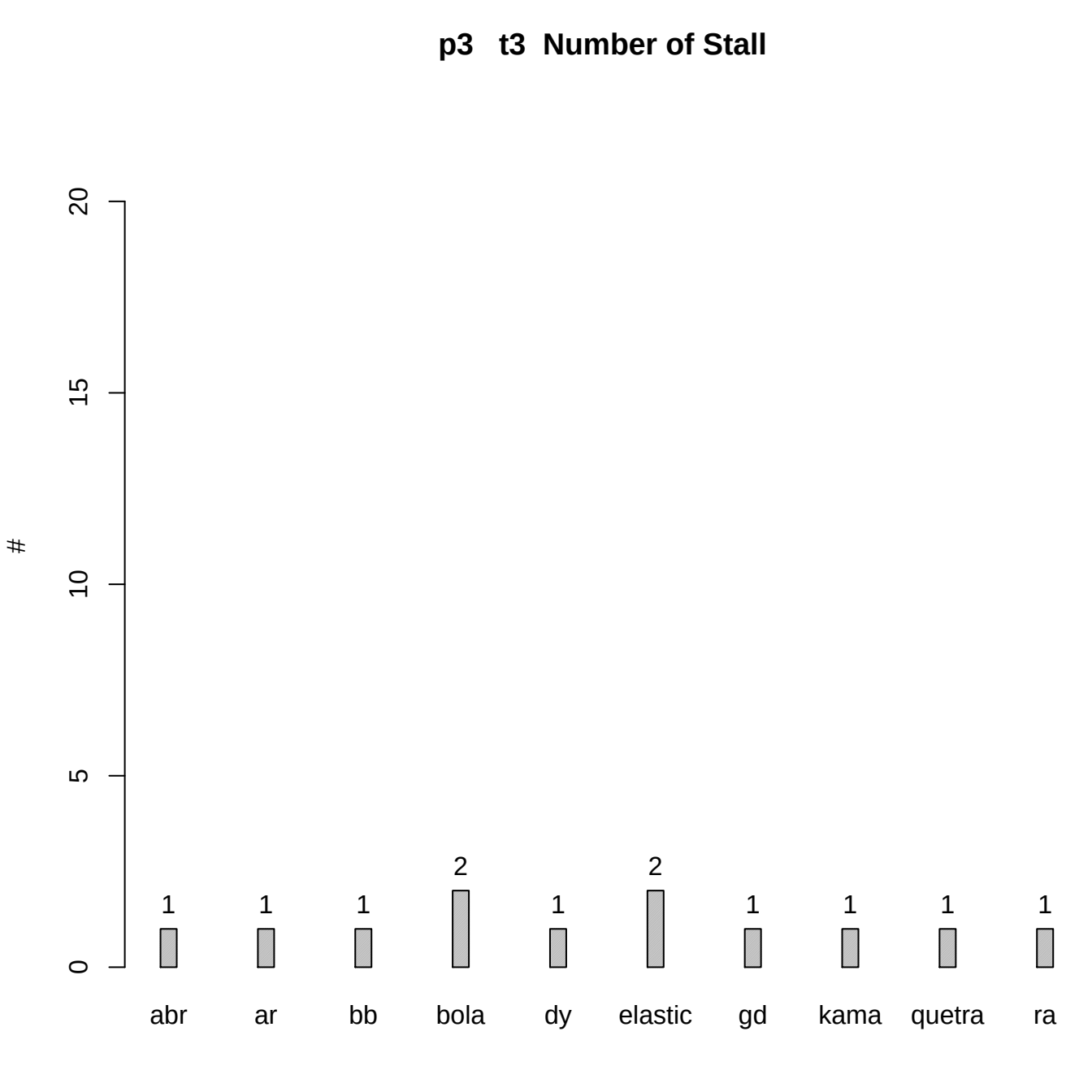

p3 t2 Number of Buffer Overflow
#
0
100
200
300
400
500
600
700
379
7
0
0
703
268
703
698
147
46
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

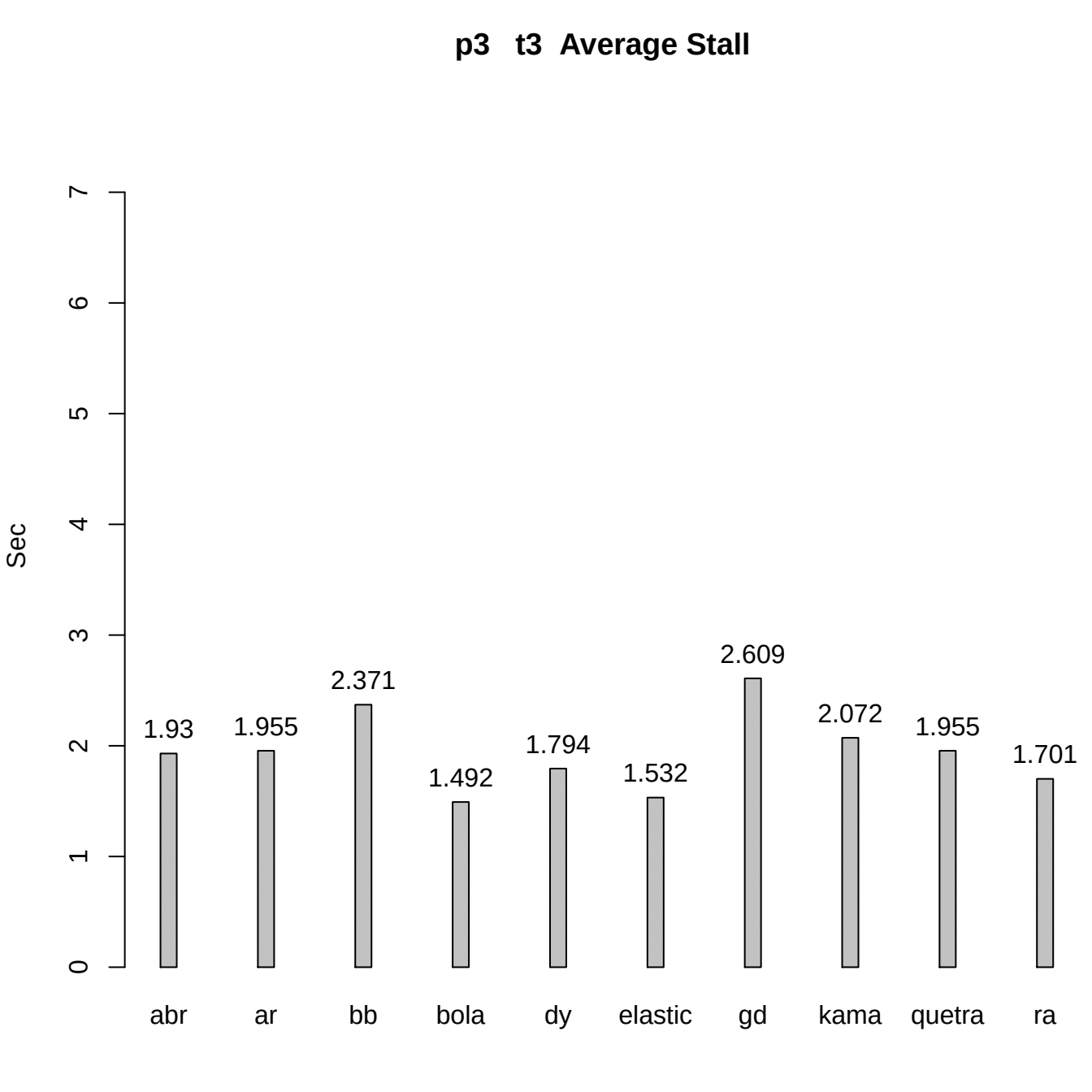

p3 t3 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
3000
1912.59
2570.97
2255.8
1198
1580.58
2273.05
1198
1198
2255.47
2661.27
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

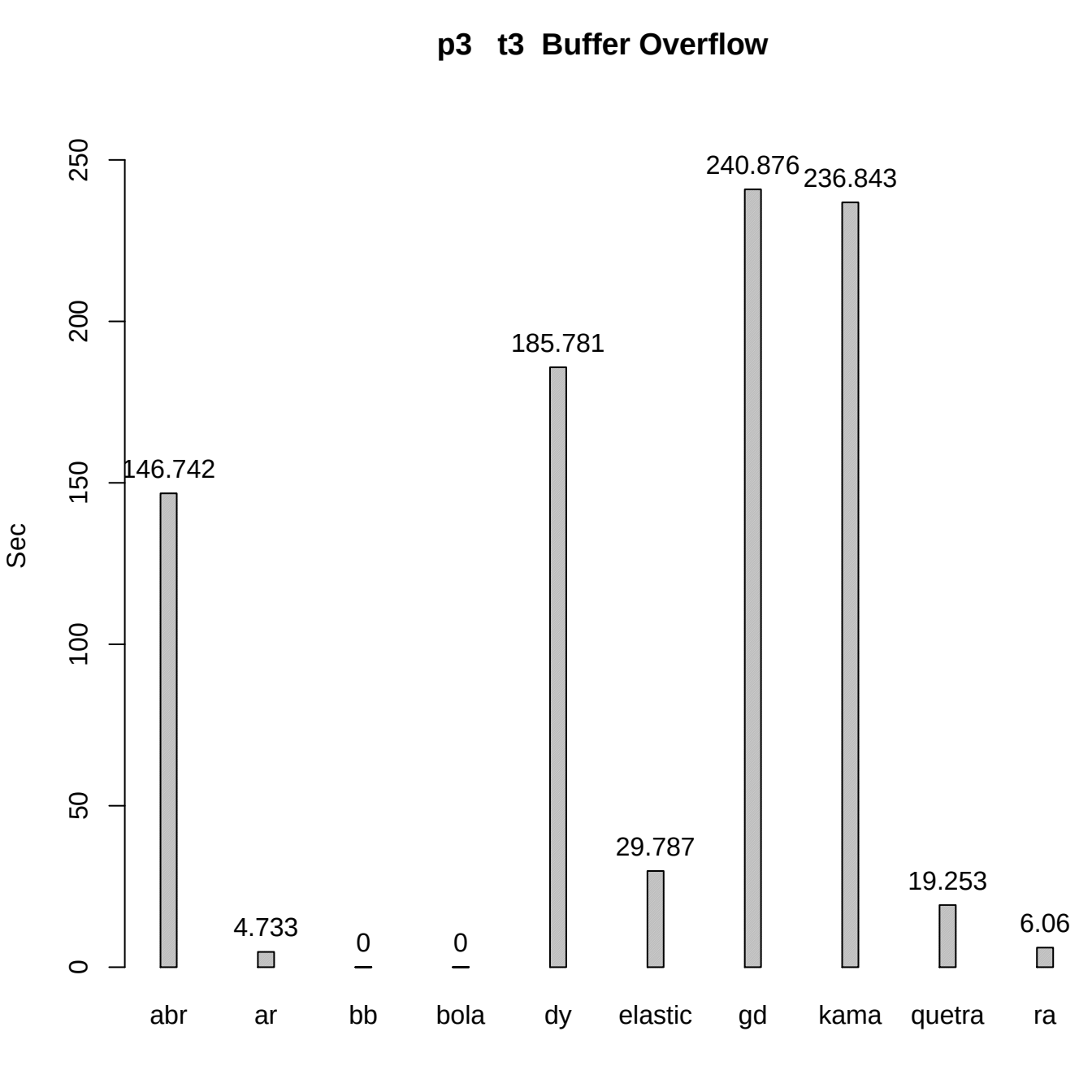

p3 t3 Quality Change
Change
0
50
100
150
162
28
39
0
18
59
0
0
32
36
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

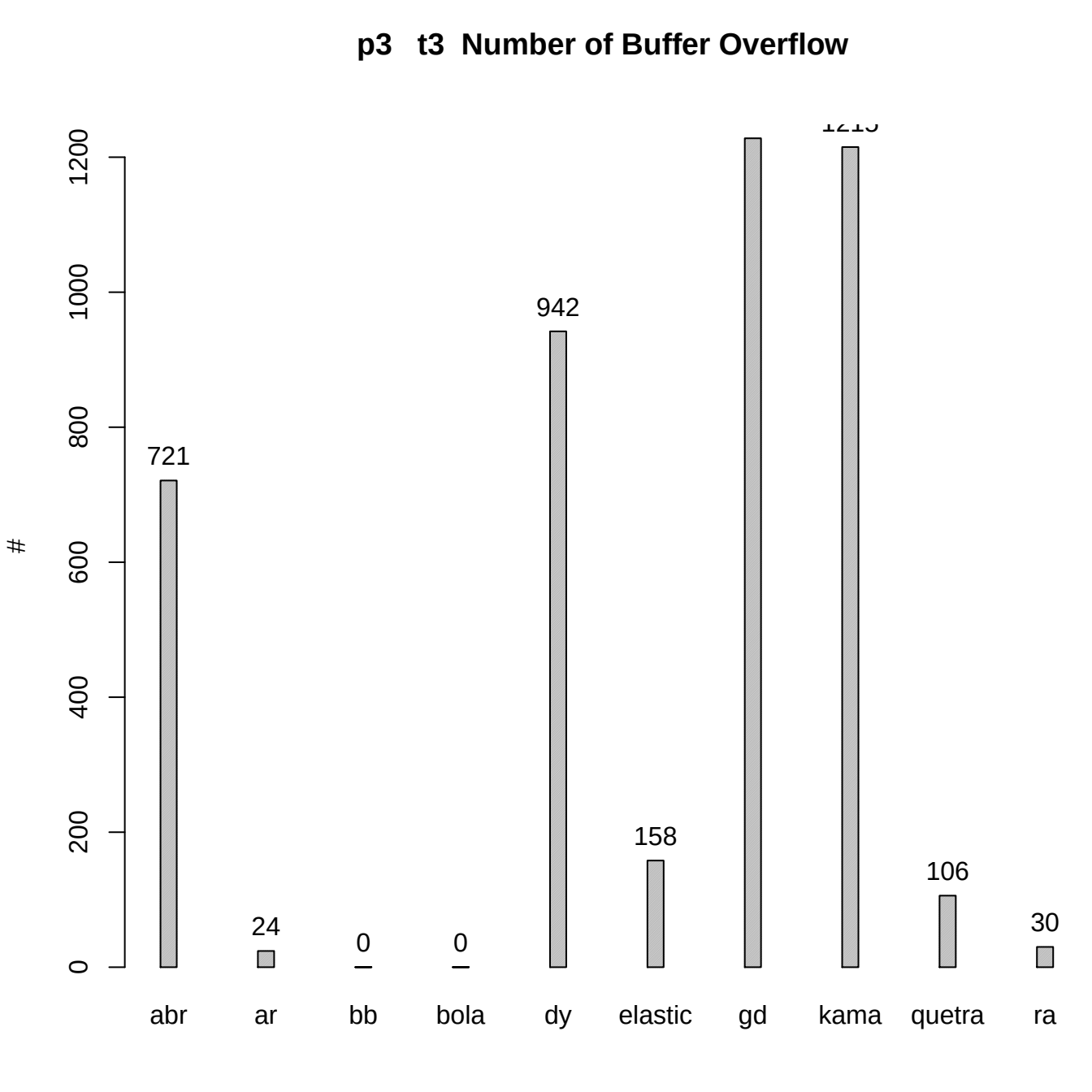

p3 t3 Inefficiency
Inefficiency
1.0
0.8
0.6
0.4
0.2
0.0
.290966
0.194297
0.195916
0.364252
0.368395
0.15791
0.369919
0.368144
0.224719
0.189105
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

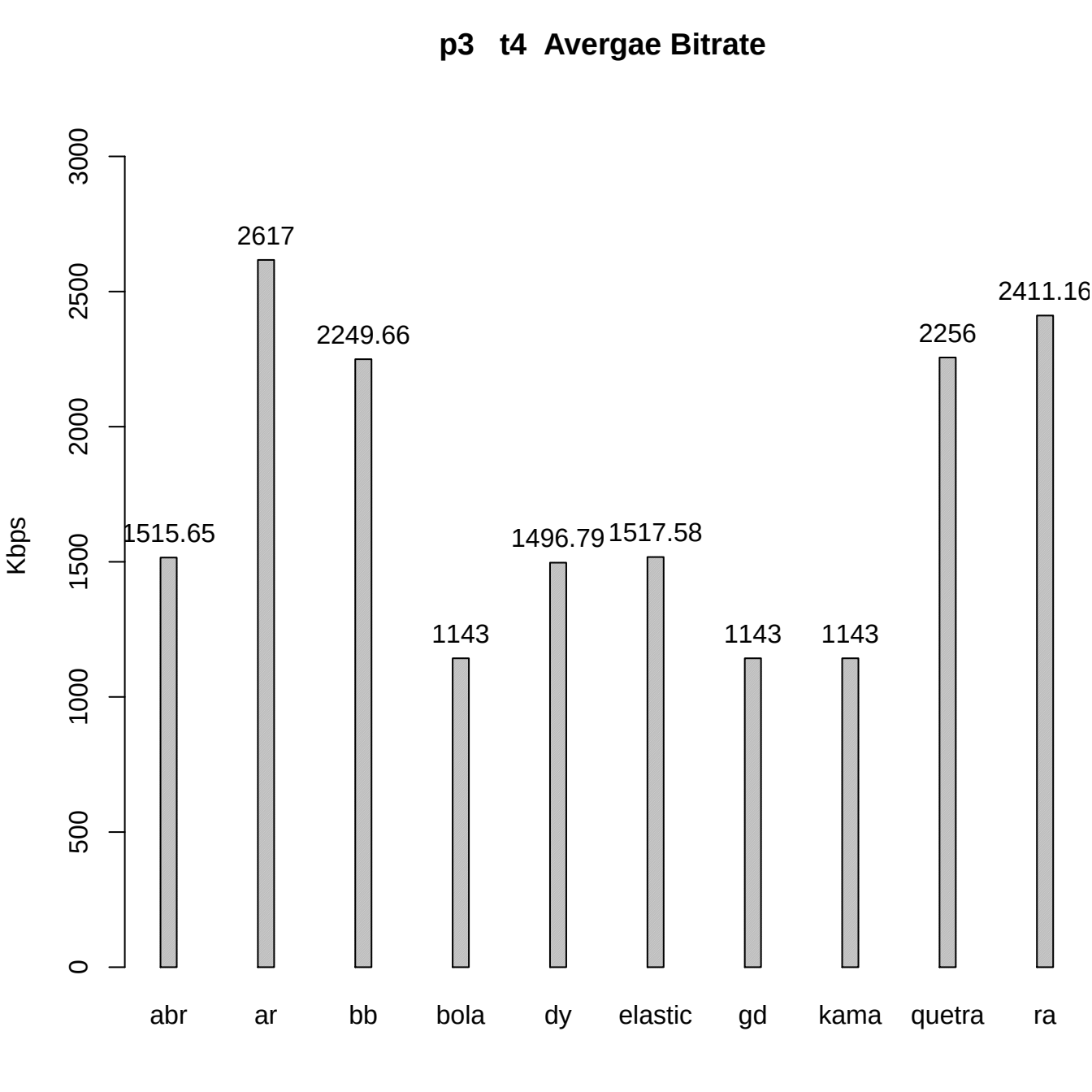

p3 t3 Total Stall
Sec
0
5
10
15
20
1.93
1.955
2.371
2.984
1.794
3.064
2.609
2.072
1.955
1.701
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

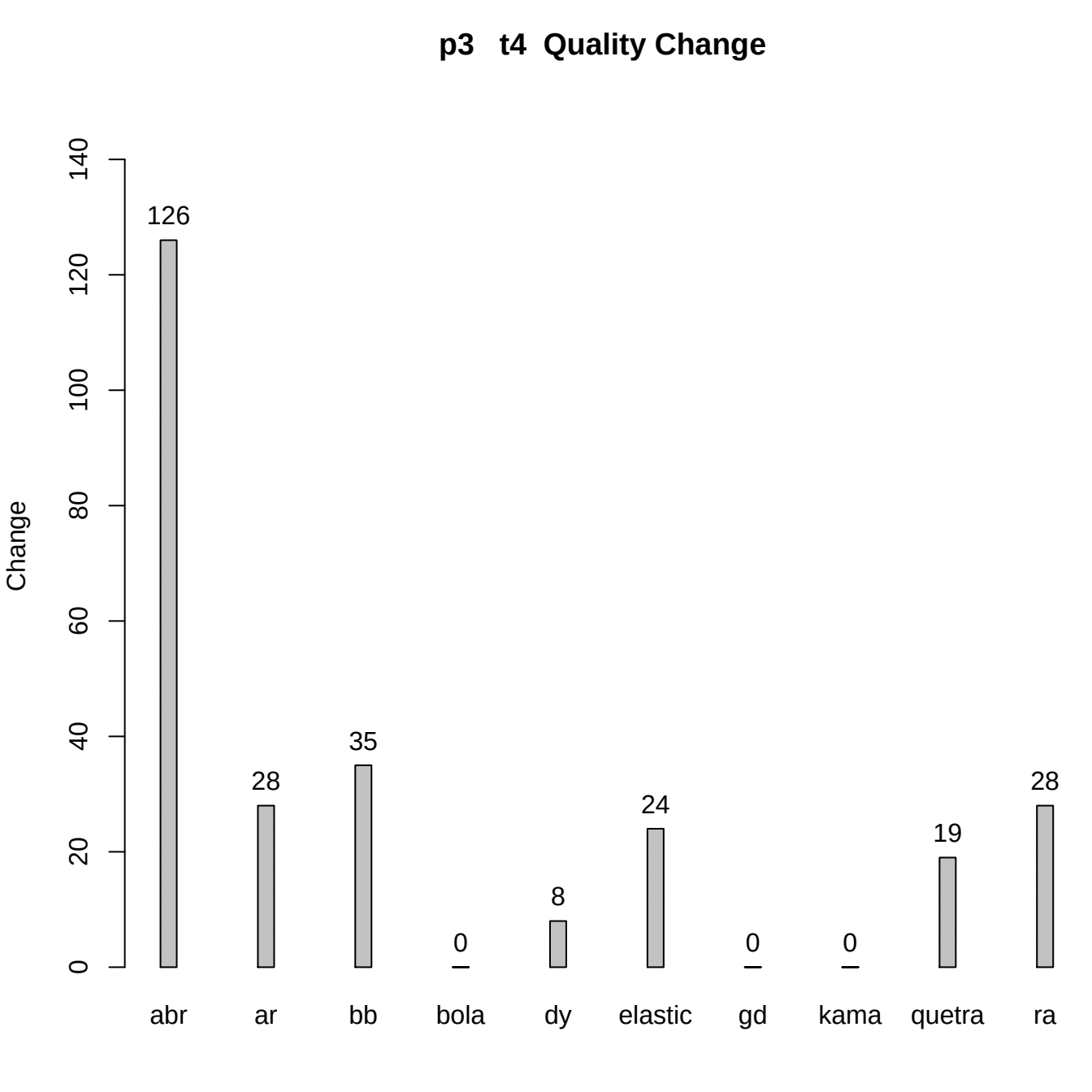

p3 t3 Number of Stall
#
0
5
10
15
20
1
1
1
2
1
2
1
1
1
1
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

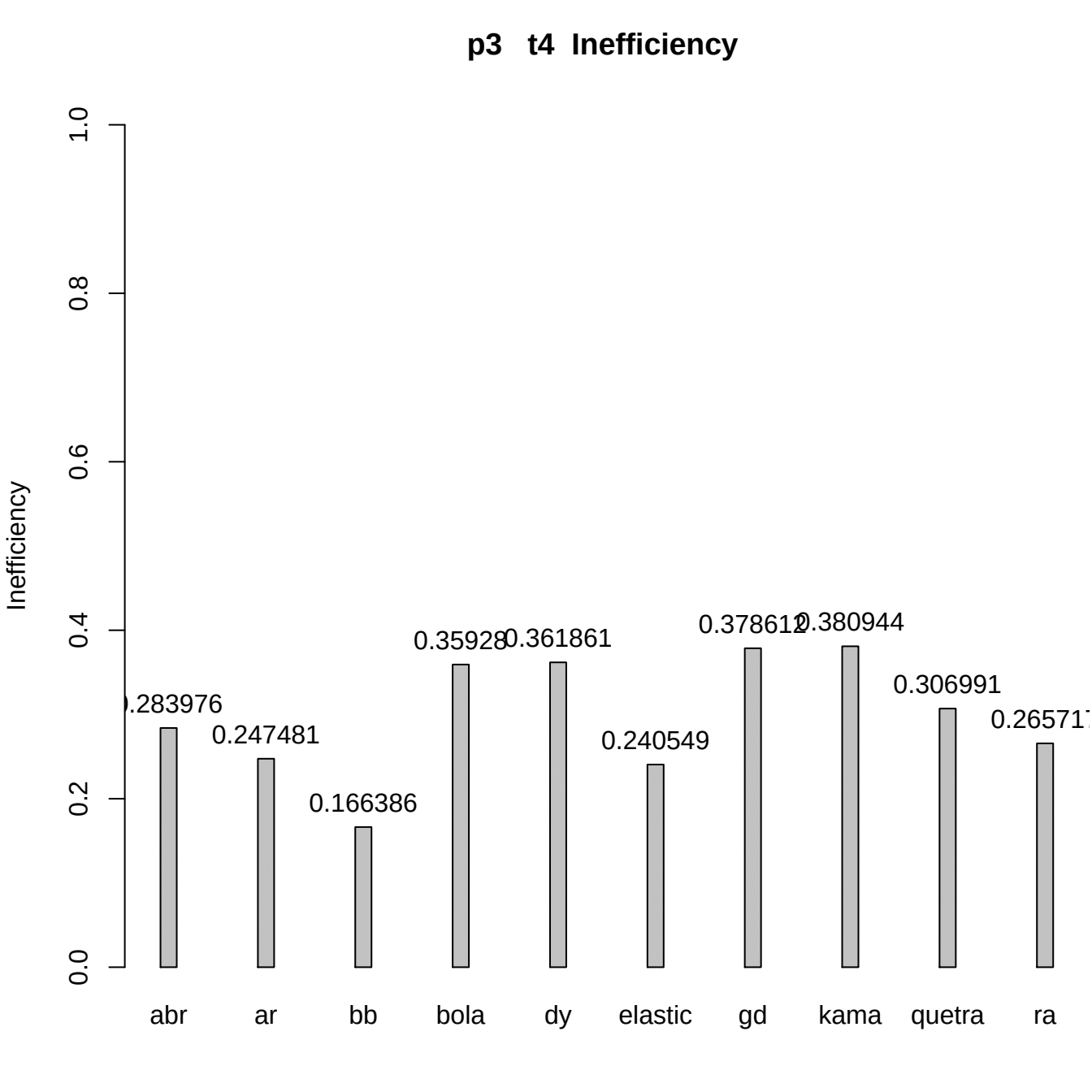

p3 t3 Average Stall
Sec
0
1
2
3
4
5
6
7
1.93
1.955
2.371
1.492
1.794
1.532
2.609
2.072
1.955
1.701
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

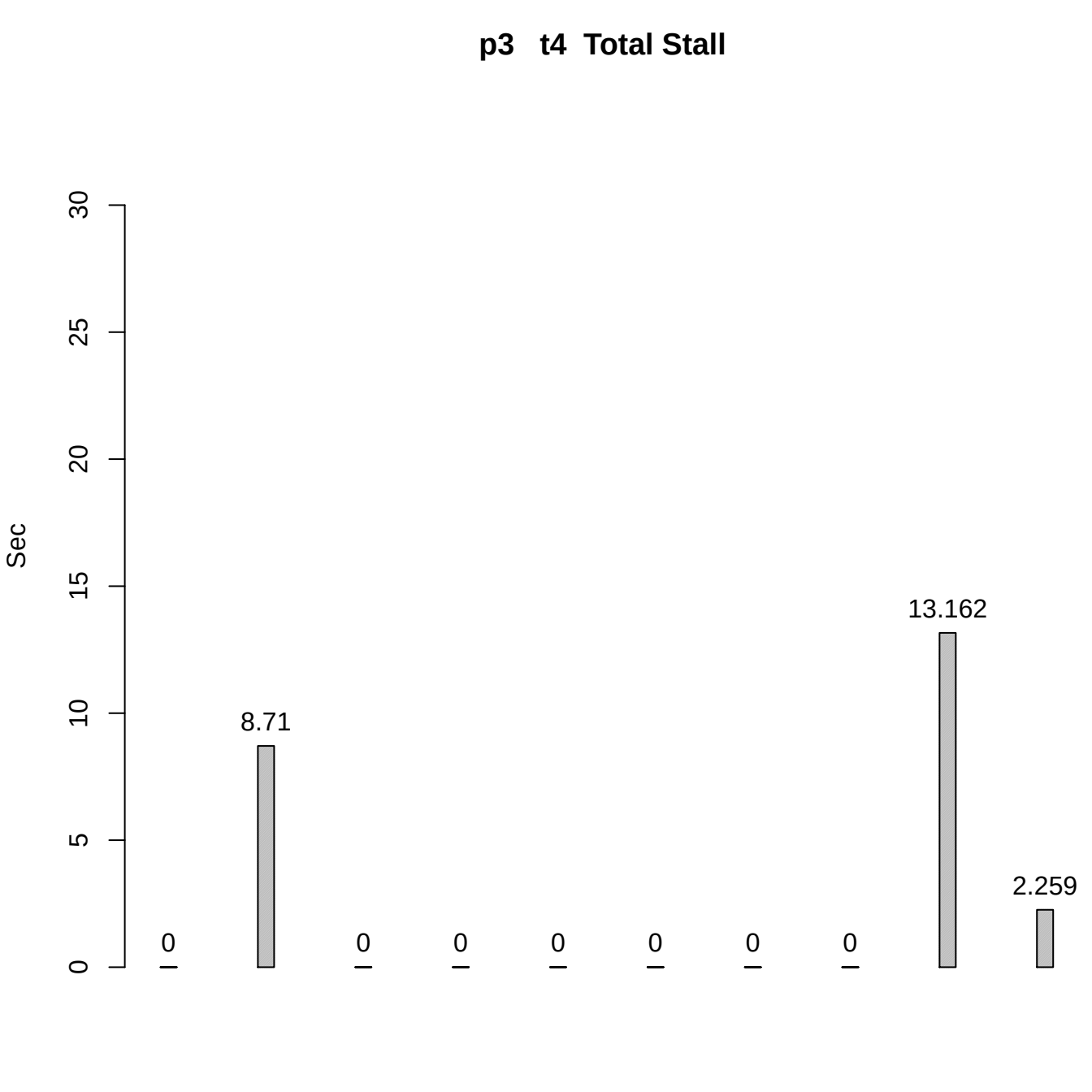

p3 t3 Buffer Overflow
Sec
0
50
100
150
200
250
146.742
4.733
0
0
185.781
29.787
240.876
236.843
19.253
6.06
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

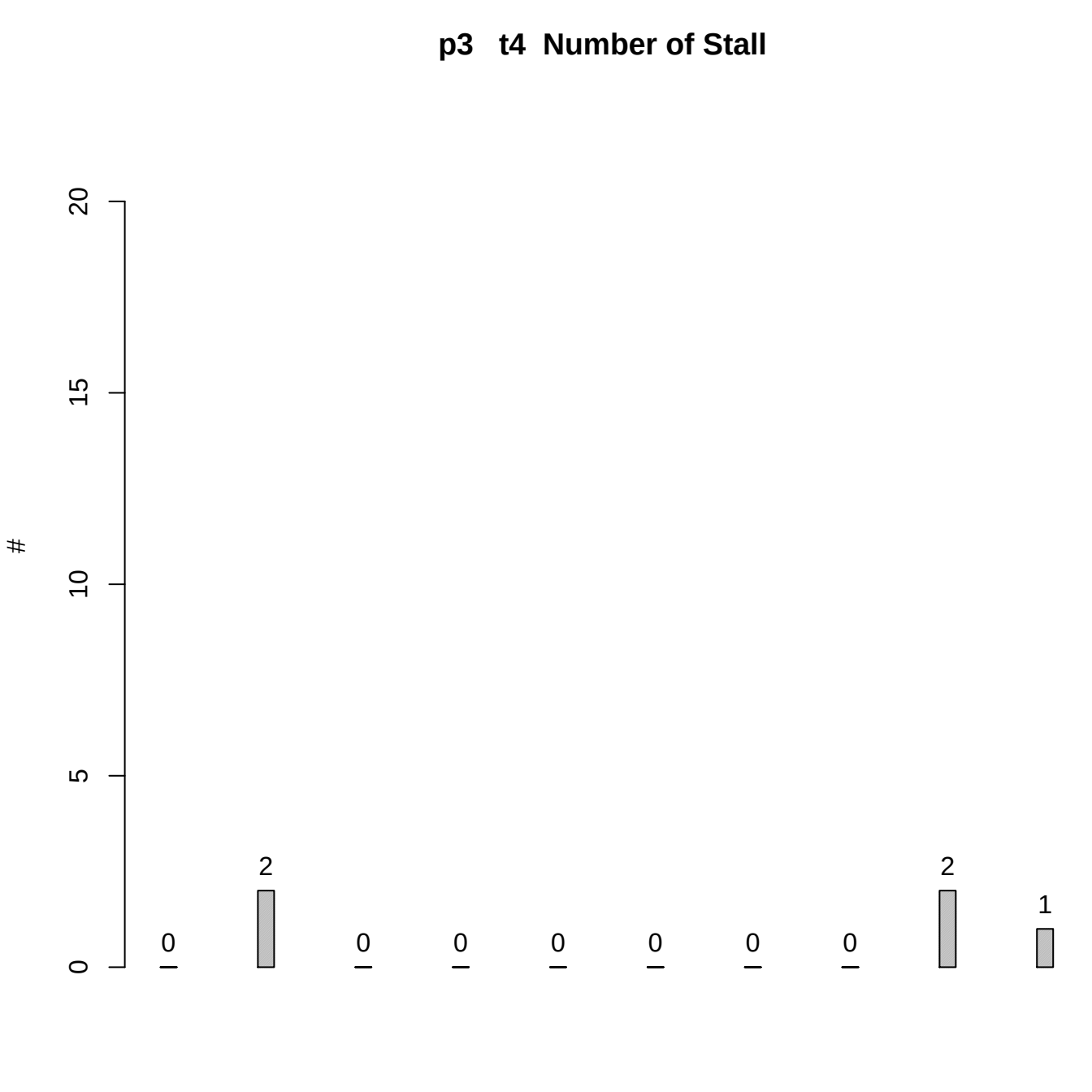

p3 t3 Number of Buffer Overflow
#
0
200
400
600
800
1000
1200
721
24
0
0
942
158
106
30
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

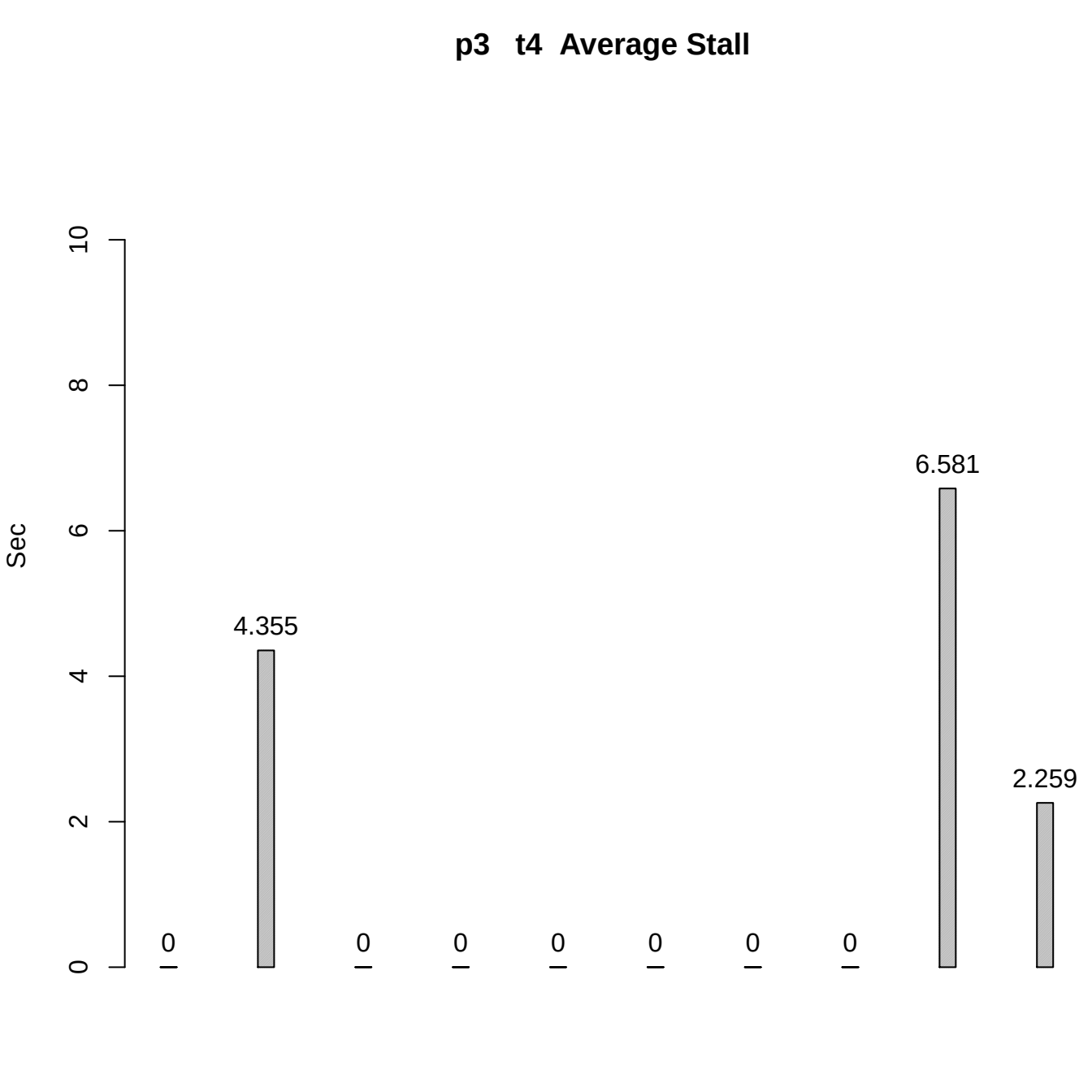

p3 t4 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
3000
1515.65
2617
2249.66
1143
1496.79
1517.58
1143
1143
2256
2411.16
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

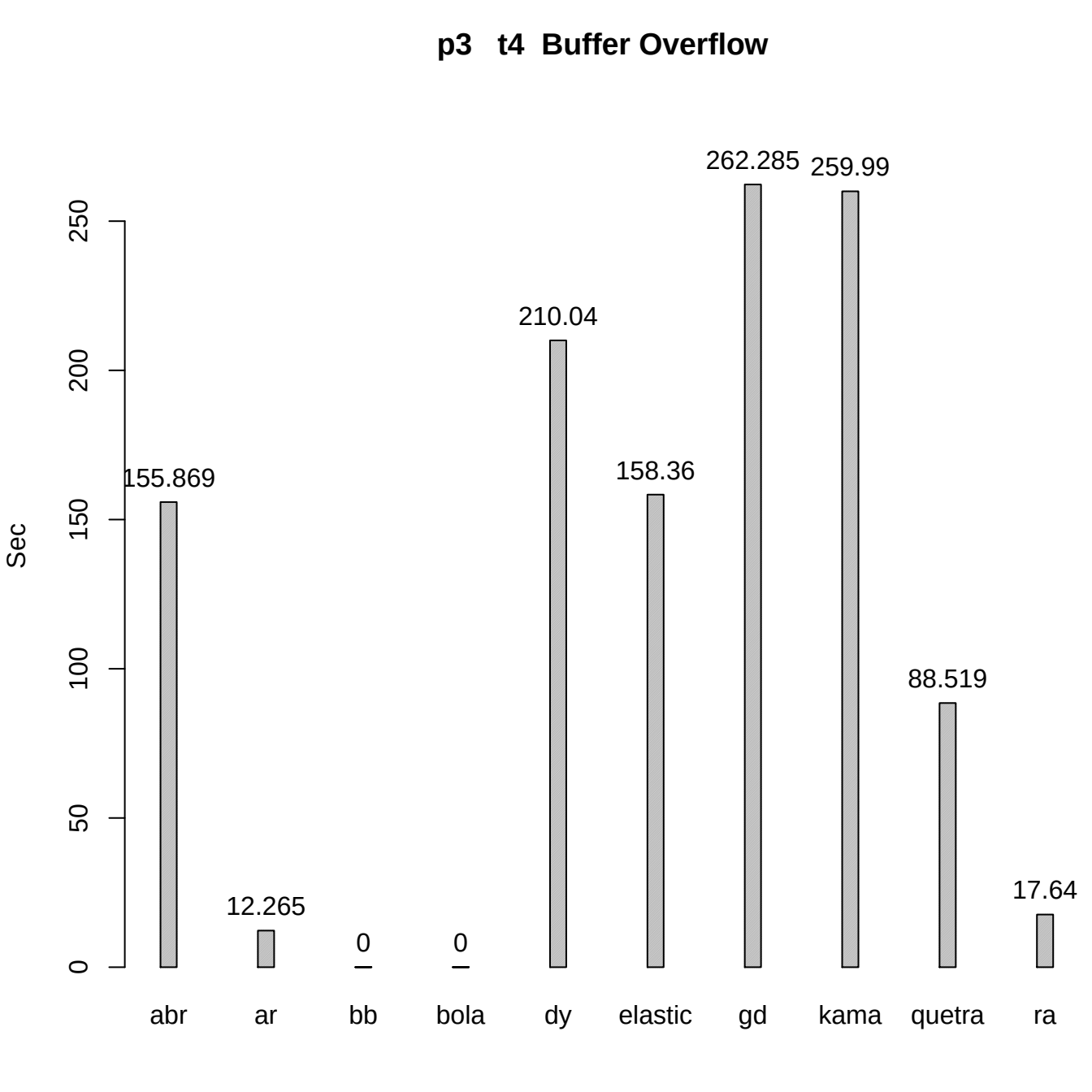

p3 t4 Quality Change
Change
0
20
40
60
80
100
120
140
126
28
35
0
8
24
0
0
19
28
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

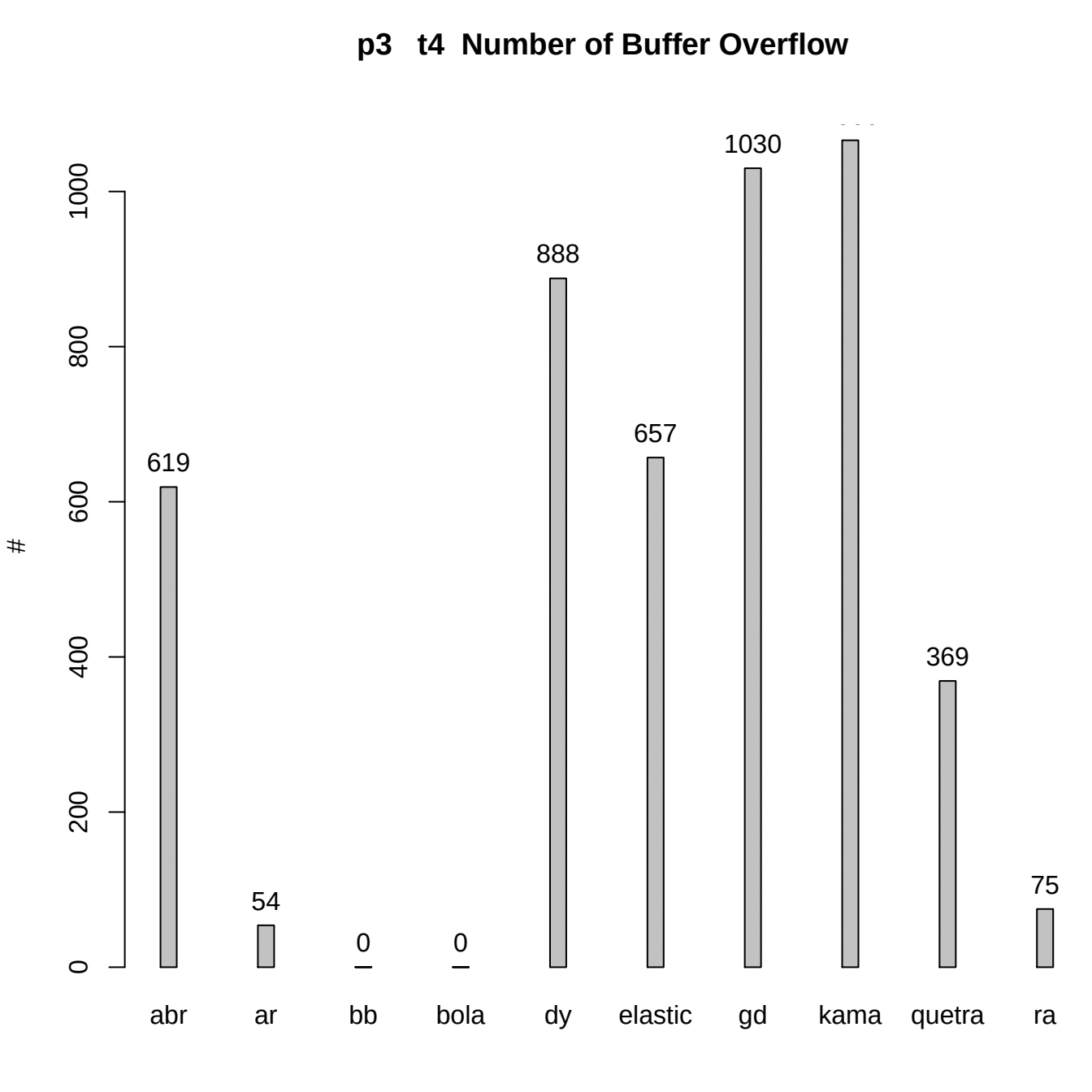

p3 t4 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.283976
0.247481
0.166386
0.35928
0.361861
0.240549
0.378612
0.380944
0.306991
0.26571
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

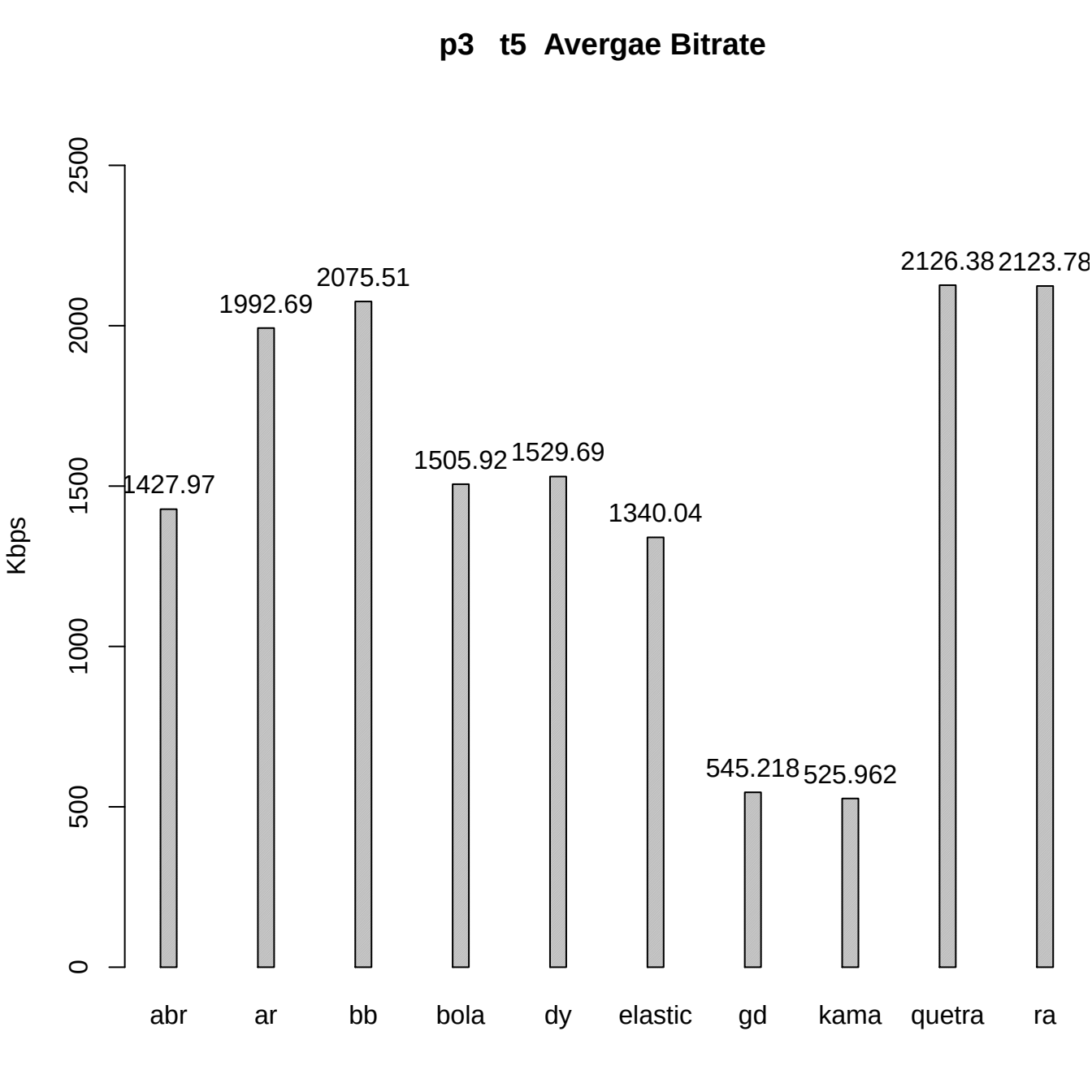

p3 t4 Total Stall
Sec
0
5
10
15
20
25
30
0
8.71
0
0
0
0
0
0
13.162
2.259

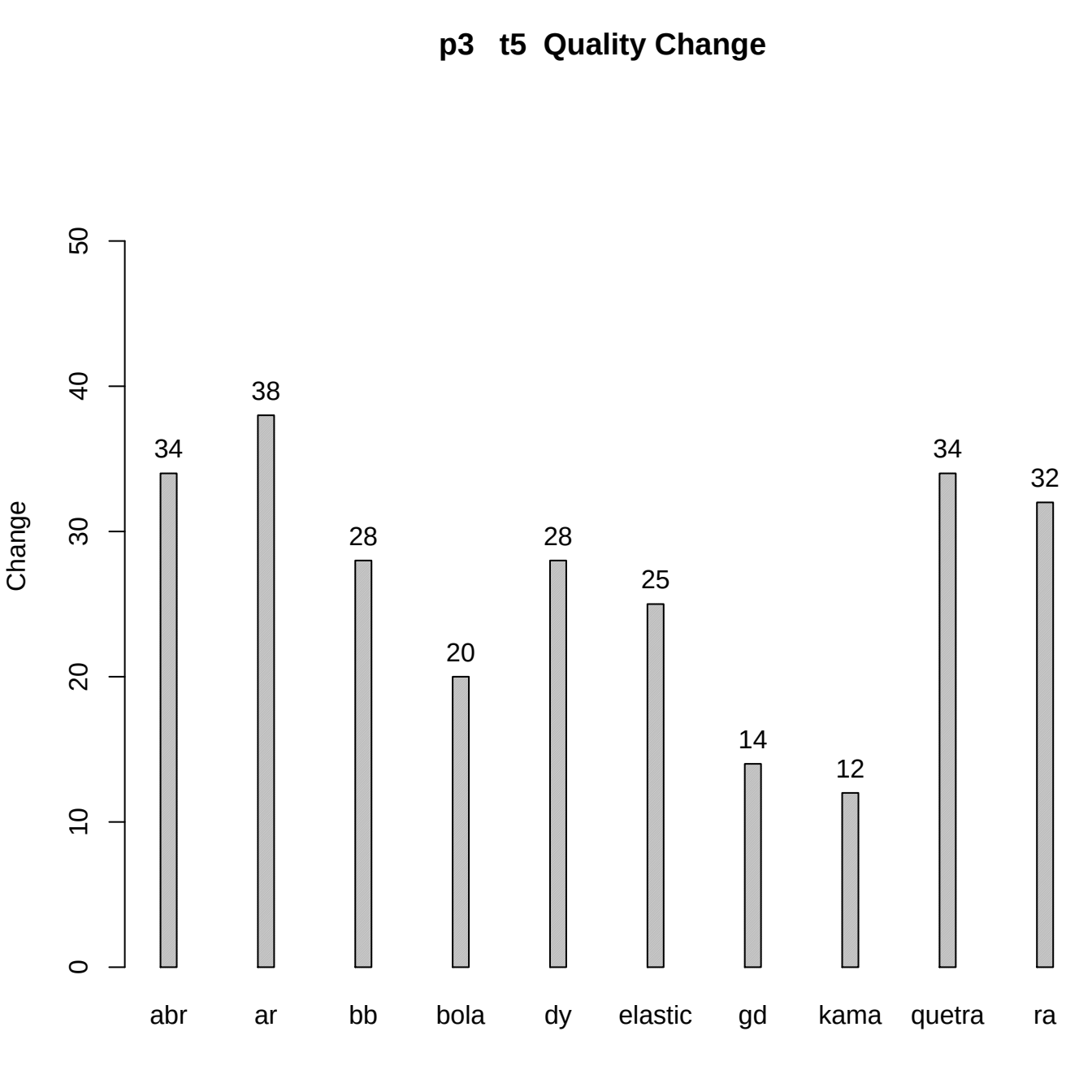

p3 t4 Number of Stall
#
0
5
10
15
20
0
2
0
0
0
0
0
0
2
1

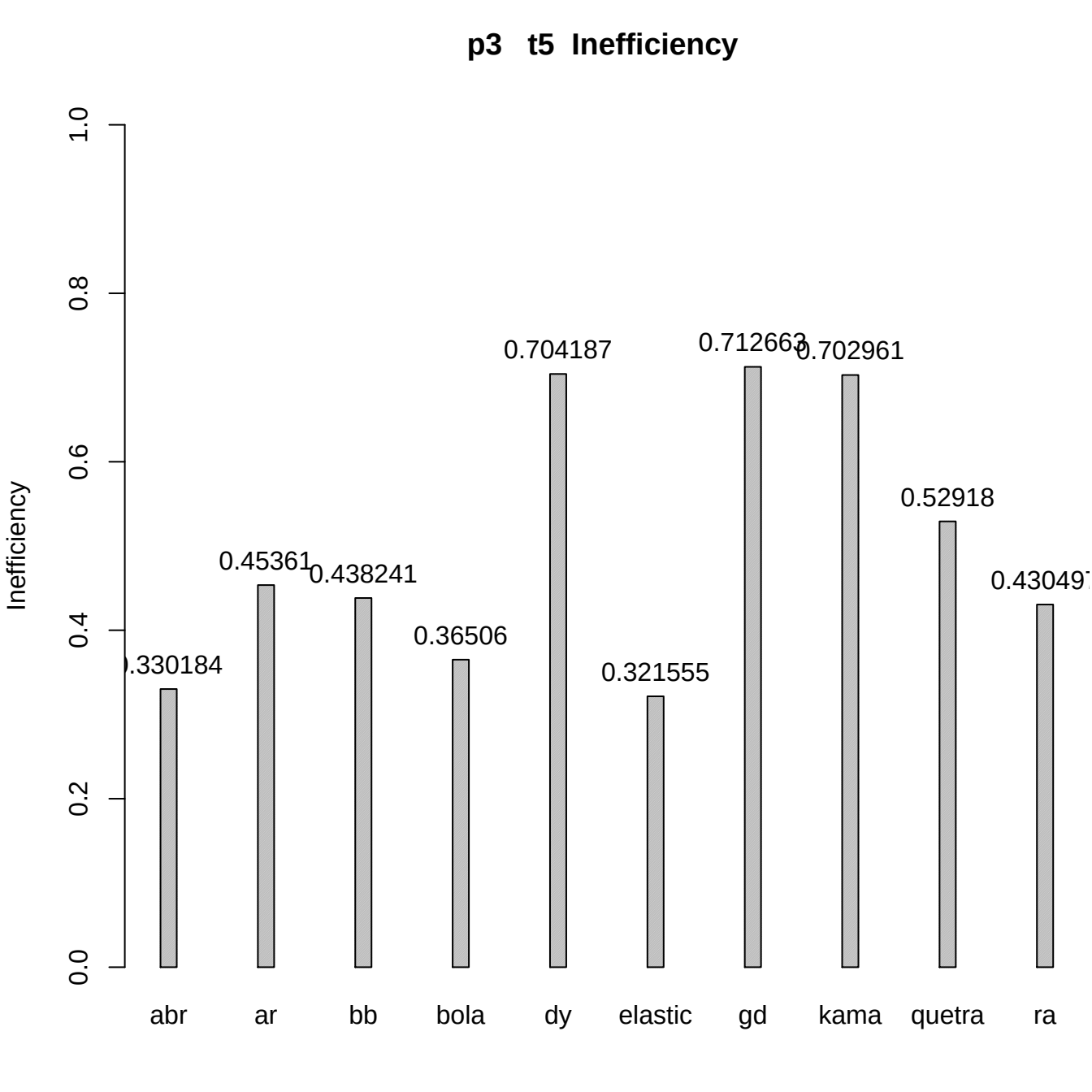

p3 t4 Average Stall
Sec
0
2
4
6
8
10
0
4.355
0
0
0
0
0
0
6.581
2.259

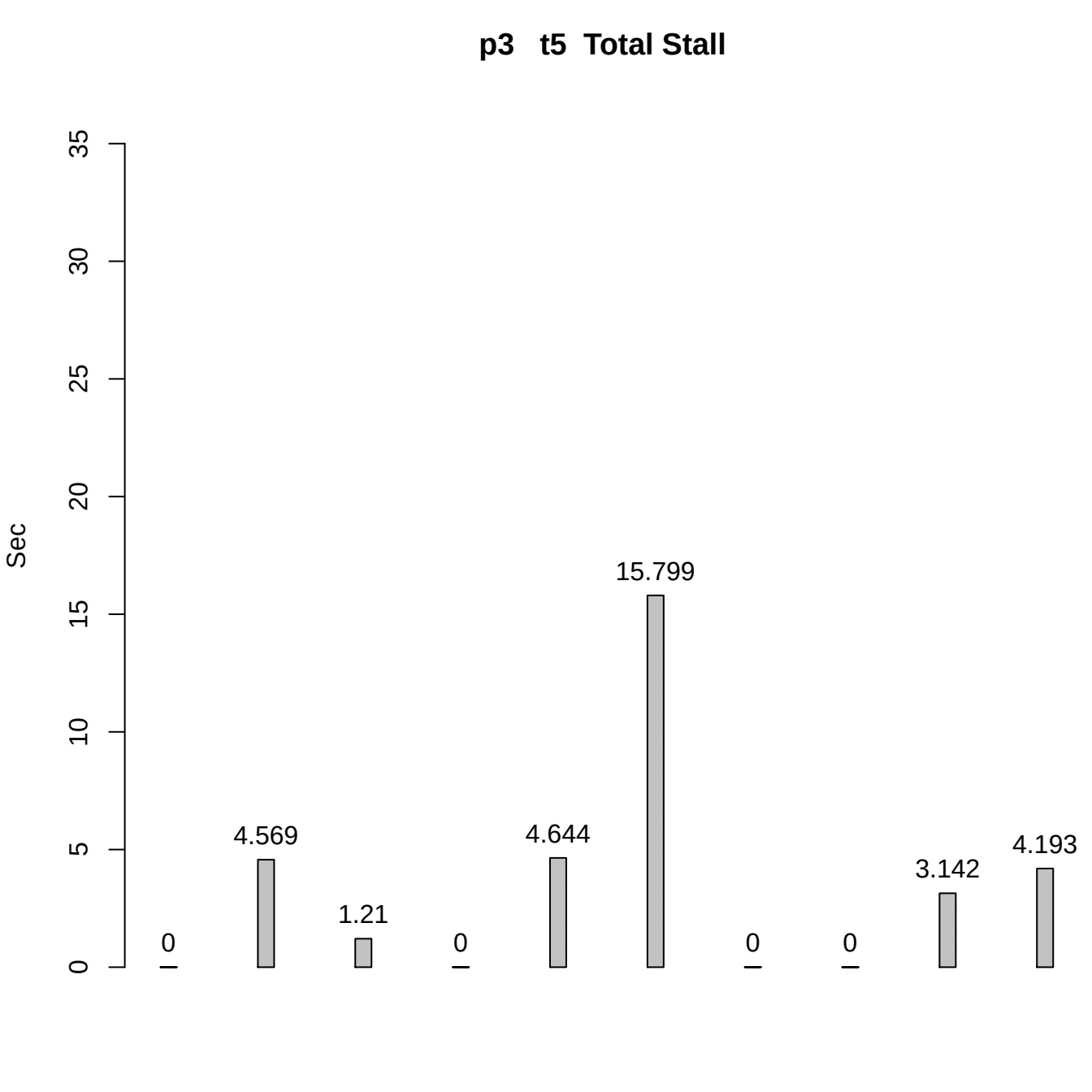

p3 t4 Buffer Overflow
Sec
0
50
100
150
200
250
155.869
12.265
0
0
210.04
158.36
262.285
259.99
88.519
17.64
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

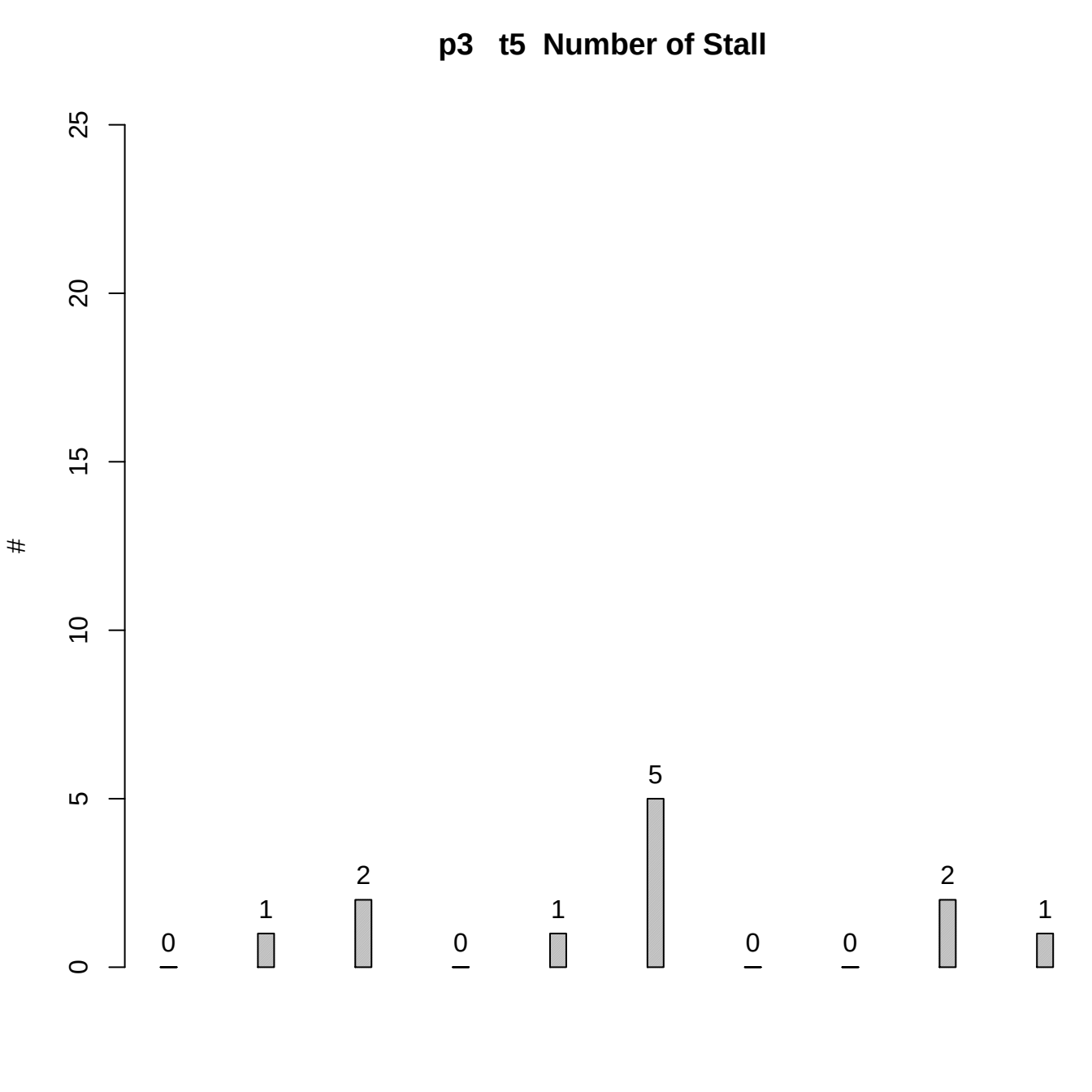

p3 t4 Number of Buffer Overflow
#
0
200
400
600
800
1000
619
54
0
0
888
657
1030
369
75
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

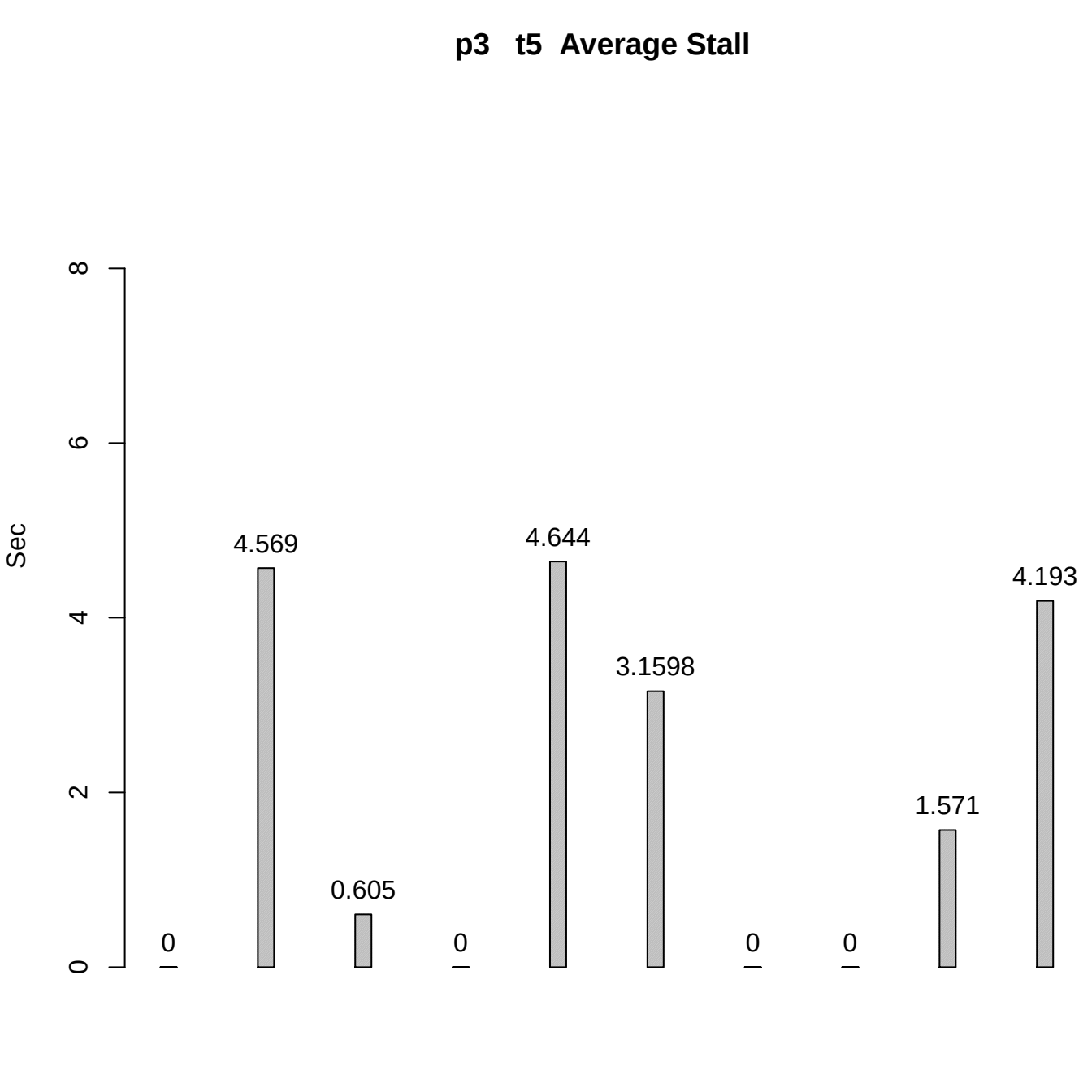

p3 t5 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
1427.97
1992.69
2075.51
1505.92
1529.69
1340.04
545.218
525.962
2126.38
2123.78
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

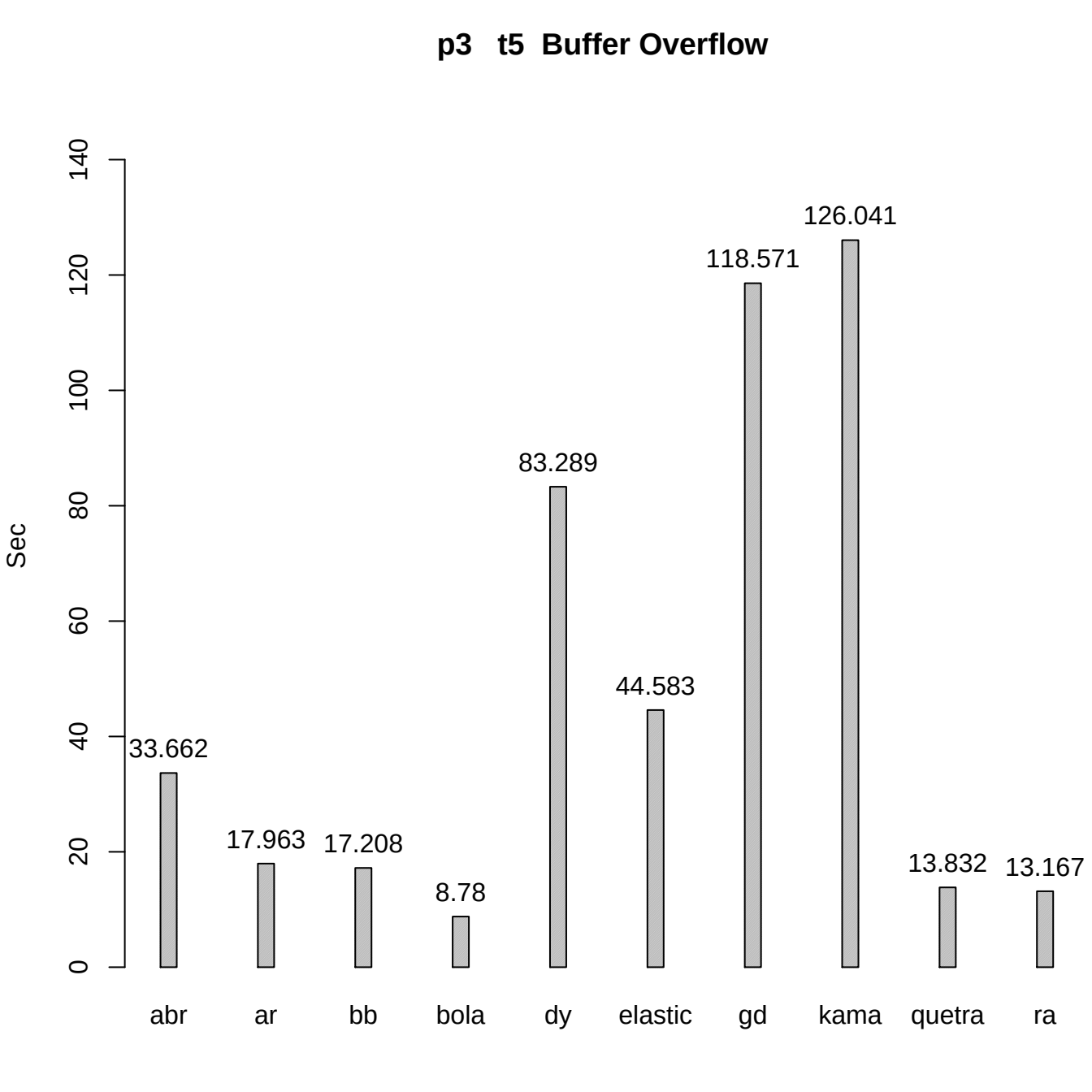

p3 t5 Quality Change
Change
0
10
20
30
40
50
34
38
28
20
28
25
14
12
34
32
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

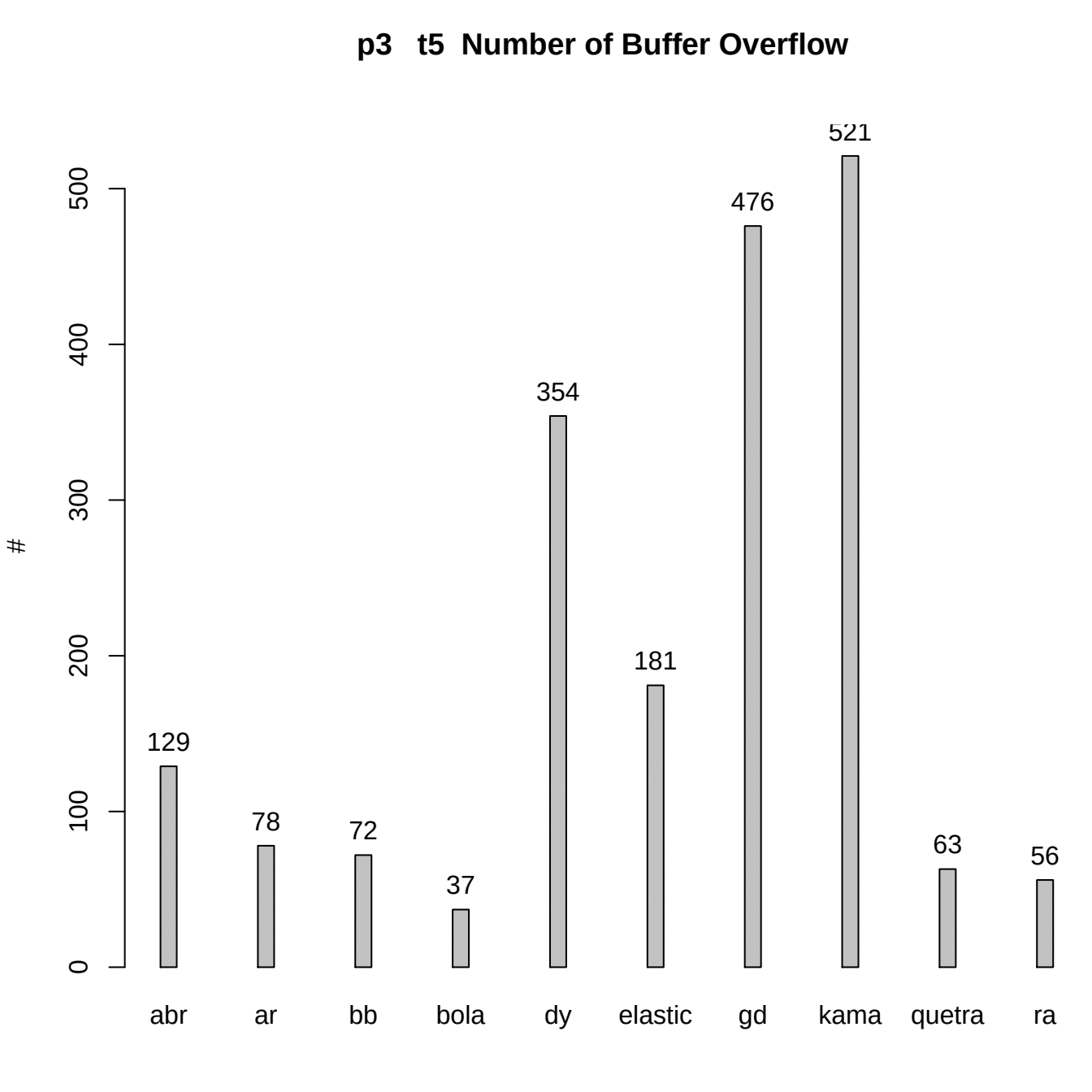

p3 t5 Inefficiency
Inefficiency
1.0
0.8
0.6
0.4
0.2
0.0
0.330184
0.45361
0.438241
0.36506
0.704187
0.321555
0.712663
0.702961
0.52918
0.43049
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

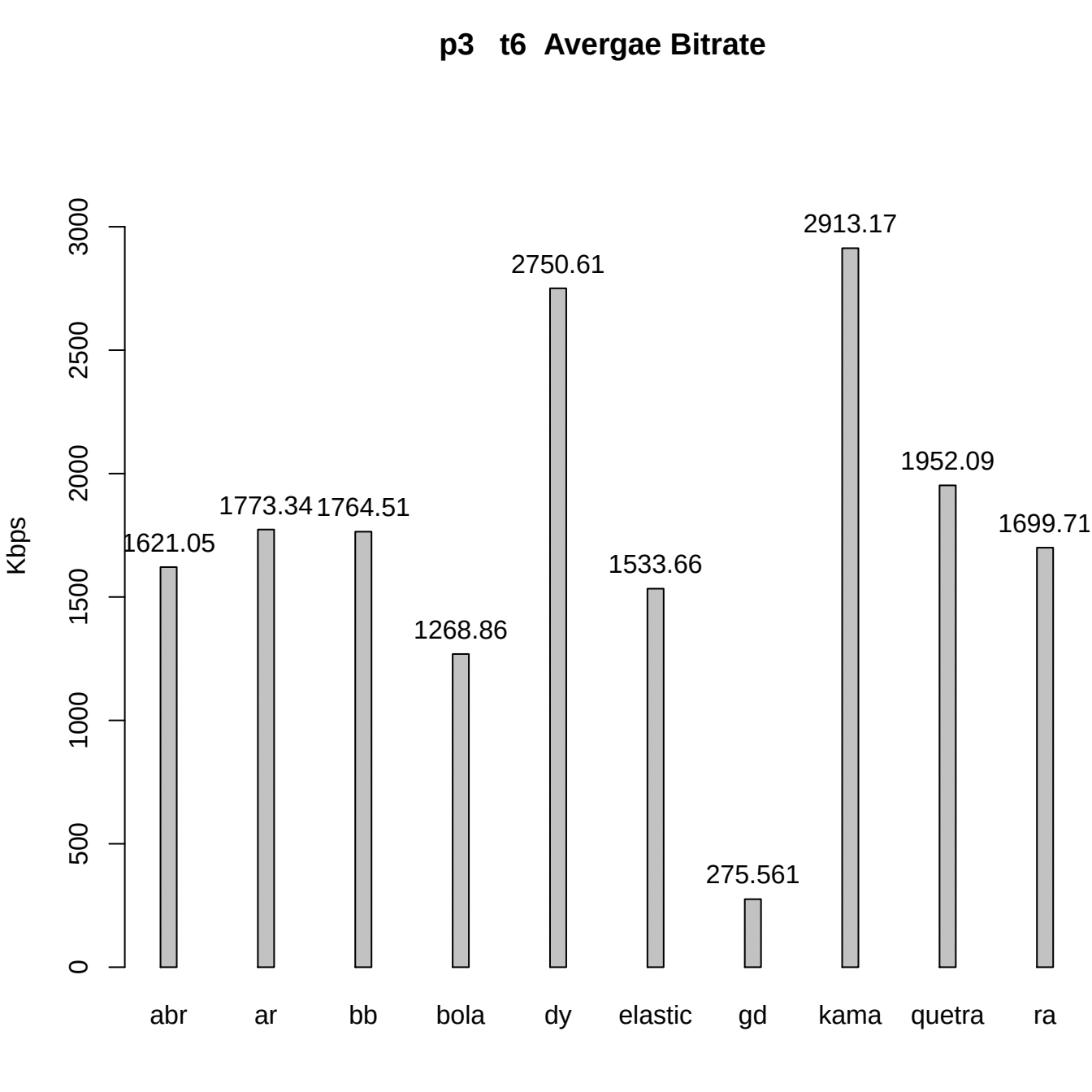

p3 t5 Total Stall
Sec
0
5
10
15
20
25
30
35
0
4.569
1.21
0
4.644
15.799
0
0
3.142
4.193

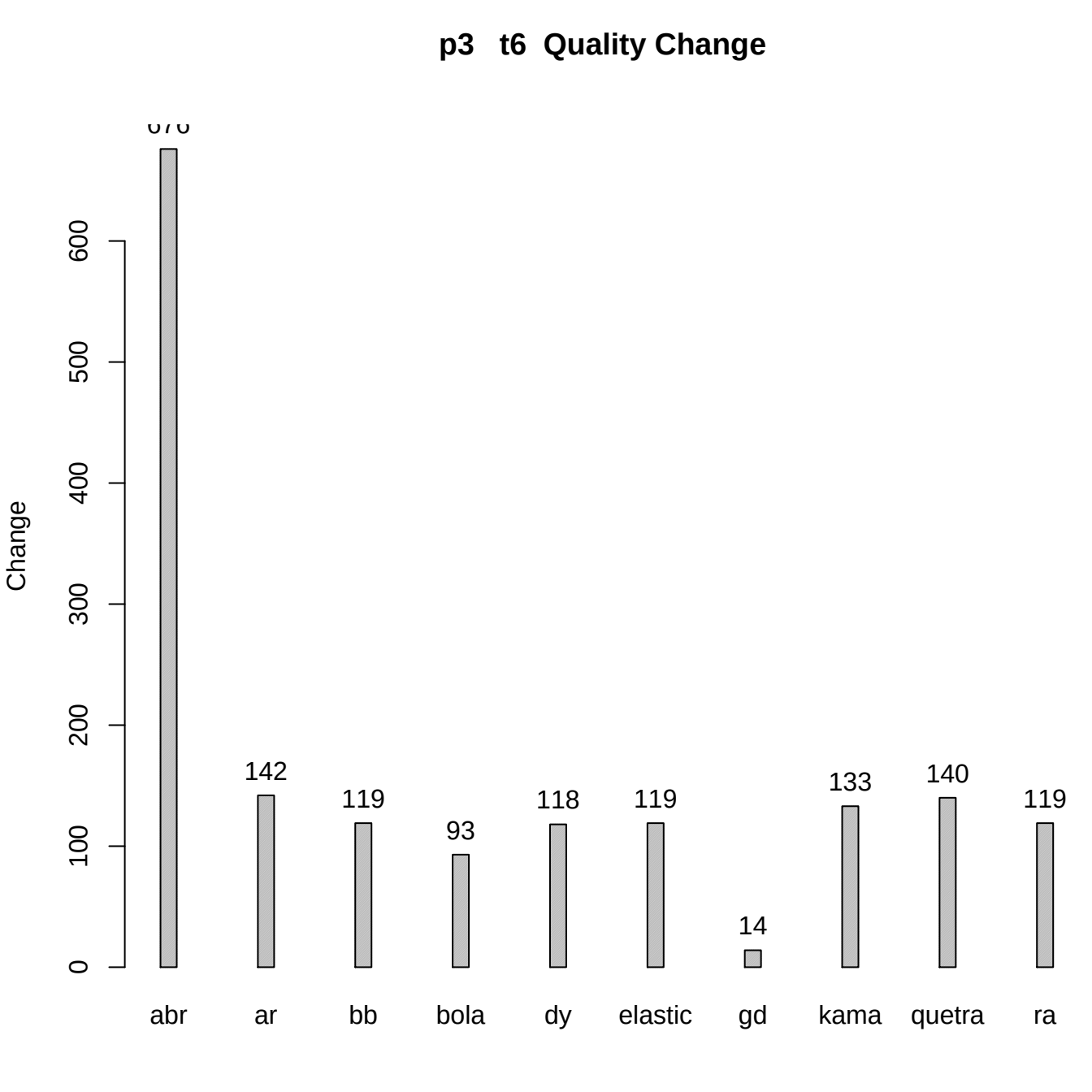

p3 t5 Number of Stall
#
0
5
10
15
20
25
0
1
2
0
1
5
0
0
2
1

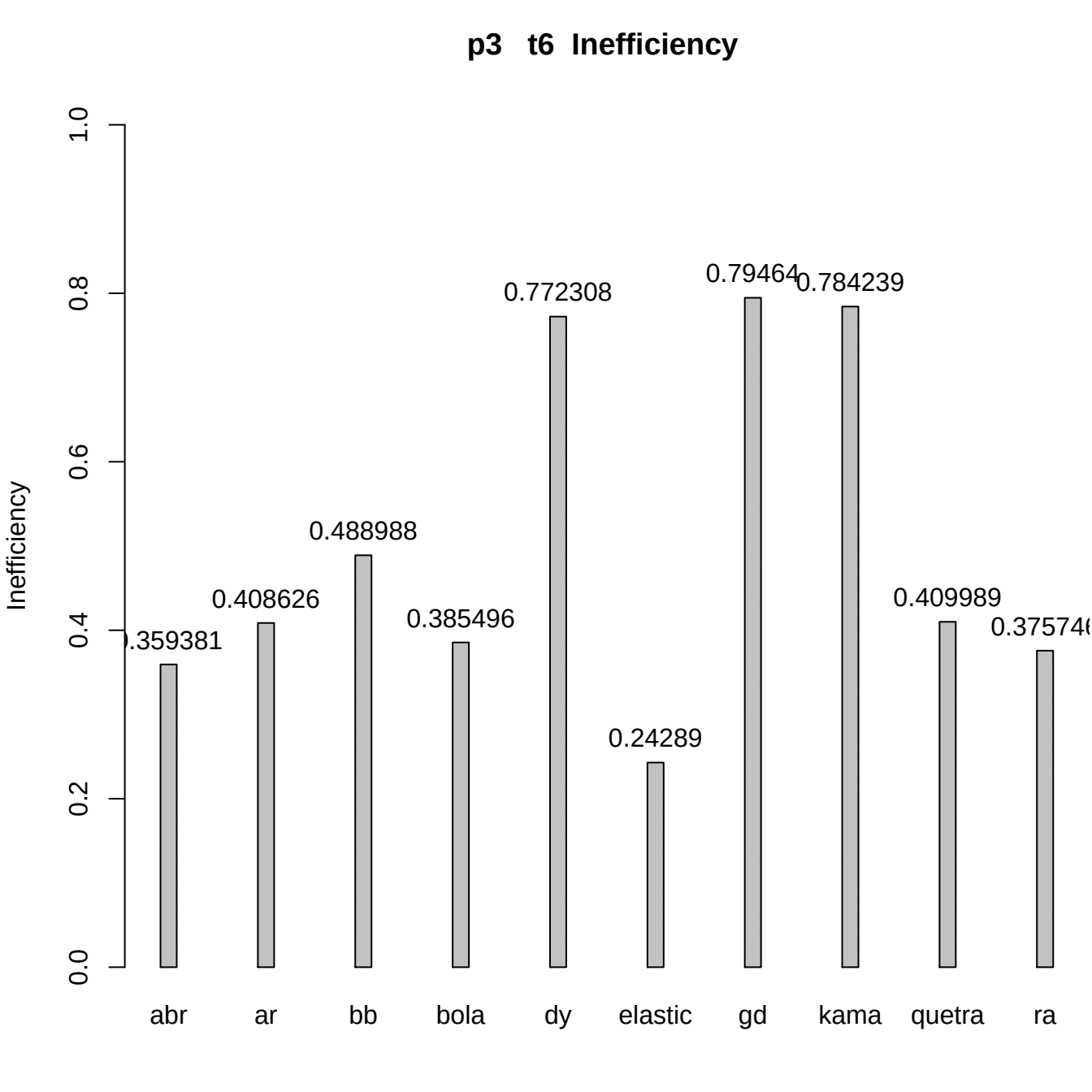

p3 t5 Average Stall
Sec
0
2
4
6
8
0
4.569
0.605
0
4.644
3.1598
0
0
1.571
4.193

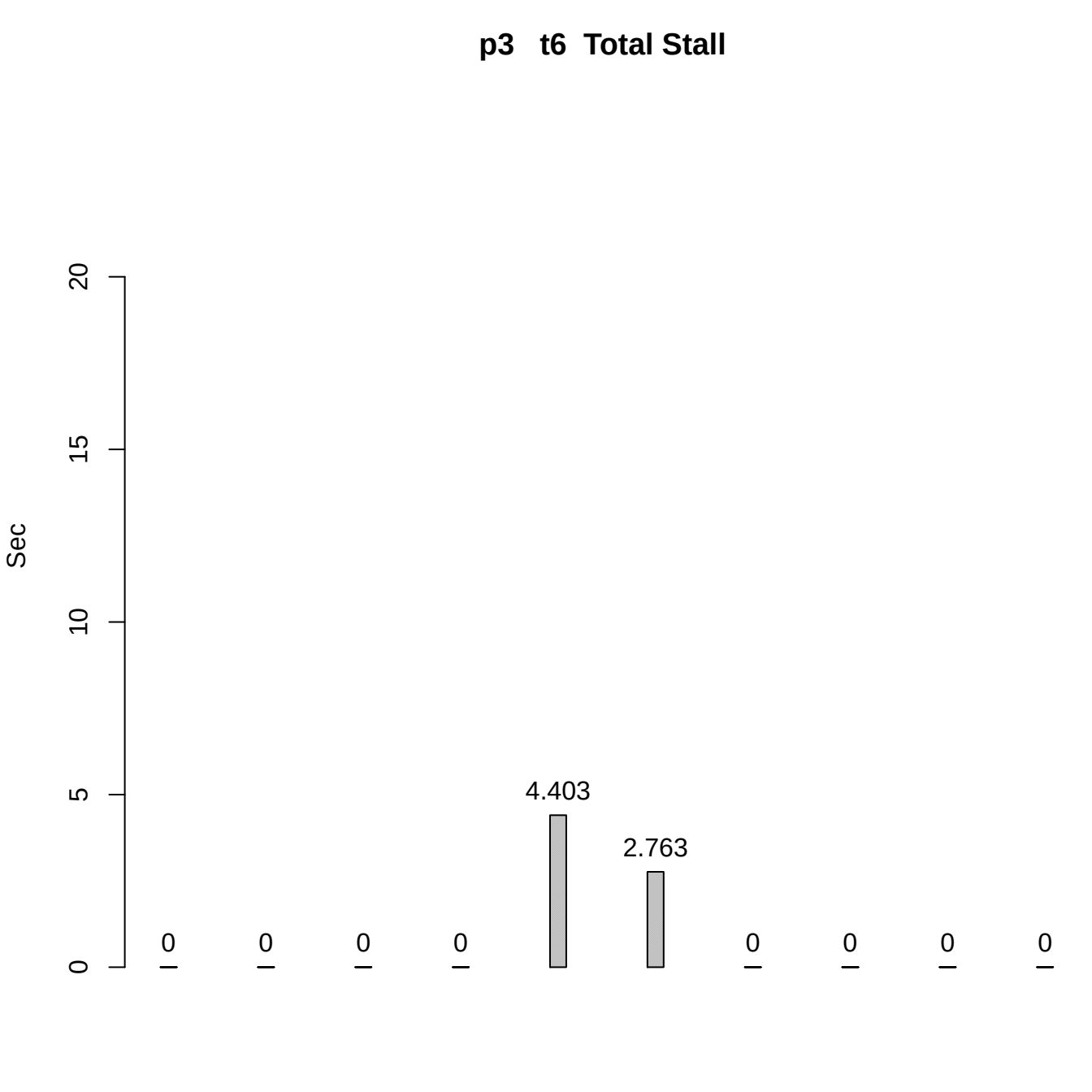

p3 t5 Buffer Overflow
Sec
0
20
40
60
80
100
120
140
33.662
17.963
17.208
8.78
83.289
44.583
118.571
126.041
13.832
13.167
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

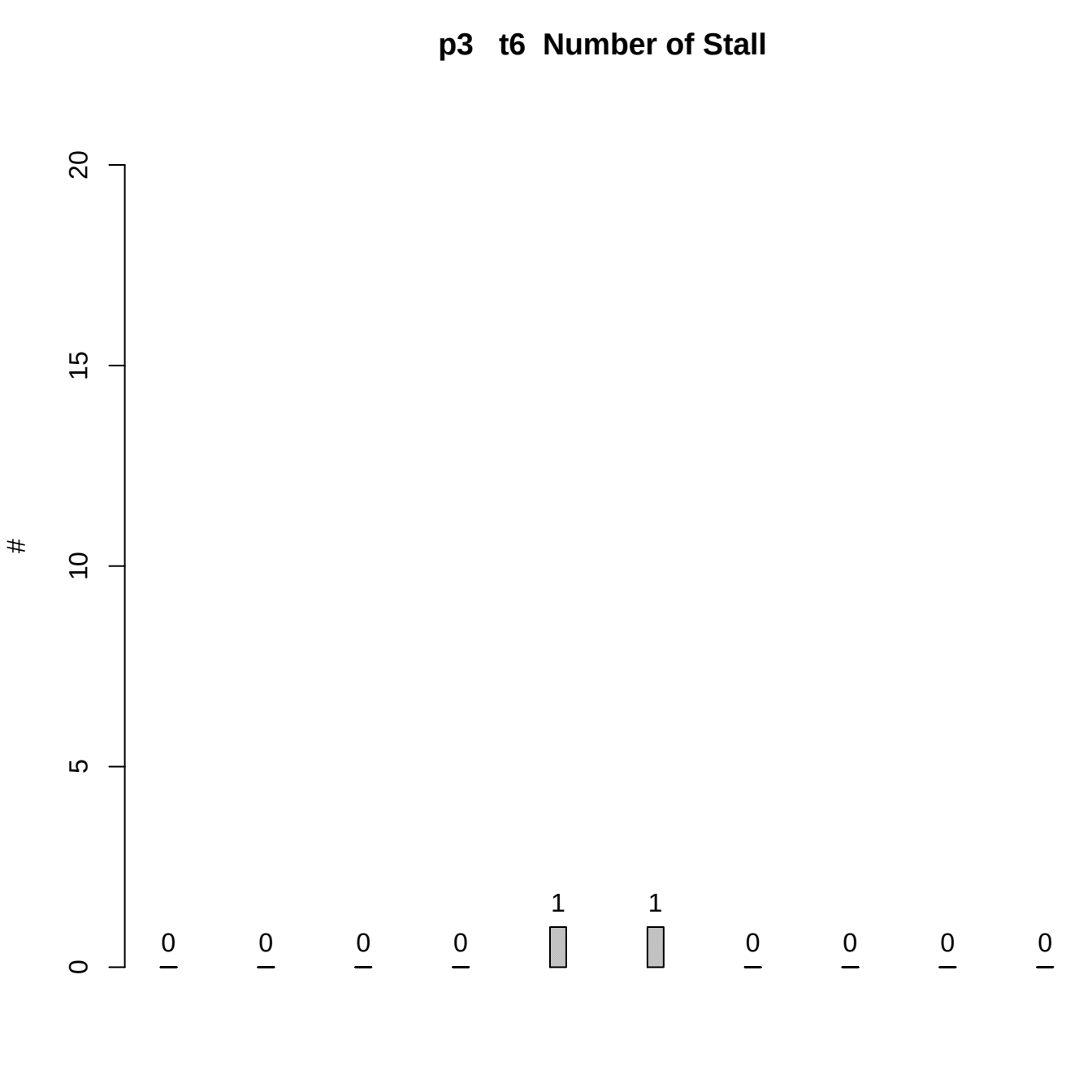

p3 t5 Number of Buffer Overflow
#
0
100
200
300
400
500
129
78
72
37
354
181
476
521
63
56
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

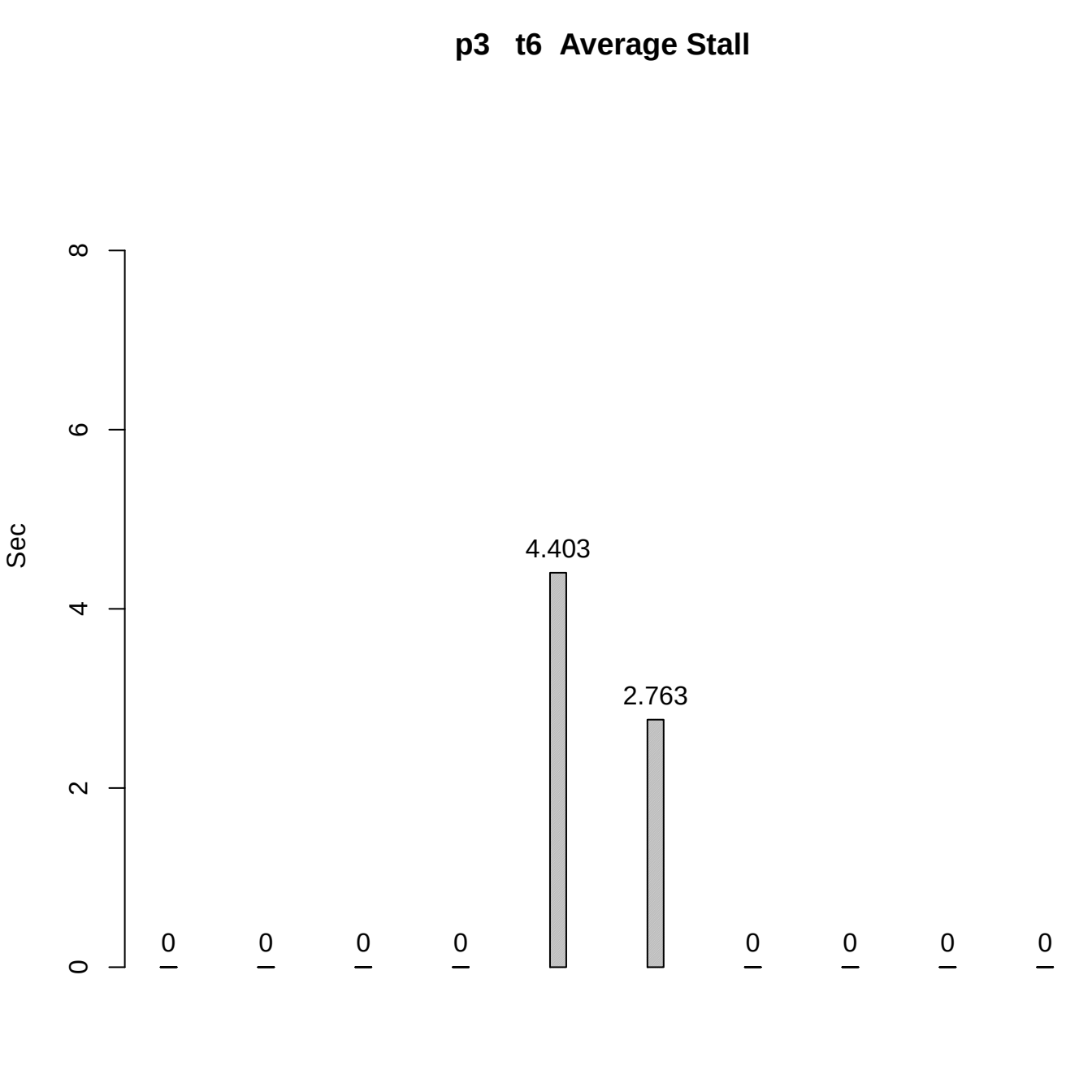

p3 t6 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
3000
1621.05
1773.34
1764.51
1268.86
2750.61
1533.66
275.561
2913.17
1952.09
1699.71
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

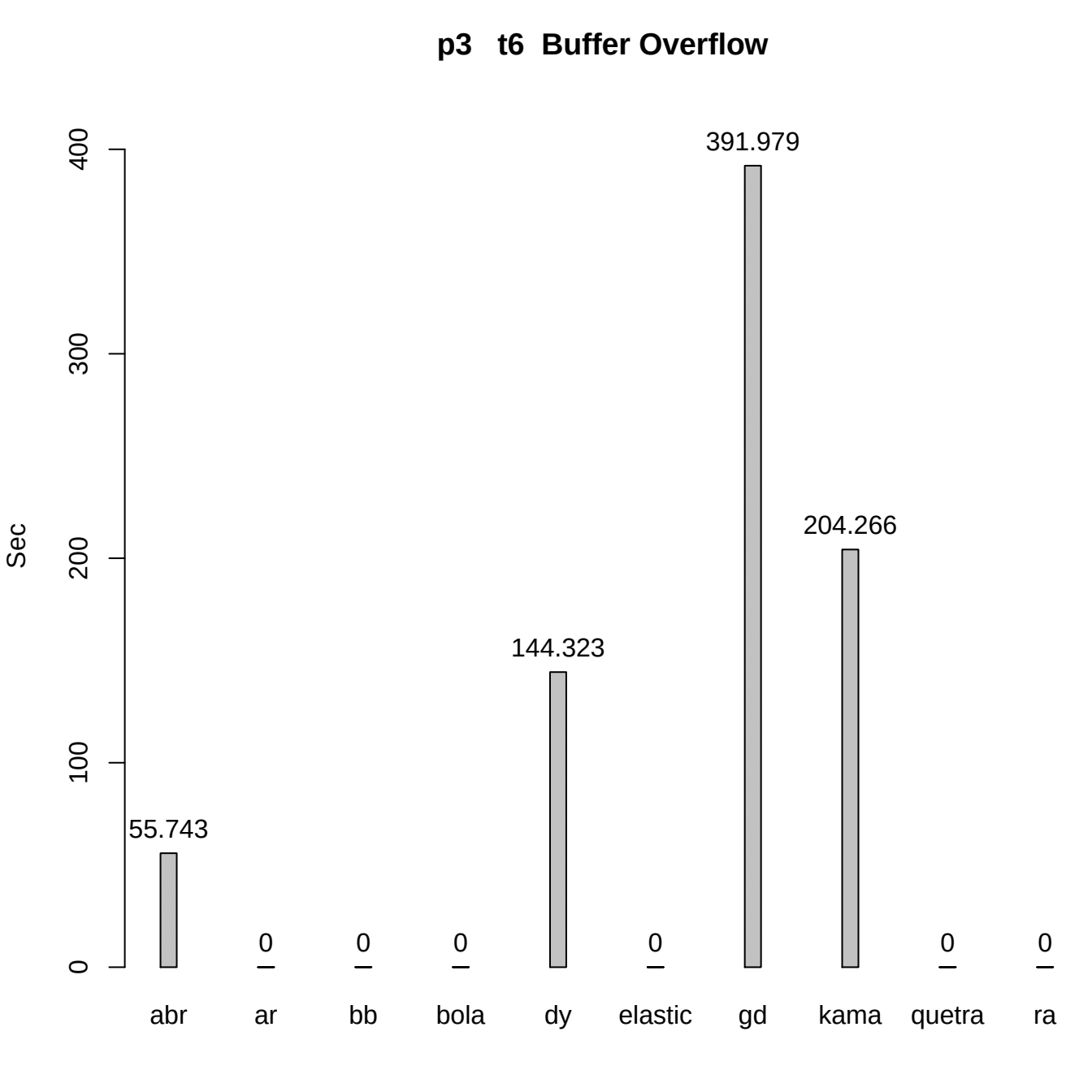

p3 t6 Quality Change
Change
0
100
200
300
400
500
600
142
119
93
118
119
14
133
140
119
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

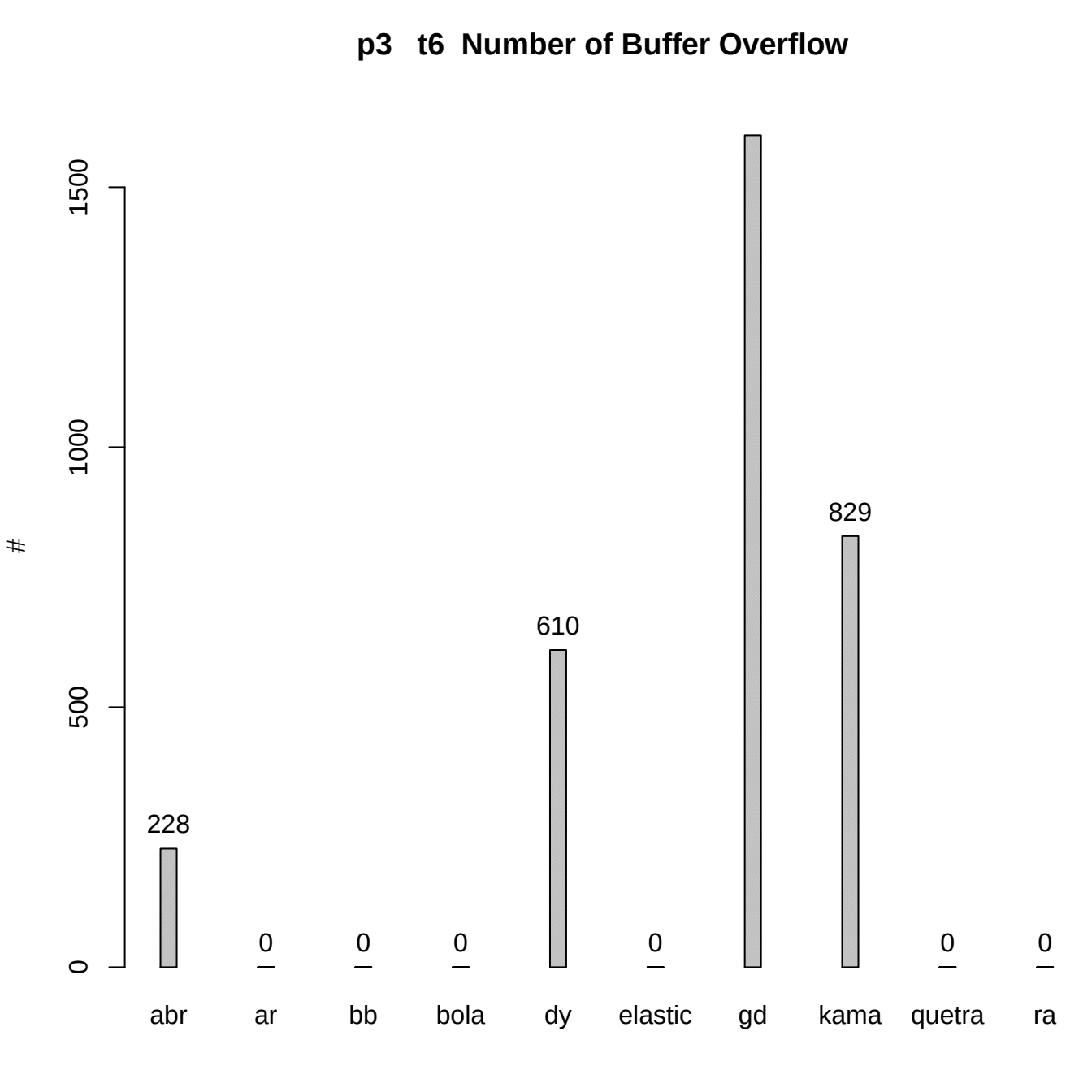

p3 t6 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
0.359381
0.408626
0.488988
0.385496
0.772308
0.24289
0.79464
0.784239
0.409989
0.375746
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

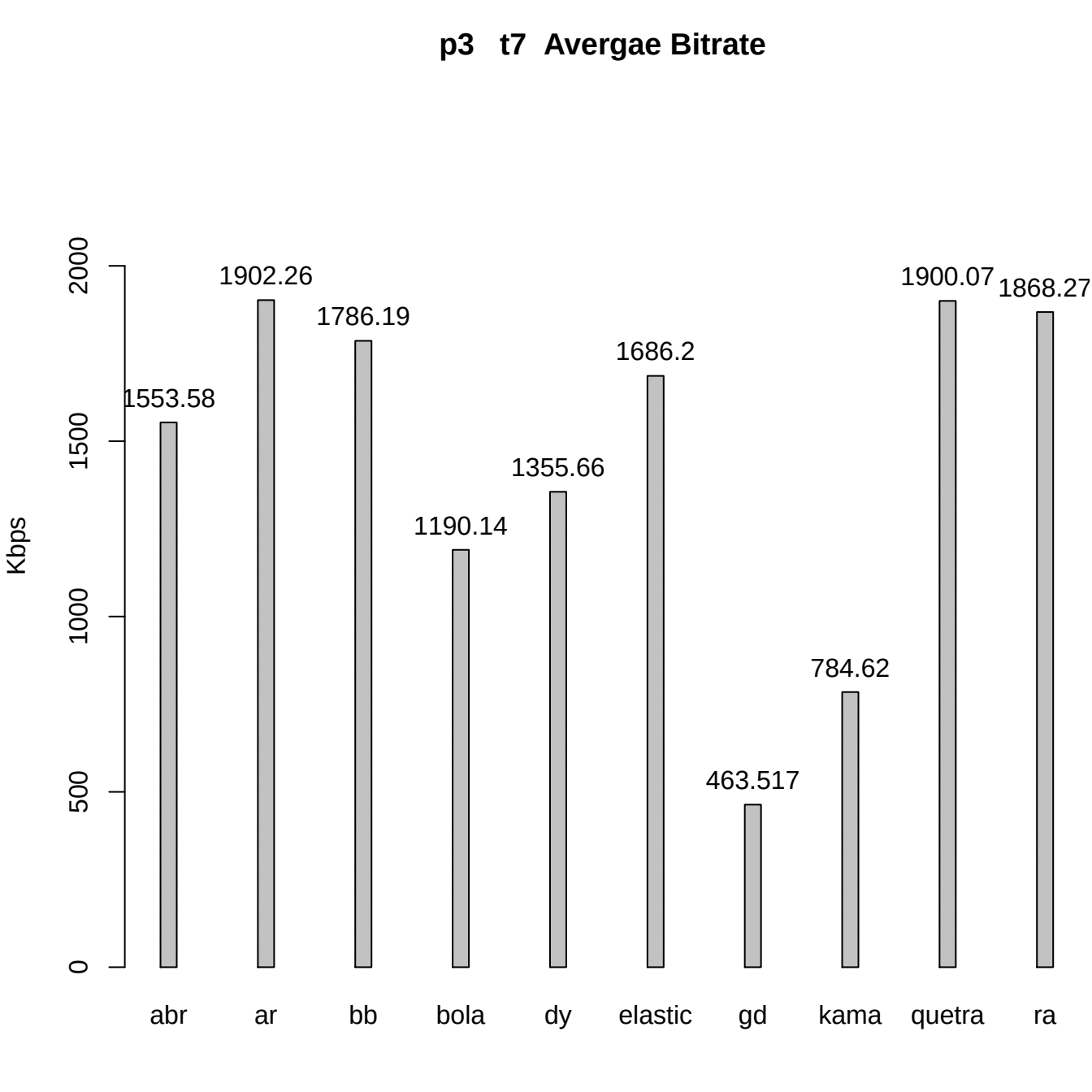

p3 t6 Total Stall
Sec
0
5
10
15
20
0
0
0
0
4.403
2.763
0
0
0
0

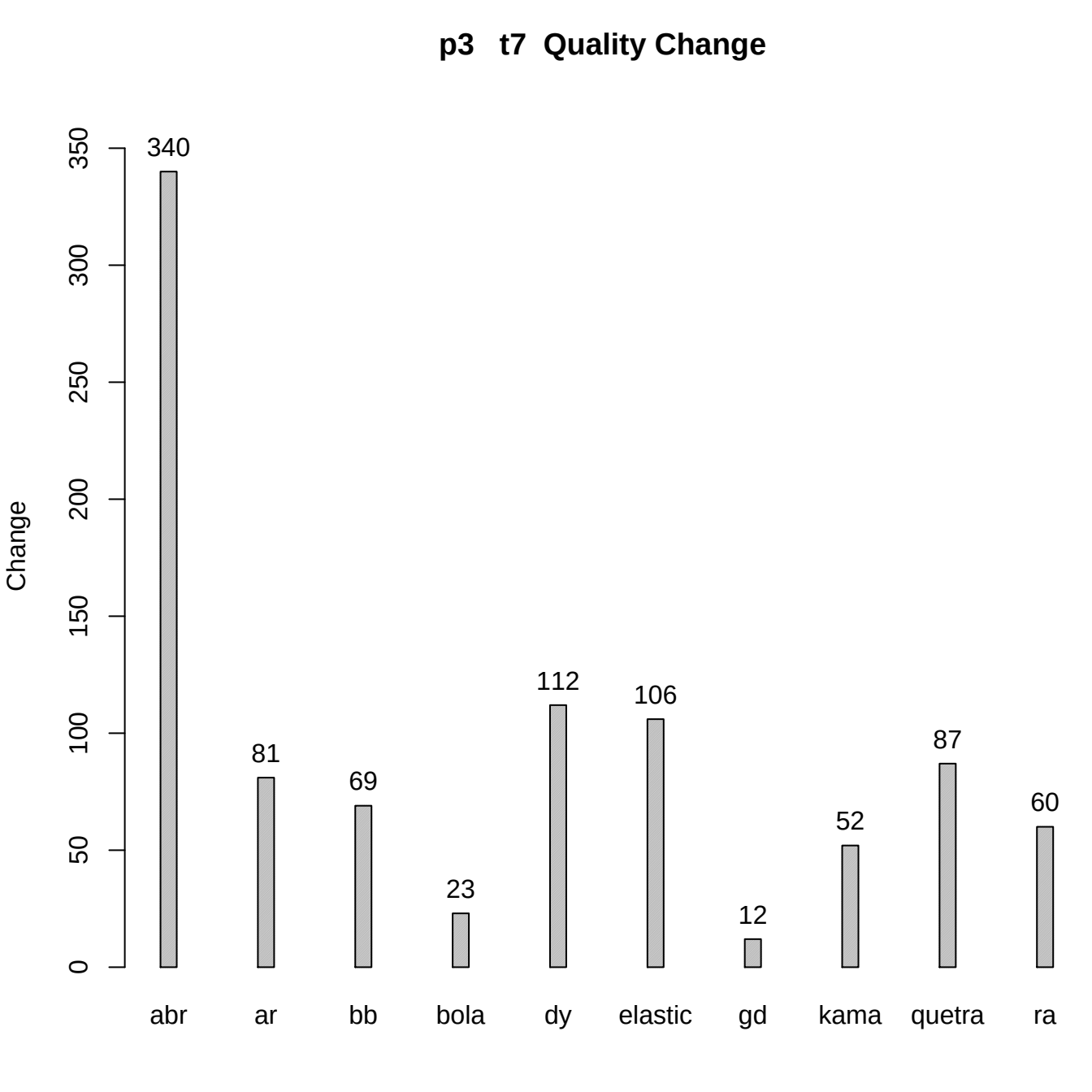

p3 t6 Number of Stall
#
0
5
10
15
20
0
0
0
0
1
1
0
0
0
0

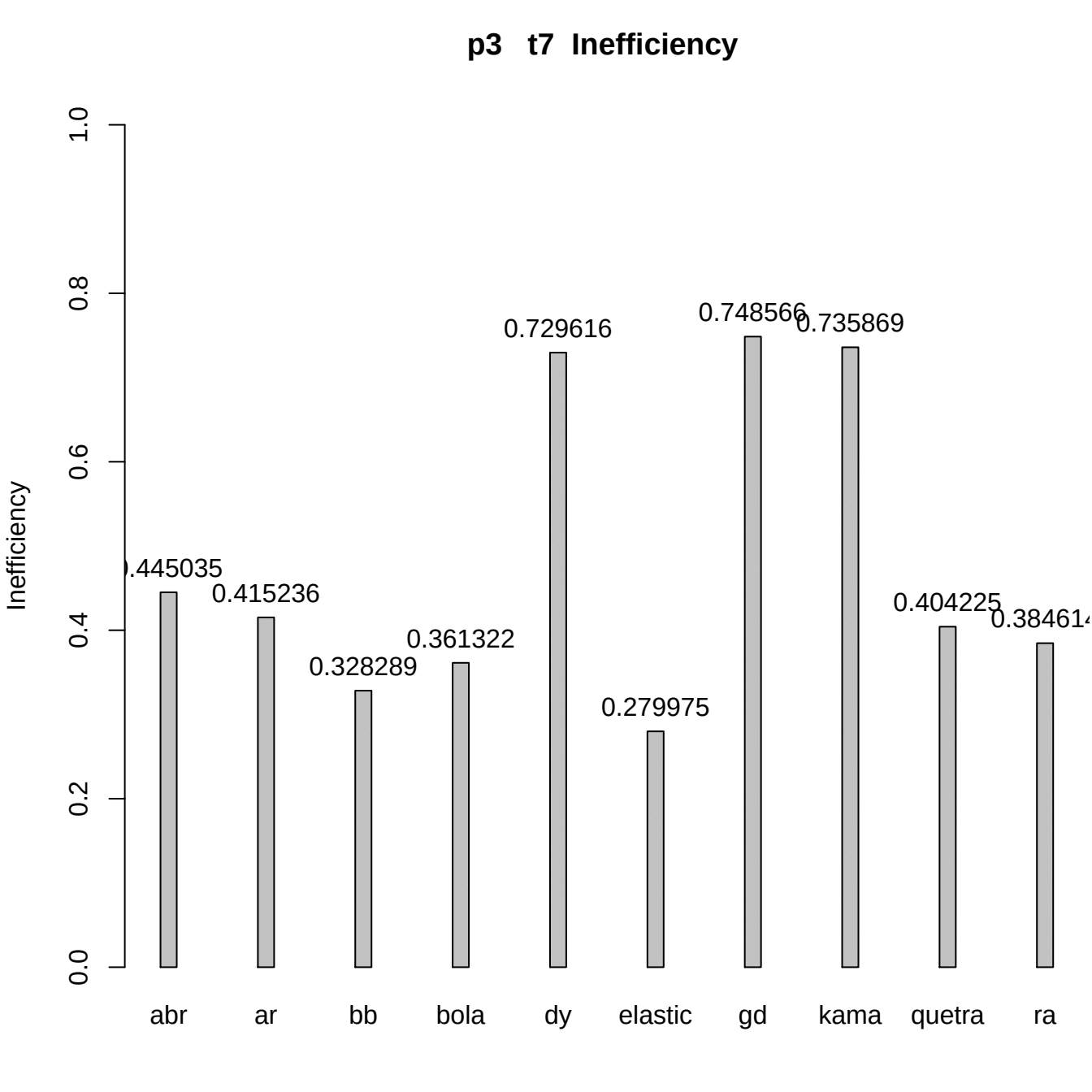

p3 t6 Average Stall
Sec
0
2
4
6
8
4.403
2.763
0
0
0
0
0
0
0
0

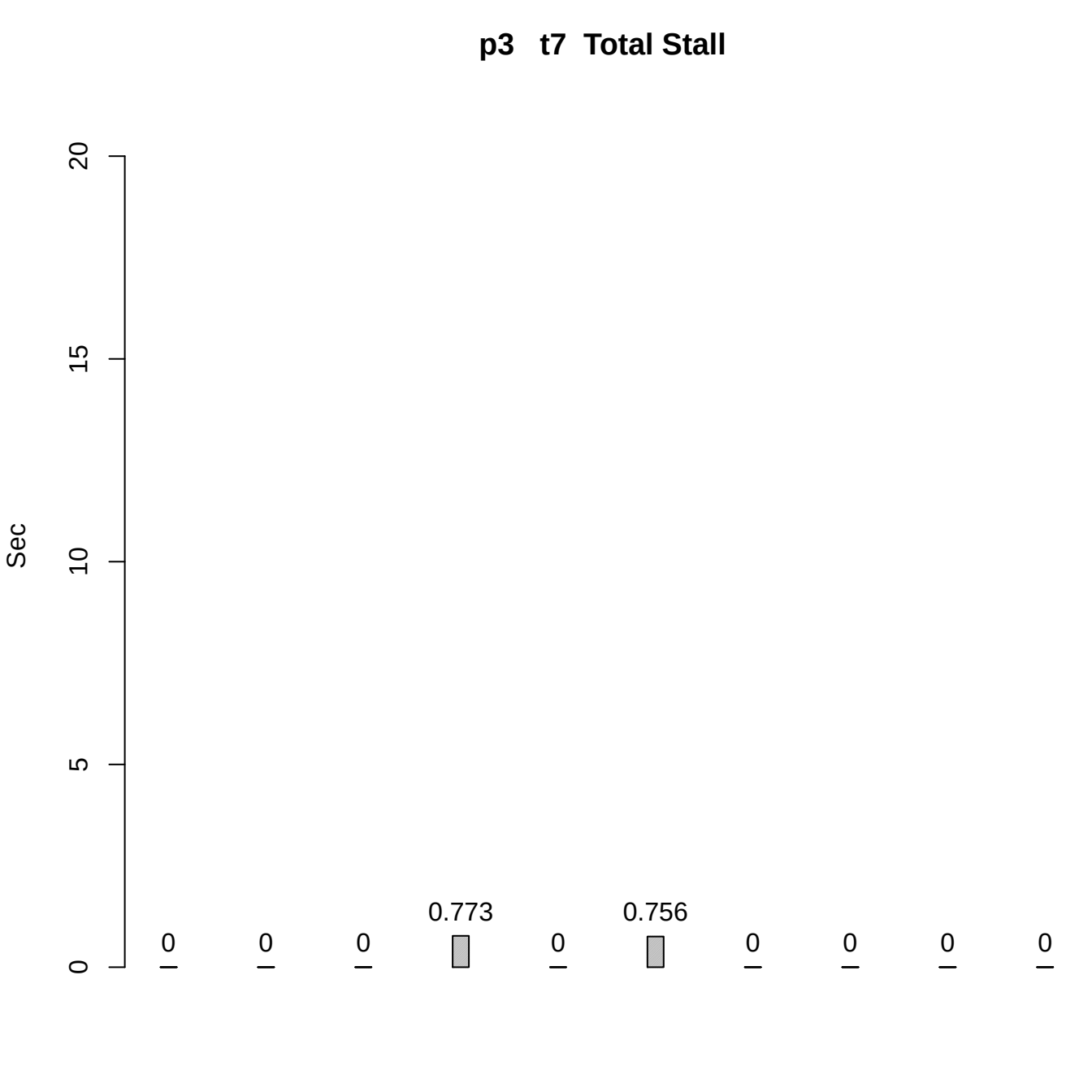

p3 t6 Buffer Overflow
Sec
0
100
200
300
400
55.743
0
0
0
144.323
0
391.979
204.266
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

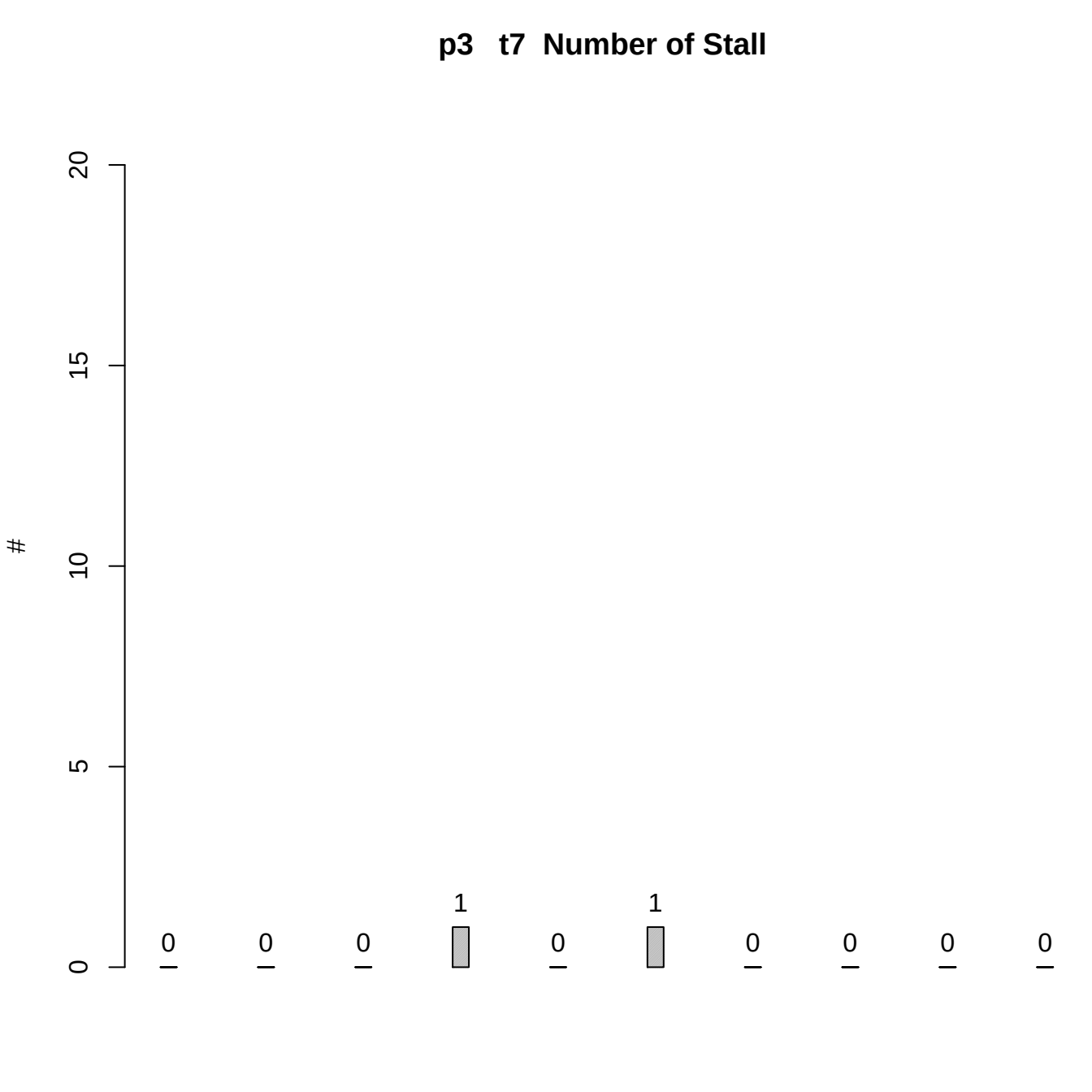

p3 t6 Number of Buffer Overflow
#
0
500
1000
1500
228
0
0
0
610
0
829
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

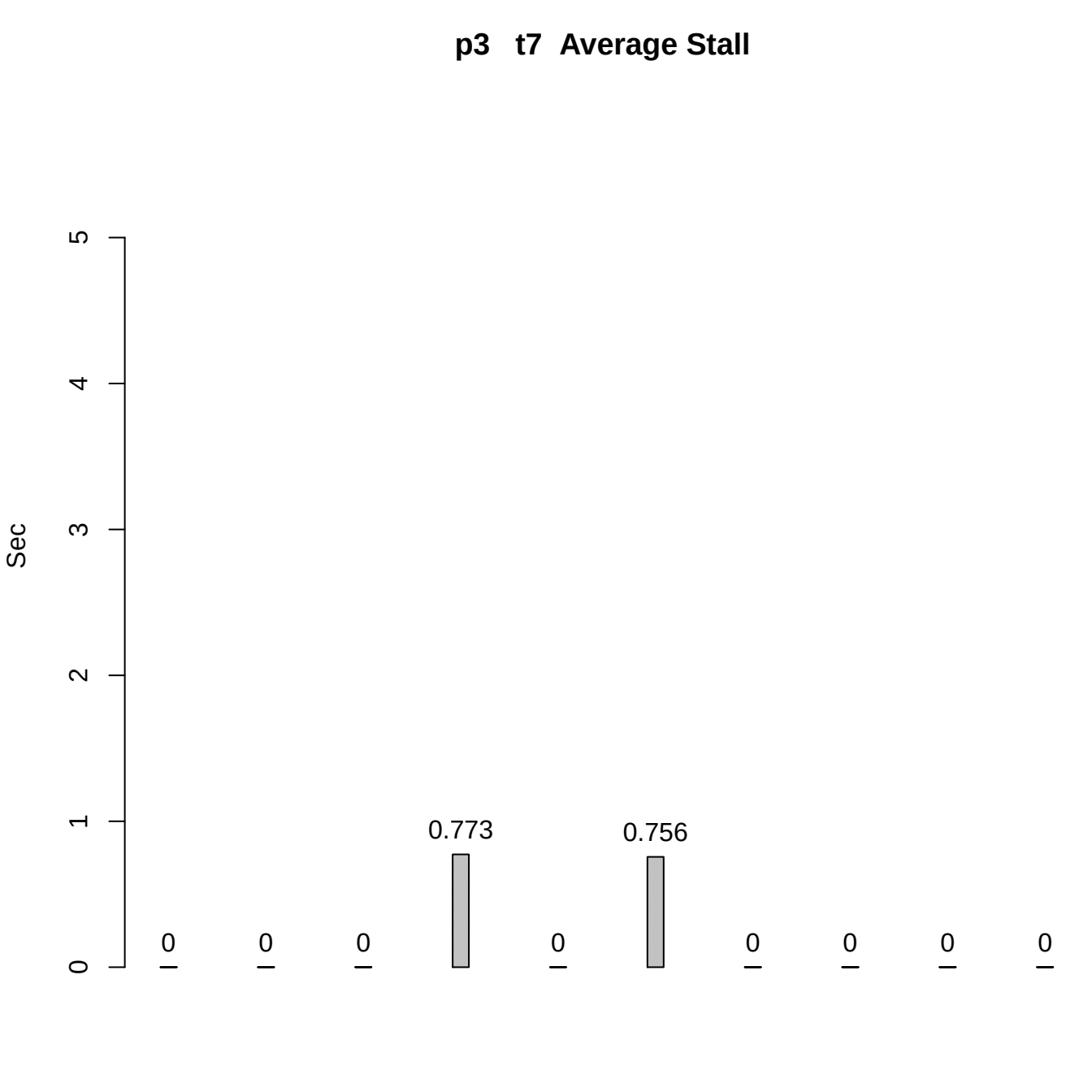

p3 t7 Avergae Bitrate
Kbps
0
500
1000
1500
2000
1553.58
1902.26
1786.19
1190.14
1355.66
1686.2
463.517
784.62
1900.07
1868.27
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

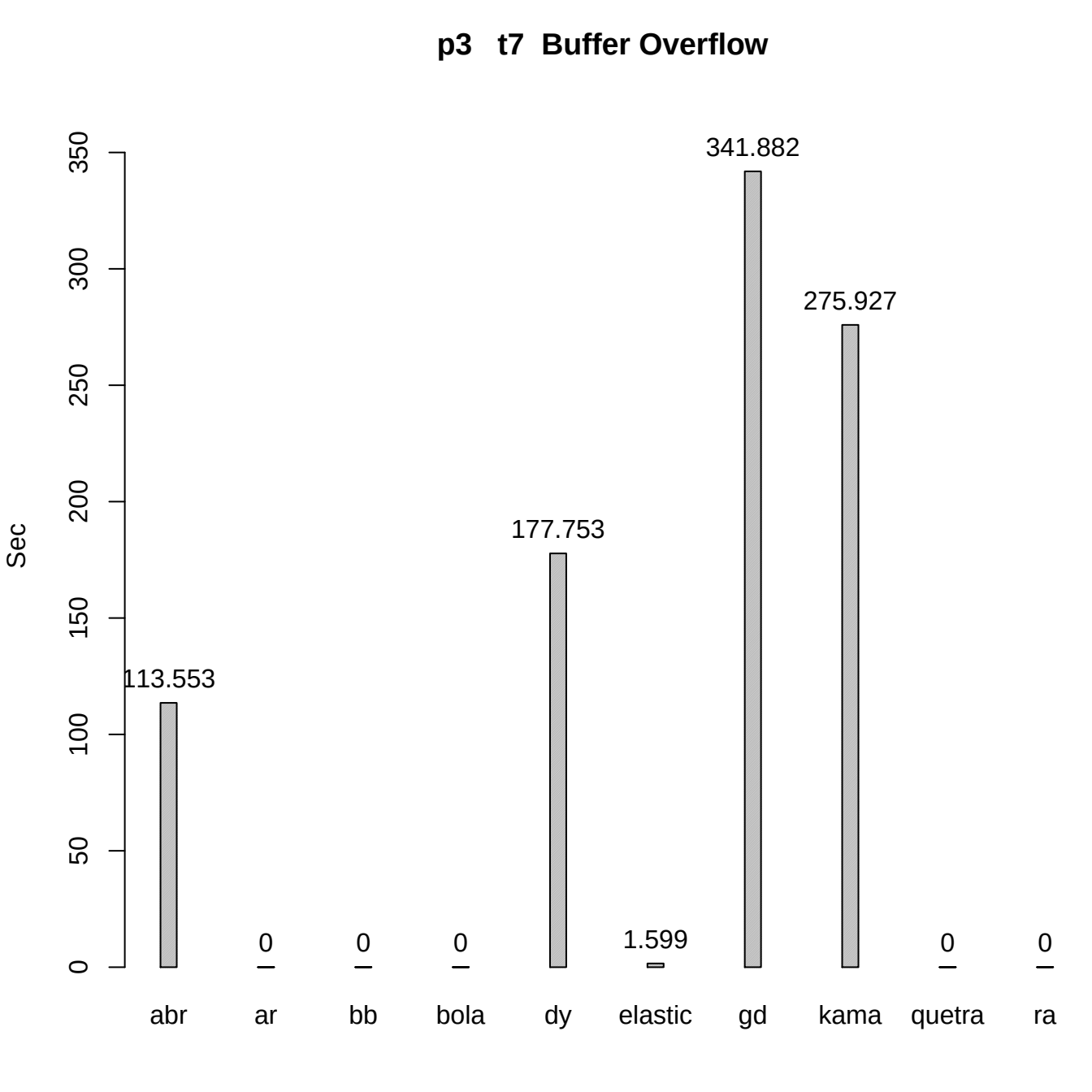

p3 t7 Quality Change
Change
0
50
100
150
200
250
300
350
340
81
69
23
112
106
12
52
87
60
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

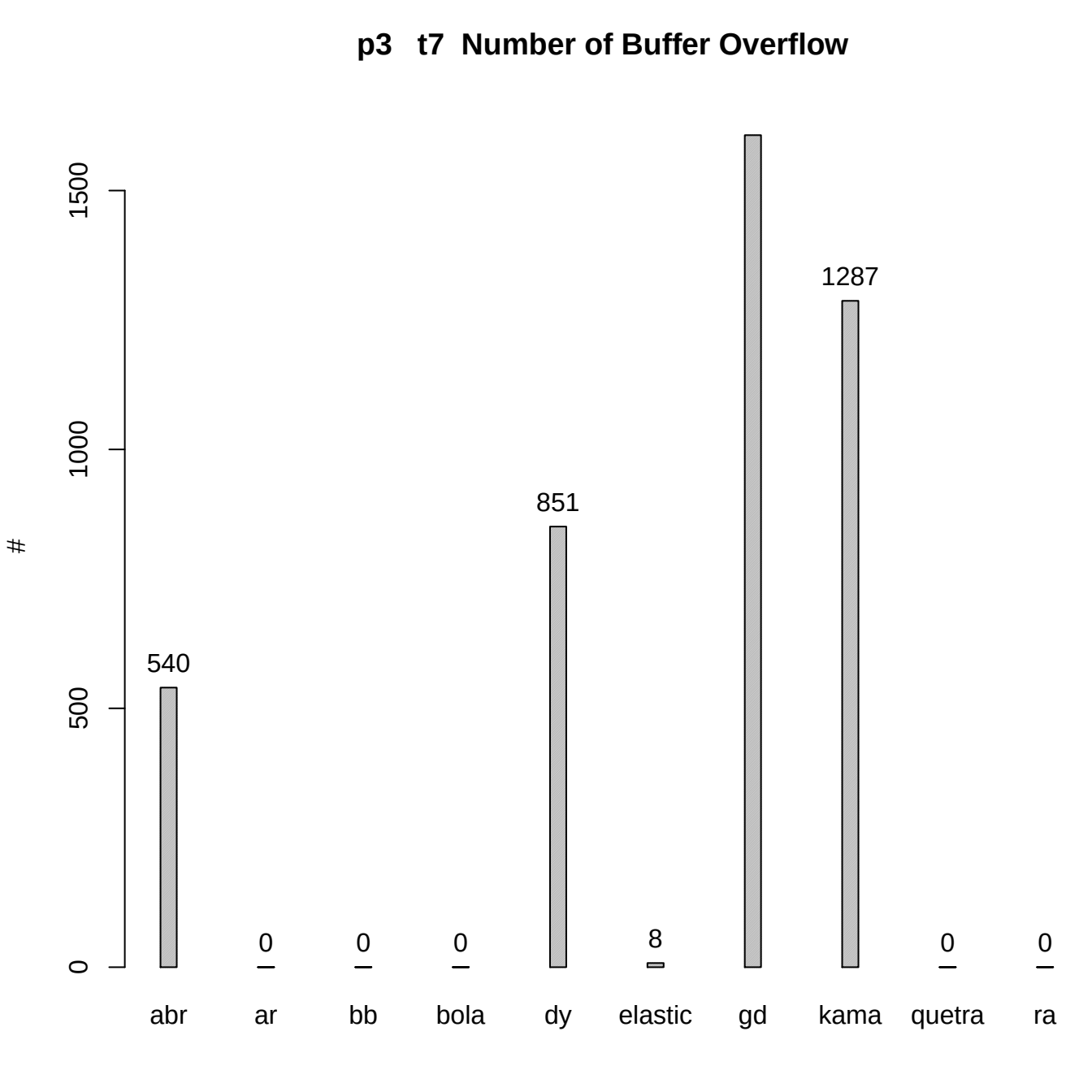

p3 t7 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.445035
0.415236
0.328289
0.361322
0.729616
0.279975
0.748566
0.735869
0.404225
0.384614
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

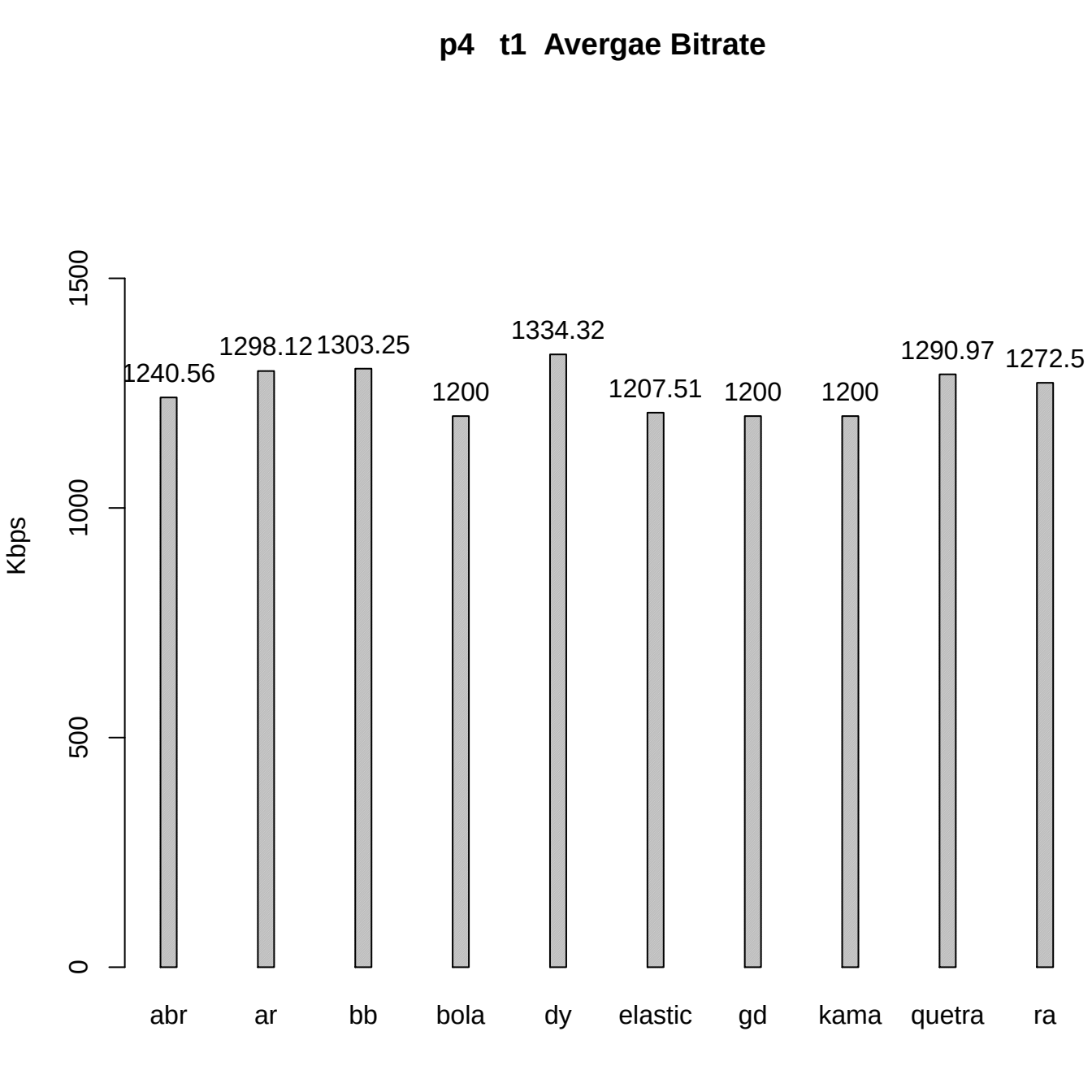

p3 t7 Total Stall
Sec
0
5
10
15
20
0
0
0
0.773
0
0.756
0
0
0
0

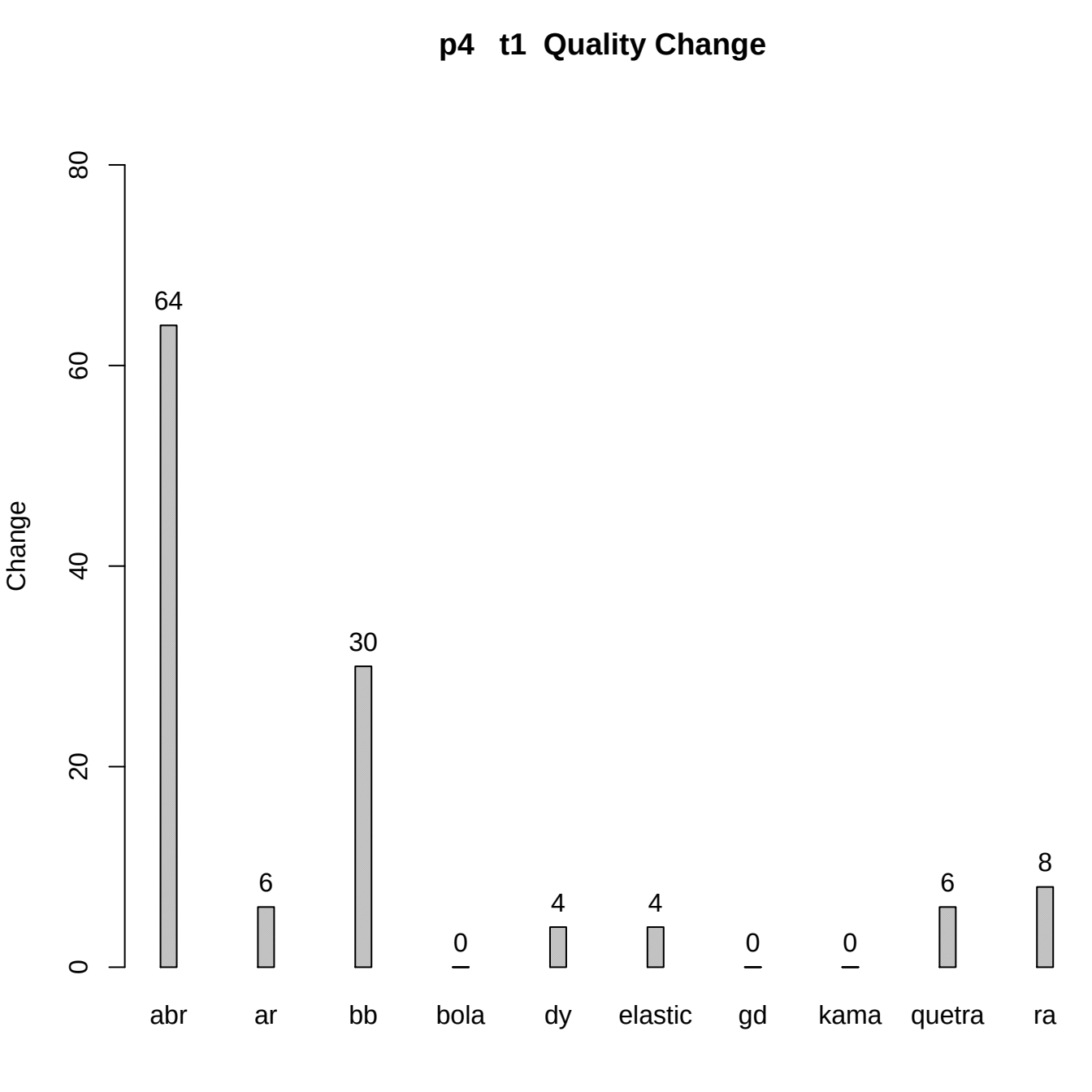

p3 t7 Number of Stall
#
0
5
10
15
20
0
0
0
1
0
1
0
0
0
0

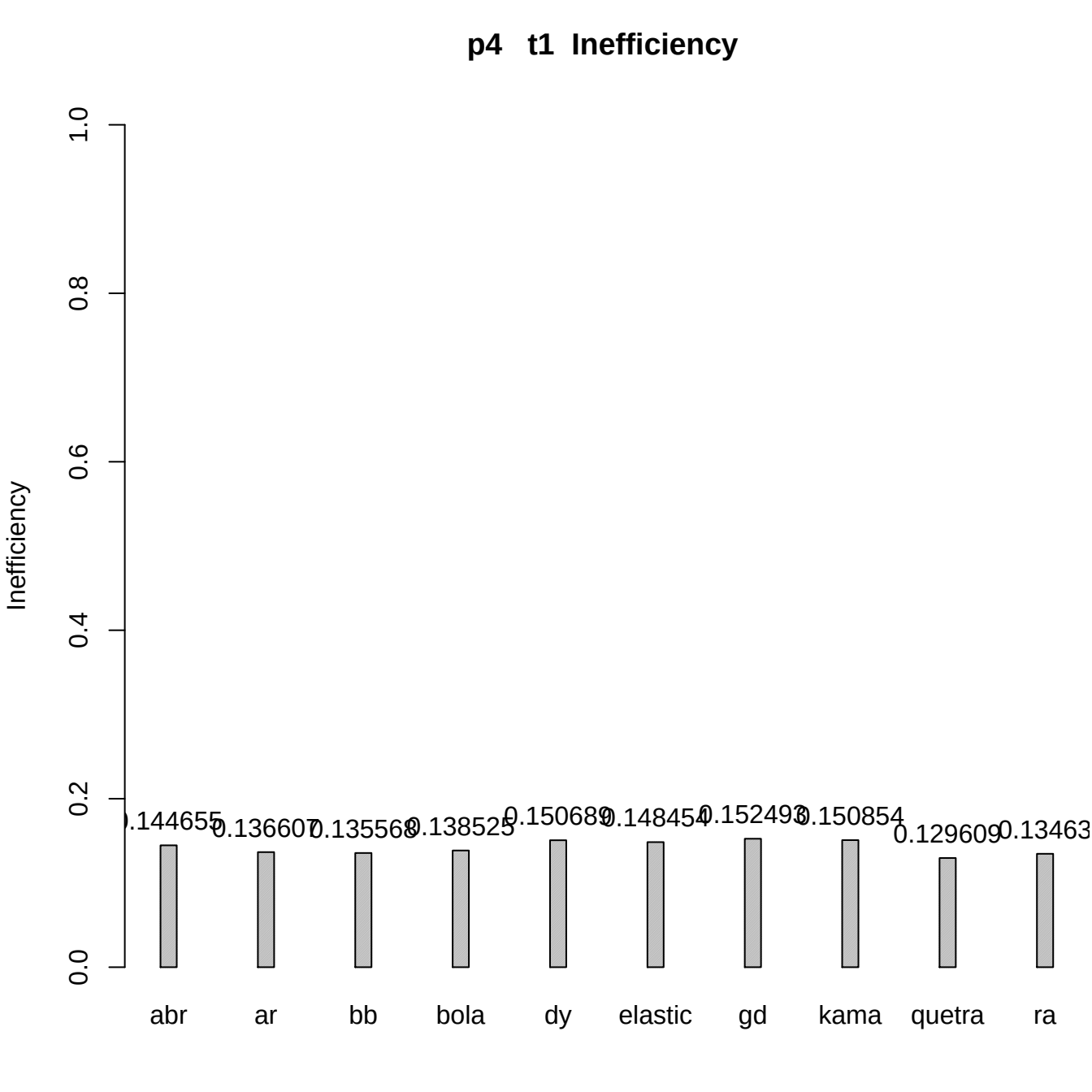

p3 t7 Average Stall
Sec
0
1
2
3
4
5
0
0
0
0.773
0
0.756
0
0
0
0

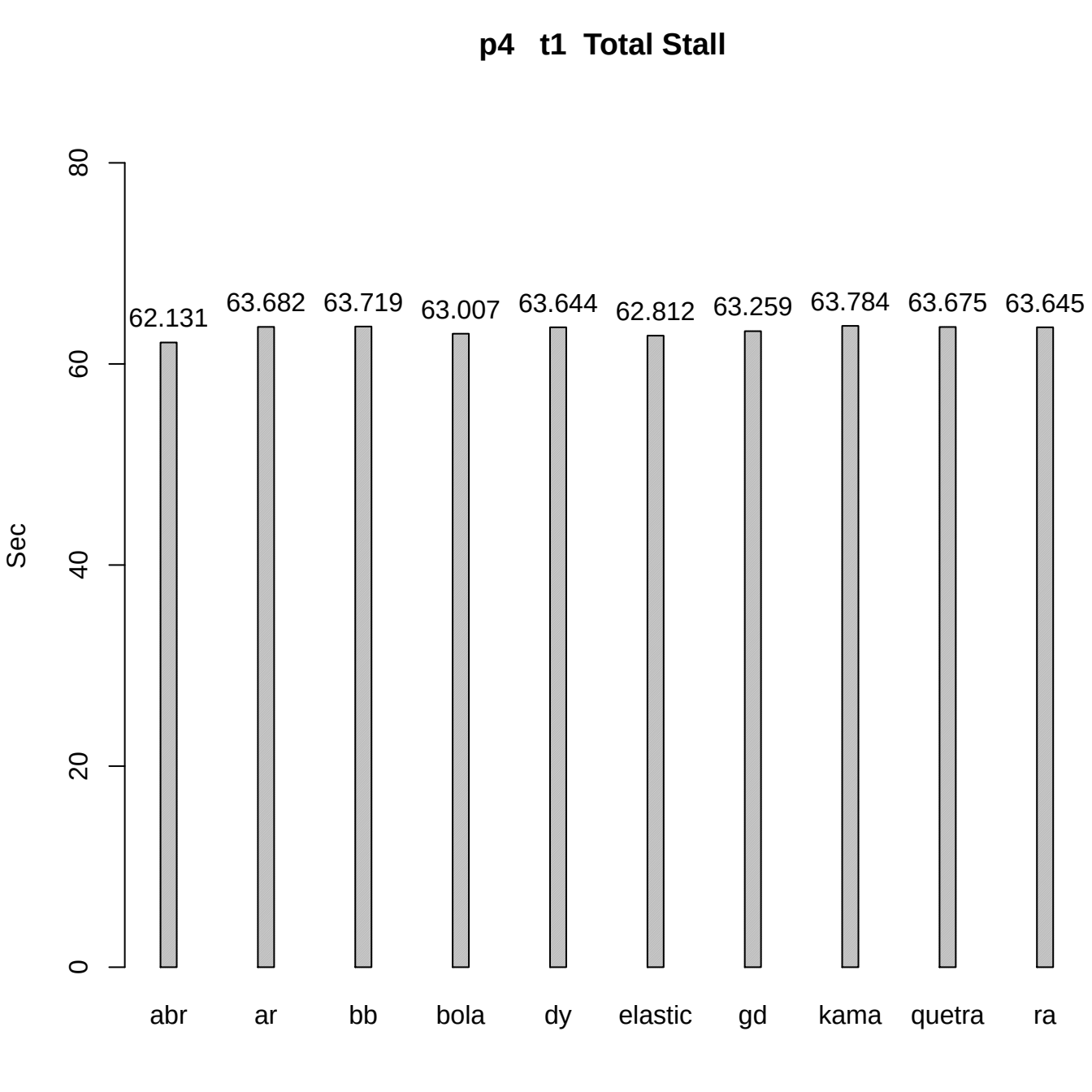

p3 t7 Buffer Overflow
Sec
0
50
100
150
200
250
300
350
113.553
0
0
0
177.753
1.599
341.882
275.927
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

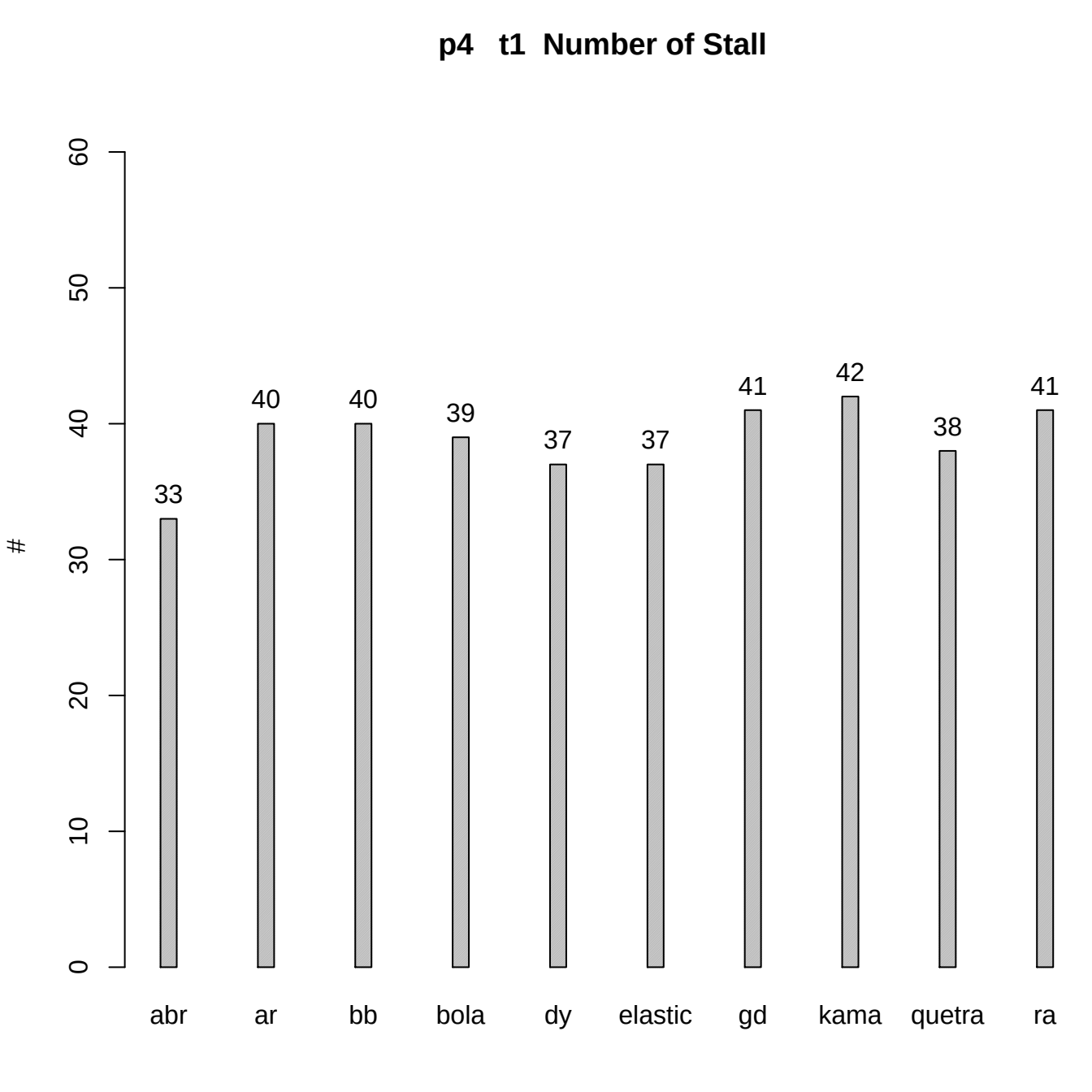

p3 t7 Number of Buffer Overflow
#
0
500
1000
1500
540
0
0
0
851
8
1287
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

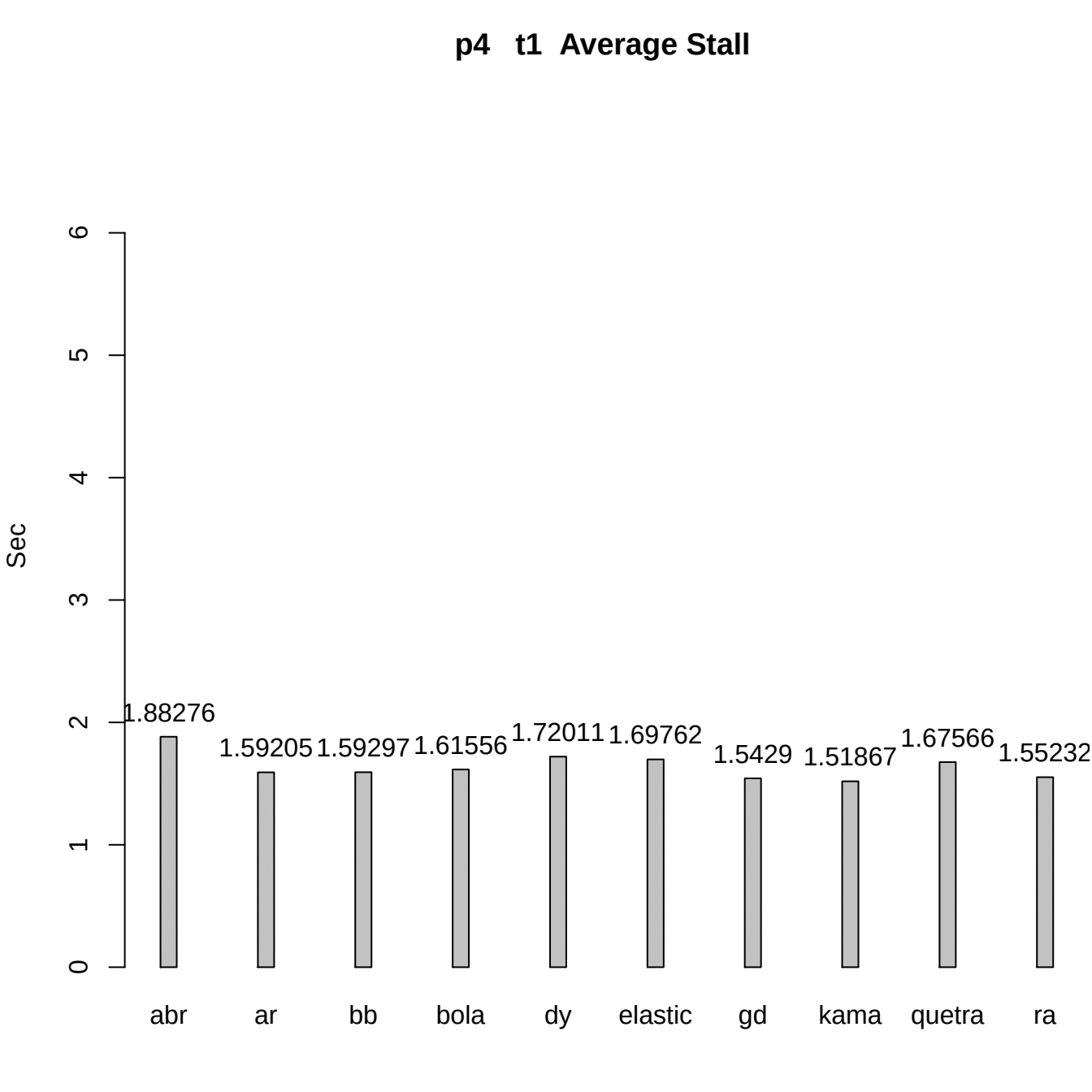

p4 t1 Avergae Bitrate
Kbps
0
500
1000
1500
1240.56
1298.12
1303.25
1200
1334.32
1207.51
1200
1200
1290.97
1272.5
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

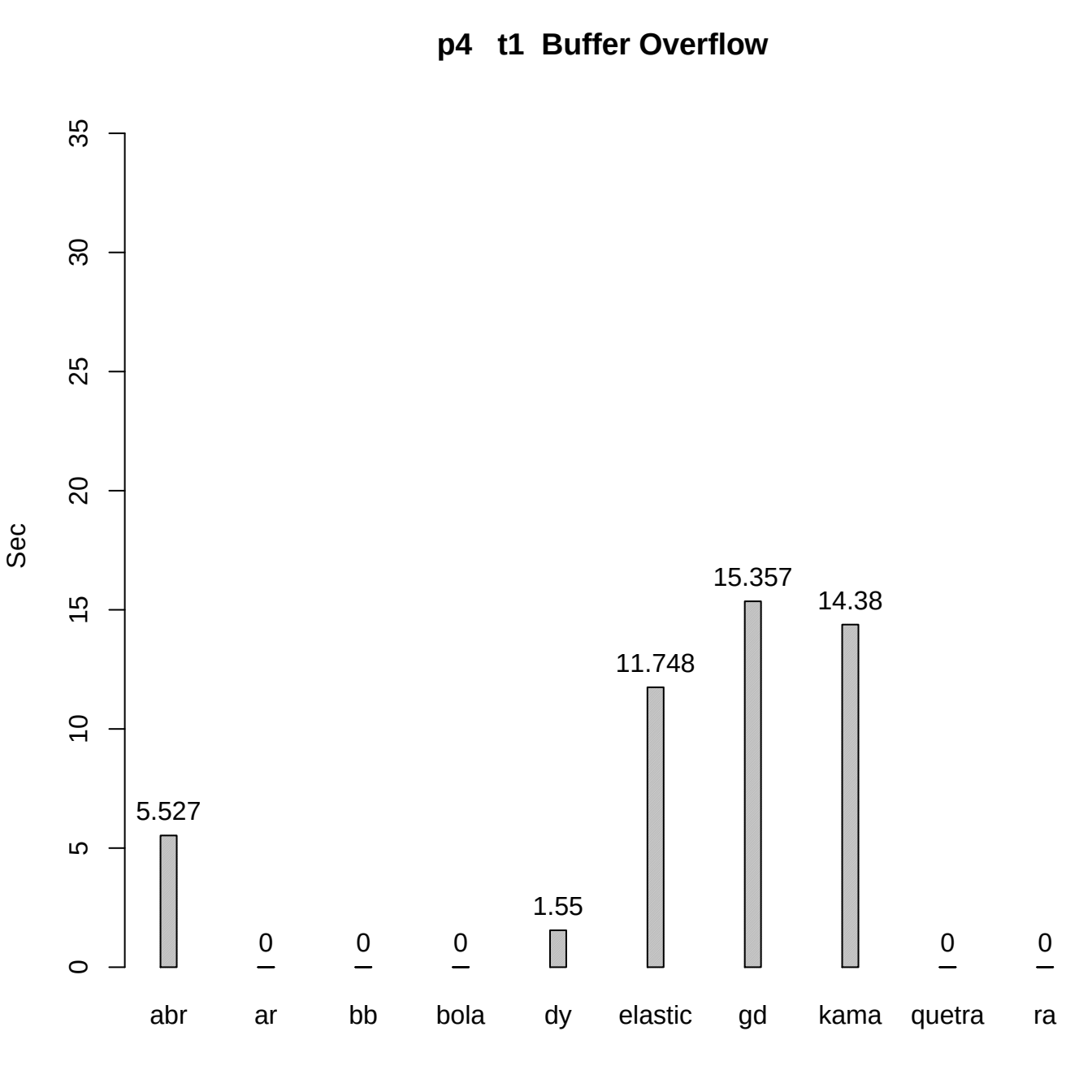

p4 t1 Quality Change
Change
0
20
40
60
80
64
6
30
0
4
4
0
0
6
8
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

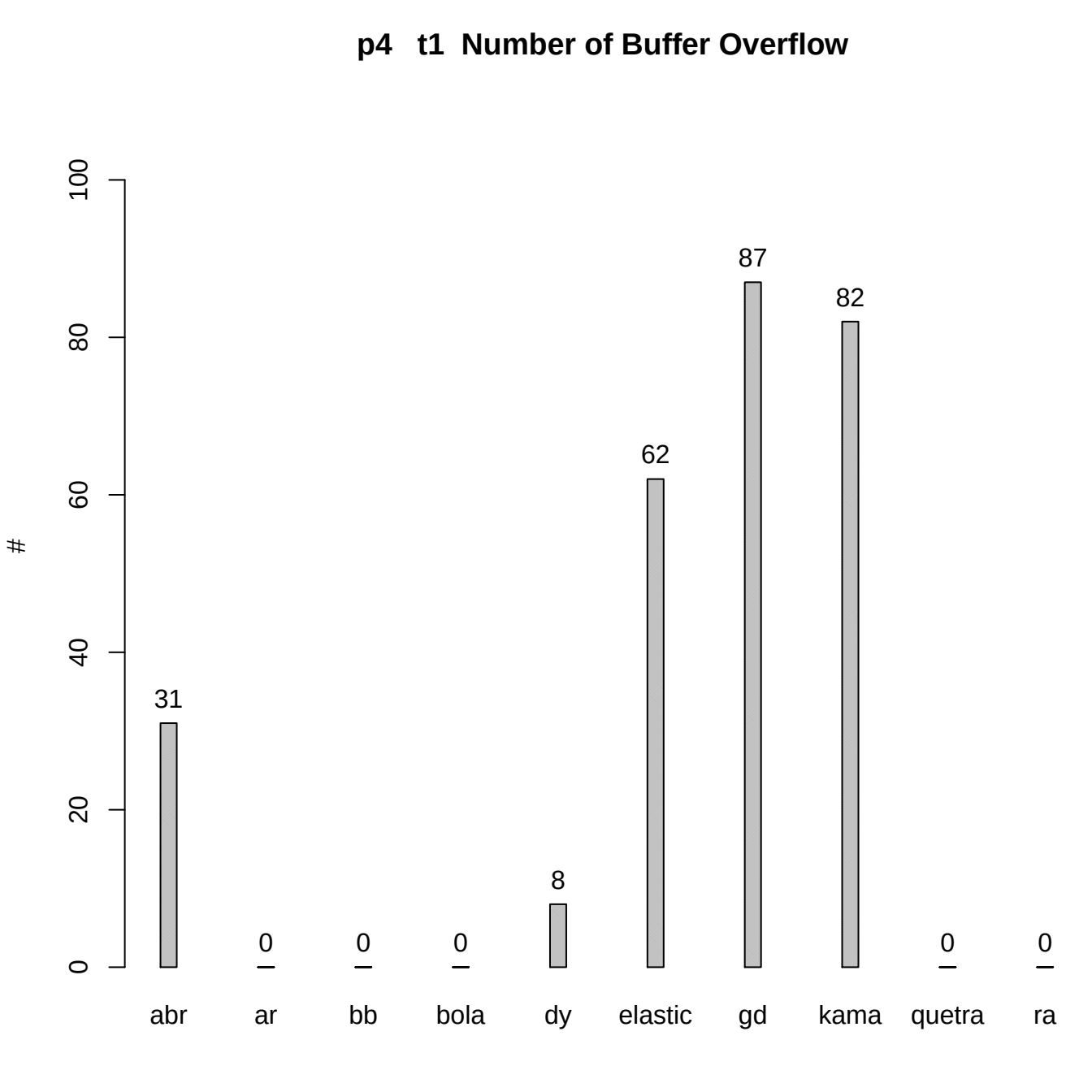

p4 t1 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
0.144655
0.136607
0.135568
0.138525
0.150689
0.148454
0.152493
0.150854
0.129609
0.13463
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

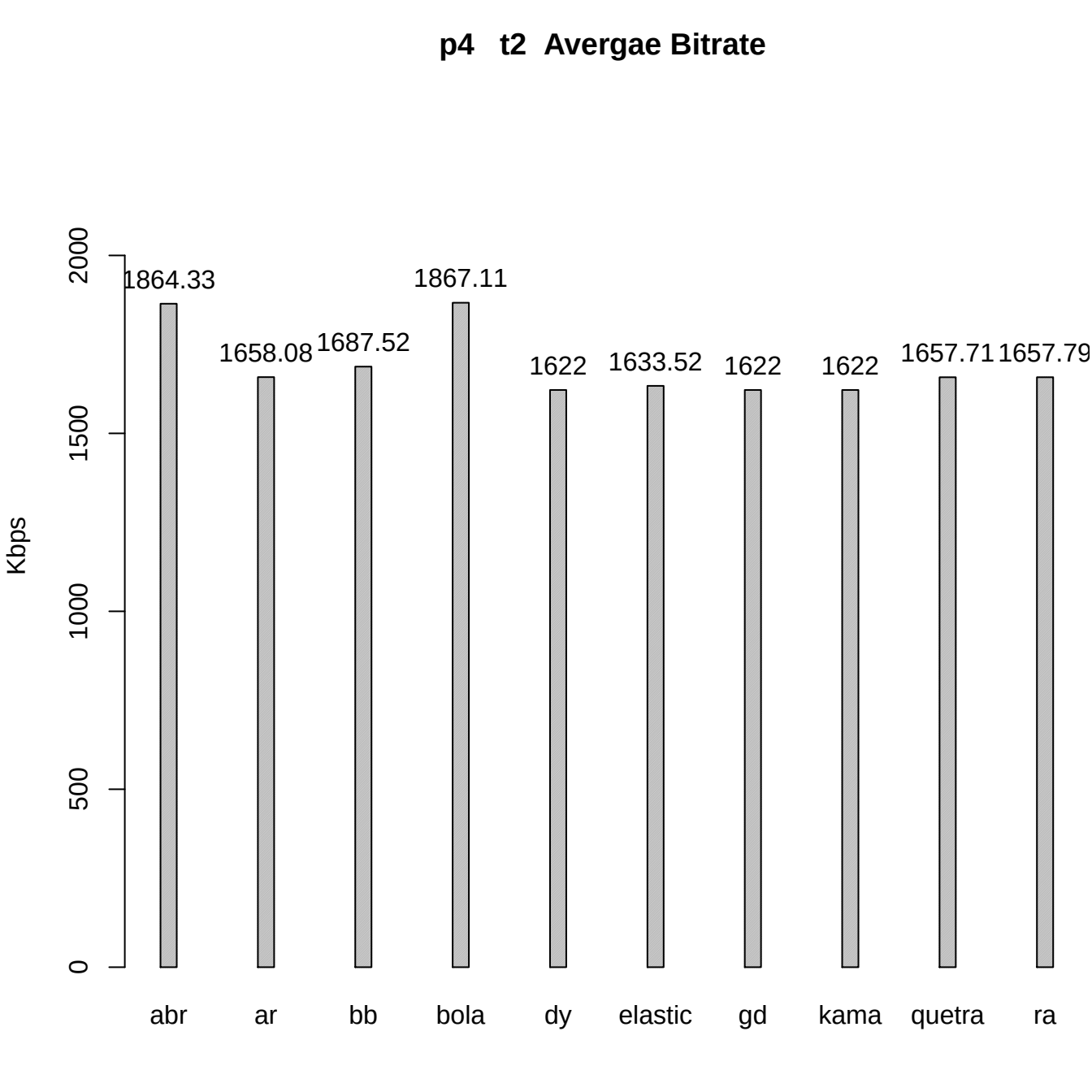

p4 t1 Total Stall
Sec
0
20
40
60
80
62.131
63.682
63.719
63.007
63.644
62.812
63.259
63.784
63.675
63.645
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

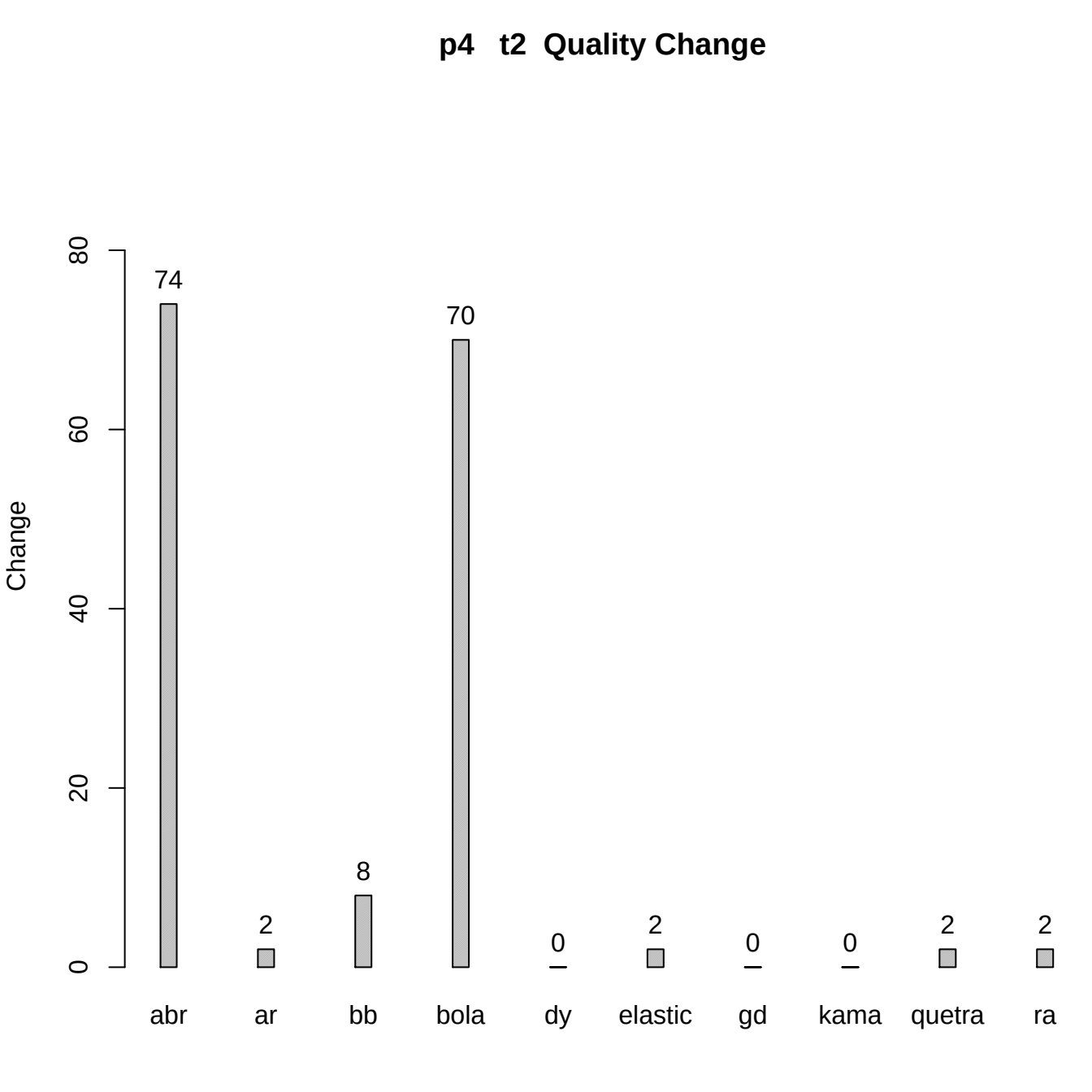

p4 t1 Number of Stall
#
0
10
20
30
40
50
60
33
40
40
39
37
37
41
42
38
41
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

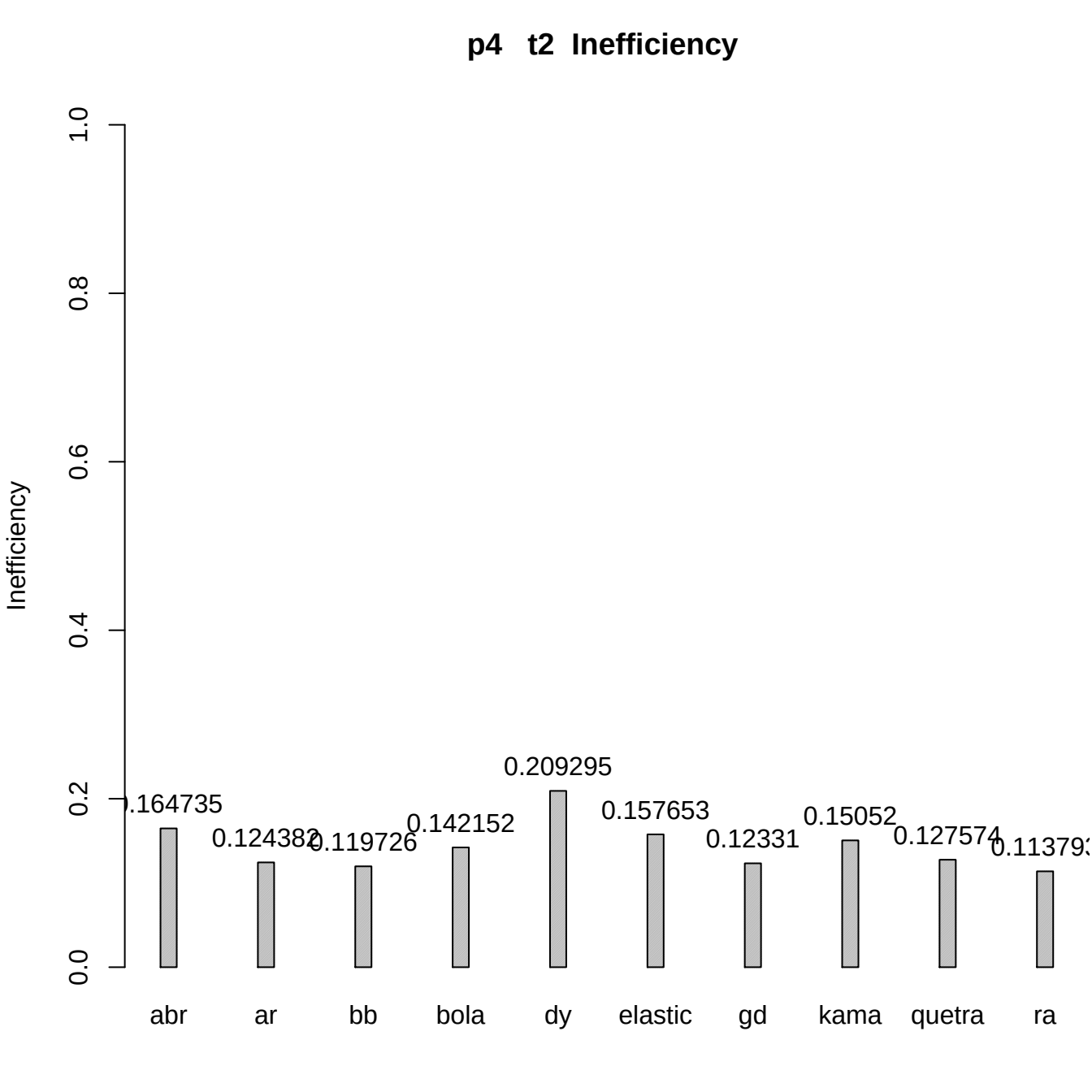

p4 t1 Average Stall
Sec
0
1
2
3
4
5
6
1.88276
1.59205
1.59297
1.61556
1.72011
1.69762
1.5429
1.51867
1.67566
1.55232
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

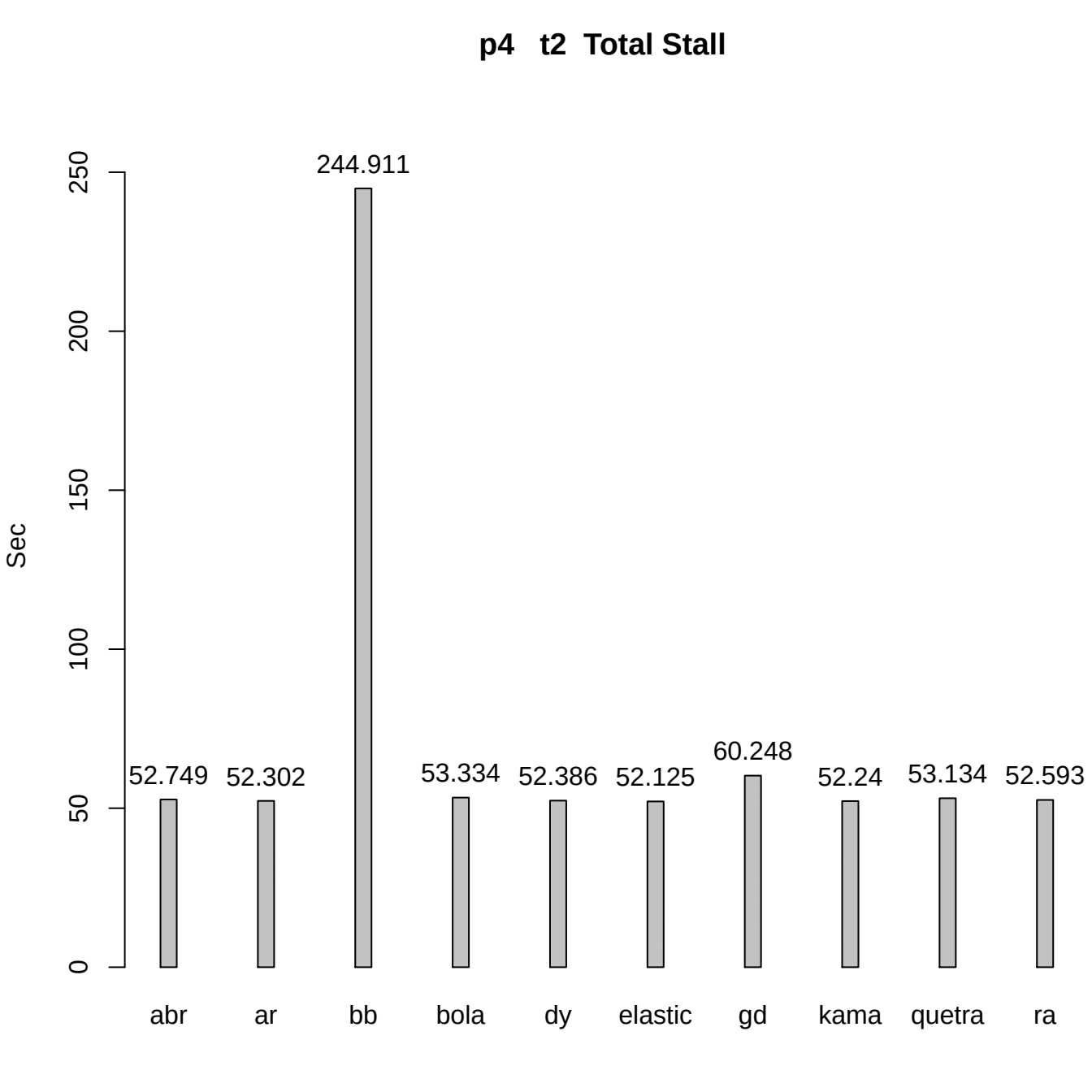

p4 t1 Buffer Overflow
Sec
0
5
10
15
20
25
30
35
5.527
0
0
0
1.55
11.748
15.357
14.38
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

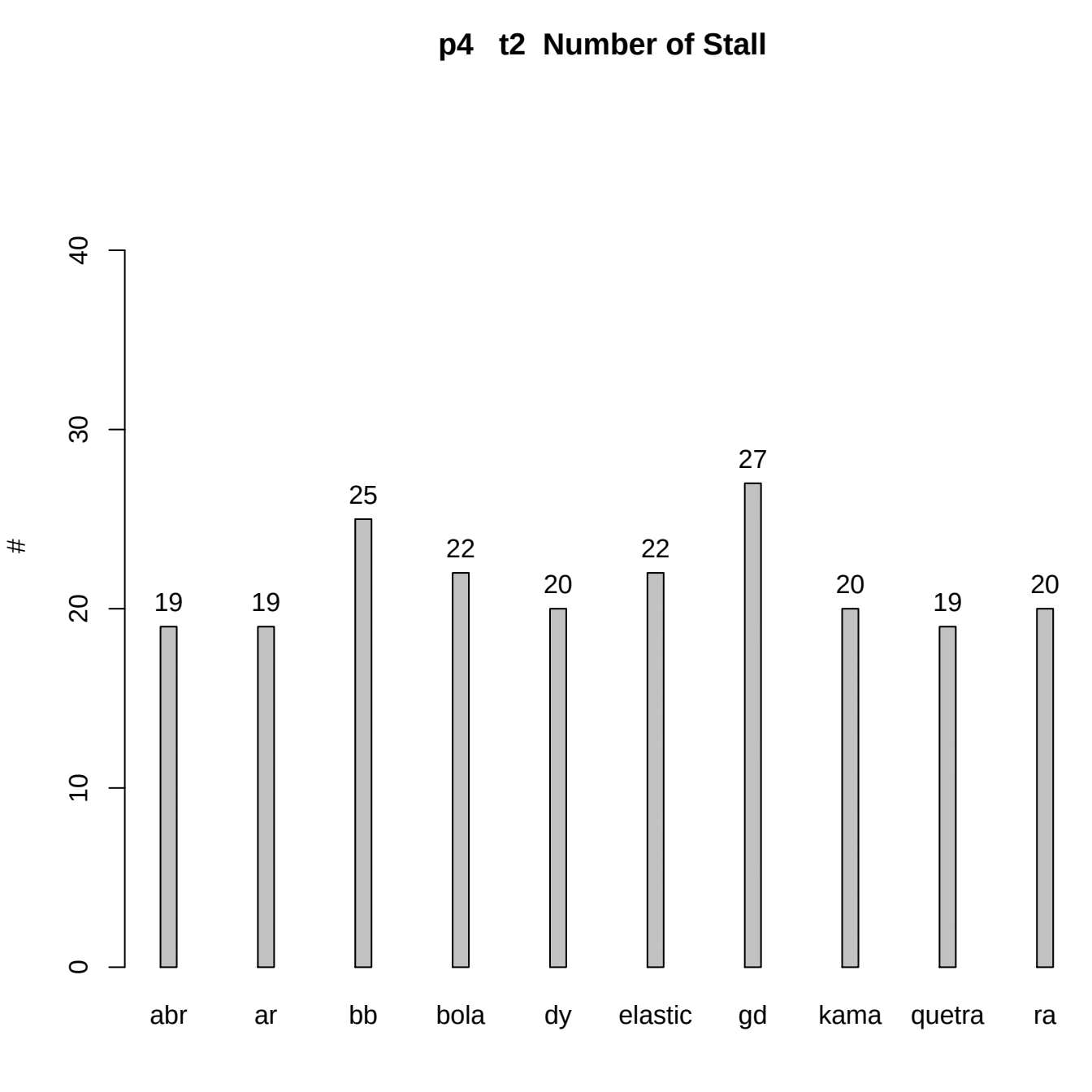

p4 t1 Number of Buffer Overflow
#
0
20
40
60
80
100
31
0
0
0
8
62
87
82
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

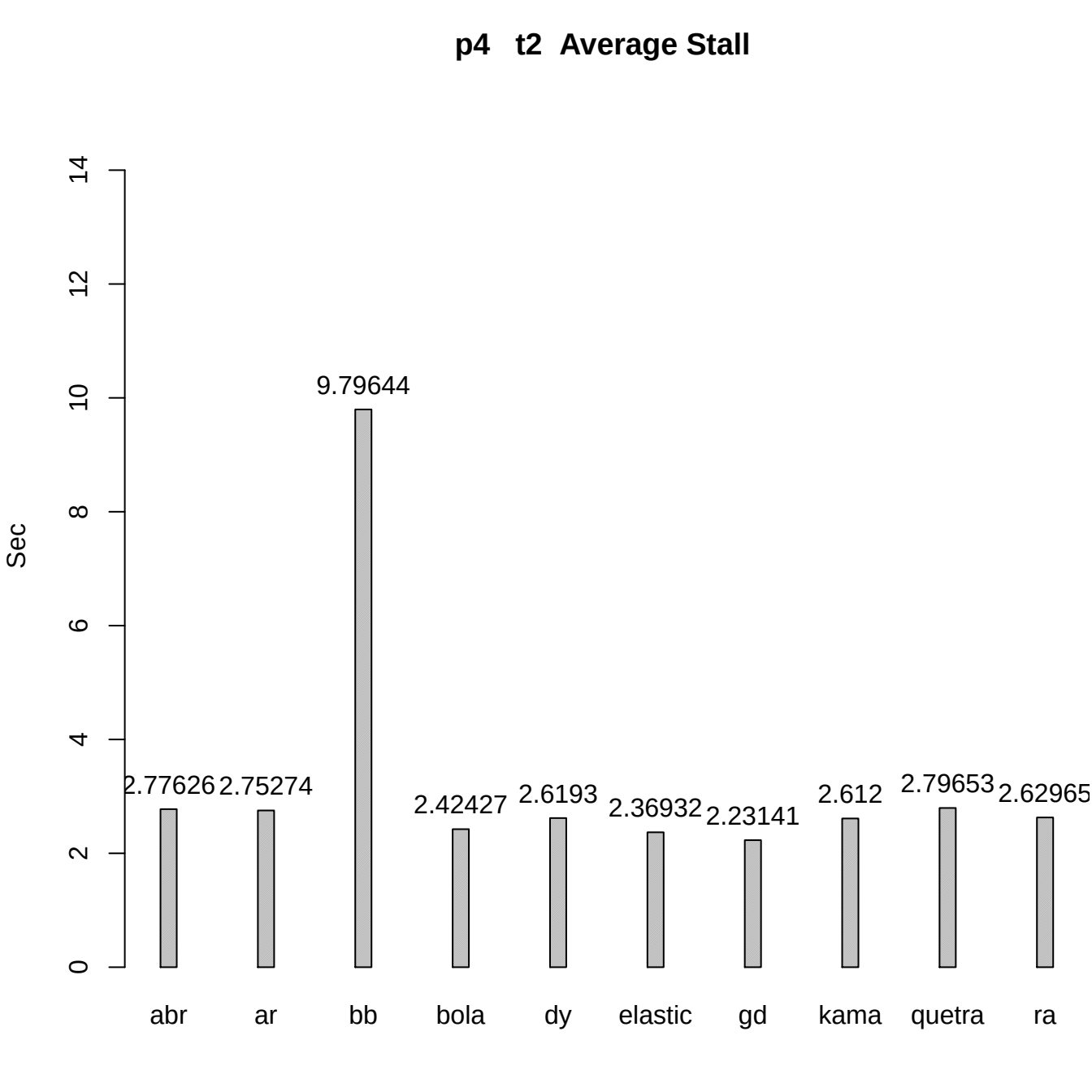

p4 t2 Avergae Bitrate
Kbps
0
500
1000
1500
2000
1864.33
1658.08
1687.52
1867.11
1622
1633.52
1622
1622
1657.71
1657.79
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

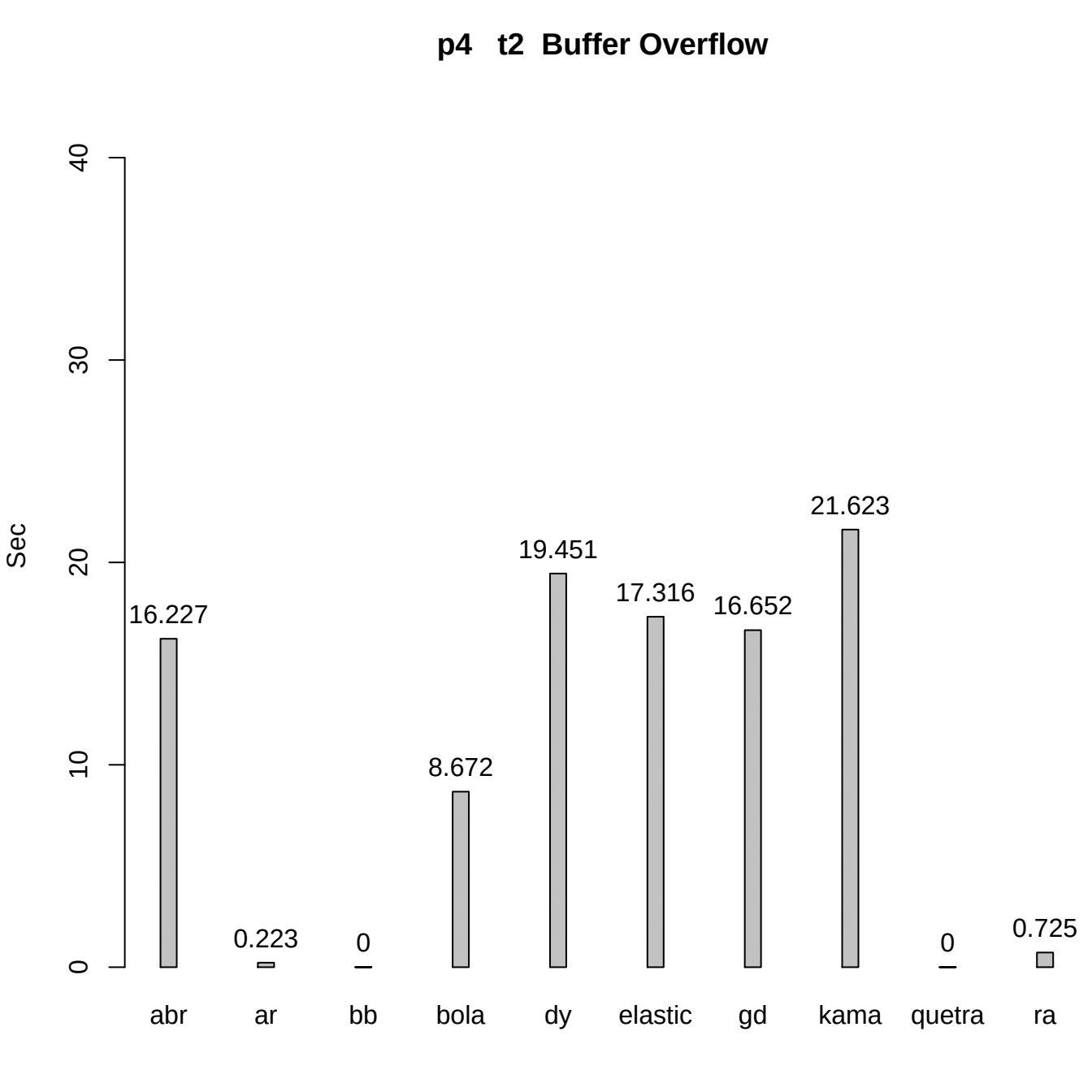

p4 t2 Quality Change
Change
0
20
40
60
80
74
2
8
70
0
2
0
0
2
2
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

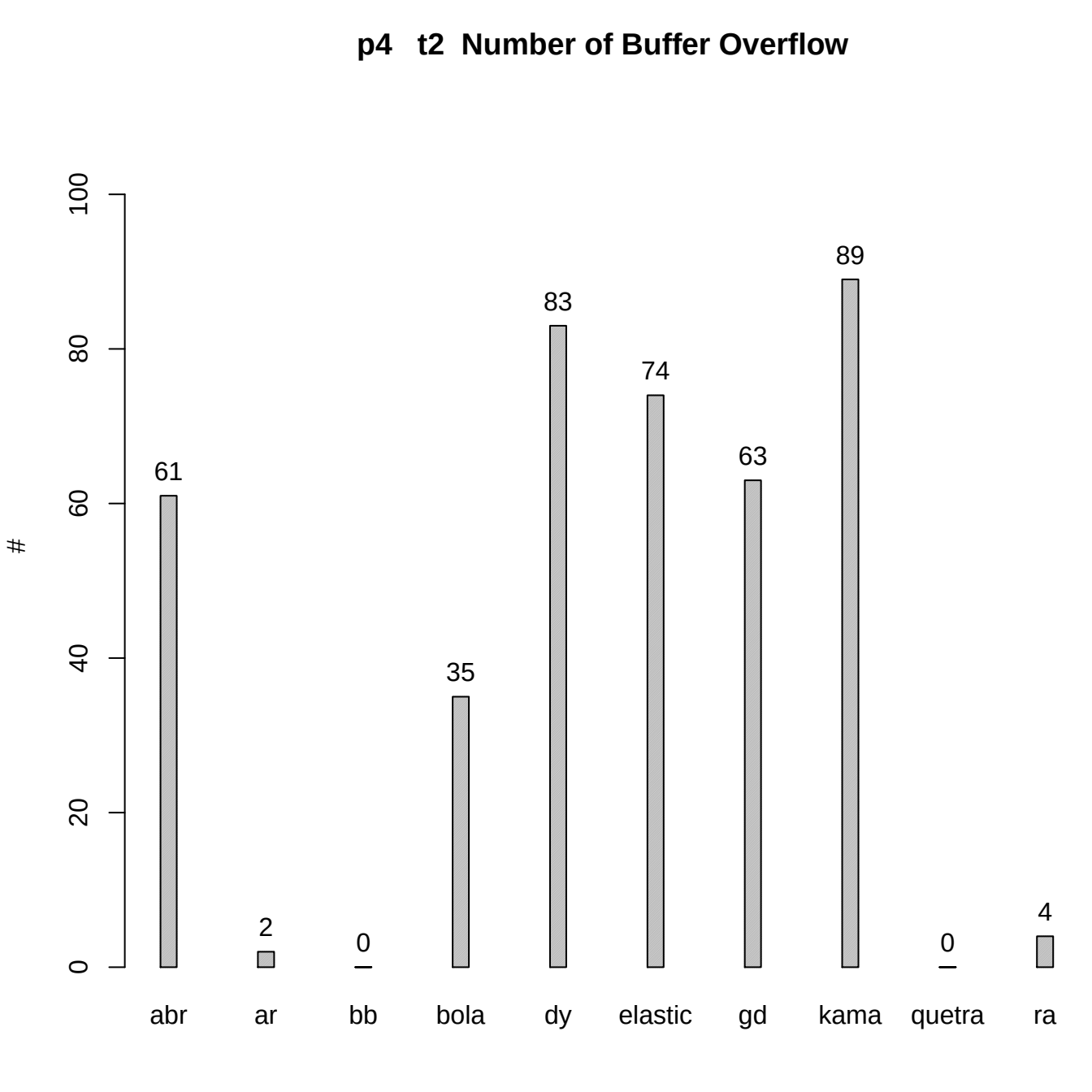

p4 t2 Inefficiency
Inefficiency
1.0
0.8
0.6
0.4
0.2
0.0
0.164735
0.124382
0.119726
0.142152
0.209295
0.157653
0.12331
0.15052
0.127574
0.11379
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

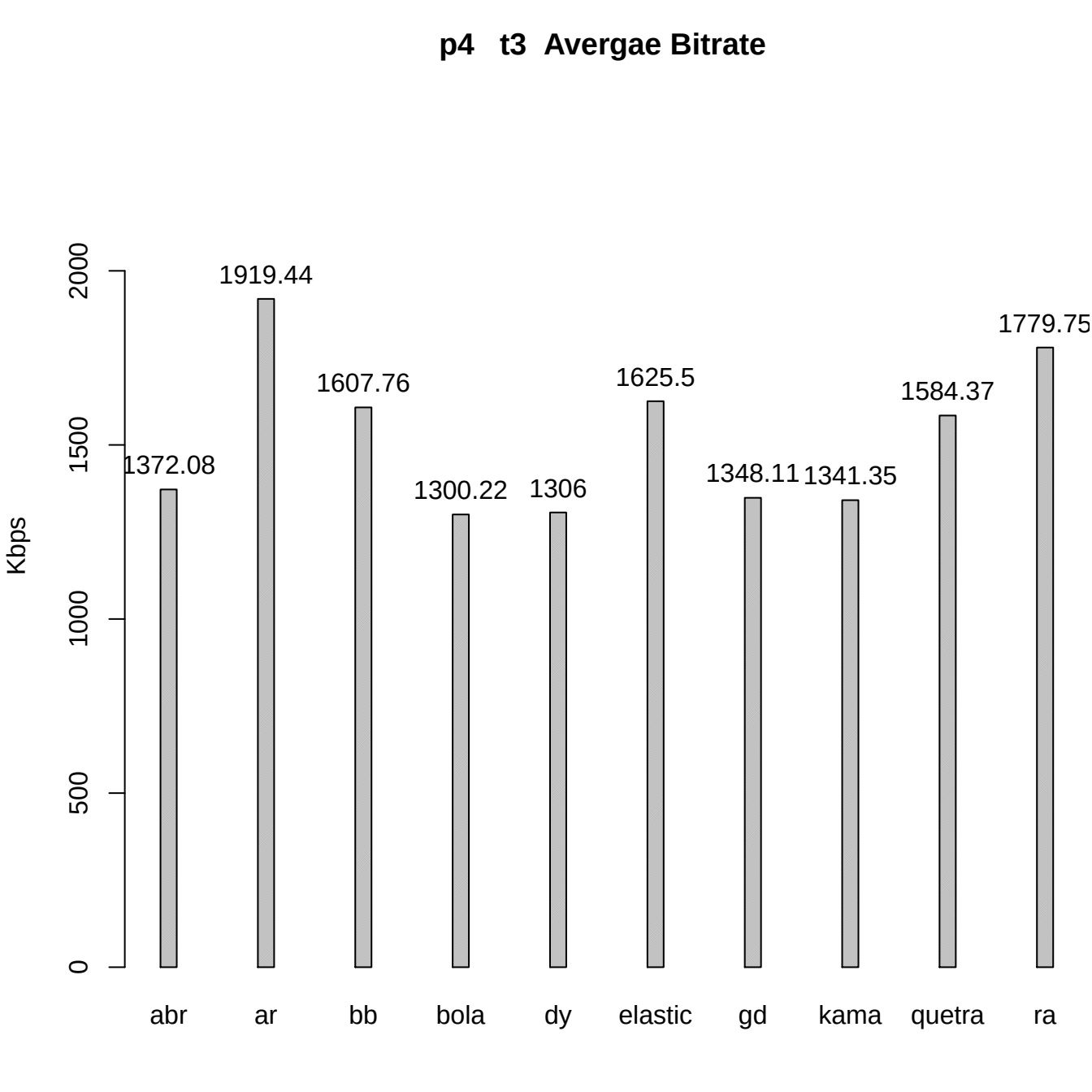

p4 t2 Total Stall
Sec
0
50
100
150
200
250
52.749
52.302
244.911
53.334
52.386
52.125
60.248
52.24
53.134
52.593
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

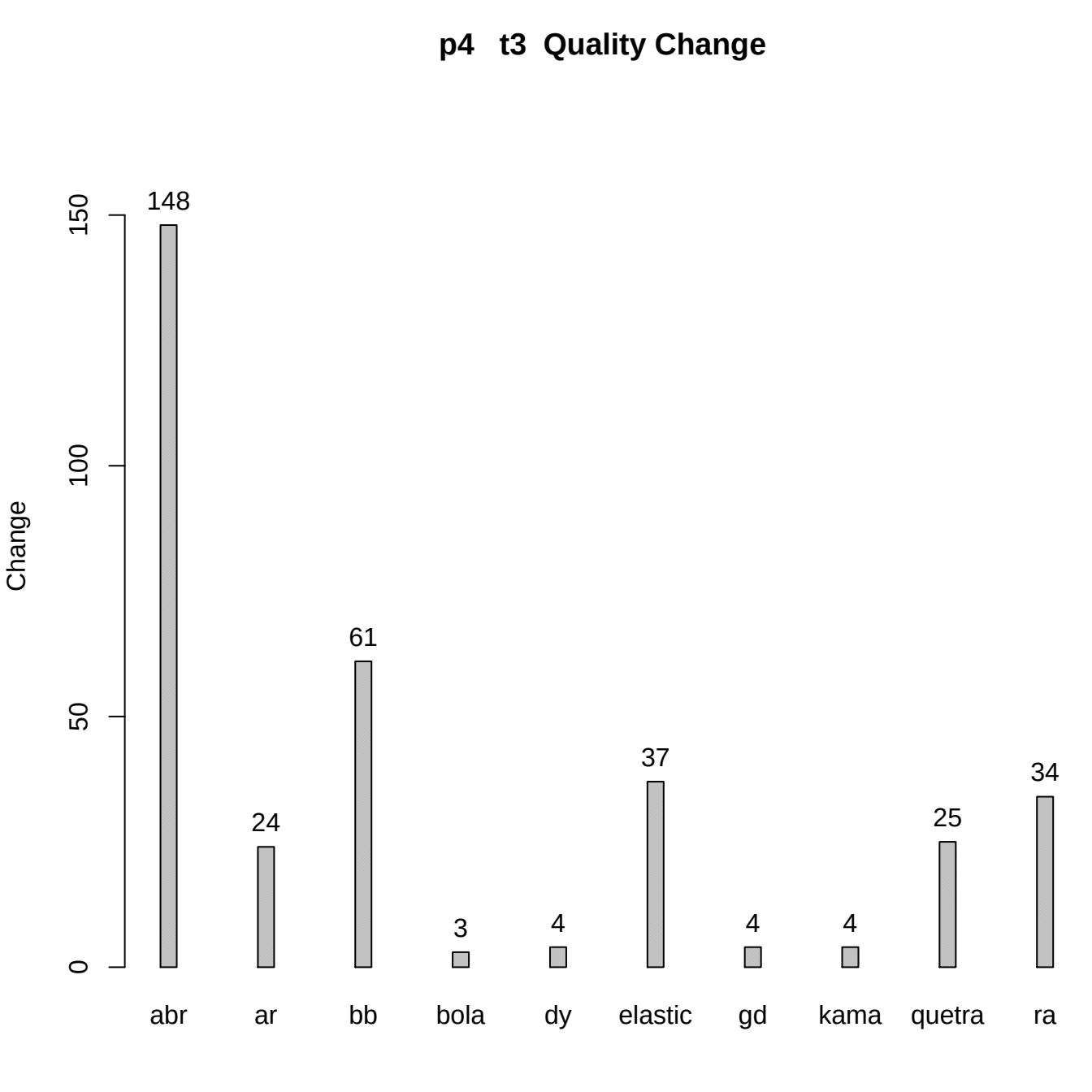

p4 t2 Number of Stall
#
0
10
20
30
40
19
19
25
22
20
22
27
20
19
20
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

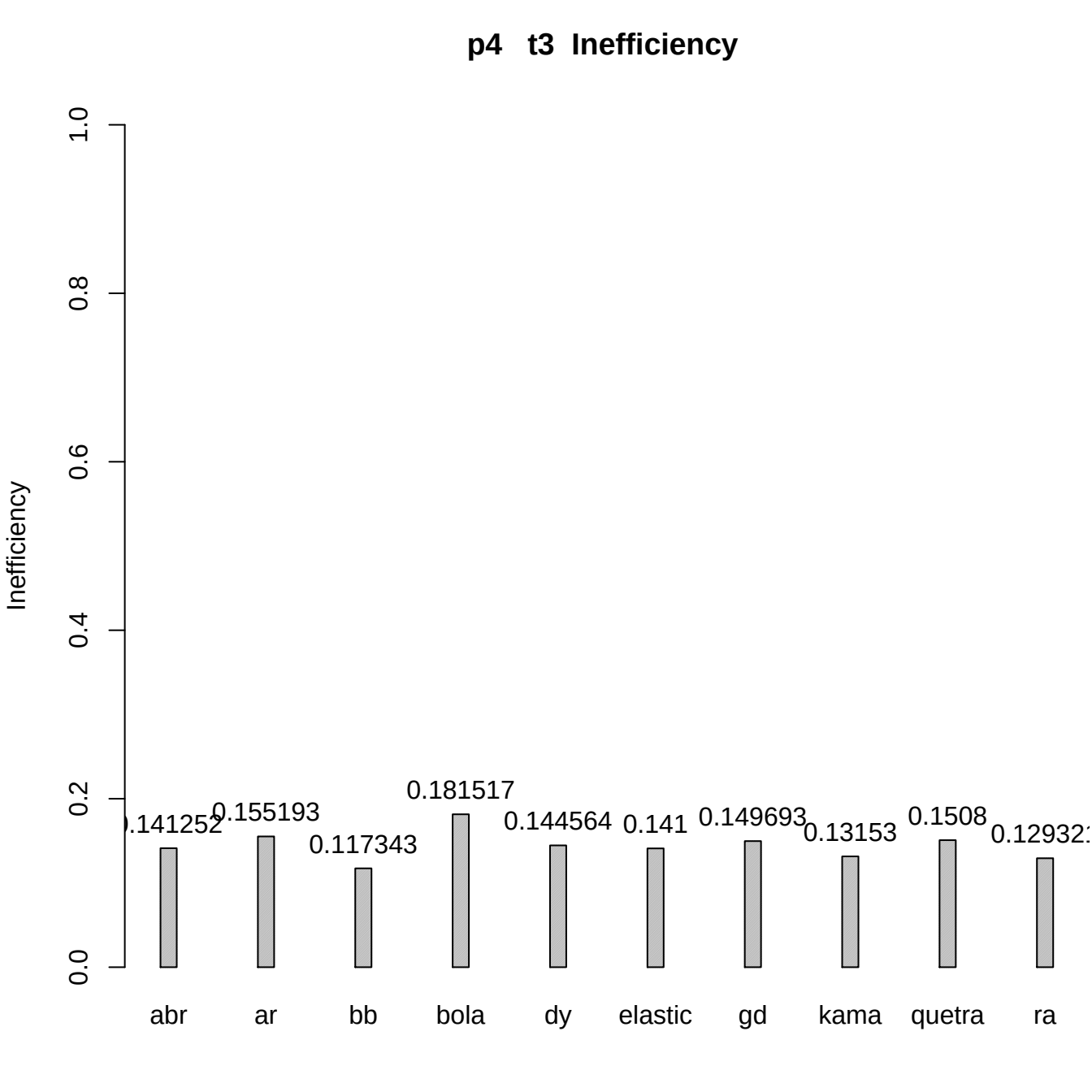

p4 t2 Average Stall
Sec
0
2
4
6
8
10
12
14
2.77626
2.75274
9.79644
2.42427
2.6193
2.36932
2.23141
2.612
2.79653
2.62965
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

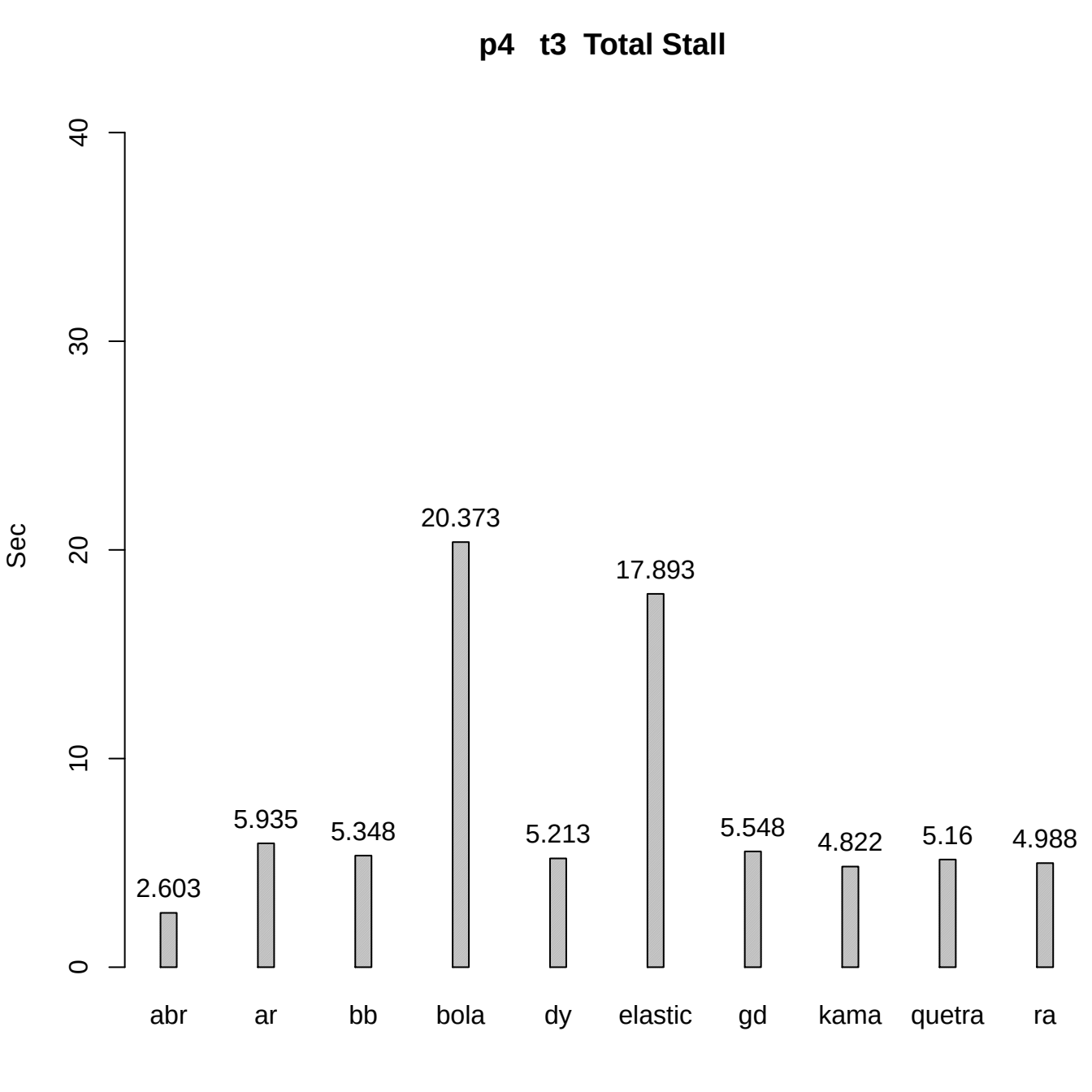

p4 t2 Buffer Overflow
Sec
0
10
20
30
40
16.227
0.223
0
8.672
19.451
17.316
16.652
21.623
0
0.725
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

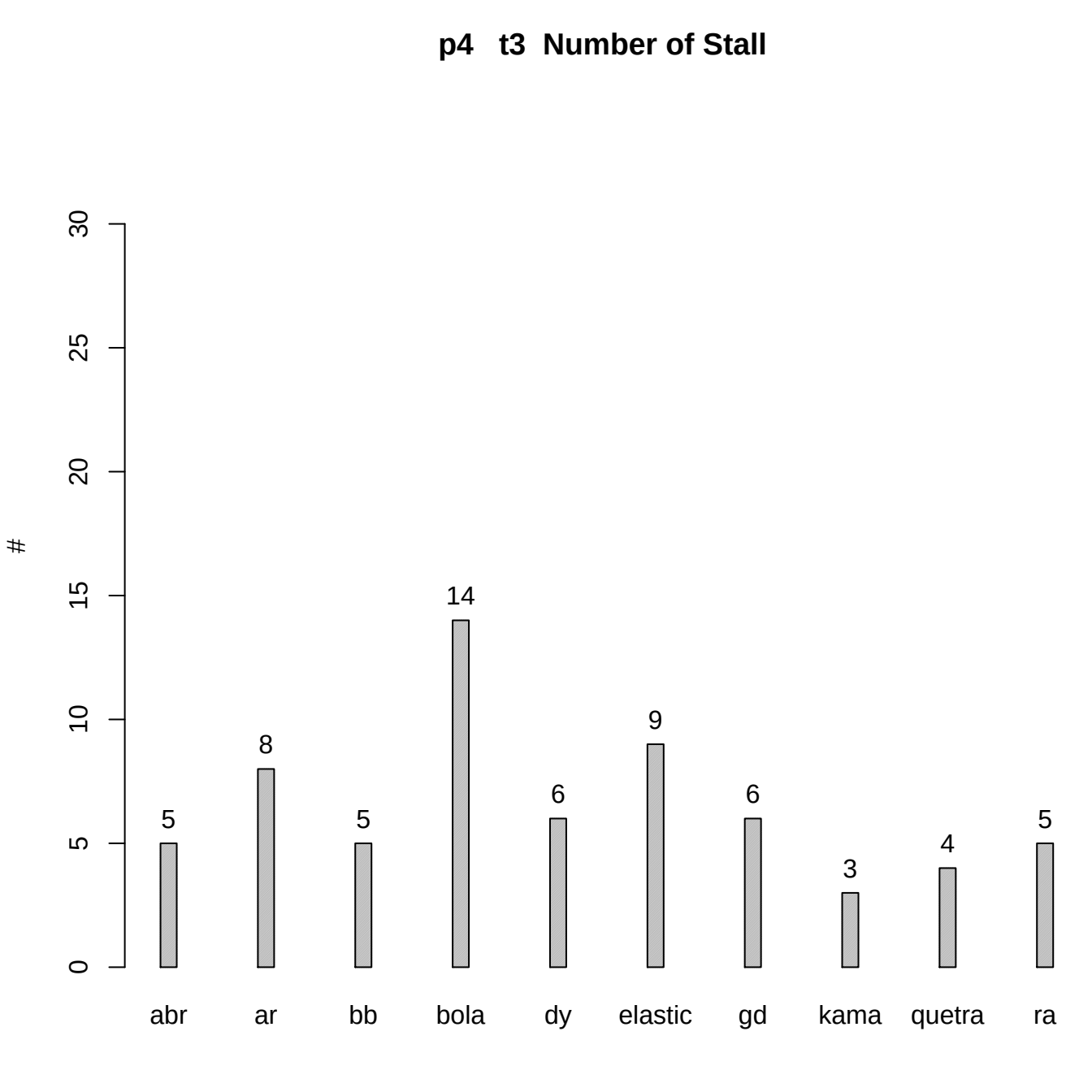

p4 t2 Number of Buffer Overflow
#
0
20
40
60
80
100
61
2
0
35
83
74
63
89
0
4
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

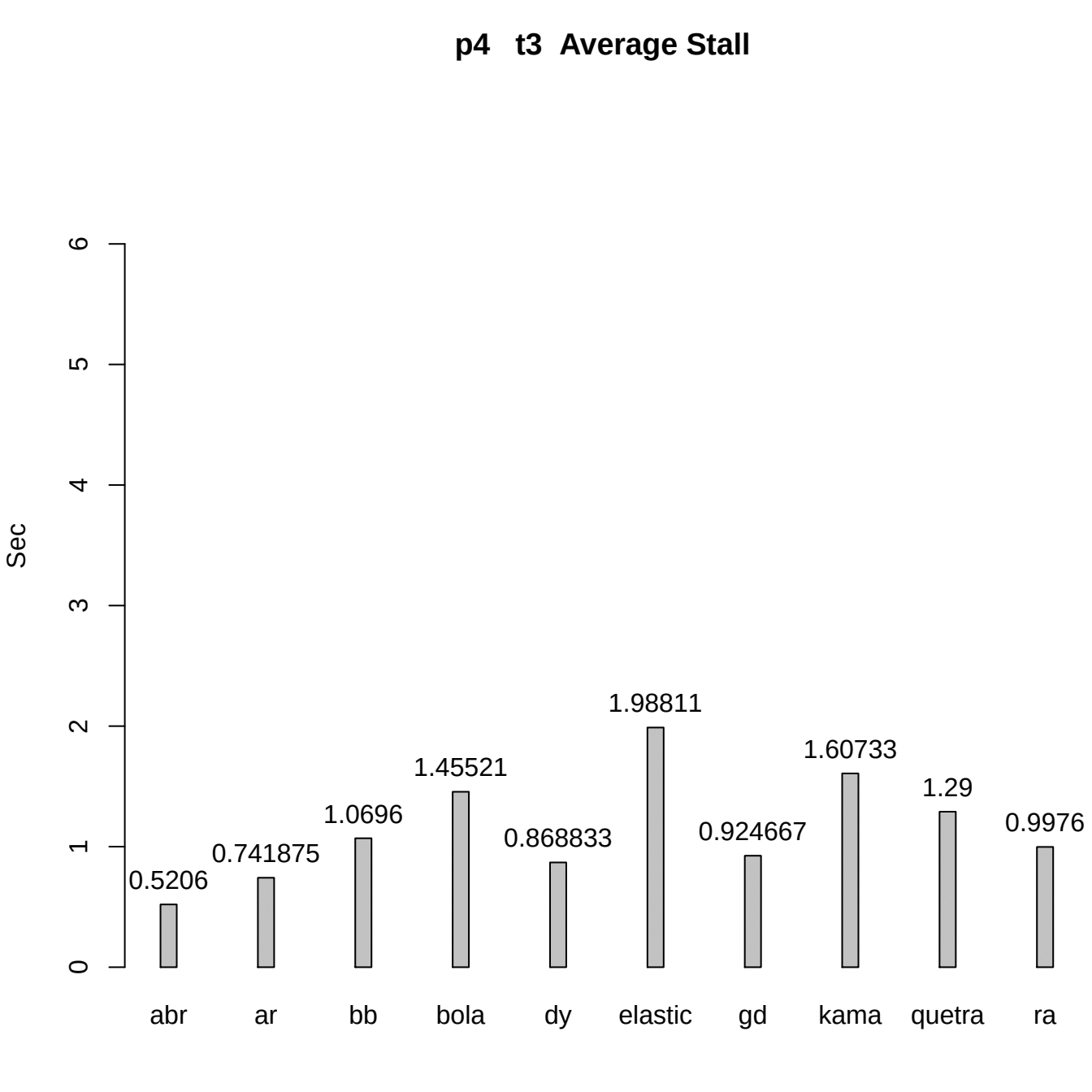

p4 t3 Avergae Bitrate
Kbps
0
500
1000
1500
2000
1372.08
1919.44
1607.76
1300.22
1306
1625.5
1348.11
1341.35
1584.37
1779.75
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

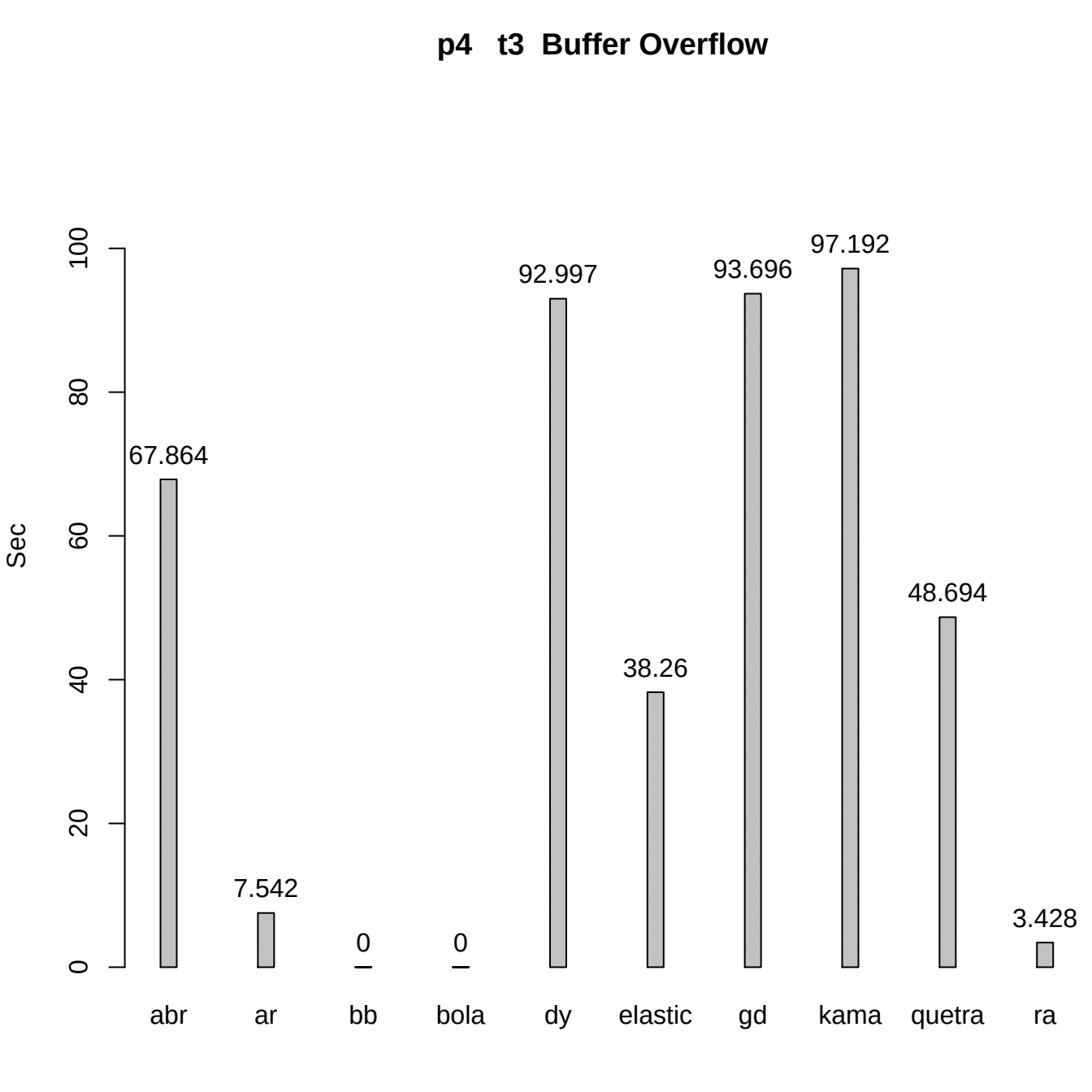

p4 t3 Quality Change
Change
0
50
100
150
148
24
61
3
4
37
4
4
25
34
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

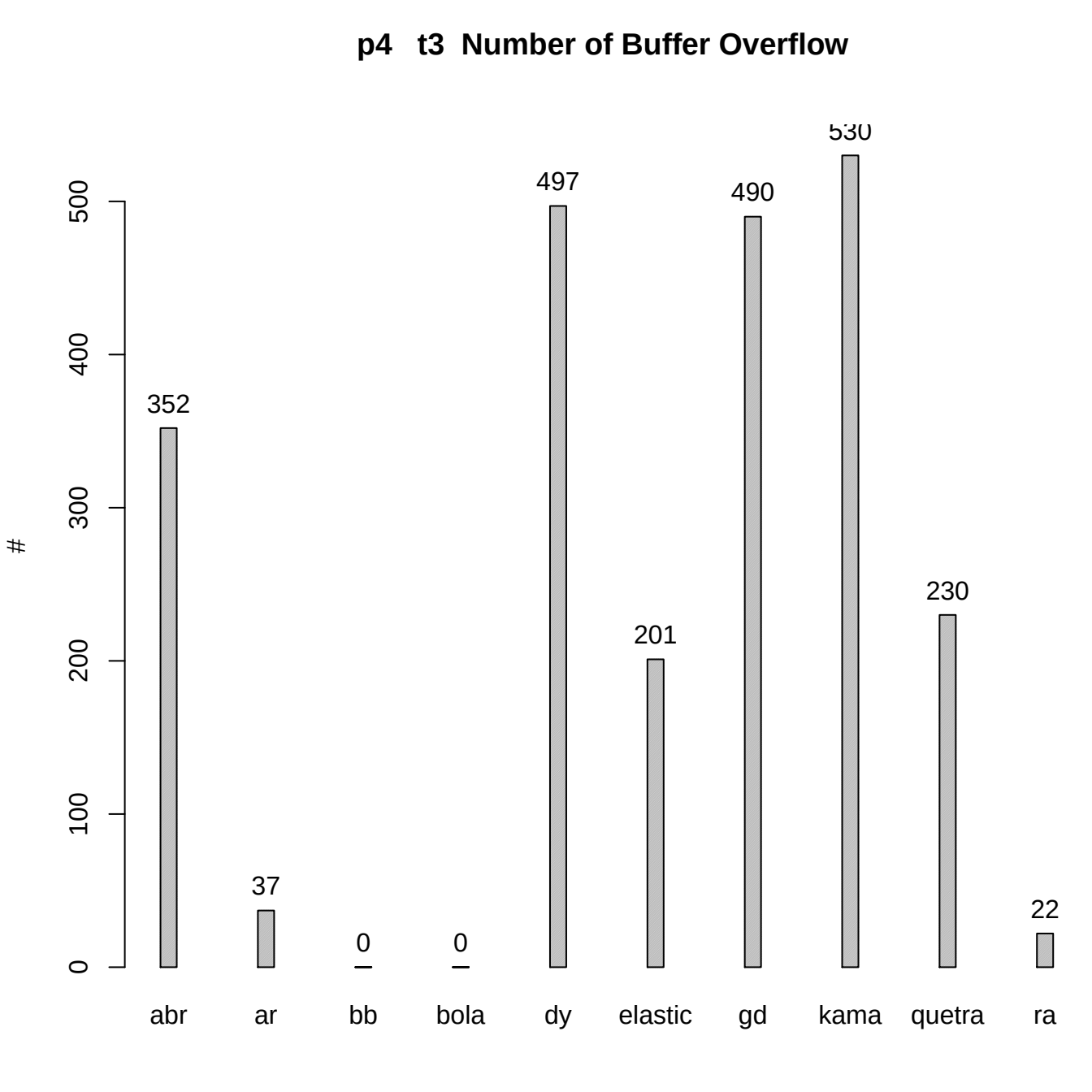

p4 t3 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.141252
0.155193
0.117343
0.181517
0.144564
0.141
0.149693
0.13153
0.1508
0.12932
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

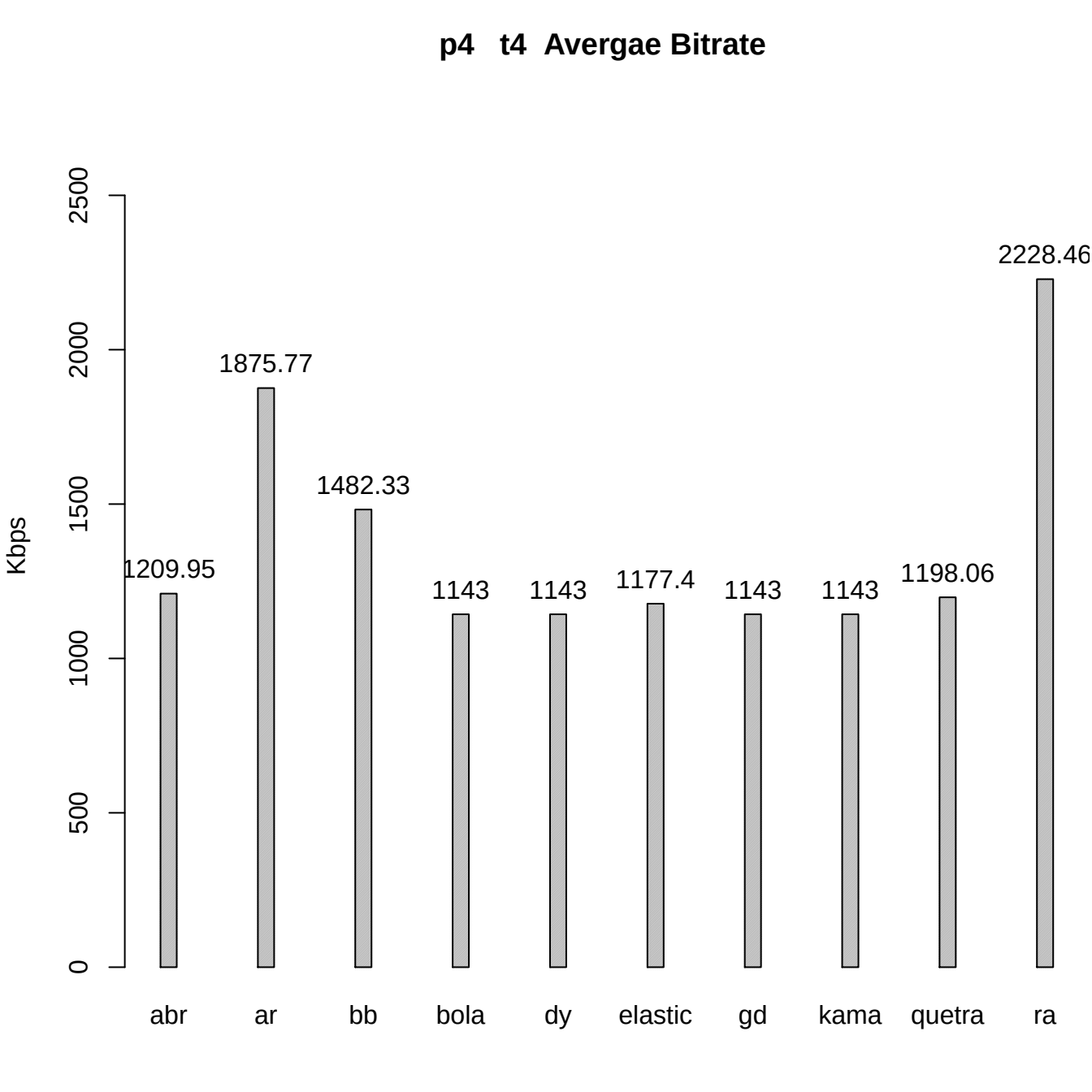

p4 t3 Total Stall
Sec
0
10
20
30
40
2.603
5.935
5.348
20.373
5.213
17.893
5.548
4.822
5.16
4.988
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

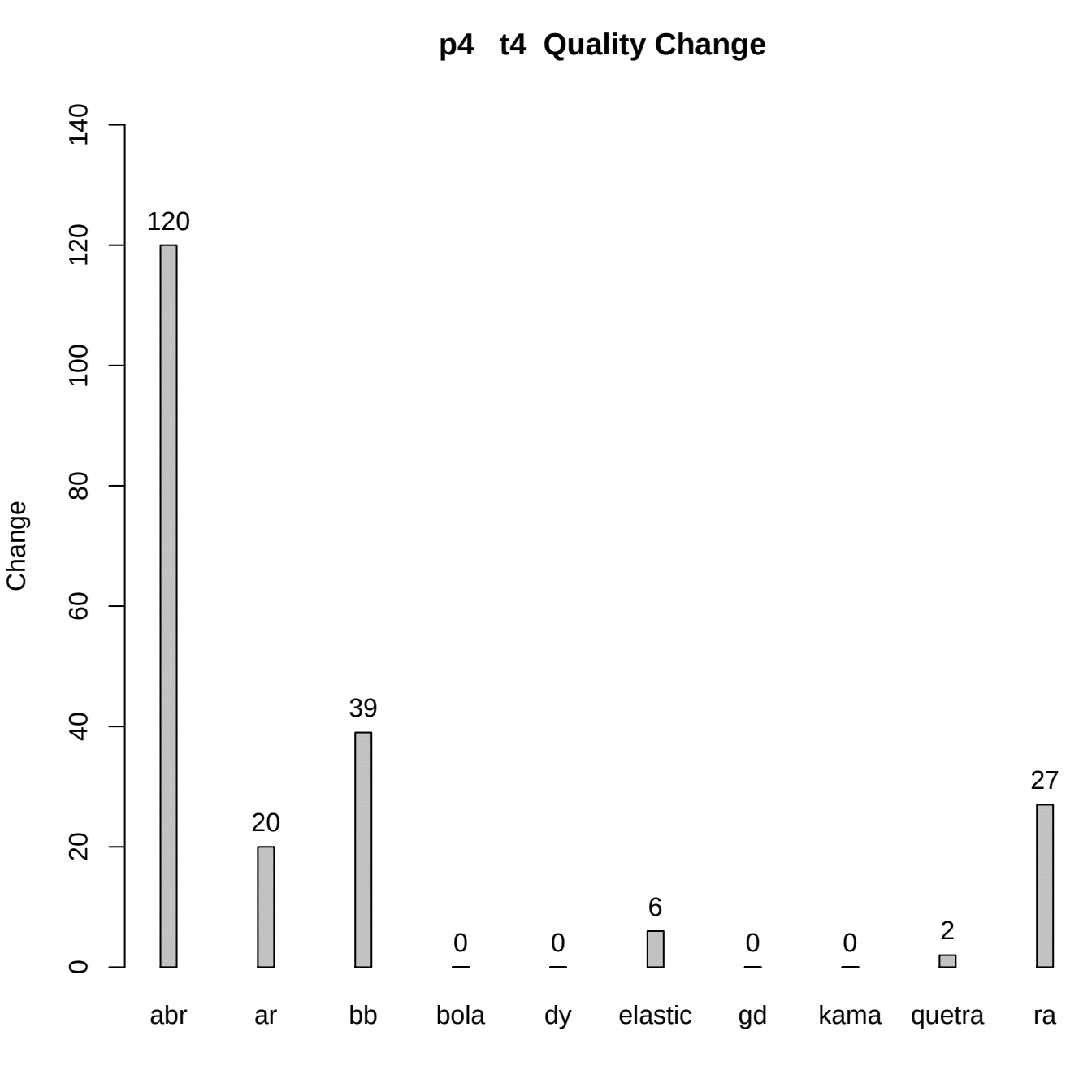

p4 t3 Number of Stall
#
0
5
10
15
20
25
30
5
8
5
14
6
9
6
3
4
5
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

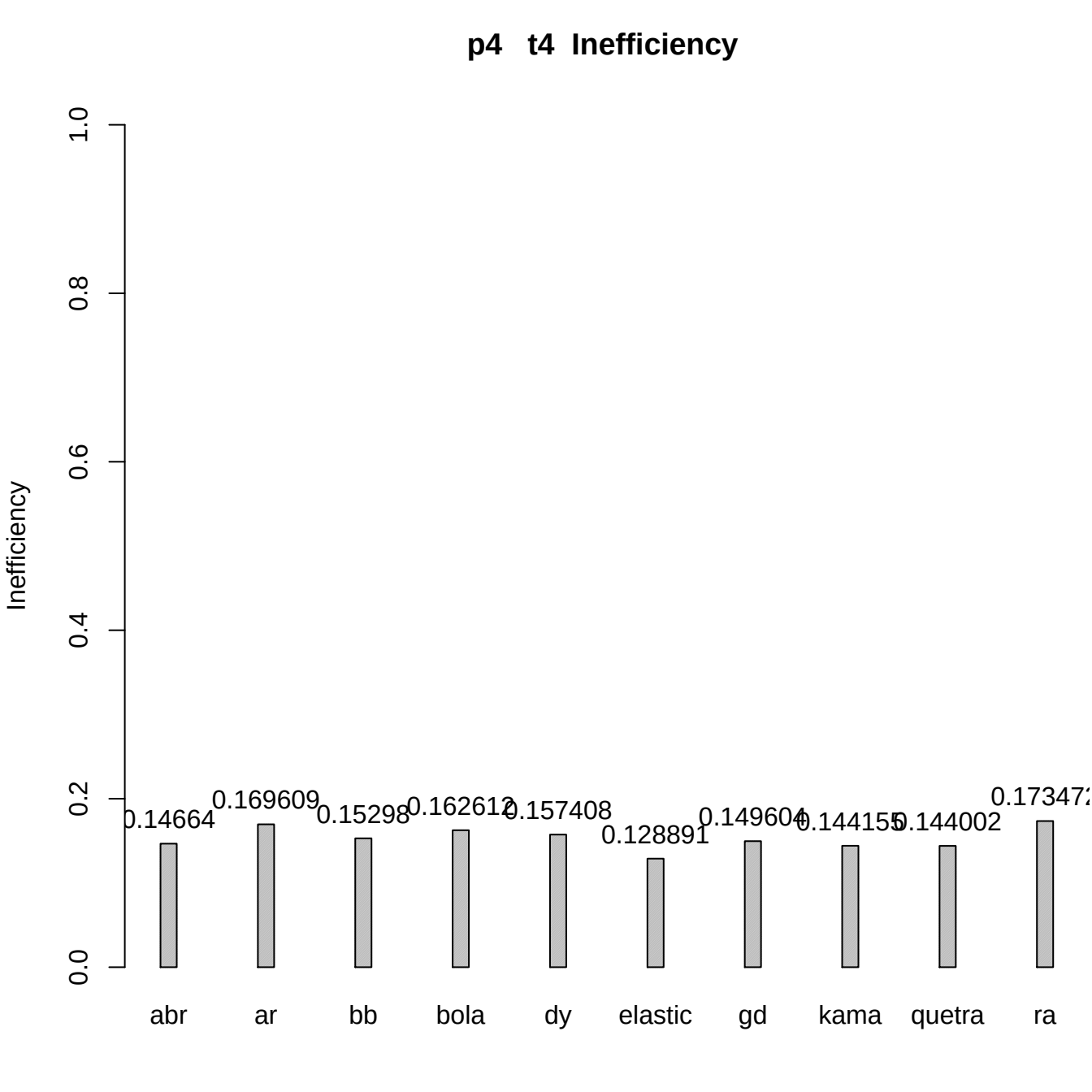

p4 t3 Average Stall
Sec
0
1
2
3
4
5
6
0.5206
0.741875
1.0696
1.45521
0.868833
1.98811
0.924667
1.60733
1.29
0.9976
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

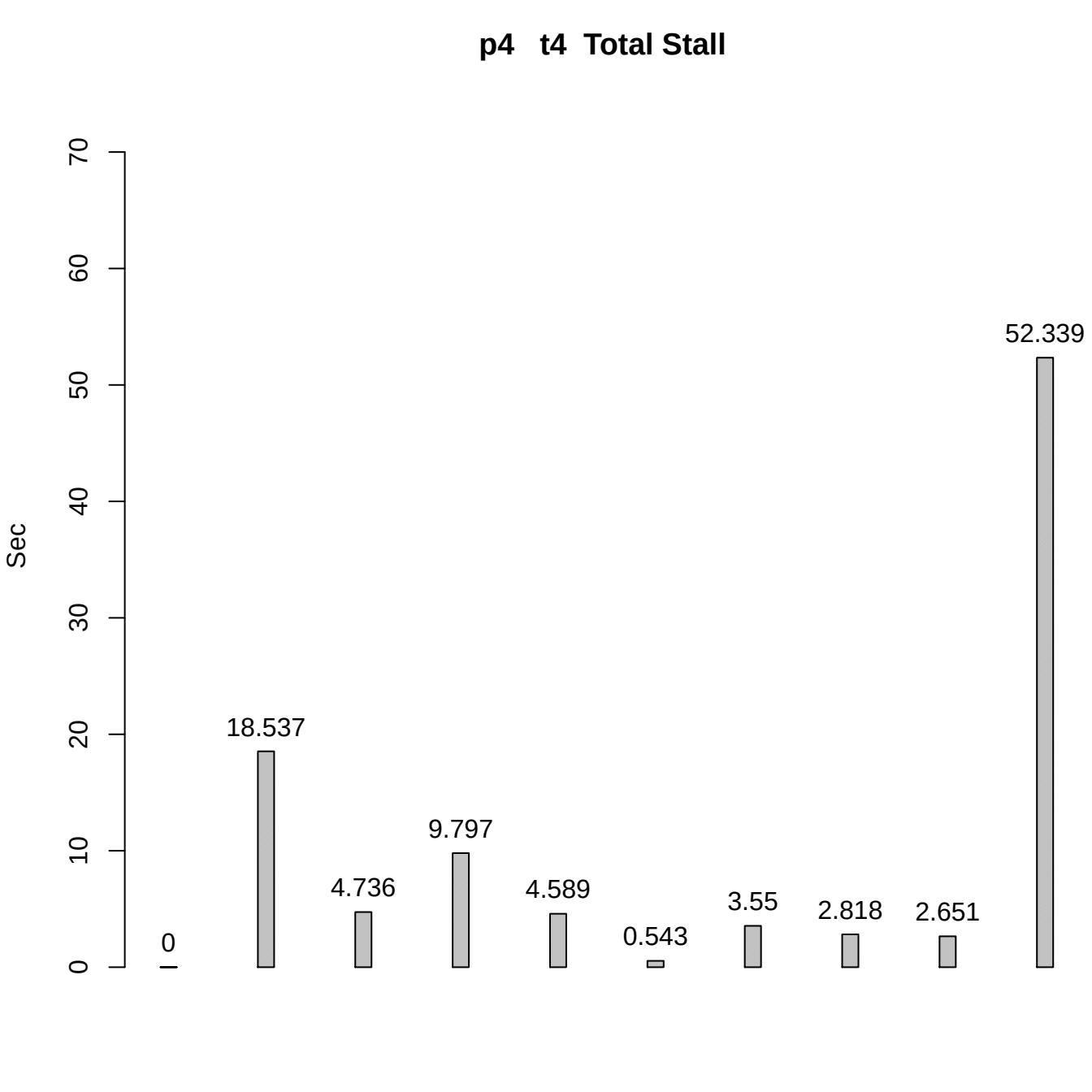

p4 t3 Buffer Overflow
Sec
0
20
40
60
80
100
67.864
7.542
0
0
92.997
38.26
93.696
97.192
48.694
3.428
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

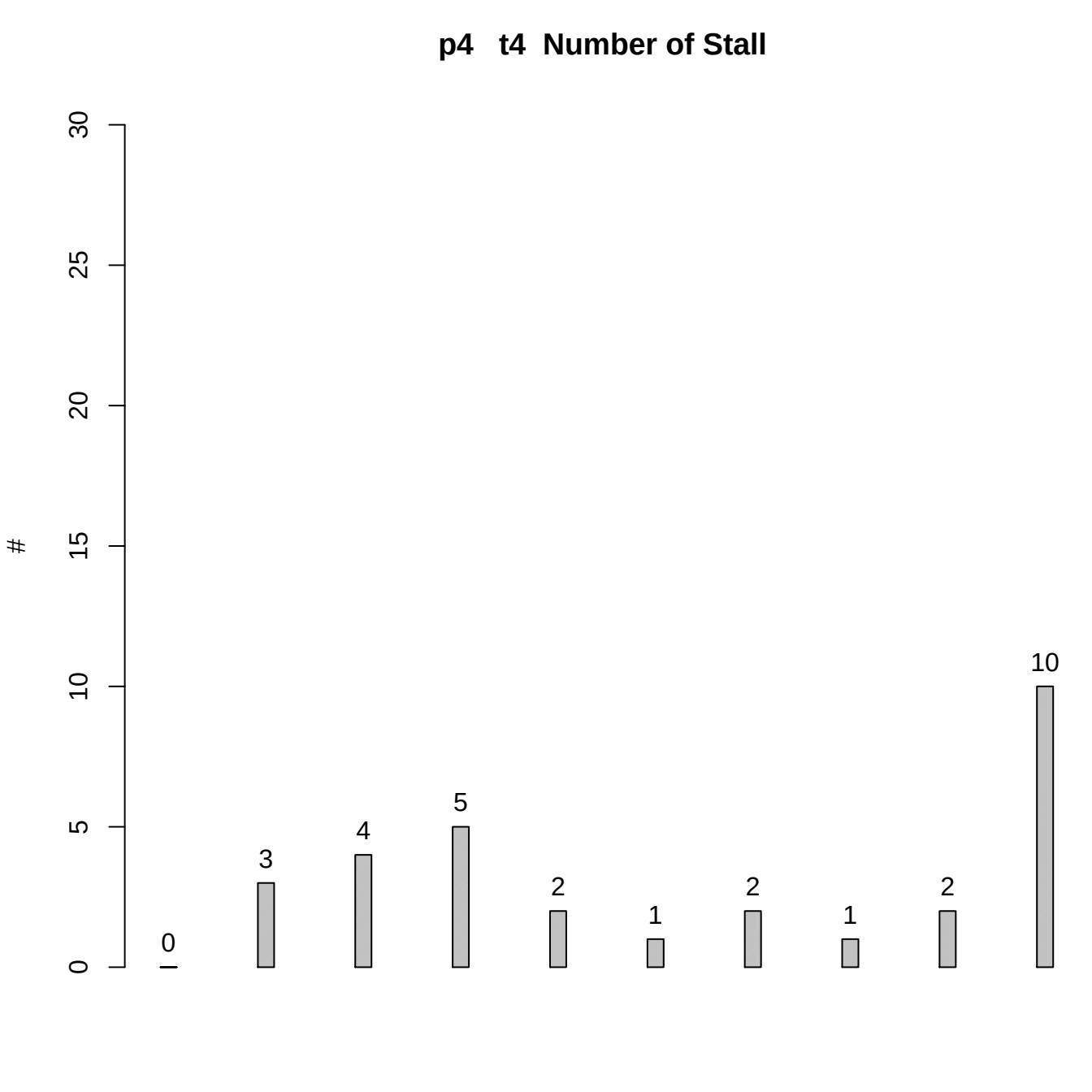

p4 t3 Number of Buffer Overflow
#
0
100
200
300
400
500
352
37
0
0
497
201
490
530
230
22
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

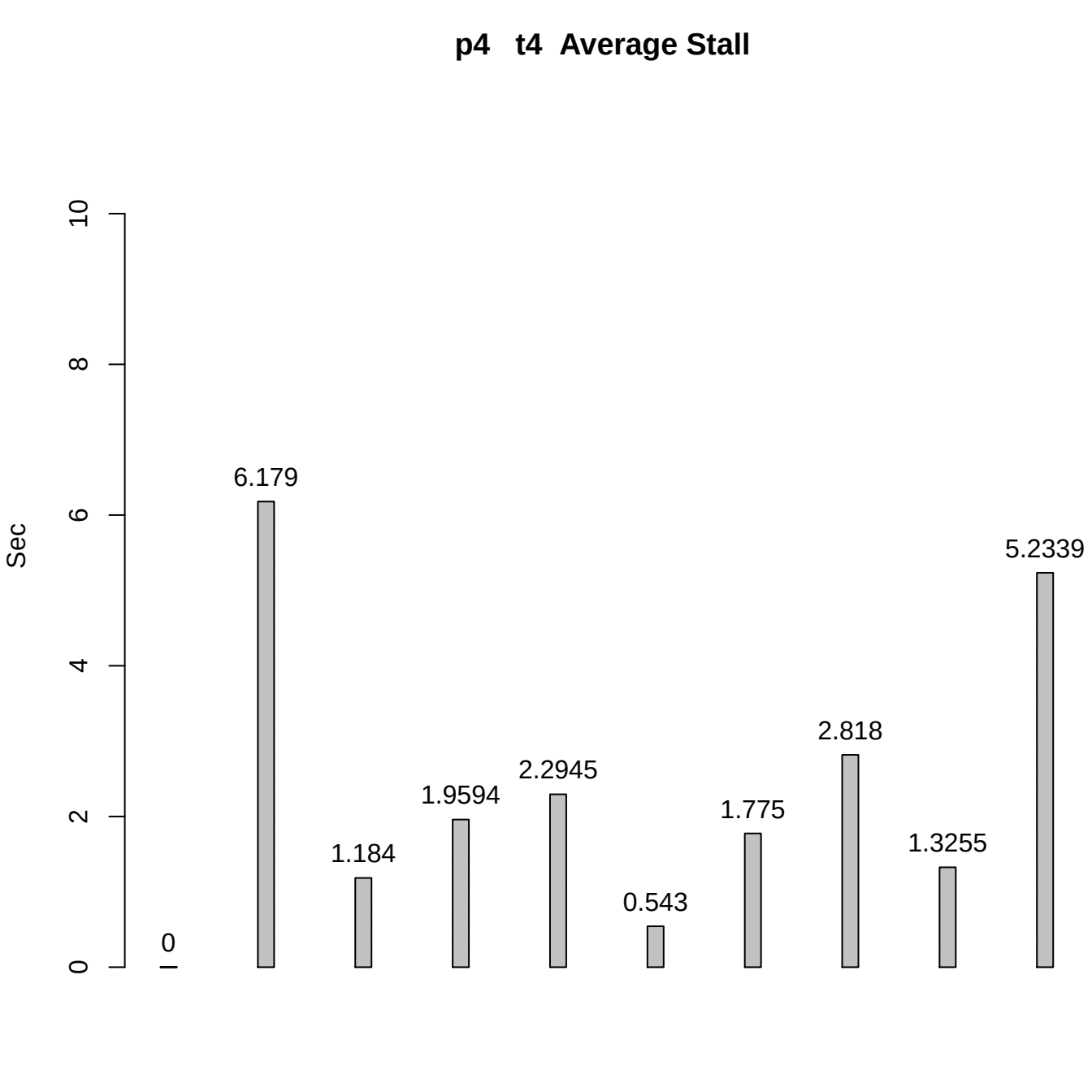

p4 t4 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
1209.95
1875.77
1482.33
1143
1143
1177.4
1143
1143
1198.06
2228.46
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

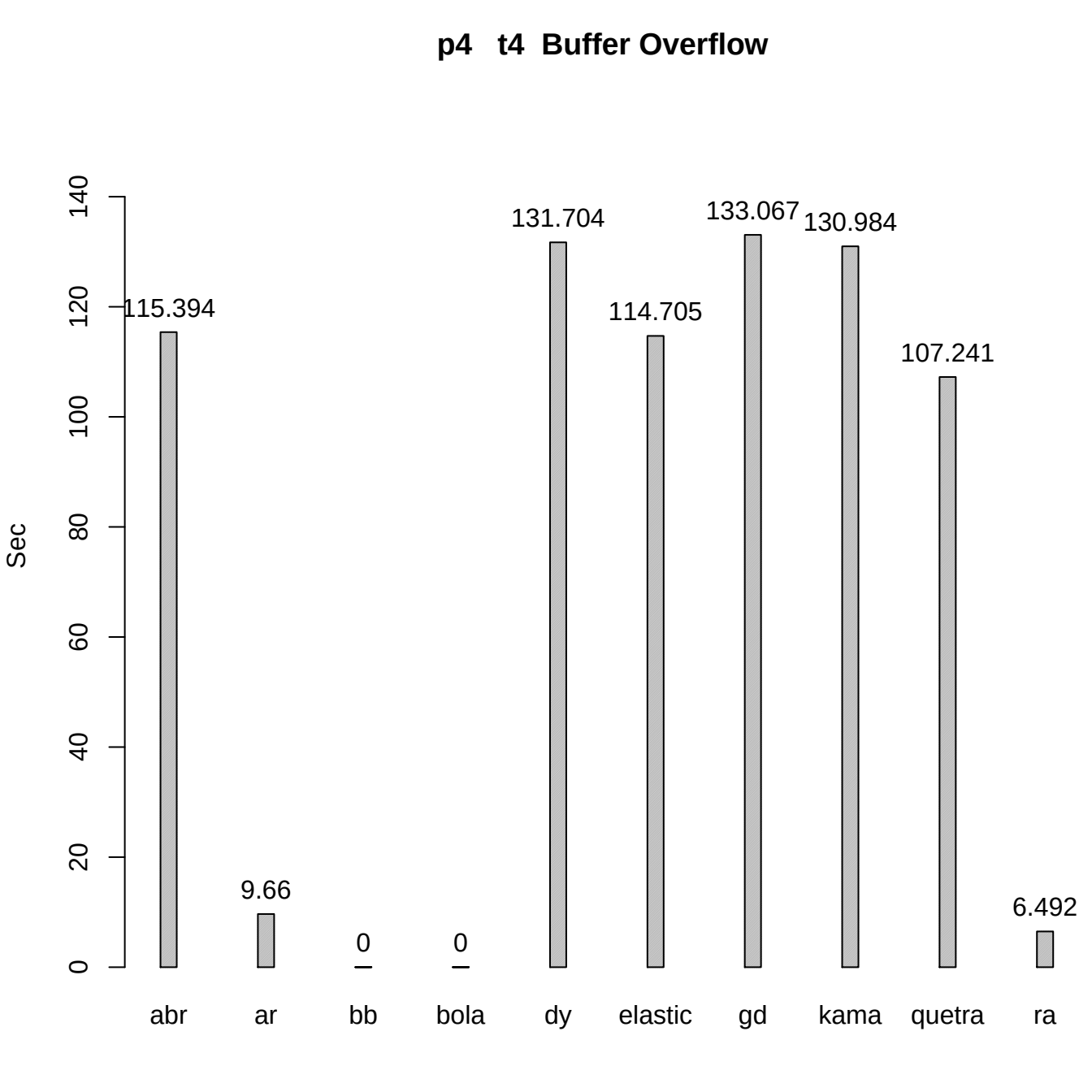

p4 t4 Quality Change
Change
0
20
40
60
80
100
120
140
120
20
39
0
0
6
0
0
2
27
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

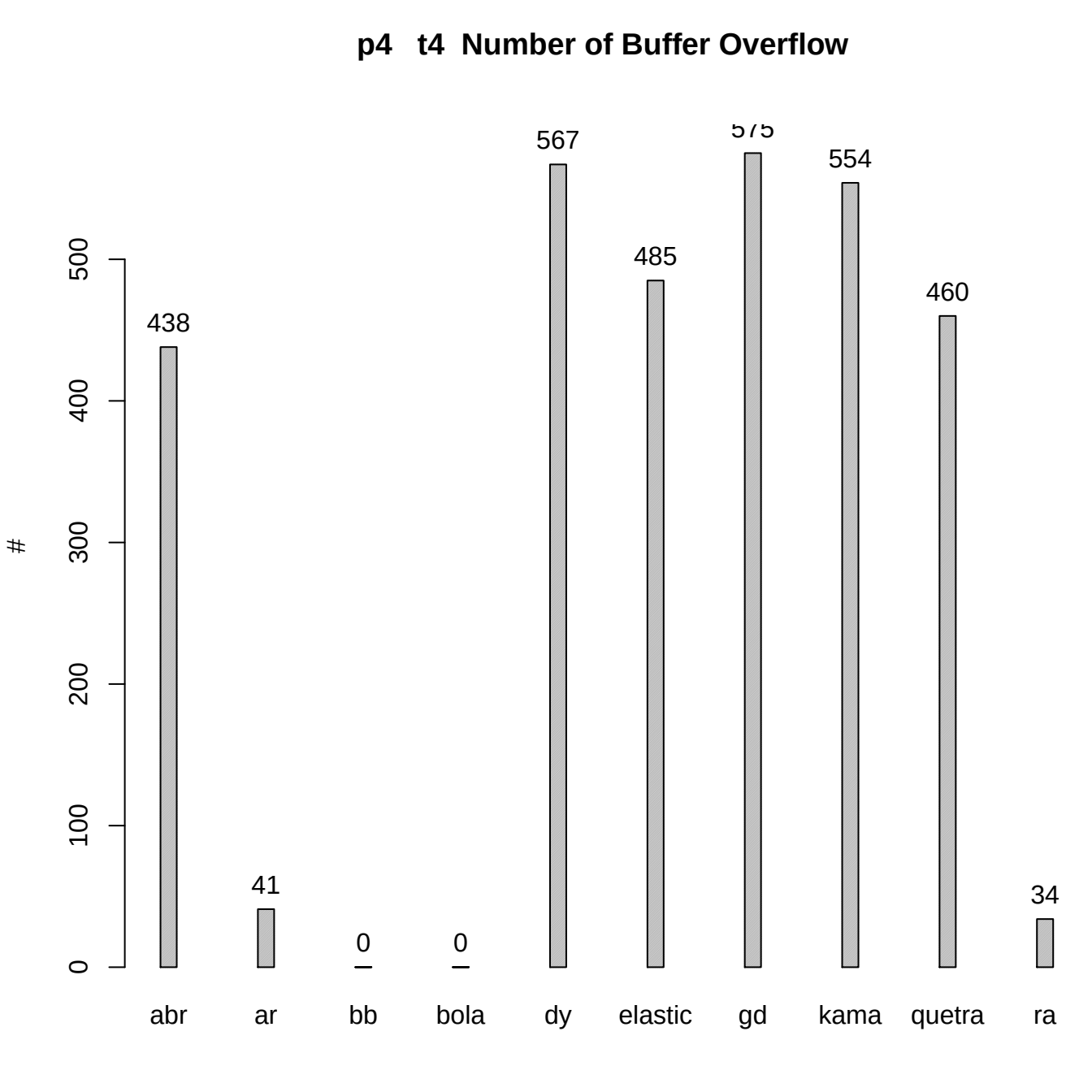

p4 t4 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
0.14664
0.169609
0.15298
0.162612
0.157408
0.128891
0.149604
0.144155
0.144002
0.173472
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

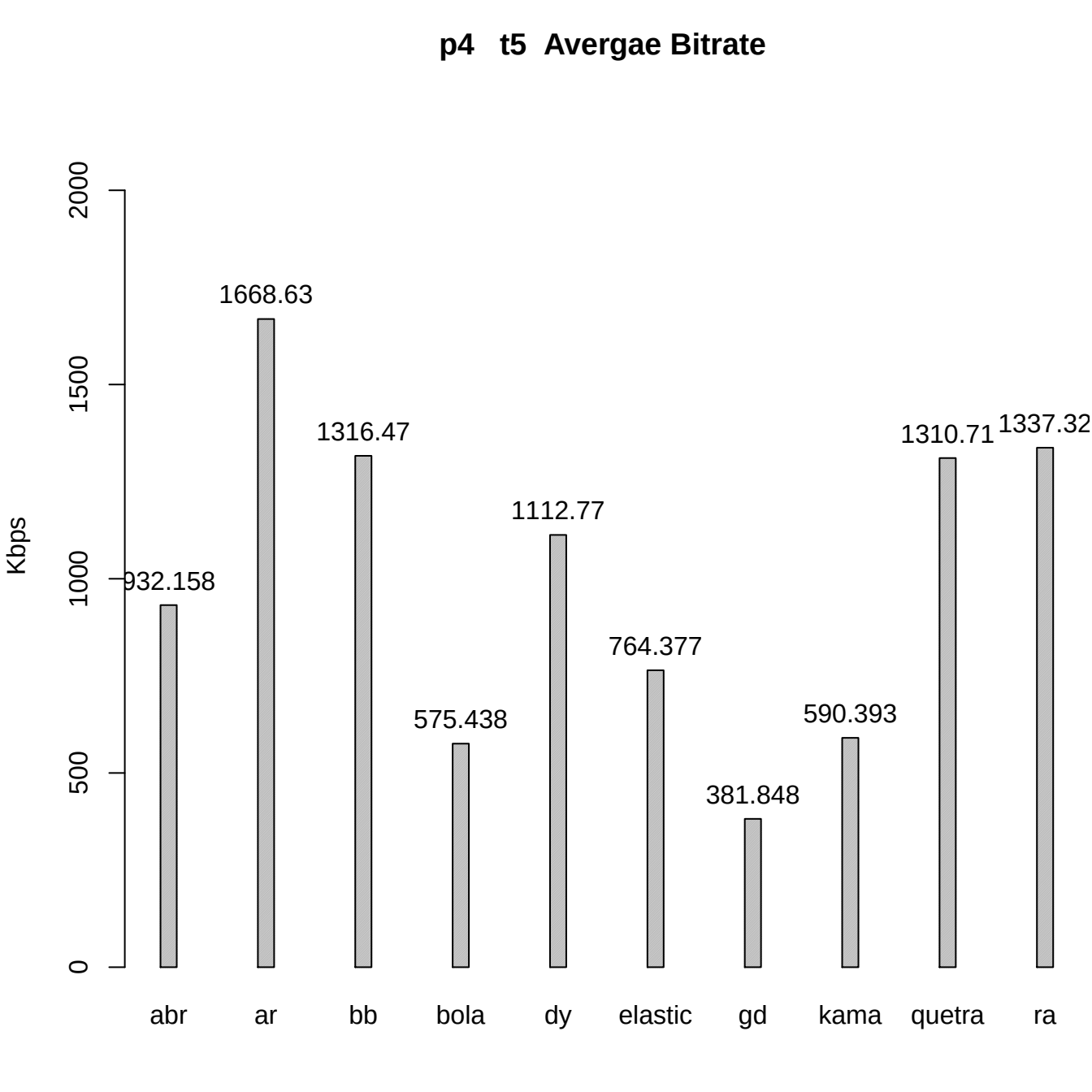

p4 t4 Total Stall
Sec
0
10
20
30
40
50
60
70
0
18.537
4.736
9.797
4.589
0.543
3.55
2.818
2.651
52.339

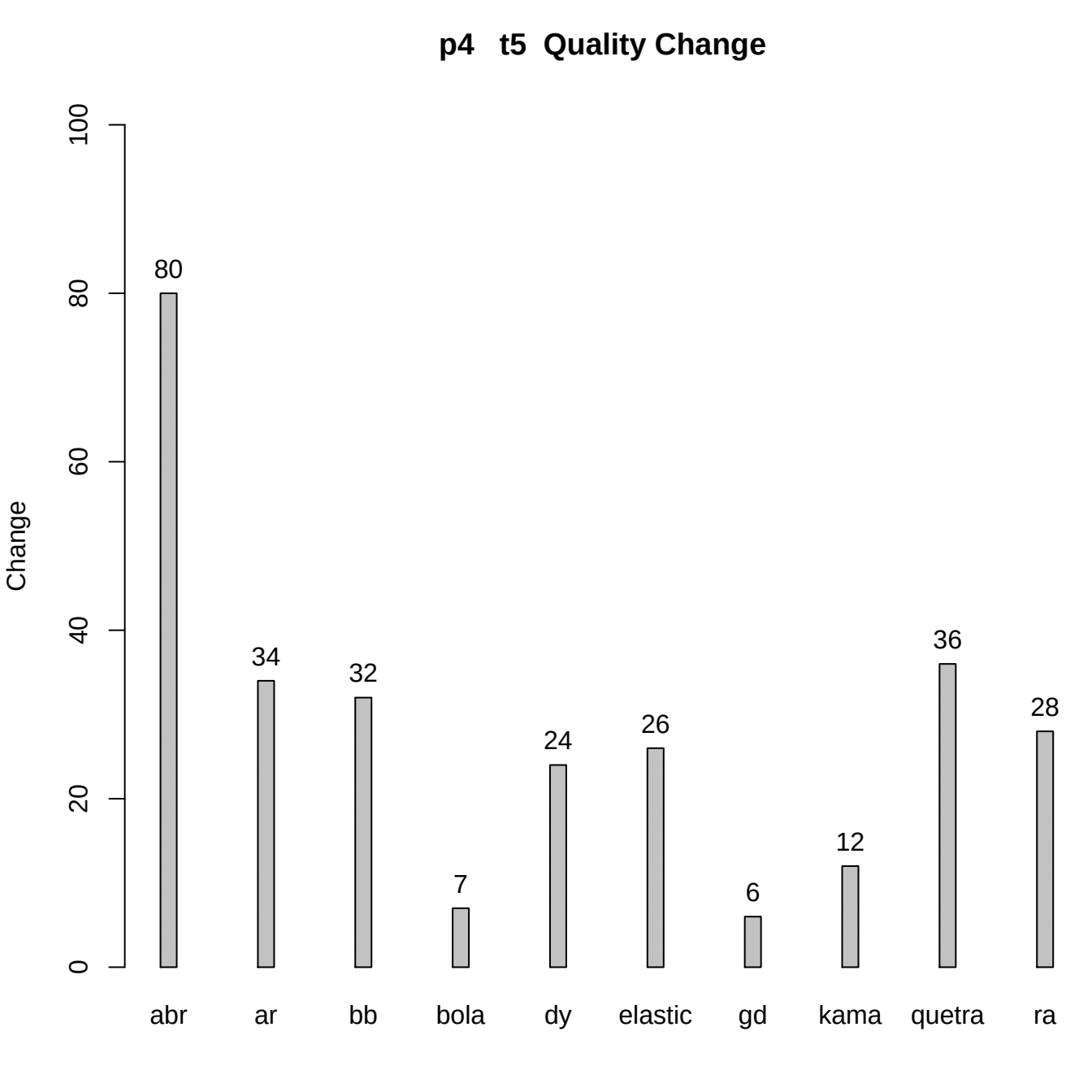

p4 t4 Number of Stall
#
0
5
10
15
20
25
30
0
3
4
5
2
1
2
1
2
10

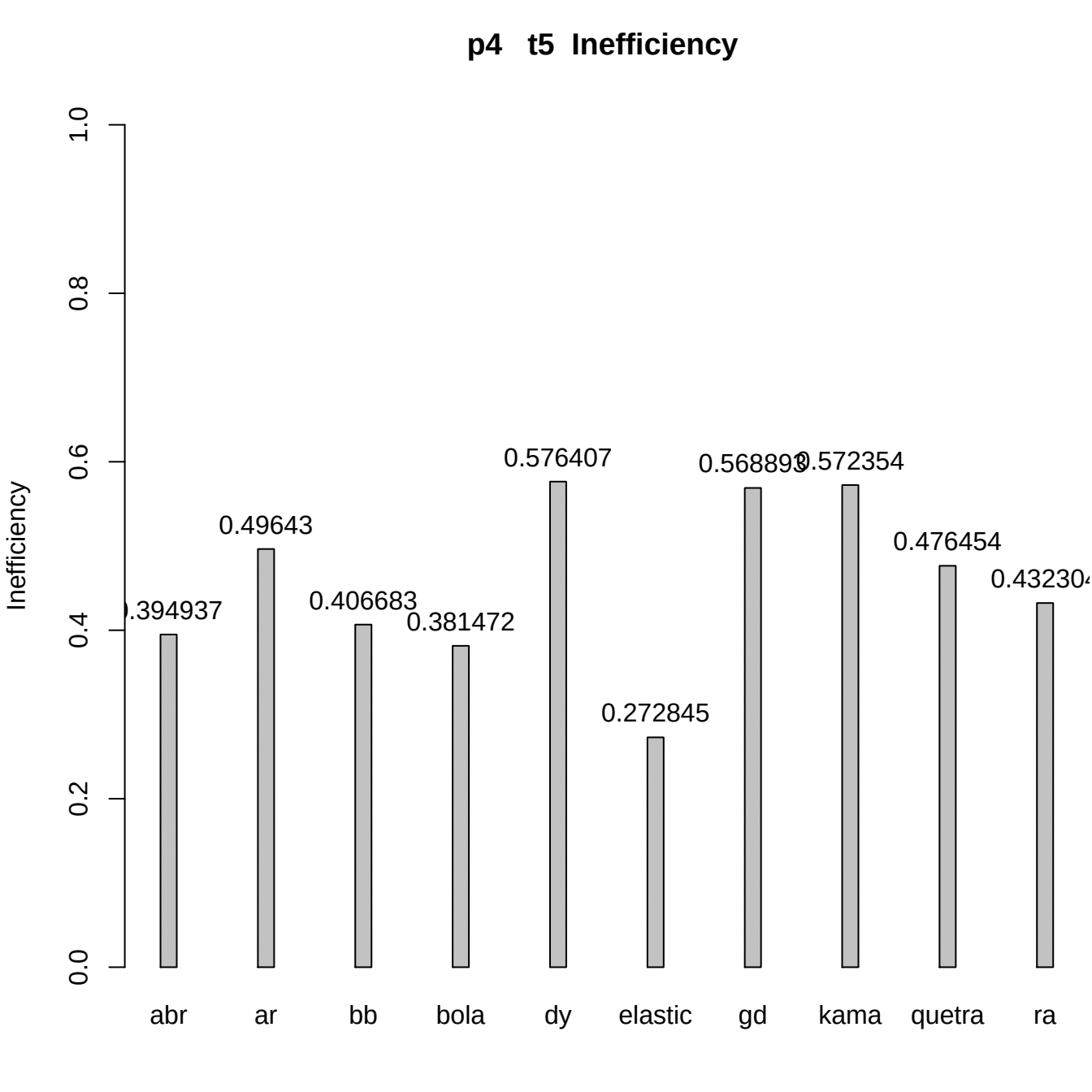

p4 t4 Average Stall
Sec
0
2
4
6
8
10
0
6.179
1.184
1.9594
2.2945
0.543
1.775
2.818
1.3255
5.2339

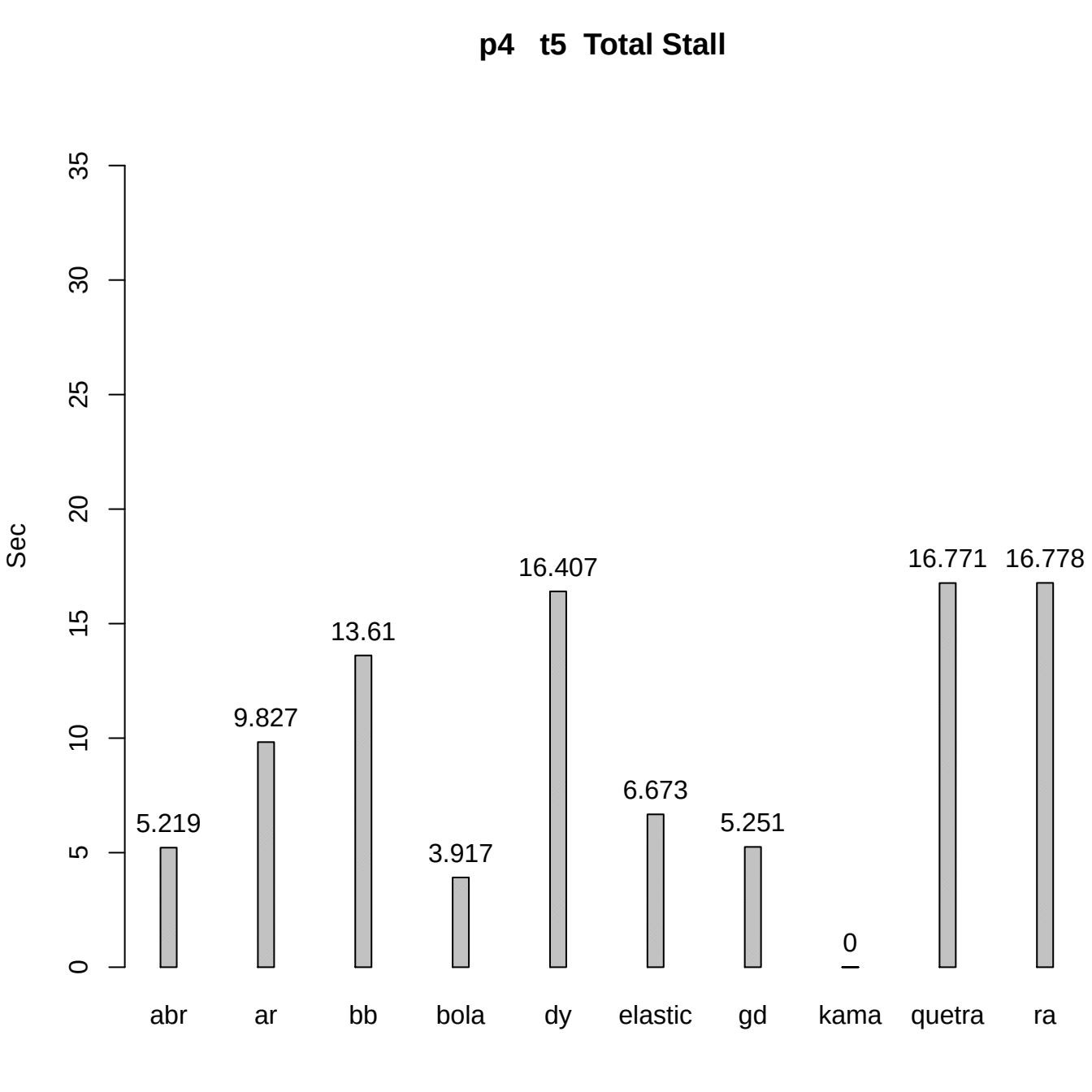

p4 t4 Buffer Overflow
Sec
0
20
40
60
80
100
120
140
115.394
9.66
0
0
131.704
114.705
133.067
130.984
107.241
6.492
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

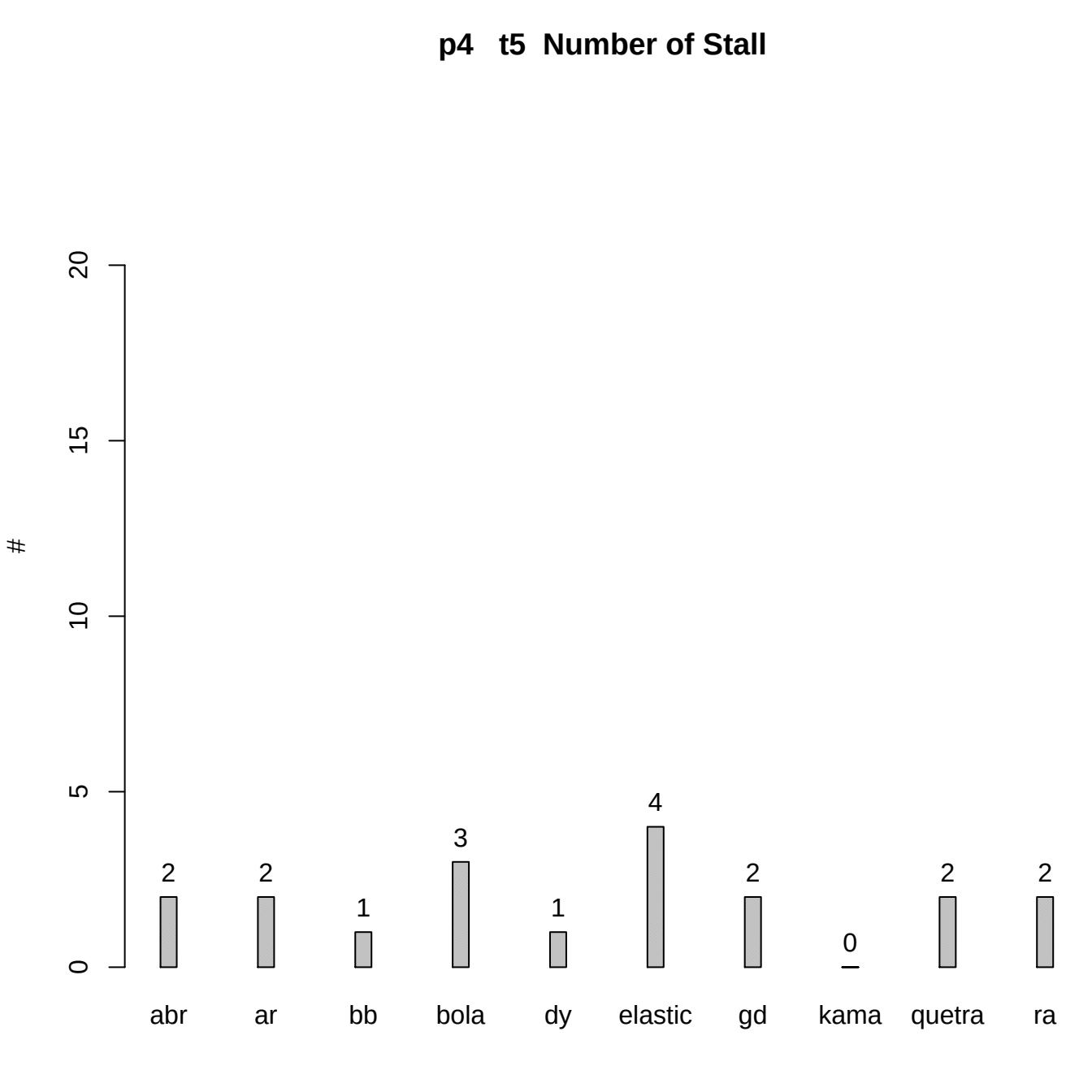

p4 t4 Number of Buffer Overflow
#
0
100
200
300
400
500
438
41
0
0
567
485
575
554
460
34
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

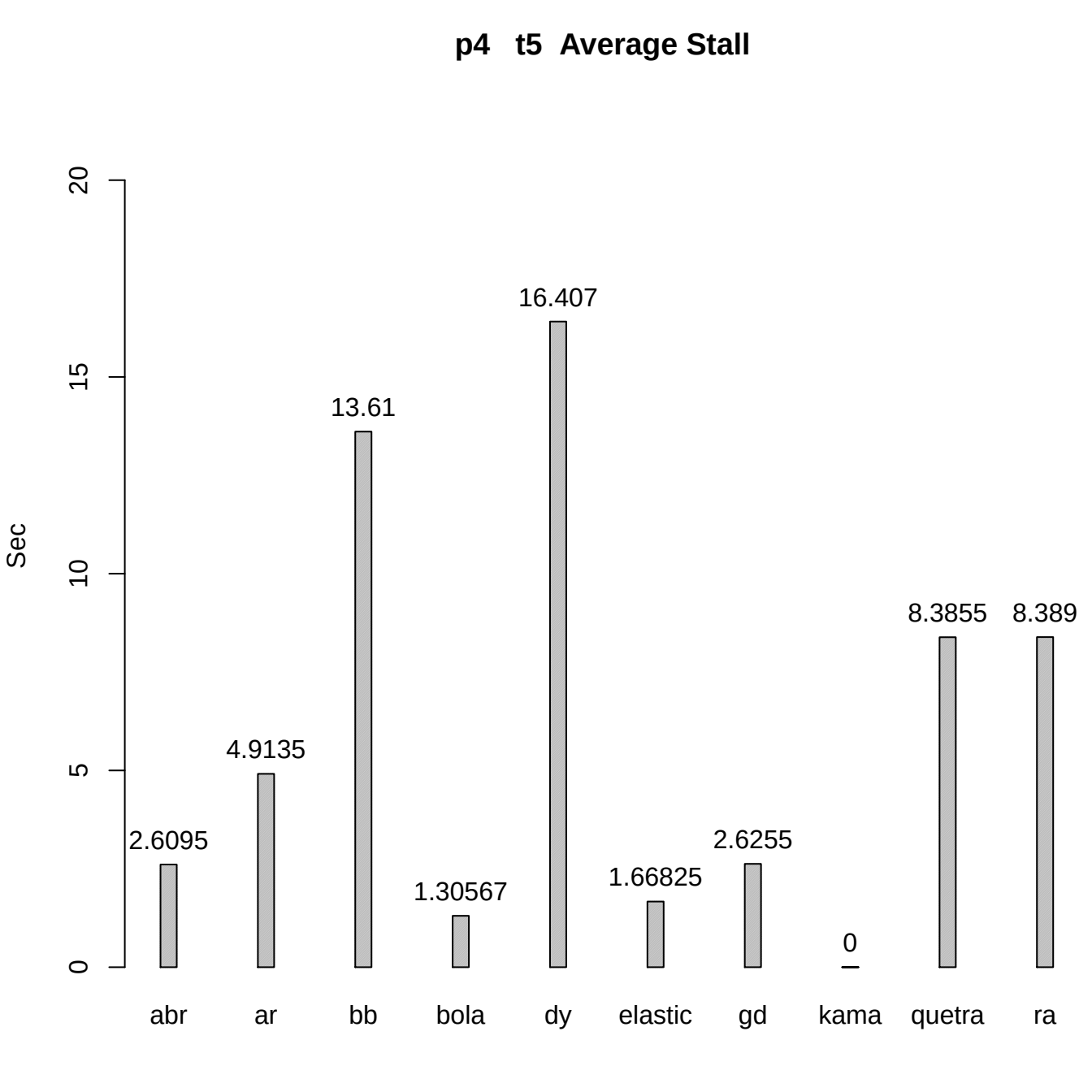

p4 t5 Avergae Bitrate
Kbps
0
500
1000
1500
2000
932.158
1668.63
1316.47
575.438
1112.77
764.377
381.848
590.393
1310.71
1337.32
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

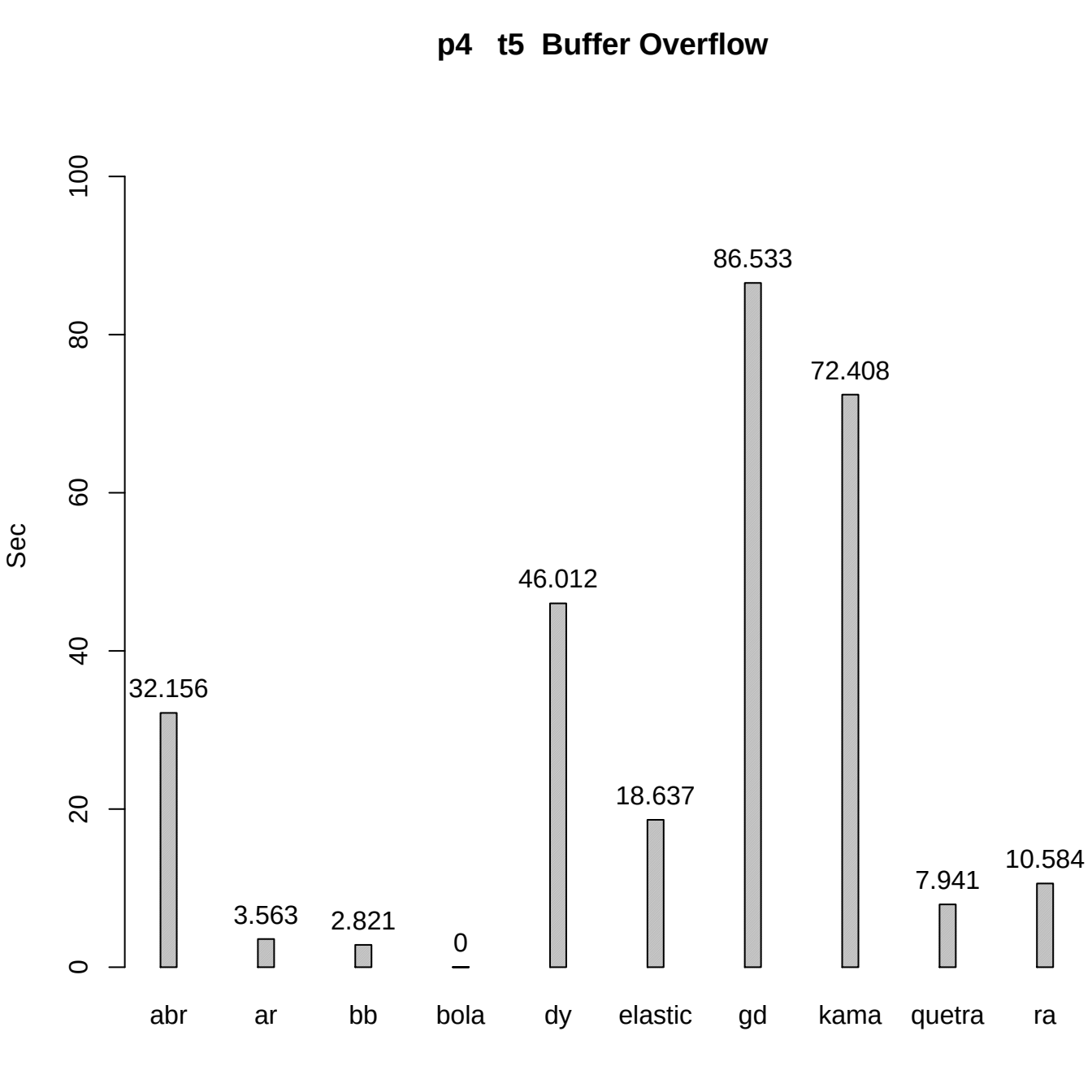

p4 t5 Quality Change
Change
0
20
40
60
80
100
80
34
32
7
24
26
6
12
36
28
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

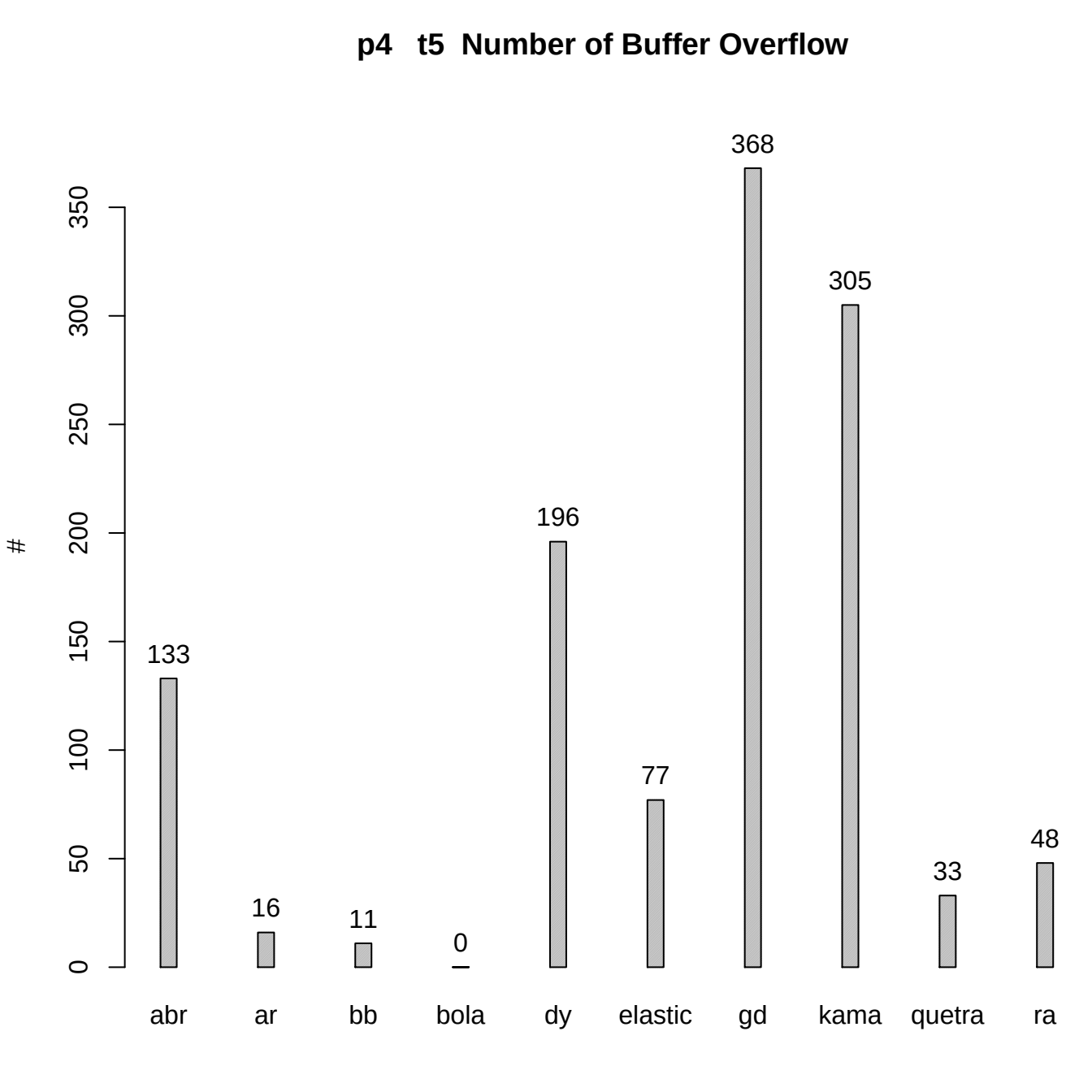

p4 t5 Inefficiency
Inefficiency
1.0
0.8
0.6
0.4
0.2
0.0
0.394937
0.49643
0.406683
0.381472
0.576407
0.272845
0.568893
0.572354
0.476454
0.432304
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

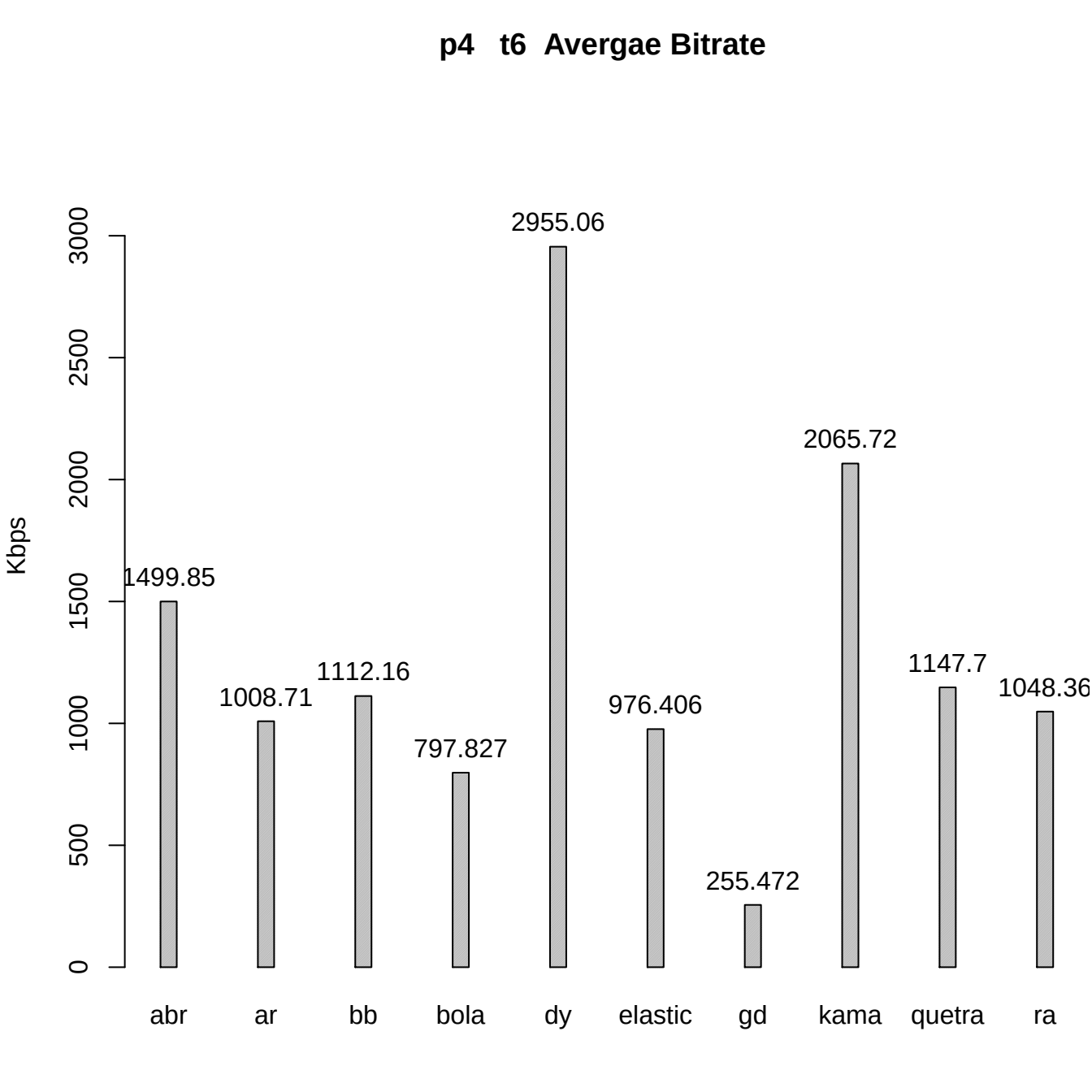

p4 t5 Total Stall
Sec
0
5
10
15
20
25
30
35
5.219
9.827
13.61
3.917
16.407
6.673
5.251
0
16.771
16.778
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

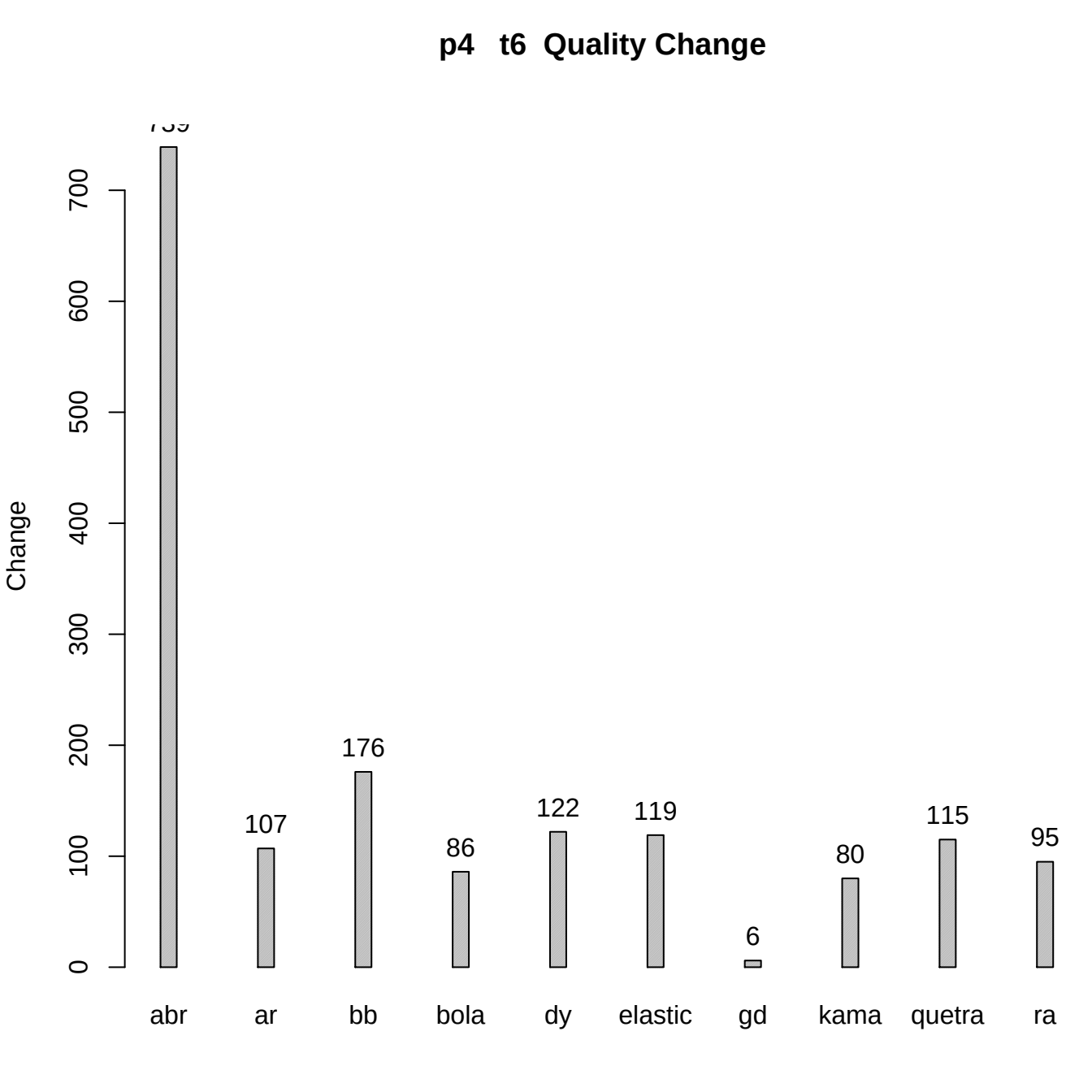

p4 t5 Number of Stall
#
0
5
10
15
20
2
2
1
3
1
4
2
0
2
2
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

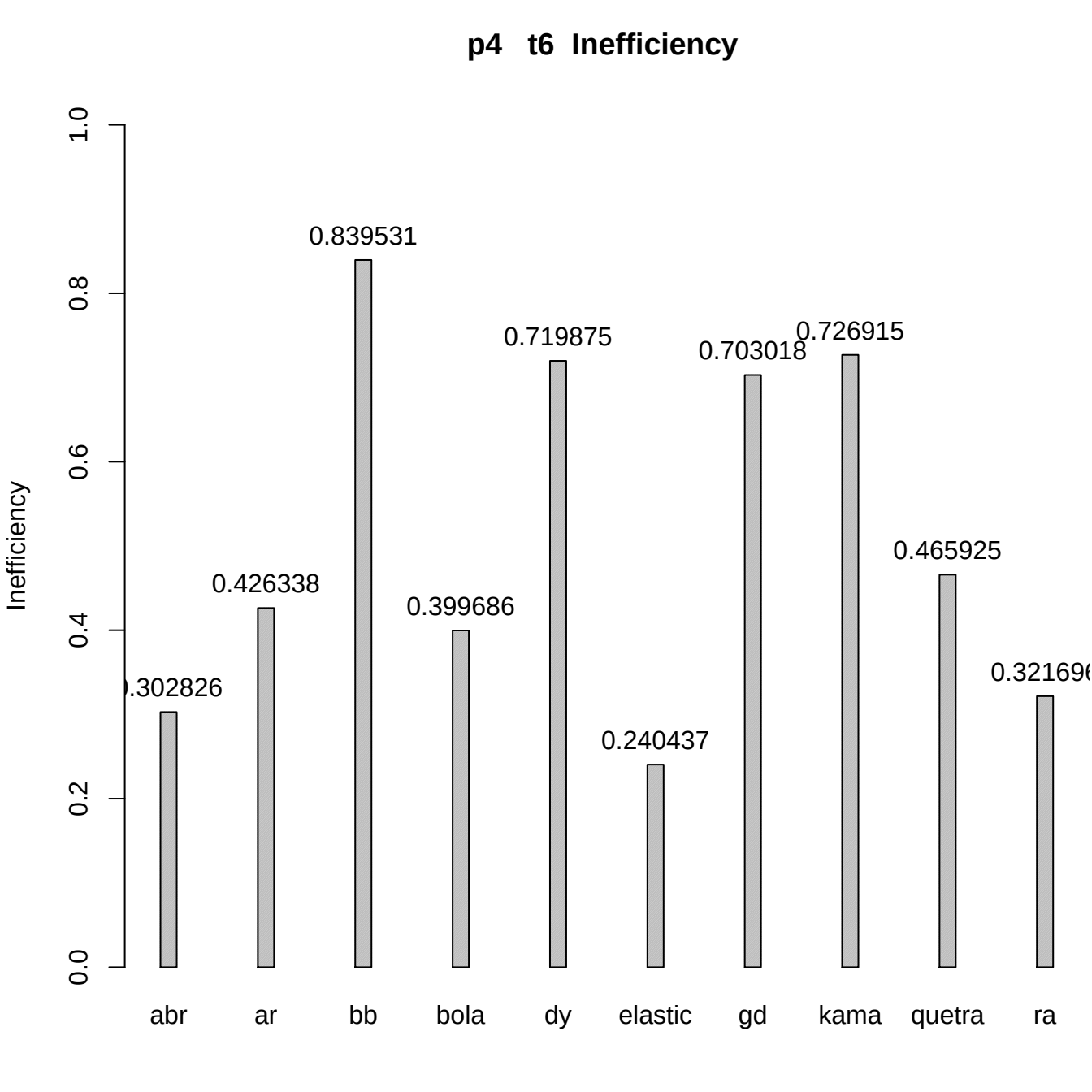

p4 t5 Average Stall
Sec
0
5
10
15
20
2.6095
4.9135
13.61
1.30567
16.407
1.66825
2.6255
0
8.3855
8.389
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

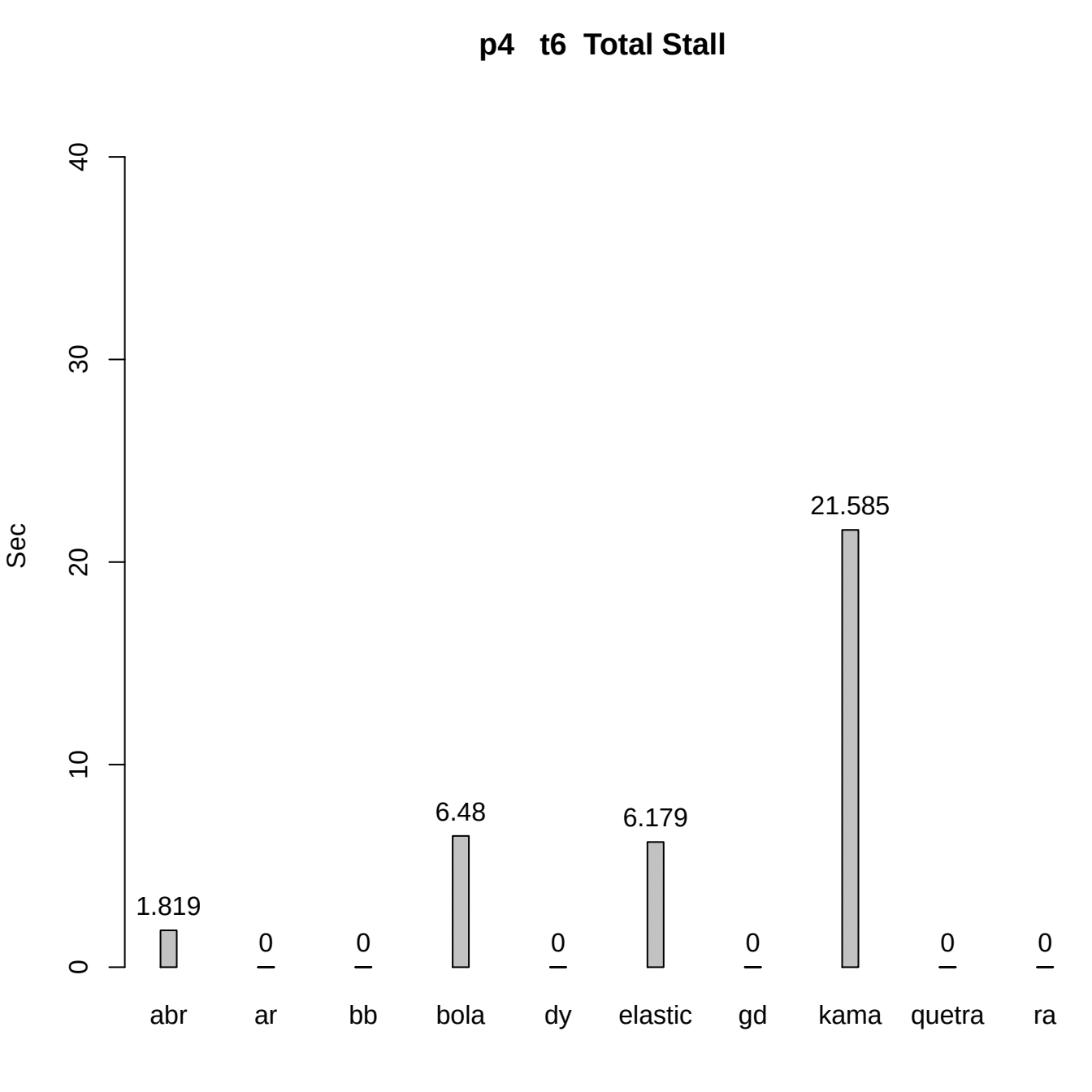

p4 t5 Buffer Overflow
Sec
0
20
40
60
80
100
32.156
3.563
2.821
0
46.012
18.637
86.533
72.408
7.941
10.584
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

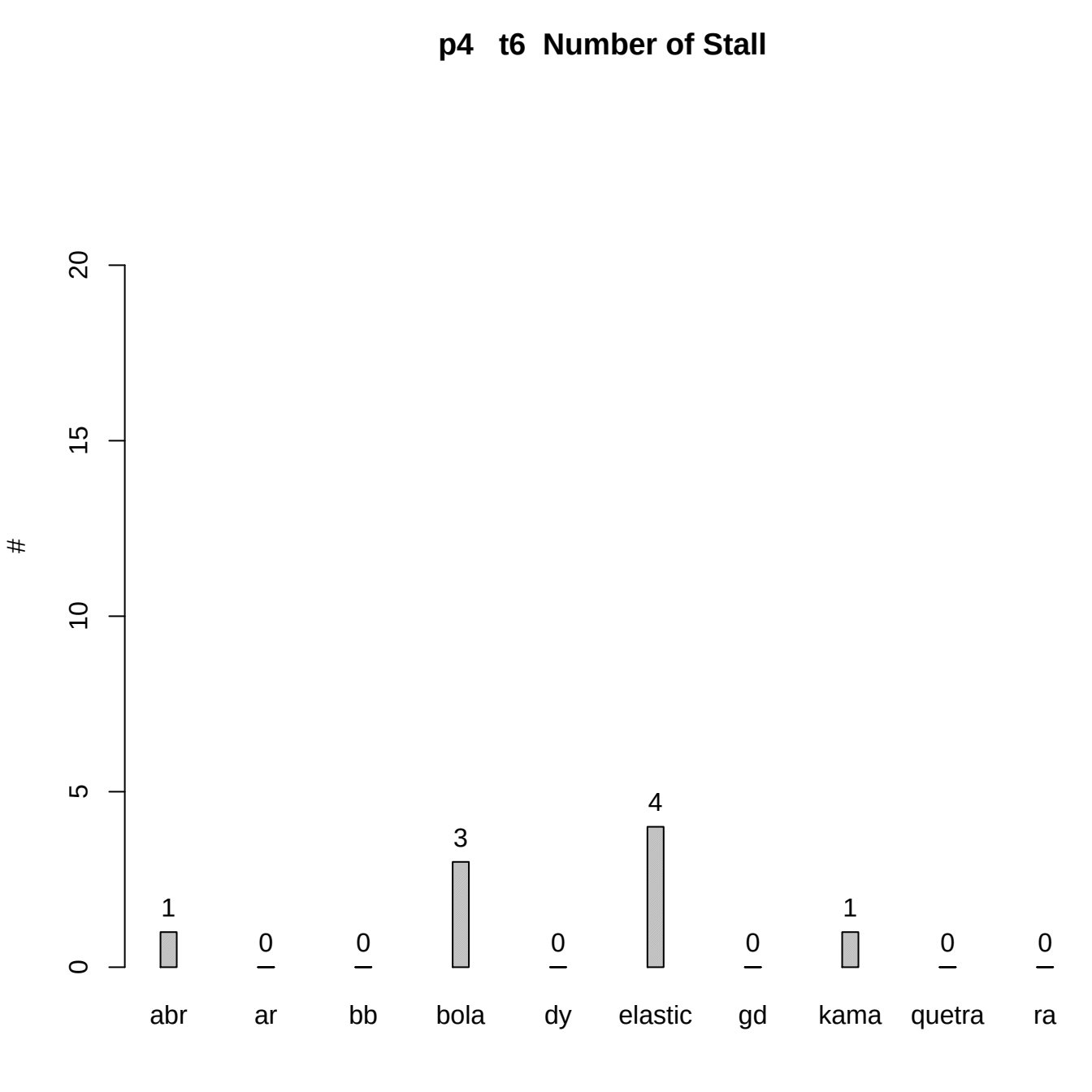

p4 t5 Number of Buffer Overflow
#
0
50
100
150
200
250
300
350
133
16
11
0
196
77
368
305
33
48
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

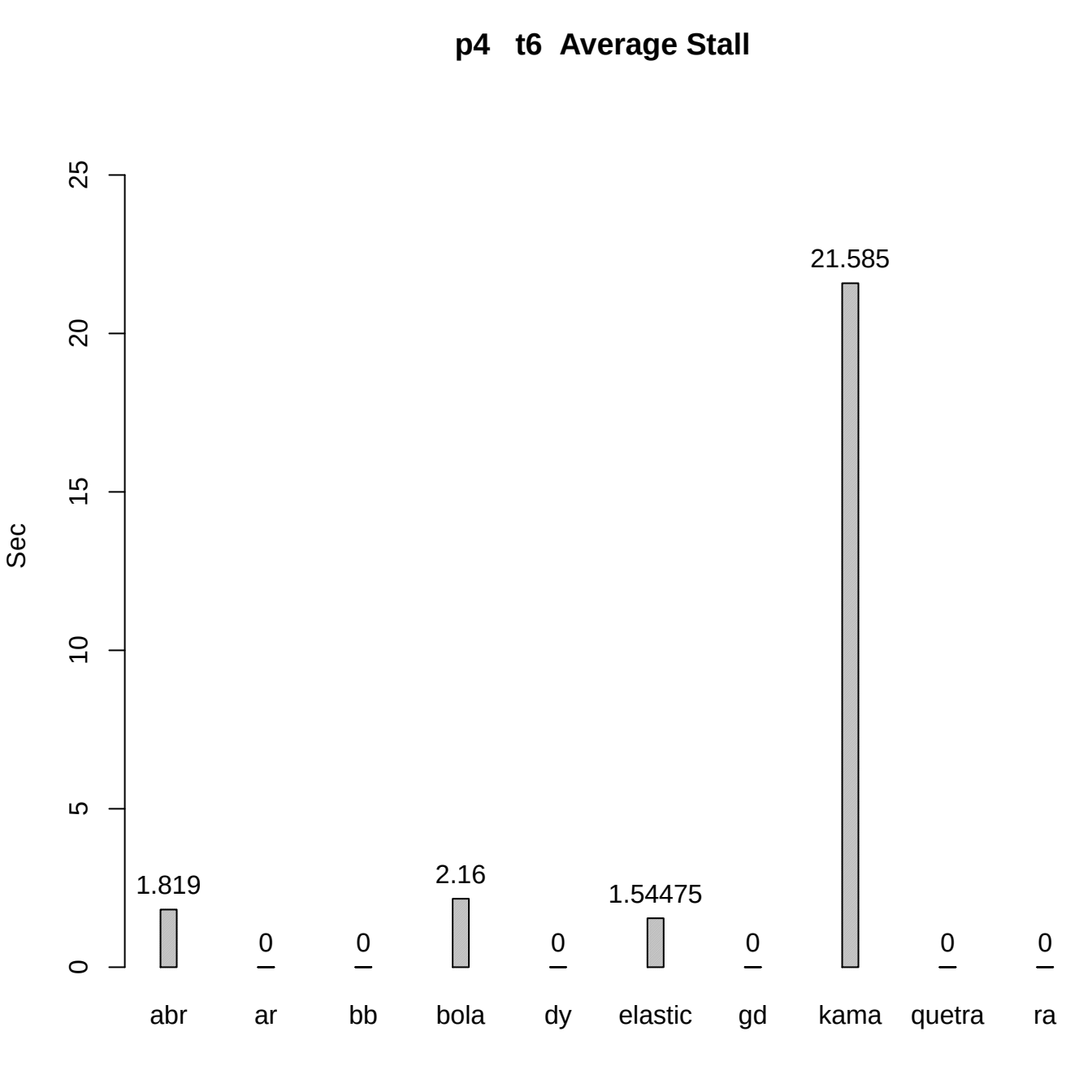

p4 t6 Avergae Bitrate
Kbps
0
500
1000
1500
2000
2500
3000
1499.85
1008.71
1112.16
797.827
2955.06
976.406
255.472
2065.72
1147.7
1048.36
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

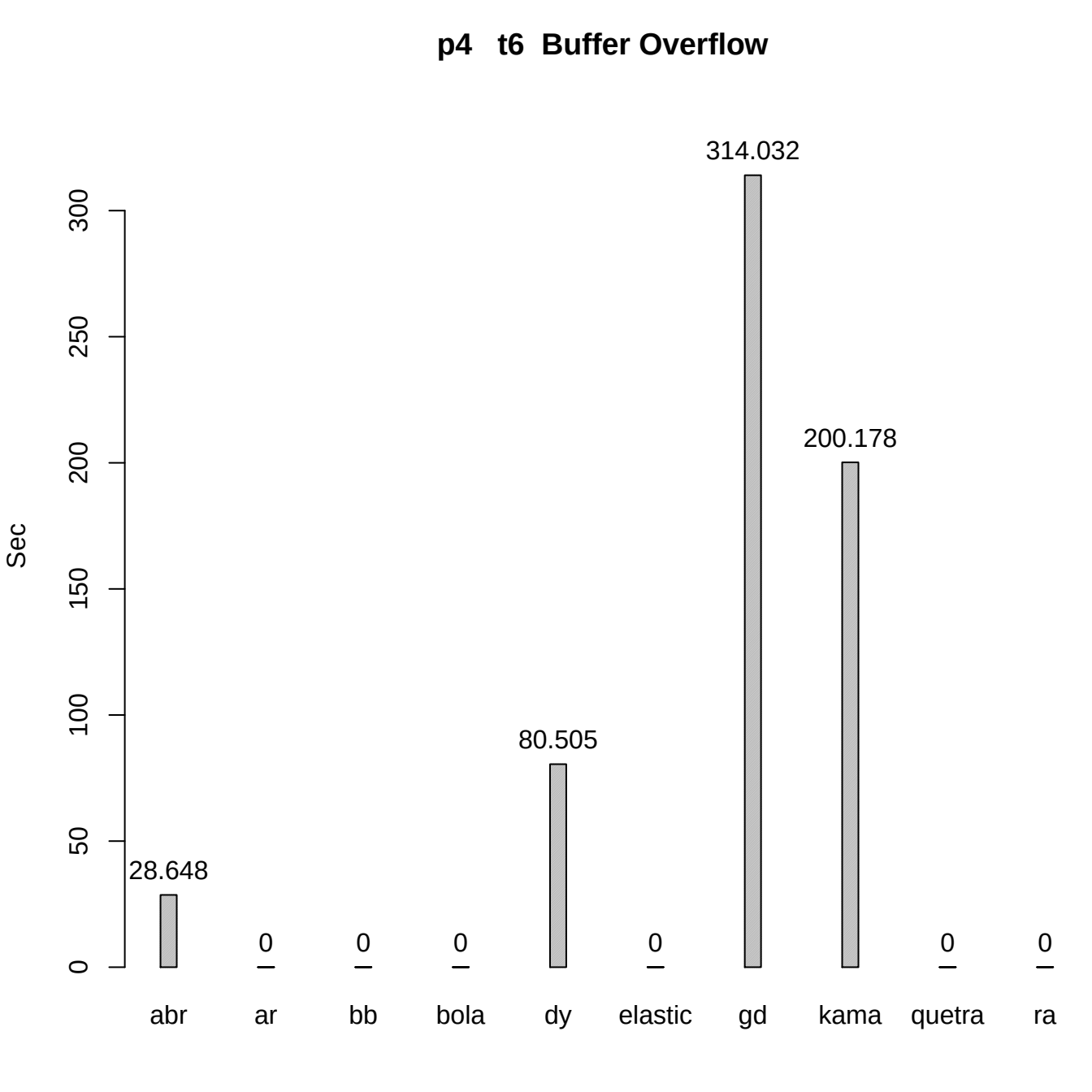

p4 t6 Quality Change
Change
0
100
200
300
400
500
600
700
739
107
176
86
122
119
6
80
115
95
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

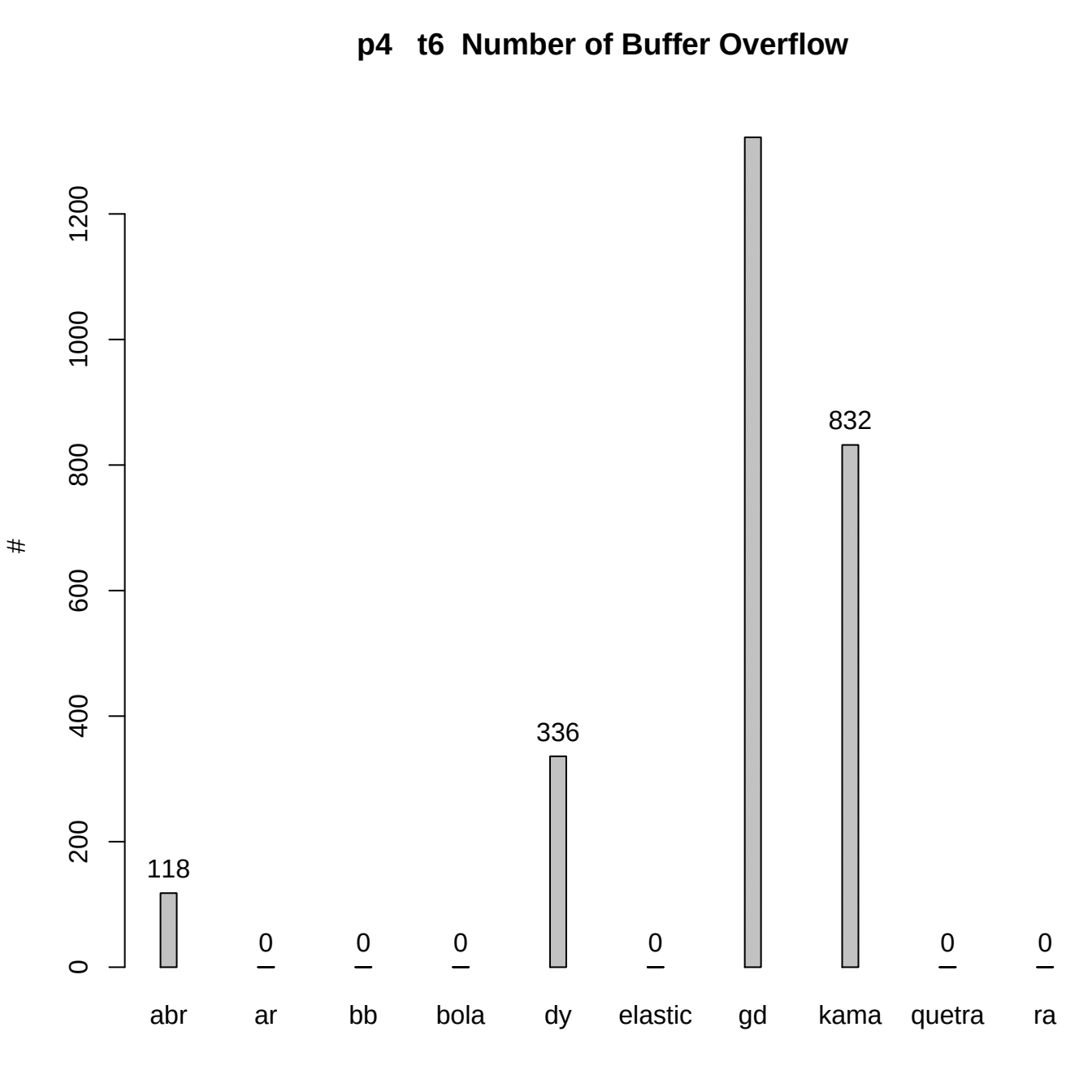

p4 t6 Inefficiency
Inefficiency
1.0
0.8
0.6
0.4
0.2
0.0
.302826
0.426338
0.839531
0.399686
0.719875
0.240437
0.703018
0.726915
0.465925
0.321696
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

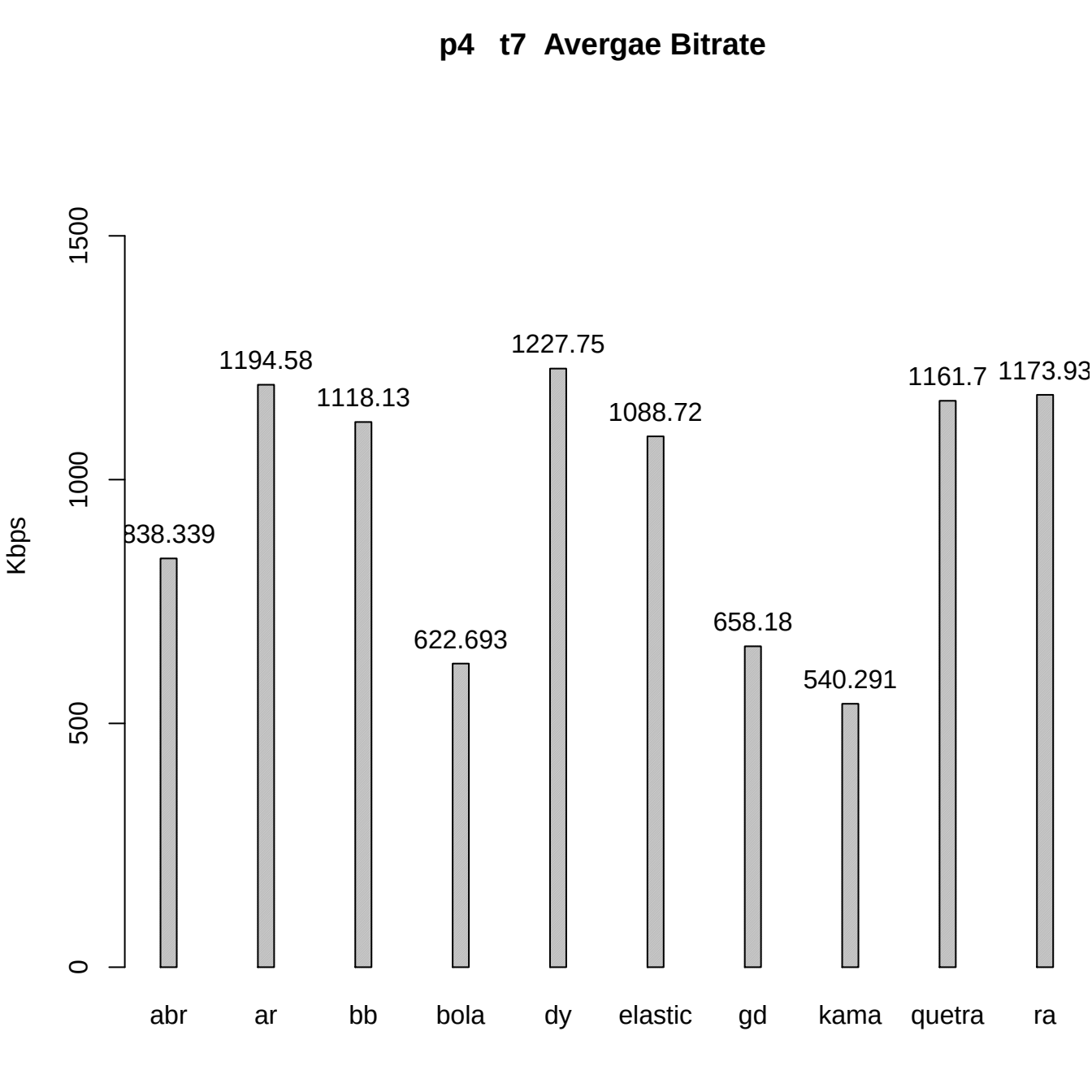

p4 t6 Total Stall
Sec
0
10
20
30
40
1.819
0
0
6.48
0
6.179
0
21.585
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

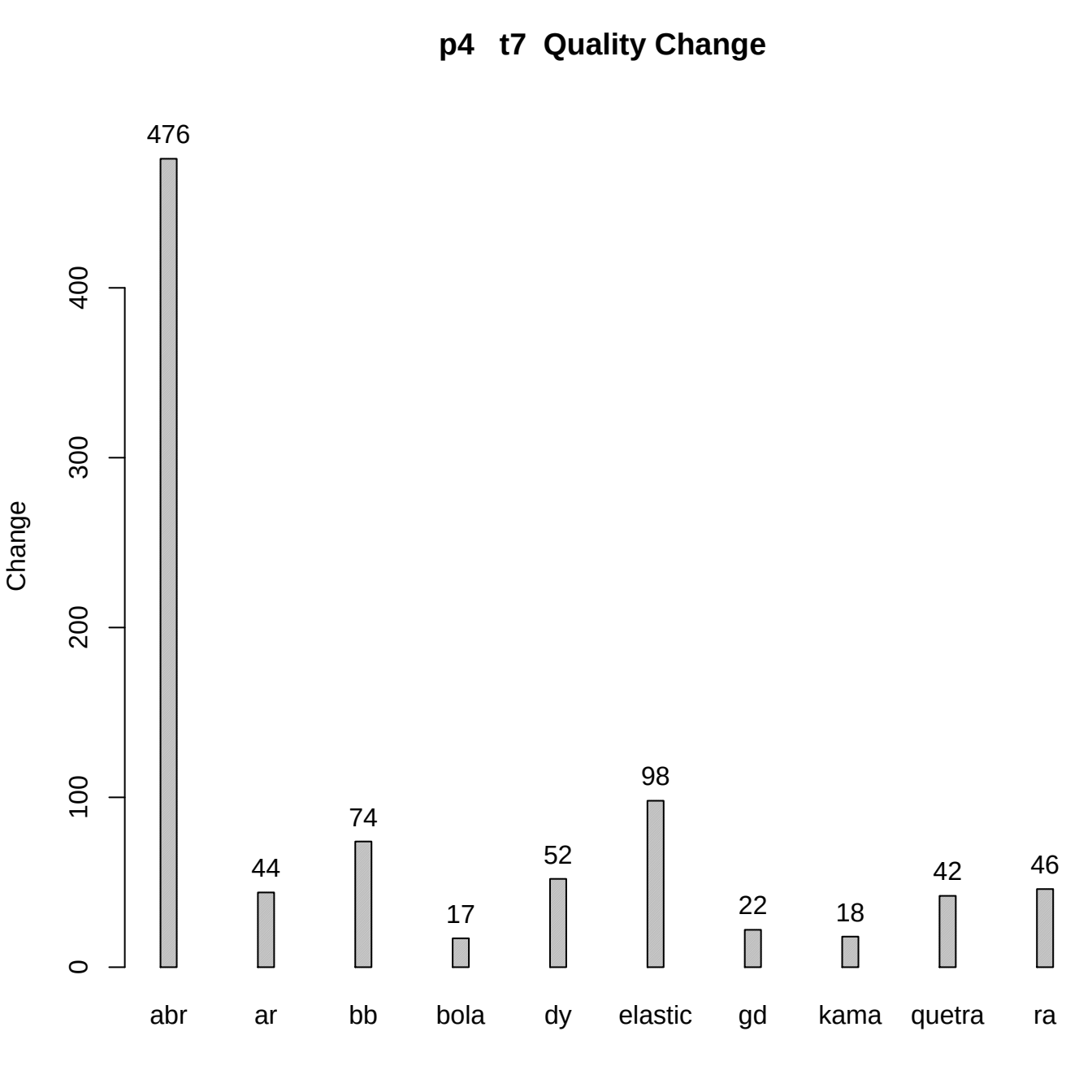

p4 t6 Number of Stall
#
0
5
10
15
20
1
0
0
3
0
4
0
1
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

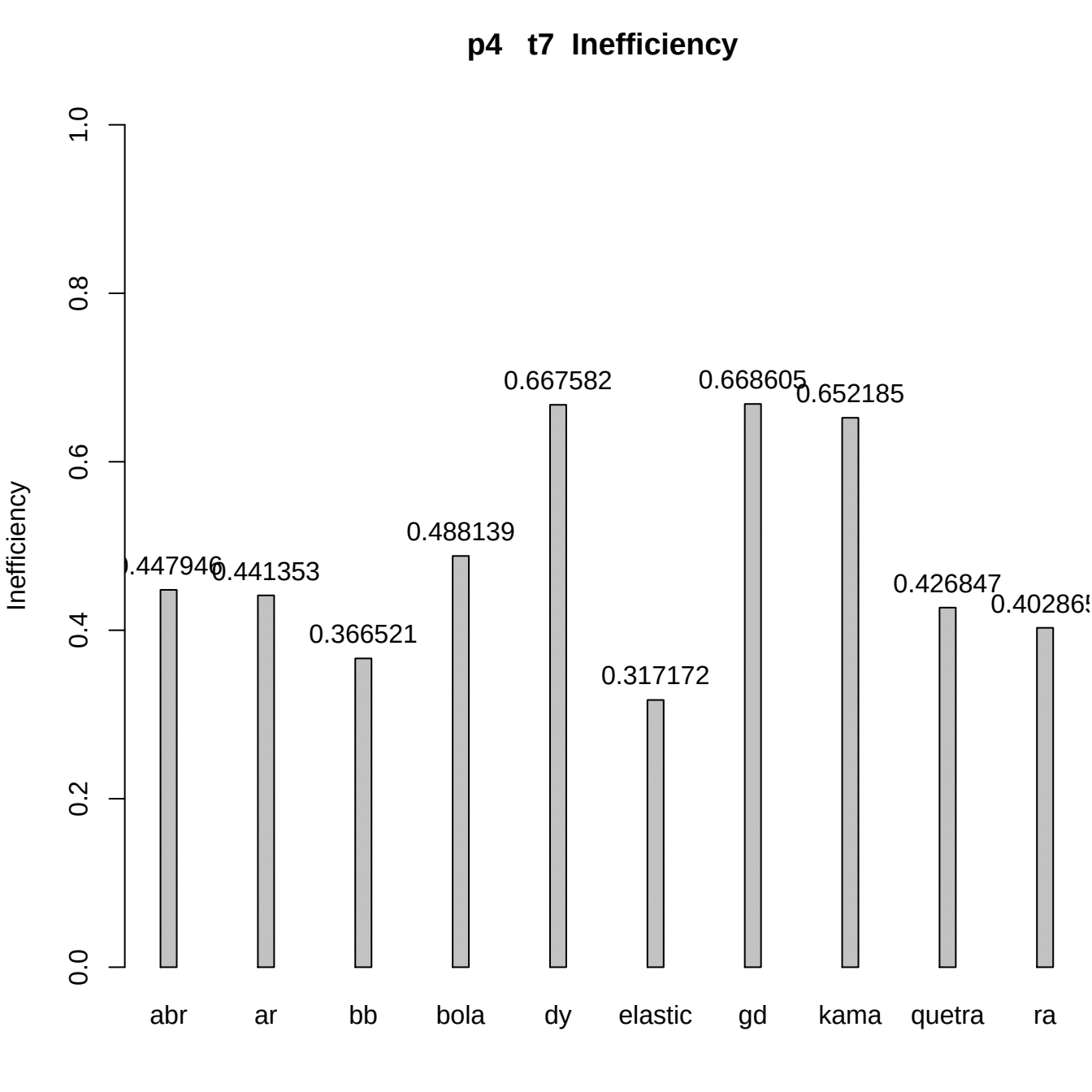

p4 t6 Average Stall
Sec
0
5
10
15
20
25
1.819
0
0
2.16
0
1.54475
0
21.585
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

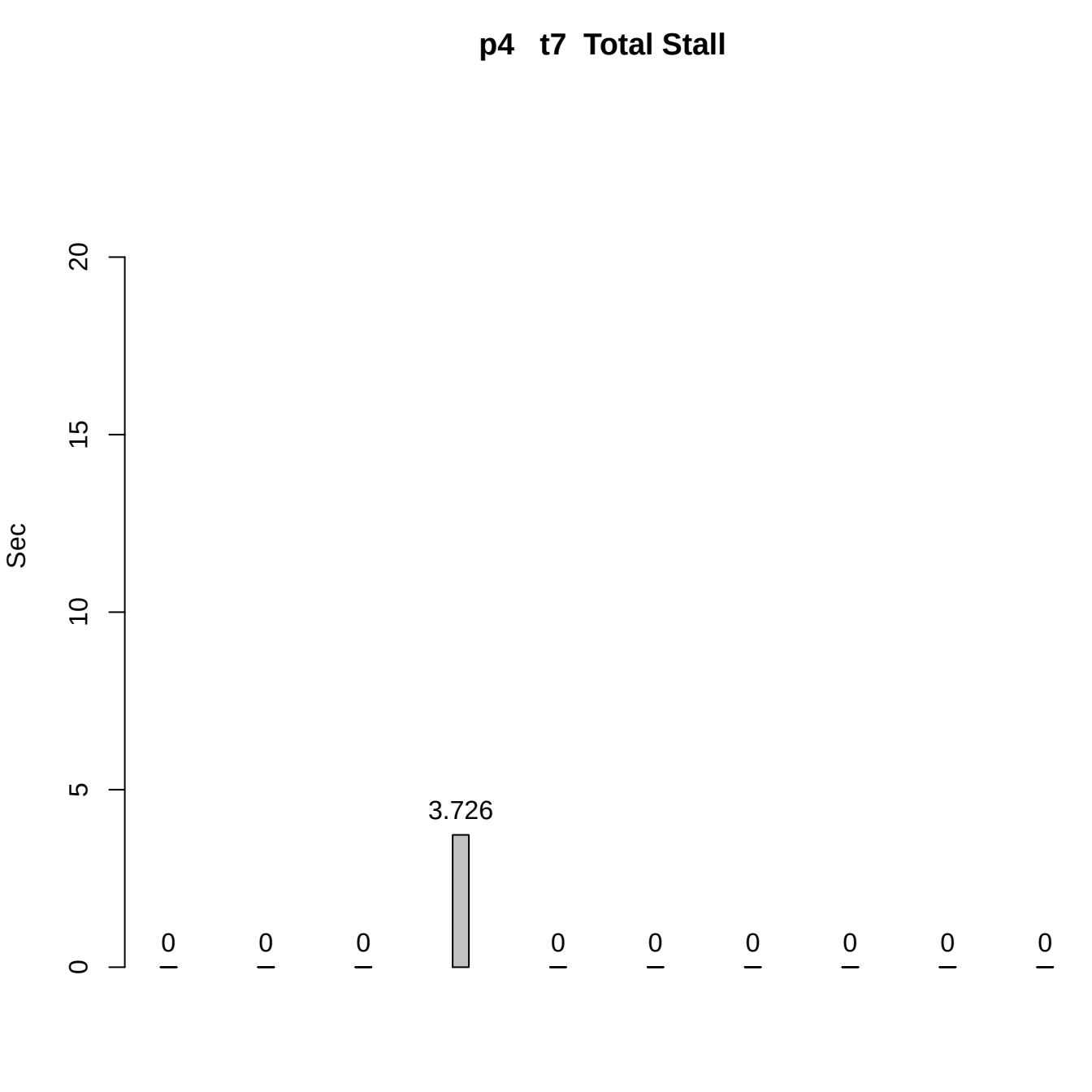

p4 t6 Buffer Overflow
Sec
0
50
100
150
200
250
300
28.648
0
0
0
80.505
0
314.032
200.178
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

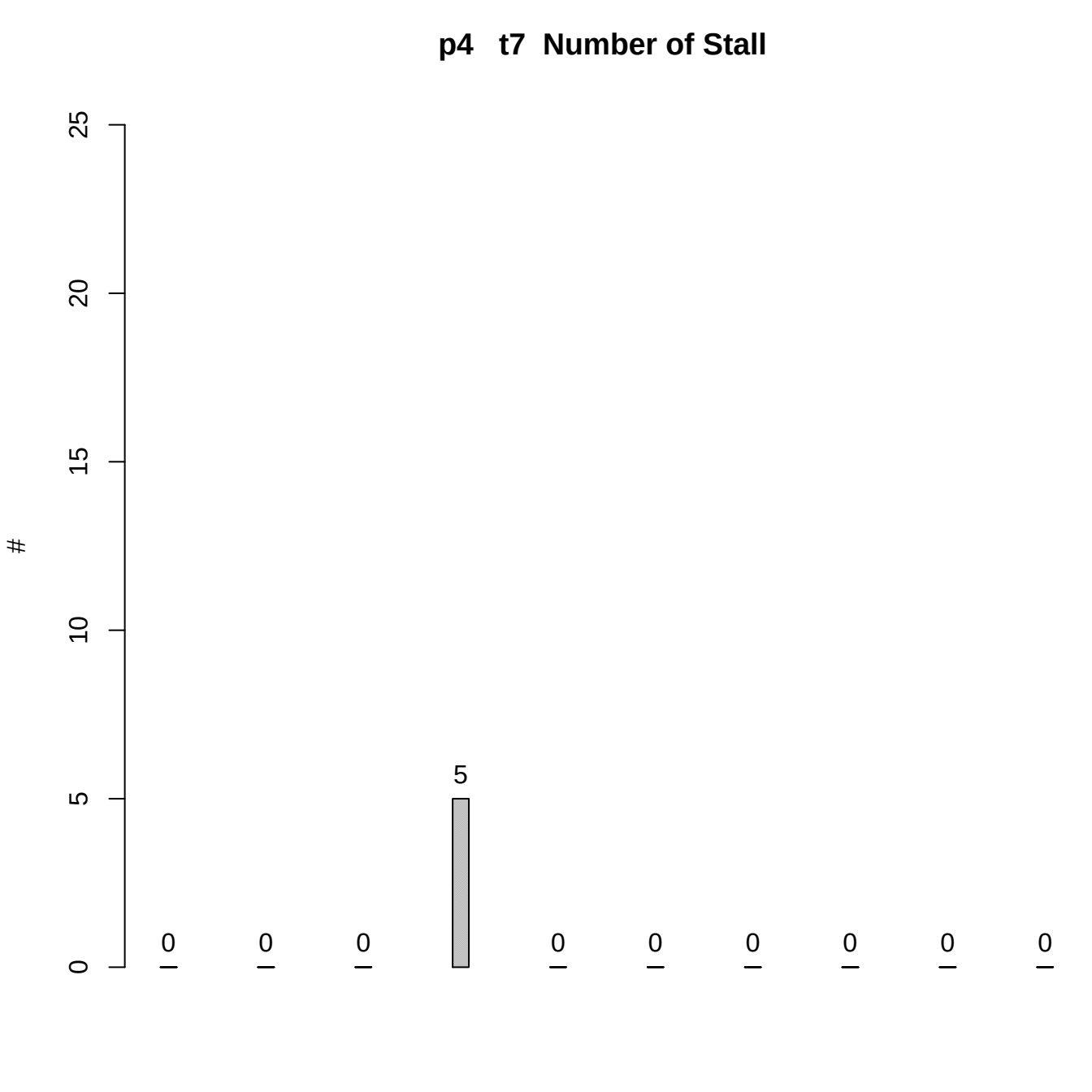

p4 t6 Number of Buffer Overflow
#
0
200
400
600
800
1000
1200
118
0
0
0
336
0
832
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

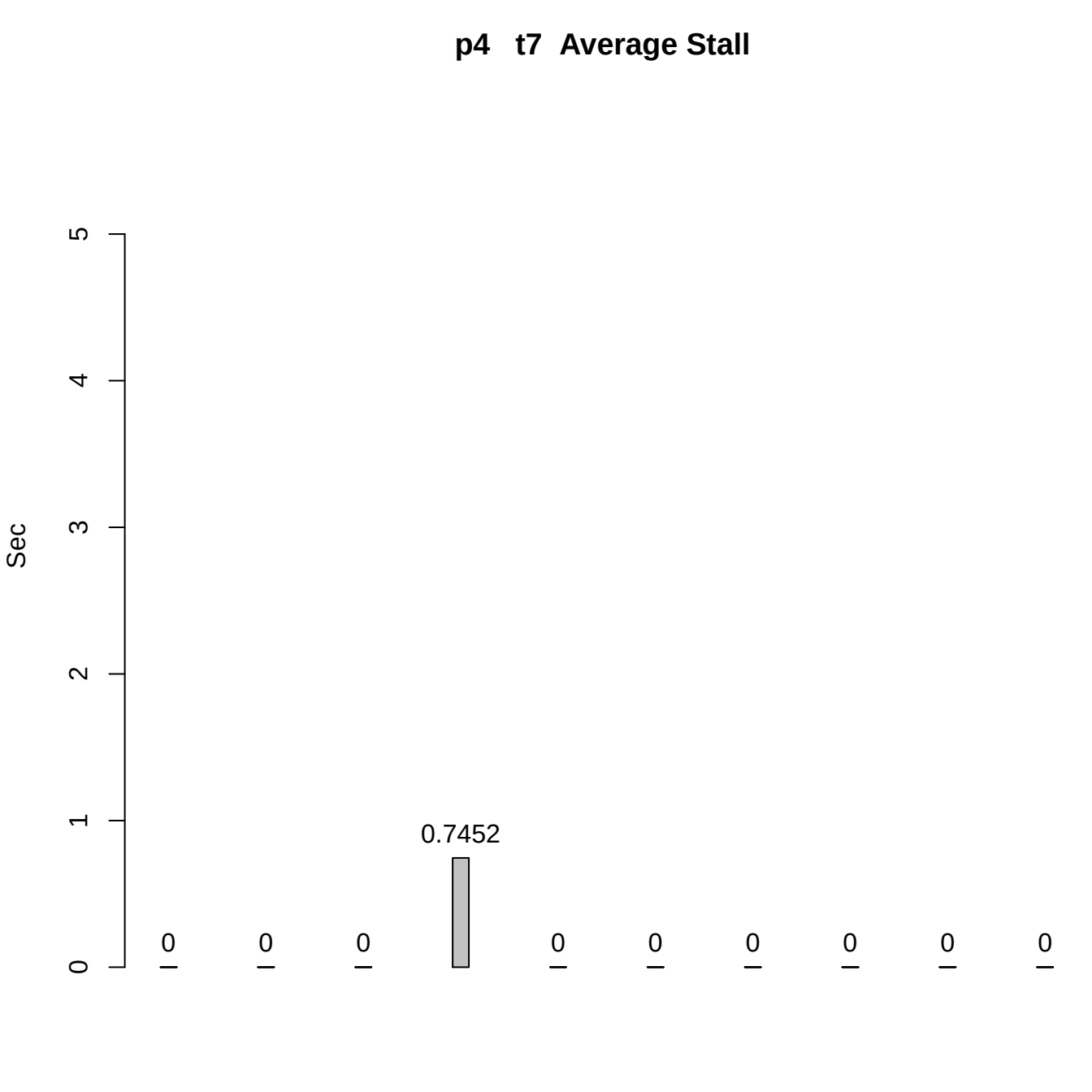

p4 t7 Avergae Bitrate
Kbps
0
500
1000
1500
838.339
1194.58
1118.13
622.693
1227.75
1088.72
658.18
540.291
1161.7
1173.93
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

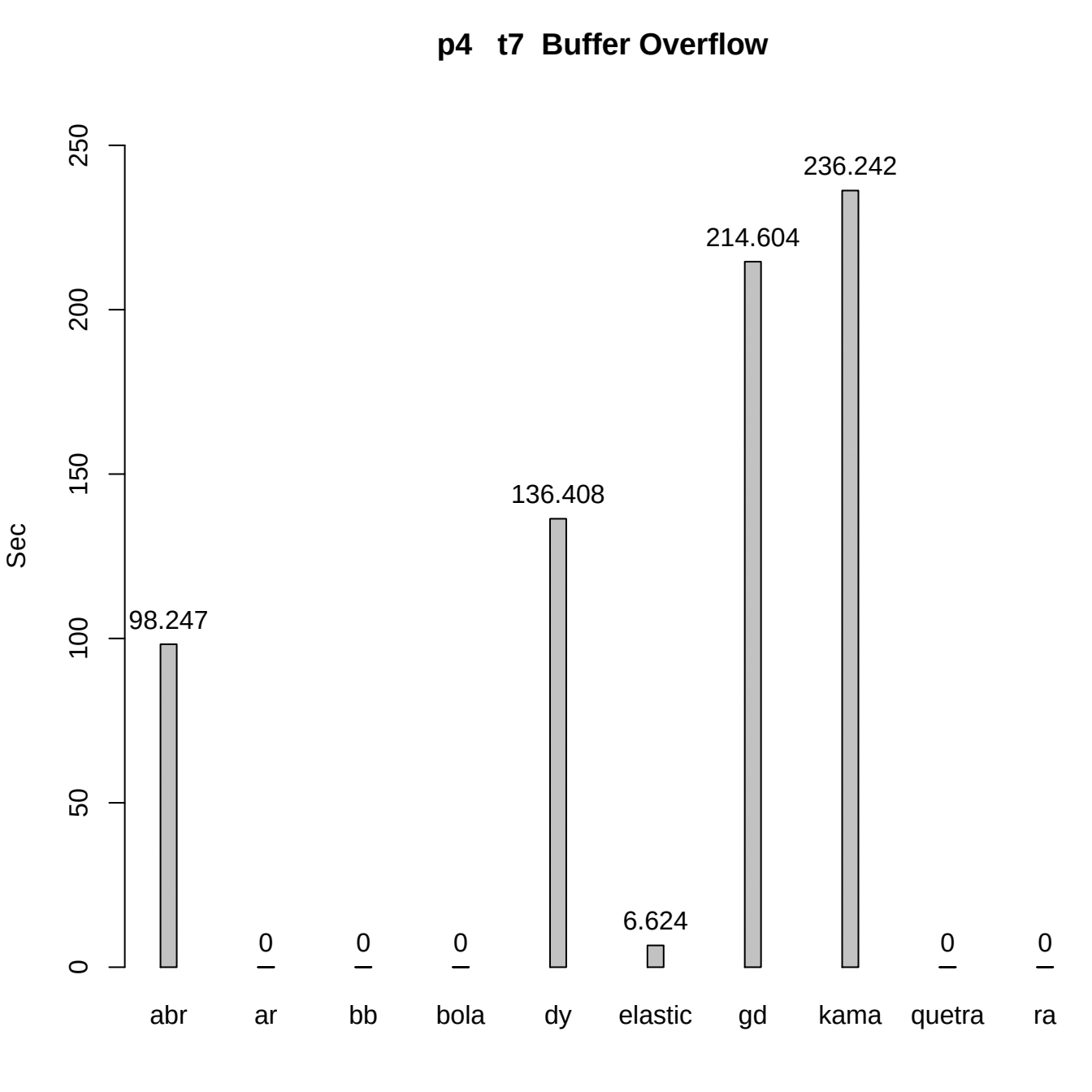

p4 t7 Quality Change
Change
0
100
200
300
400
476
44
74
17
52
98
22
18
42
46
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra

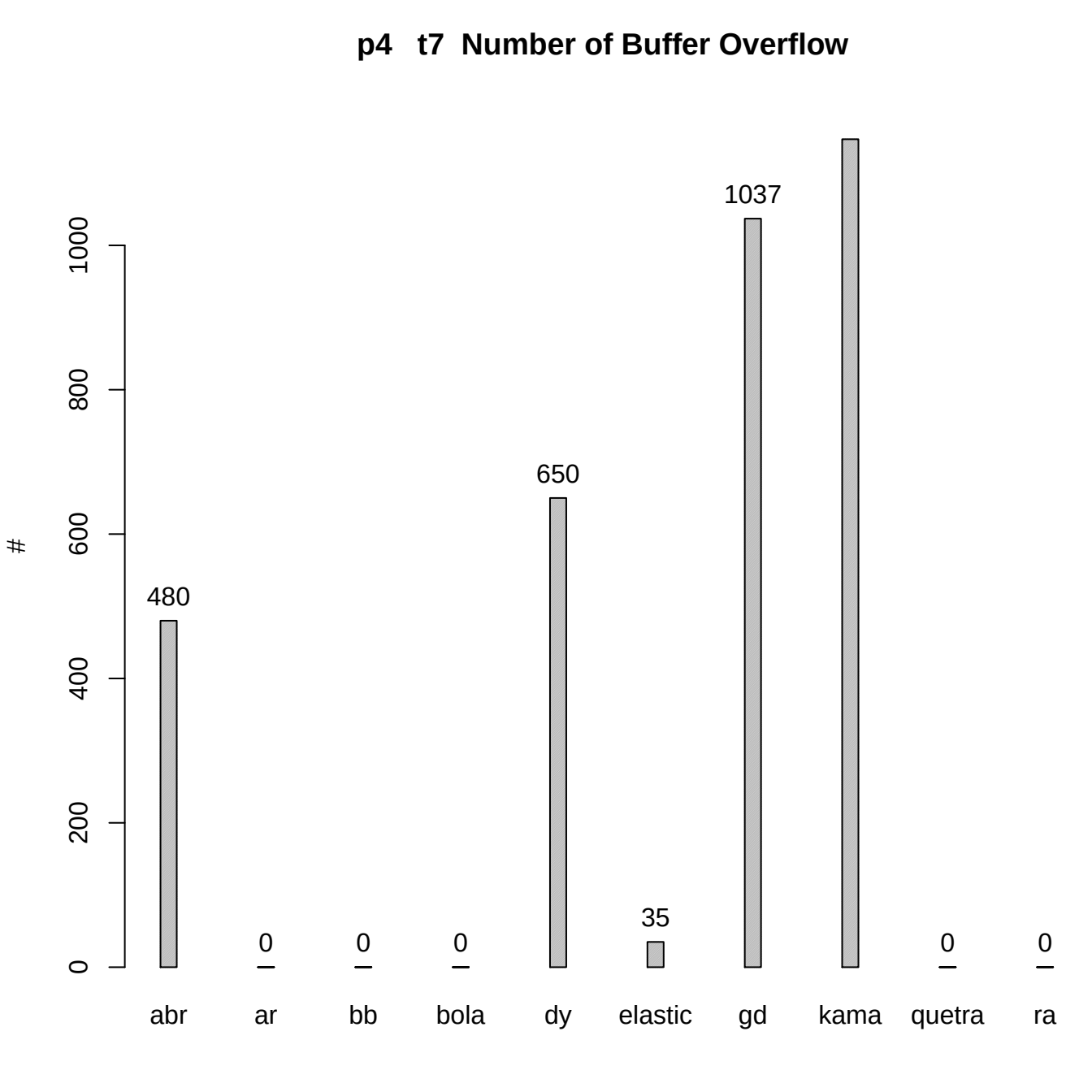

p4 t7 Inefficiency
Inefficiency
0.0
0.2
0.4
0.6
0.8
1.0
.447946
0.441353
0.366521
0.488139
0.667582
0.317172
0.668605
0.652185
0.426847
0.40286
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra


p4 t7 Total Stall
Sec
0
5
10
15
20
3.726
0
0
0
0
0
0
0
0
0


p4 t7 Number of Stall
#
0
5
10
15
20
25
0
0
0
5
0
0
0
0
0
0


p4 t7 Average Stall
Sec
0
1
2
3
4
5
0.7452
0
0
0
0
0
0
0
0
0


p4 t7 Buffer Overflow
Sec
0
50
100
150
200
250
98.247
0
0
0
136.408
6.624
214.604
236.242
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra


p4 t7 Number of Buffer Overflow
#
0
200
400
600
800
1000
480
0
0
0
650
35
1037
0
0
abr
ar
bb
bola
dy
elastic
gd
kama
quetra
ra