

DEPARTAMENTO DE ESTATÍSTICA

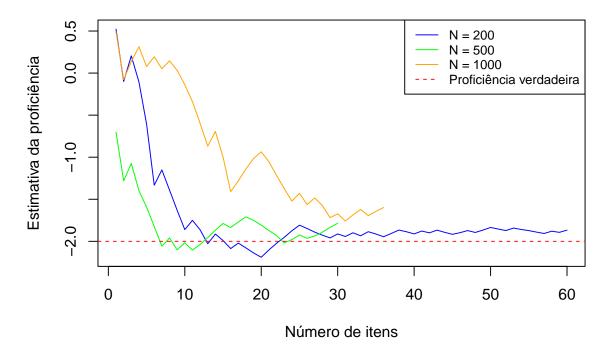
25 novembro 2023

Lista 6

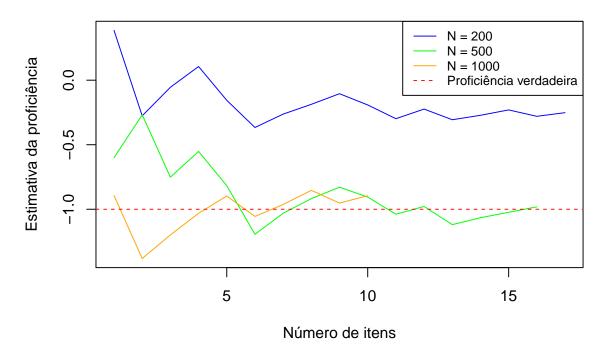
Prof. Dr. Antônio Eduardo Gomes Aluno: Bruno Gondim Toledo Matrícula: 15/0167636 Teoria de Resposta ao Item $2^{\circ}/2023$

Questão 1; CAT

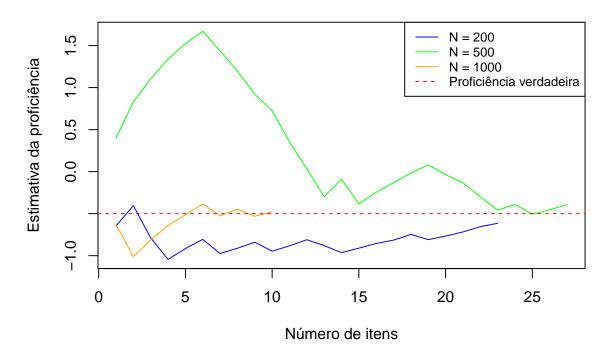
Bancos de tamanho N=200,N=500 e N=1000 para theta = -2



Estimativa da proficiência em função do número de itens respondido

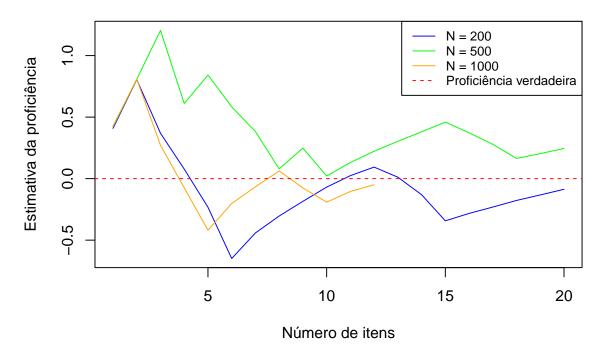


Bancos de tamanho N=200, N=500 e N=1000 para theta = -0,5

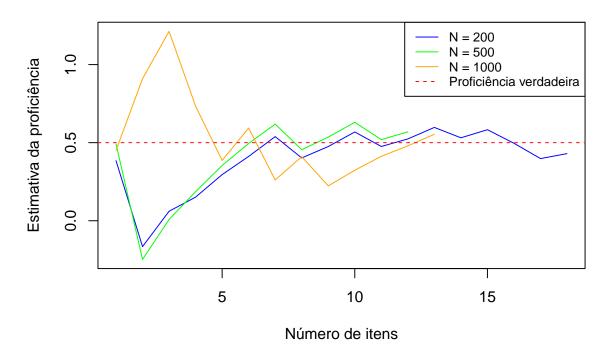


Bancos de tamanho N=200, N=500 e N=1000 para theta = 0

Estimativa da proficiência em função do número de itens respondido

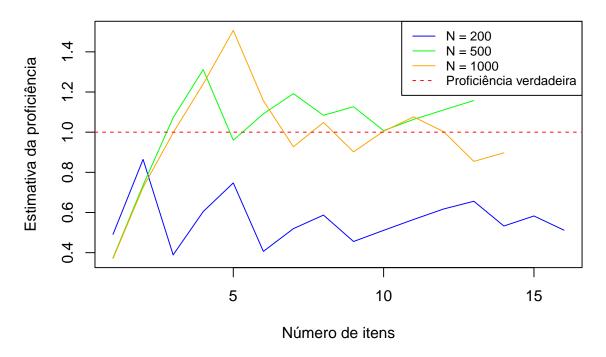


Bancos de tamanho N=200, N=500 e N=1000 para theta = 0,5

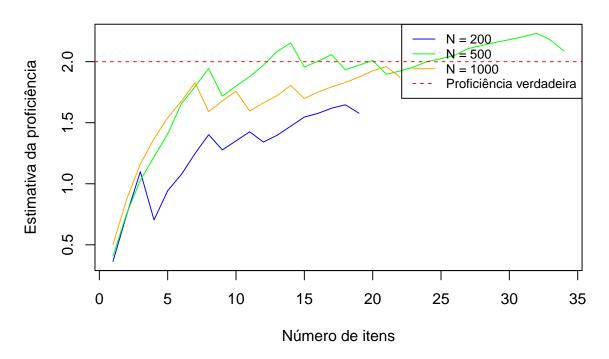


Bancos de tamanho N=200, N=500 e N=1000 para theta = 1

Estimativa da proficiência em função do número de itens respondido



Bancos de tamanho N=200, N=500 e N=1000 para theta = 2



Em suma, não aparenta ter havido grande diferença na convergência de θ para bancos de tamanhos diferentes.

Questão 2; DIF

Teste de Haenzsel-Mantel

Table 1: P-valores do teste de Mantel-Haenszel para cada item

Item	p-valor
1	0.0000
2	0.2110
3	0.5713
4	0.3301
5	0.8407
6	0.0160
7	0.7463
8	0.3564
9	0.6200
10	0.5162
11	0.9636
12	0.7977
13	0.1417
14	0.1629
15	0.5669
16	0.6066
17	0.2738
18	0.9662
19	0.0362
20	0.0029
21	0.6432
22	0.7702
23	0.8672
24	0.3790
25	0.0769
26	0.9409
27	0.9842
28	0.3861
29	0.9987
30	0.9032

Regressão logística

Table 2: P-valores da regressão logística para cada item

1 0.000 0.000 2 0.155 0.201 3 0.554 0.803 4 0.311 0.421 5 0.701 0.432 6 0.009 0.080 7 0.553 0.930 8 0.386 0.307 9 0.484 0.548 10 0.624 0.710 11 0.902 0.080 12 0.740 0.968 13 0.075 0.740 14 0.196 0.103 15 0.481 0.316 16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956	Item	p-valor grupo 1	P-valor grupo 2
3 0.554 0.803 4 0.311 0.421 5 0.701 0.432 6 0.009 0.080 7 0.553 0.930 8 0.386 0.307 9 0.484 0.548 10 0.624 0.710 11 0.902 0.080 12 0.740 0.968 13 0.075 0.740 14 0.196 0.103 15 0.481 0.316 16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530	1	0.000	0.000
4 0.311 0.421 5 0.701 0.432 6 0.009 0.080 7 0.553 0.930 8 0.386 0.307 9 0.484 0.548 10 0.624 0.710 11 0.902 0.080 12 0.740 0.968 13 0.075 0.740 14 0.196 0.103 15 0.481 0.316 16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448	2	0.155	0.201
5 0.701 0.432 6 0.009 0.080 7 0.553 0.930 8 0.386 0.307 9 0.484 0.548 10 0.624 0.710 11 0.902 0.080 12 0.740 0.968 13 0.075 0.740 14 0.196 0.103 15 0.481 0.316 16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380	3	0.554	0.803
6 0.009 0.080 7 0.553 0.930 8 0.386 0.307 9 0.484 0.548 10 0.624 0.710 11 0.902 0.080 12 0.740 0.968 13 0.075 0.740 14 0.196 0.103 15 0.481 0.316 16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	4	0.311	0.421
7 0.553 0.930 8 0.386 0.307 9 0.484 0.548 10 0.624 0.710 11 0.902 0.080 12 0.740 0.968 13 0.075 0.740 14 0.196 0.103 15 0.481 0.316 16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	5	0.701	0.432
8 0.386 0.307 9 0.484 0.548 10 0.624 0.710 11 0.902 0.080 12 0.740 0.968 13 0.075 0.740 14 0.196 0.103 15 0.481 0.316 16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	6	0.009	0.080
9 0.484 0.548 10 0.624 0.710 11 0.902 0.080 12 0.740 0.968 13 0.075 0.740 14 0.196 0.103 15 0.481 0.316 16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	7	0.553	0.930
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	8	0.386	0.307
11 0.902 0.080 12 0.740 0.968 13 0.075 0.740 14 0.196 0.103 15 0.481 0.316 16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	9	0.484	0.548
12 0.740 0.968 13 0.075 0.740 14 0.196 0.103 15 0.481 0.316 16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	10	0.624	0.710
13 0.075 0.740 14 0.196 0.103 15 0.481 0.316 16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	11	0.902	0.080
14 0.196 0.103 15 0.481 0.316 16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	12	0.740	0.968
15 0.481 0.316 16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	13	0.075	0.740
16 0.509 0.756 17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	14	0.196	
17 0.218 0.337 18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	15	0.481	0.316
18 0.932 0.269 19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	16	0.509	0.756
19 0.021 0.409 20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	17	0.218	0.337
20 0.001 0.806 21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	18	0.932	0.269
21 0.686 0.659 22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	19	0.021	0.409
22 0.770 0.590 23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	20	0.001	0.806
23 0.892 0.464 24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	21	0.686	0.659
24 0.257 0.956 25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	22	0.770	0.590
25 0.061 0.914 26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	23		0.464
26 0.816 0.530 27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	24	0.257	0.956
27 0.832 0.448 28 0.417 0.380 29 0.902 0.221	25	0.061	0.914
28 0.417 0.380 29 0.902 0.221	26	0.816	0.530
29 0.902 0.221	27	0.832	0.448
	28	0.417	0.380
30 0.214 0.668	29	0.902	0.221
	30	0.214	0.668

Observando os p-valores, notamos que em todos os casos o item 1 apresentou p-valor abaixo do nível de significância $\alpha=0.05$. Portanto, o item 1 apresenta DIF.