

SYSTAT 8.0 For Windows Help

File Edit View Data Graph Statistics Help

Test Item Analysis: Logistic

Model Options

One parameter logistic

Two parameter logistic

Estimation Options

Steps: 10

Iterations: 20

Converge: 0.05

LConverge: 0.005

Save file

Row: 1, Variable: X(1)

	X(1)	X(2)	X(3)	X(4)	X(5)	X(6)	X(7)	X(8)	X(9)	X(10)	X(11)	X(12)	X(13)	X(14)	X(15)	X(16)	X(17)	X(18)	X(19)	X(20)	ABILI
17	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000
18	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000
19	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000
20	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000
21	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000
22	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000	1.0E-000

Ready

SYSTAT 8.0 For Windows Help

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Logistic Test Item Analysis Main Dialog Box

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Model Options. Choose between a one-parameter or a two-parameter model. If you select One parameter logistic, the item discrimination index will be the same for every item, but may change values during the iterative process due to rescaling of the abilities. If you select Two parameter logistic, each item can have a different discrimination index.

Estimation Options. The following can be specified:

- Steps.** Indicate the maximum number of steps that are to be allowed.
- Iterations.** Enter the maximum number of iterations allowed when estimating a single subject's ability or a single item's parameters within a stage.
- Converge.** Specify the stopping convergence criterion. Setting a small convergence will decrease the number of steps required to reach a final set of estimates.
- LConverge.** Specify a value for the likelihood of convergence. The default value is 0.005. This means that if the likelihood of the data increase by less than 0.5 percent, the program will stop at the end of that step. That is, if the likelihood ratio is less than 1.005 at the end of a step, the program will stop and print out the most recent

SYSTAT Rectangular file C:\Program Files\SYSTAT 8.0\Data\Testat.syd,  
created Wed Feb 16, 2000 at 12:01:38, contains variables:

X(1..20)      ABILITY

359 cases were processed, each containing 20 items  
4 cases were deleted by editing for missing data or for zero or  
perfect total scores after item editing.  
0 items were deleted by editing for missing data or for zero or  
perfect total scores after item editing.

Data below are based on 355 cases and 20 items

Total score mean =            9.3859, standard deviation =            3.9916

-Log(Likelihood) using initial parameter estimates =    3634.928345

STEP 1 convergence criterion = 0.050000

Stage 1: estimate ability with item parameter(s) constant.

-Log(Likelihood)	Change	Likelihood Ratio
3634.122209	-0.806136	2.239239

Greatest change in ability estimate was for case 139

Change from old estimate =    -0.105724 , current estimate =            2.956047

Stage 2: estimate item parameter(s) with ability constant.

-Log(Likelihood)	Change	Likelihood Ratio
3618.410386	-15.711823	6661286.991926

Greatest change in difficulty estimate was for item X(4)  
Change from old estimate =    -0.514652, current estimate =            -1.689525

Greatest change in discrimination estimate was for item X(4)  
Change from old estimate =    -0.259157, current estimate =            0.435148

STEP 2 convergence criterion = 0.050000

Stage 1: estimate ability with item parameter(s) constant.

-Log(Likelihood)	Change	Likelihood Ratio
3614.101132	-4.309254	74.384959

Greatest change in ability estimate was for case 334

Change from old estimate =    -0.503931 , current estimate =            -3.274569

Stage 2: estimate item parameter(s) with ability constant.

-Log(Likelihood)	Change	Likelihood Ratio
3610.808706	-3.292426	26.908061

Greatest change in difficulty estimate was for item X(18)  
Change from old estimate =    0.084158, current estimate =            -1.465066

Greatest change in discrimination estimate was for item X(8)  
Change from old estimate =    -0.076448, current estimate =            0.490787

STEP 3 convergence criterion = 0.050000

Stage 1: estimate ability with item parameter(s) constant.

-Log(Likelihood)	Change	Likelihood Ratio
3609.615169	-1.193537	3.298728

Greatest change in ability estimate was for case 219

Change from old estimate = 0.062682 , current estimate = -0.363825

Stage 2: estimate item parameter(s) with ability constant.

-Log(Likelihood)	Change	Likelihood Ratio
3604.751808	-4.863361	129.458622

Greatest change in difficulty estimate was for item X(8)

Change from old estimate = -0.708871, current estimate = -2.044506

Greatest change in discrimination estimate was for item X(8)

Change from old estimate = -0.139241, current estimate = 0.350879

STEP 4 convergence criterion = 0.050000

Stage 1: estimate ability with item parameter(s) constant.

-Log(Likelihood)	Change	Likelihood Ratio
3603.169188	-1.582619	4.867690

Greatest change in ability estimate was for case 334

Change from old estimate = -0.305192 , current estimate = -3.622410

Stage 2: estimate item parameter(s) with ability constant.

-Log(Likelihood)	Change	Likelihood Ratio
3601.694457	-1.474731	4.369862

Greatest change in difficulty estimate was for item X(18)

Change from old estimate = 0.173837, current estimate = -1.263794

Greatest change in discrimination estimate was for item X(18)

Change from old estimate = 0.129915, current estimate = 0.969481

STEP 5 convergence criterion = 0.050000

Stage 1: estimate ability with item parameter(s) constant.

-Log(Likelihood)	Change	Likelihood Ratio
3600.838338	-0.856118	2.354006

Greatest change in ability estimate was for case 312

Change from old estimate = 0.110604 , current estimate = -1.722022

Stage 2: estimate item parameter(s) with ability constant.

-Log(Likelihood)	Change	Likelihood Ratio
3599.830449	-1.007889	2.739811

Greatest change in difficulty estimate was for item X(8)

Change from old estimate = -0.669225, current estimate = -2.699397

Greatest change in discrimination estimate was for item X(8)

Change from old estimate = -0.078562, current estimate = 0.266349

STEP 6 convergence criterion = 0.050000

Stage 1: estimate ability with item parameter(s) constant.

-Log(Likelihood)	Change	Likelihood Ratio
3599.292798	-0.537652	1.711982

Greatest change in ability estimate was for case 346

Change from old estimate = -0.090453 , current estimate = -1.901753

Stage 2: estimate item parameter(s) with ability constant.

-Log(Likelihood)	Change	Likelihood Ratio
------------------	--------	------------------

3598.932532      -0.360265      1.433710

Greatest change in difficulty estimate was for item X(18)  
 Change from old estimate = 0.033338, current estimate = -1.234691  
 Greatest change in discrimination estimate was for item X(18)  
 Change from old estimate = 0.063261, current estimate = 1.054990

STEP 7 convergence criterion = 0.050000

Stage 1: estimate ability with item parameter(s) constant.

-Log(Likelihood)	Change	Likelihood Ratio
3598.662977	-0.269555	1.309382

Greatest change in ability estimate was for case 19

Change from old estimate = 0.048869, current estimate = -2.026146

Stage 2: estimate item parameter(s) with ability constant.

-Log(Likelihood)	Change	Likelihood Ratio
3598.444492	-0.218485	1.244190

Greatest change in difficulty estimate was for item X(18)  
 Change from old estimate = 0.030905, current estimate = -1.205755  
 Greatest change in discrimination estimate was for item X(20)  
 Change from old estimate = -0.027199, current estimate = 0.593548

Item difficulty and discrimination data based on 355 usable cases.

Item	Label	Item P	Difficulty	Std Err	Discrim	Std Err
1	X(1)	0.3099	1.0237	0.1393	0.5199	0.0606
2	X(2)	0.2732	0.7729	0.0808	1.0677	0.1077
3	X(3)	0.5239	-0.1194	0.0892	0.7998	0.1036
4	X(4)	0.7549	-2.0196	0.2152	0.3446	0.0375
5	X(5)	0.5465	-0.1980	0.0828	0.8788	0.1099
6	X(6)	0.1944	1.4359	0.1216	0.7306	0.0688
7	X(7)	0.1859	1.4114	0.1154	0.7984	0.0748
8	X(8)	0.7634	-2.6925	0.2854	0.2591	0.0279
9	X(9)	0.4028	0.3572	0.0923	0.7901	0.0952
10	X(10)	0.3718	0.3912	0.0731	1.0856	0.1186
11	X(11)	0.5549	-0.2819	0.1225	0.5532	0.0838
12	X(12)	0.3493	0.5002	0.0798	0.9860	0.1070
13	X(13)	0.3183	0.7082	0.0961	0.8022	0.0868
14	X(14)	0.5183	-0.0990	0.0939	0.7520	0.0997
15	X(15)	0.3211	0.8981	0.1297	0.5581	0.0656
16	X(16)	0.6958	-0.9833	0.1226	0.5977	0.0706
17	X(17)	0.5746	-0.3135	0.0889	0.8099	0.1031
18	X(18)	0.8169	-1.2058	0.0885	1.0619	0.1058
19	X(19)	0.2845	0.9860	0.1156	0.6657	0.0707
20	X(20)	0.6254	-0.5993	0.1176	0.5935	0.0804
Mean		0.4693	-0.0014	0.1175	0.7327	0.0839
Std Dev		0.1899	1.0691	0.0492	0.2212	0.0239
N cases		20	20	20	20	20

## ZPL Model

Listing of estimated item-response abilities and their standard errors.  
All data below are based on 20 usable items.

Case	Total Score	Mean Score	IRT Ability	Std. Error
1	7.0000	0.3500	-0.3645	0.4125
2	11.0000	0.5500	0.3932	0.3818
3	11.0000	0.5500	0.5705	0.3846
4	11.0000	0.5500	0.4592	0.3823
5	6.0000	0.3000	-0.4556	0.4198
6	7.0000	0.3500	-0.4016	0.4154
7	5.0000	0.2500	-0.8490	0.4591
8	12.0000	0.6000	0.4501	0.3822
9	7.0000	0.3500	-0.8134	0.4550
10	6.0000	0.3000	-1.0164	0.4801
11	6.0000	0.3000	-0.6799	0.4406
12	4.0000	0.2000	-1.1253	0.4955
13	4.0000	0.2000	-1.5369	0.5709
14	7.0000	0.3500	-0.4785	0.4217
15	9.0000	0.4500	-0.0795	0.3940
16	14.0000	0.7000	1.1464	0.4256
17	9.0000	0.4500	-0.2339	0.4031
18	9.0000	0.4500	0.1788	0.3841
19	2.0000	0.1000	-2.0261	0.7073
20	9.0000	0.4500	-0.0119	0.3907
21	9.0000	0.4500	-0.1649	0.3988
22	19.0000	0.9500	2.7319	0.8311
23	5.0000	0.2500	-1.0800	0.4889
24	14.0000	0.7000	1.0096	0.4113
25	18.0000	0.9000	2.2343	0.6499
26	5.0000	0.2500	-0.8490	0.4591
27	5.0000	0.2500	-0.8817	0.4630
28	14.0000	0.7000	1.1759	0.4291
29	5.0000	0.2500	-1.0613	0.4863
30	10.0000	0.5000	0.1728	0.3842
31	5.0000	0.2500	-1.1738	0.5029
32	5.0000	0.2500	-1.0505	0.4848
33	5.0000	0.2500	-1.1501	0.4993
34	9.0000	0.4500	-0.1348	0.3970
35	12.0000	0.6000	0.6530	0.3874
36	5.0000	0.2500	-0.8303	0.4569
37	1.0000	0.0500	-2.9099	1.1027
38	3.0000	0.1500	-1.6019	0.5858
39	3.0000	0.1500	-1.8888	0.6632
40	7.0000	0.3500	-0.3759	0.4133
41	11.0000	0.5500	0.2852	0.3822
42	11.0000	0.5500	0.2577	0.3826
43	11.0000	0.5500	0.2295	0.3830
46	*****Unusable Case***** zero or perfect total score			
47	*****Unusable Case***** zero or perfect total score			
48	13.0000	0.6500	0.4225	0.3820
49	6.0000	0.3000	0.1189	0.3857
356	12.0000	0.6000	-0.6199	0.4347
357	11.0000	0.5500	-0.1730	0.3993
358	8.0000	0.4000	0.4915	0.3828
359	11.0000	0.5500	0.0094	0.3898
Mean	9.3859	0.4697	-0.0000	0.4527
Std Dev	3.9916	0.2005	1.0026	0.1231
N cases	351	351	351	351

Frequency data for 15 IRT ability levels

ABIL	0	5	10	15	20	25	30	35	40	45	50	N	%	CUM %
<-3.25 +												1	.28	.28
-3.00 +												0	.00	.28
-2.50 +X												2	.56	.85
-2.00 +X												2	.56	1.41
-1.50 +XXXXX												16	4.51	5.92

-1.00	XXXXXXX	25	7.04	12.96
-.50	XXXXXXXXXXXXXXXXXXXX	58	16.34	29.30
.00	XXXXXXXXXXXXXXXXXXXXX	81	22.82	52.11
.50	XXXXXXXXXXXXXXXXXXXXX	81	22.82	74.93
1.00	XXXXXXXXXX	35	9.86	84.79
1.50	XXXXXXXXX	24	6.76	91.55
2.00	XXX	10	2.82	94.37
2.50	XX	8	2.25	96.62
3.00	XX	7	1.97	98.59
>=3.25	+	1	.28	98.87

TOTAL= 355

Each of the following item bar charts shows percent correct scores for each of 15 IRT ability levels

The asterisks shown on the histogram indicate the expected percent correct based on the IRT model. The numerical values of these proportions are shown on the right as P and E(P) respectively. Values of E(P) for open intervals

are based on abilities of -4.0 and +4.0. Also shown is the number of cases at each ability level.

Item 1 Label: X(1), Difficulty = 1.023744, Discrimination = 0.519926

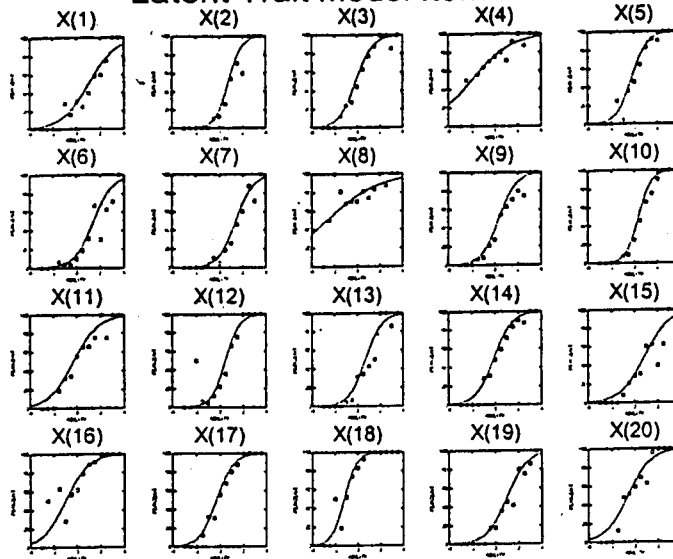
Percent correct by ability												N	P	E(P)	
ABLTY	0	10	20	30	40	50	60	70	80	90	100				
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+														
<-3.25	+	*											1	.00	.01
-3.00	+	*											0	.00	.03
-2.50	+	*											2	.00	.04
-2.00	+	*											2	.00	.06
-1.50	+		*										16	.00	.10
-1.00	+	XXXXXXXXXXXXXXXXXXXX										25	.28	.14	
-.50	+	XXXXXXXXXXXX *										58	.16	.21	
.00	+	XXXXXXXXXXXXXXXXXXXXX*										81	.31	.29	
.50	+	XXXXXXXXXXXXXXXXXXXX										81	.25	.39	
1.00	+	XXXXXXXXXXXXXXXXXXXXXXXXXXXX										35	.40	.49	
1.50	+	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX*										24	.58	.60	
2.00	+	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										10	.60	.70	
2.50	+	XXX*										8	.75	.79	
3.00	+	XXX*XXXXXXXXXX										7	1.00	.85	
>=3.25	+	XXX*XXXX										1	1.00	.93	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+														
												TOTAL= 355			

Item 20 Label: X(20), Difficulty = -0.599348, Discrimination = 0.593548

Percent correct by ability												N	P	E(P)
ABLTY	0	10	20	30	40	50	60	70	80	90	100			
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
<-3.25	+	*										1	.00	.03
-3.00	+	*										0	.00	.08
-2.50	+		*									2	.00	.13
-2.00	+			*								2	.00	.20
-1.50	+	XXXXXX		*								16	.13	.29
-1.00	+	XXXXXXXXXXXXXXXXXXXX	XXXX									25	.48	.40
-.50	+	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX	*								58	.52	.53
.00	+	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX	XXXX	*							81	.59	.65
.50	+	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX		*						81	.69	.75
1.00	+	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX			*					35	.63	.83
1.50	+	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXX						24	.96	.89
2.00	+	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXX					10	1.00	.93
2.50	+	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXX					8	1.00	.96
3.00	+	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXX					7	1.00	.97
>=3.25	+	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXX					1	1.00	.99
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
												TOTAL= 355		

&lt;Bookmark(4)&gt;

## Latent Trait Model Item Plots



Listing of estimated item-response abilities and their standard errors.  
All data below are based on 20 usable items.

Case	Total Score	Mean Score	IRT Ability	Std. Error
1	7.0000	0.3500	-0.5122	0.4388
2	11.0000	0.5500	0.3334	0.4208
3	11.0000	0.5500	0.3334	0.4208
4	11.0000	0.5500	0.3334	0.4208
5	6.0000	0.3000	-0.7563	0.4545
6	7.0000	0.3500	-0.5122	0.4388
7	5.0000	0.2500	-1.0124	0.4768
8	12.0000	0.6000	0.5426	0.4248
9	7.0000	0.3500	-0.5122	0.4388
10	6.0000	0.3000	-0.7563	0.4545
11	6.0000	0.3000	-0.7563	0.4545
12	4.0000	0.2000	-1.2982	0.5096
13	4.0000	0.2000	-1.2982	0.5096
14	7.0000	0.3500	-0.5122	0.4388
15	9.0000	0.4500	-0.0810	0.4228
16	14.0000	0.7000	1.0011	0.4473
17	9.0000	0.4500	-0.0810	0.4228
18	9.0000	0.4500	-0.0810	0.4228
19	2.0000	0.1000	-2.0803	0.6570
20	9.0000	0.4500	-0.0810	0.4228
21	9.0000	0.4500	-0.0810	0.4228
22	19.0000	0.9500	2.9377	0.8735
23	5.0000	0.2500	-1.0124	0.4768
24	14.0000	0.7000	1.0011	0.4473
25	18.0000	0.9000	2.2804	0.6480
26	5.0000	0.2500	-1.0124	0.4768
27	5.0000	0.2500	-1.0124	0.4768
28	14.0000	0.7000	1.0011	0.4473
29	5.0000	0.2500	-1.0124	0.4768
30	10.0000	0.5000	0.1267	0.4201
31	5.0000	0.2500	-1.0124	0.4768
32	5.0000	0.2500	-1.0124	0.4768
33	5.0000	0.2500	-1.0124	0.4768
34	9.0000	0.4500	-0.0810	0.4228
35	12.0000	0.6000	0.5426	0.4248
36	5.0000	0.2500	-1.0124	0.4768
37	1.0000	0.0500	-2.7535	0.8816
38	3.0000	0.1500	-1.6335	0.5611
39	3.0000	0.1500	-1.6335	0.5611
40	7.0000	0.3500	-0.5122	0.4388
41	11.0000	0.5500	0.3334	0.4208
42	11.0000	0.5500	0.3334	0.4208
43	11.0000	0.5500	0.3334	0.4208
46	*****Unusable Case***** zero or perfect total score			
47	*****Unusable Case***** zero or perfect total score			
48	13.0000	0.6500	0.5426	0.4248
49	6.0000	0.3000	-0.0810	0.4228
50	12.0000	0.6000	0.7579	0.4329
51	9.0000	0.4500	-1.2982	0.5096
52	13.0000	0.6500	-1.0124	0.4768
53	4.0000	0.2000	-0.2927	0.4289
356	12.0000	0.6000	-0.7563	0.4545
357	11.0000	0.5500	-0.0810	0.4228
358	8.0000	0.4000	0.3334	0.4208
359	11.0000	0.5500	-0.0810	0.4228
Mean	9.3859	0.4697	0.0006	0.4682
Std Dev	3.9916	0.2005	1.0028	0.0870
N cases	351	351	351	351

Frequency data for 15 IRT ability levels

ABIL	0	5	10	15	20	25	30	35	40	45	50	N	%	CUM %
<-3.25	+	+	+	+	+	+	+	+	+	+	+	0	.00	.00



-3.00	+		0	.00	.00
-2.50	+X		2	.56	.56
-2.00	+XX		6	1.69	2.25
-1.50	+XXX		12	3.38	5.63
-1.00	+XXXXXXXXXX		37	10.42	16.06
-.50	+XXXXXXXXXXXXXXXXXXXXX		67	18.87	34.93
.00	+XXXXXXXXXXXXXXXXXXXXX		69	19.44	54.37
.50	+XXXXXXXXXXXXXXXXXXXXX		66	18.59	72.96
1.00	+XXXXXXXXXX		33	9.30	82.25
1.50	+XXXXXXXXXX		27	7.61	89.86
2.00	+XXXXXX		17	4.79	94.65
2.50	+XX		7	1.97	96.62
3.00	+XX		8	2.25	98.87
>=3.25	+		0	.00	98.87
			<hr/>		
			TOTAL=	355	

Each of the following item bar charts shows percent correct scores for each of 15 IRT ability levels

The asterisks shown on the histogram indicate the expected percent correct based on the IRT model. The numerical values of these proportions are shown on the right as P and E(P) respectively. Values of E(P) for open intervals are based on abilities of -4.0 and +4.0. Also shown is the number of cases at each ability level.

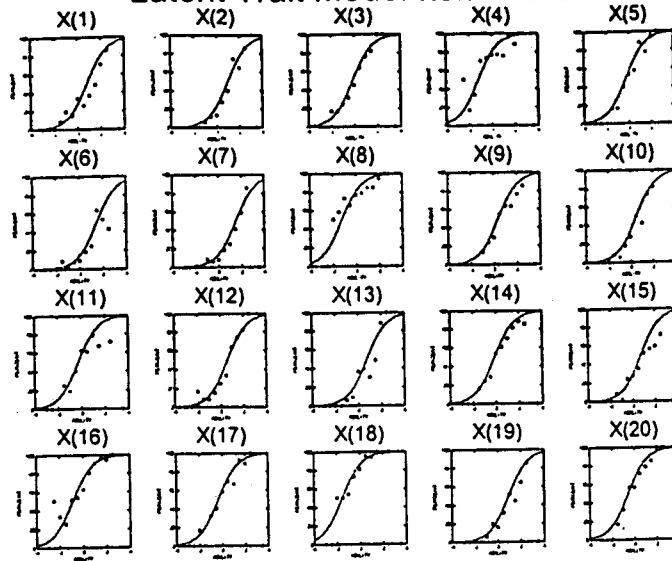
Item 1 Label: X(1), Difficulty = 0.814637, Discrimination = 0.700013

Percent correct by ability												N	P	E(P)	
ABLTY	0	10	20	30	40	50	60	70	80	90	100				
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+											0	.00	.00	
<-3.25	+												0	.00	.01
-3.00	+	*											2	.00	.02
-2.50	+	*											6	.00	.03
-2.00	+	*											12	.08	.06
-1.50	+	XX	X										37	.19	.10
-1.00	+	XXXX	XXXX										67	.15	.17
-.50	+	XXXXXXXX	*										69	.33	.27
.00	+	XXXXXXXXXXXXXXXXXXXX	XXX										66	.26	.41
.50	+	XXXXXXXXXXXXXXXXXXXX		*									33	.36	.55
1.00	+	XXXXXXXXXXXXXXXXXXXX			*								27	.48	.69
1.50	+	XXXXXXXXXXXXXXXXXXXX				*							17	.71	.80
2.00	+	XXXXXXXXXXXXXXXXXXXX					XXXXXX		*				7	.86	.88
2.50	+	XXXXXXXXXXXXXXXXXXXX					XXXXXXXXXXXXXXXXXXXX	*					8	1.00	.93
3.00	+	XXXXXXXXXXXXXXXXXXXX					XXXXXXXXXXXXXXXXXXXX	XXX					0	.00	.98
>=3.25	+									*					
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+														
TOTAL=												355			

Item 20 Label: X(20), Difficulty = -0.563994, Discrimination = 0.700013

Percent correct by ability											N	P	E(P)					
ABLTY	0	10	20	30	40	50	60	70	.80	90				100				
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																	
<-3.25	+	*										0	.00	.02				
-3.00	+		*									0	.00	.05				
-2.50	+			*								2	.00	.09				
-2.00	+				*							6	.00	.15				
-1.50	+	XXXXXXXXXX				*						12	.17	.25				
-1.00	+	XXXXXXXXXXXXXXXXXXXX						*				37	.32	.37				
-.50	+	XXXXXXXXXXXXXXXXXXXXXXXXXXXX							*	XX		67	.57	.52				
.00	+	XXXXXXXXXXXXXXXXXXXXXXXXXXXX									*		69	.57	.66			
.50	+	XXXXXXXXXXXXXXXXXXXXXXXXXXXX										*		66	.71	.78		
1.00	+	XXXXXXXXXXXXXXXXXXXXXXXXXXXX											*		33	.79	.87	
1.50	+	XXXXXXXXXXXXXXXXXXXXXXXXXXXX												*		27	.85	.92
2.00	+	XXXXXXXXXXXXXXXXXXXXXXXXXXXX												*	XX	17	1.00	.95
2.50	+	XXXXXXXXXXXXXXXXXXXXXXXXXXXX												*	X	7	1.00	.97
3.00	+	XXXXXXXXXXXXXXXXXXXXXXXXXXXX												*	X	8	1.00	.99
>=3.25	+										*	0	.00	1.00				
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																	
											TOTAL=	355						

### Latent Trait Model Item Plots



Scores have been saved