Are the steps on Likert scales equidistant?
Responses on visual analog scales allow estimating their distances
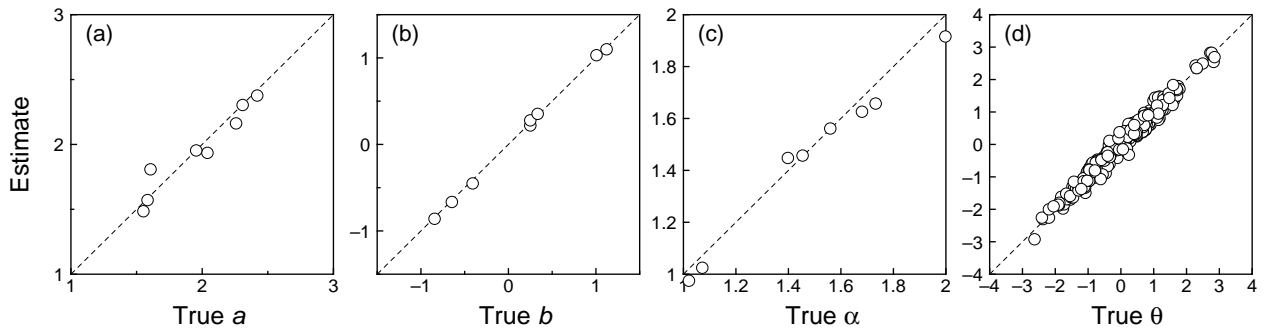
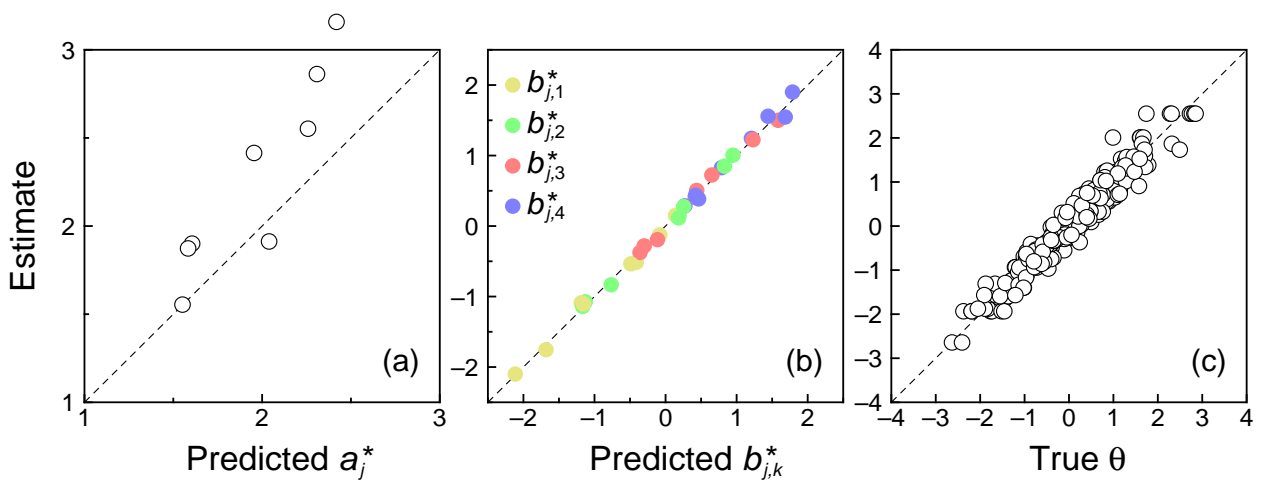## Supplementary Material

Miguel A. García-Pérez

Departamento de Metodología, Facultad de Psicología, Universidad Complutense,
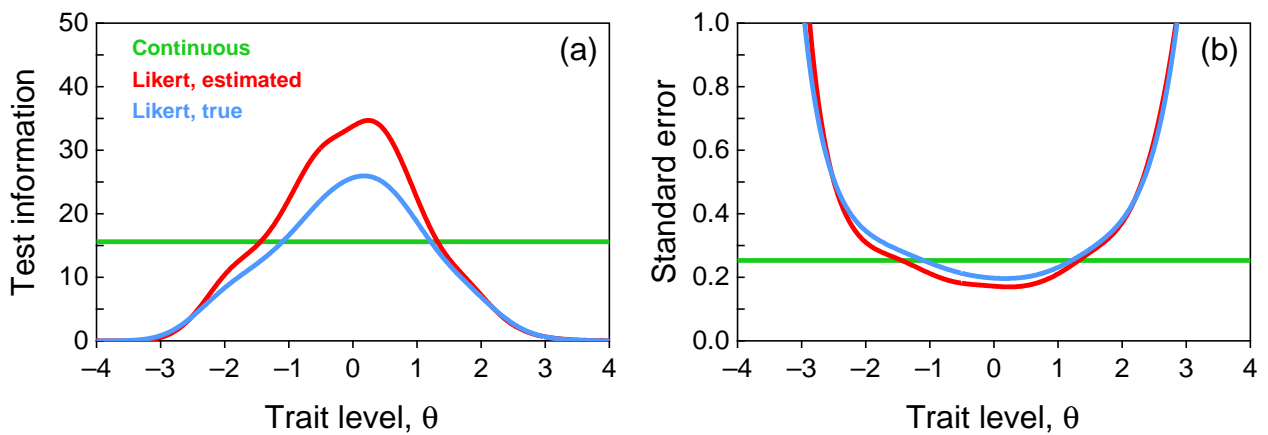Campus de Somosaguas, 28223 Madrid, Spain

Section 1.
Graphical simulation results for 300 subjects, 8 items, and discretization boundaries that vary across items
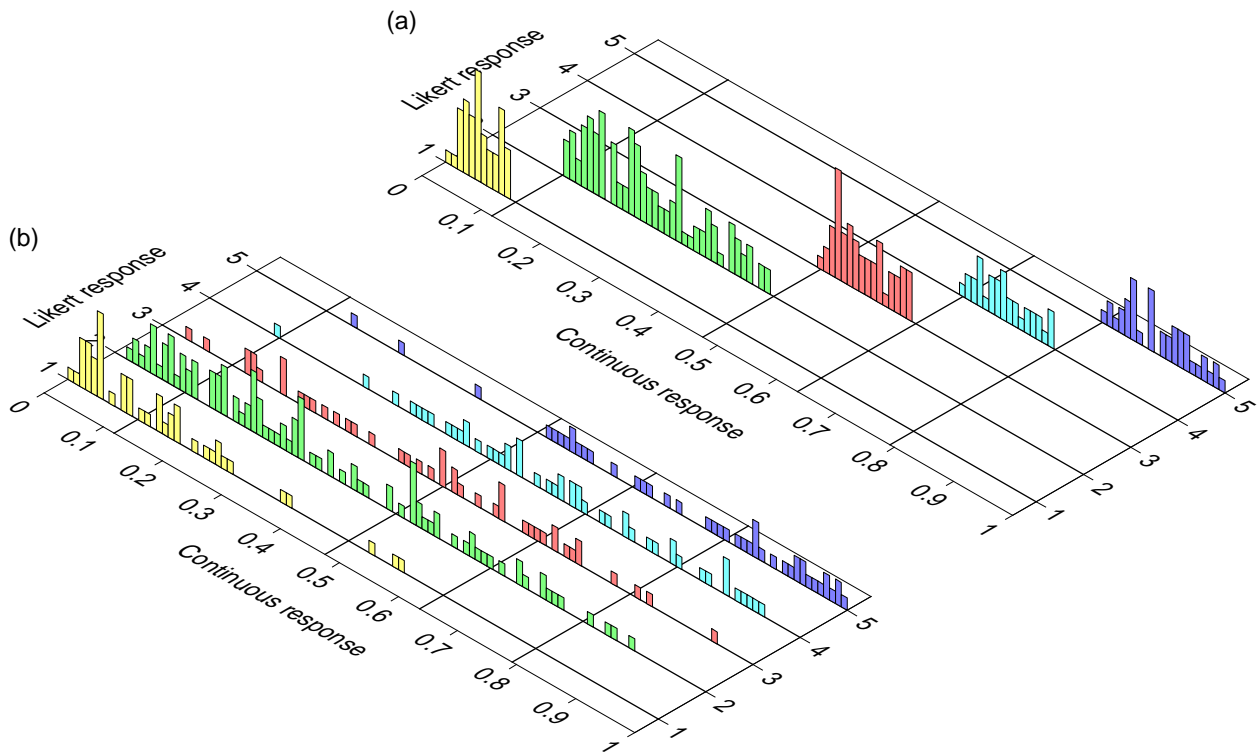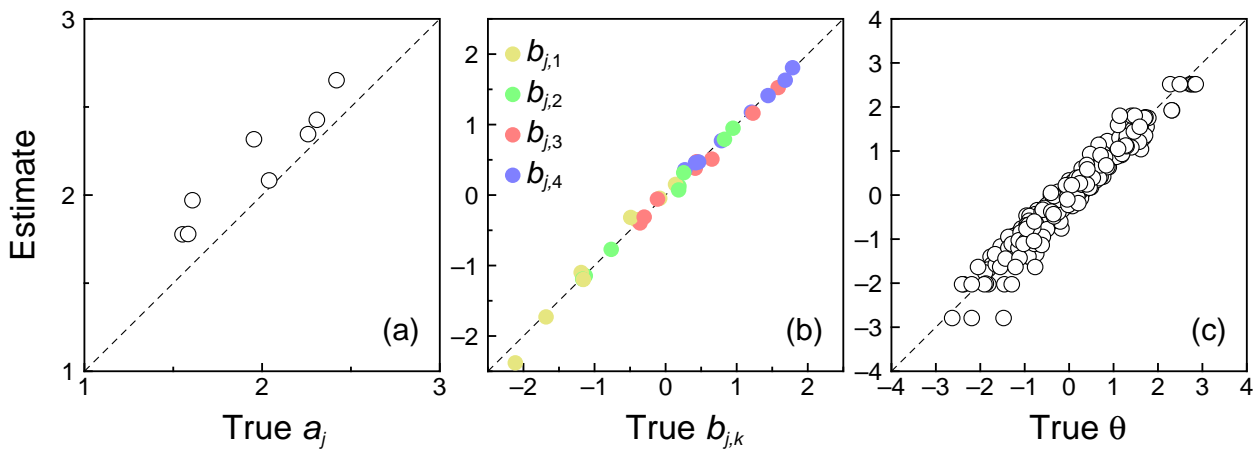

Analogous to Fig. 4 in the paper

Analogous to Fig. 5 in the paper

Analogous to Fig. 6 in the paper

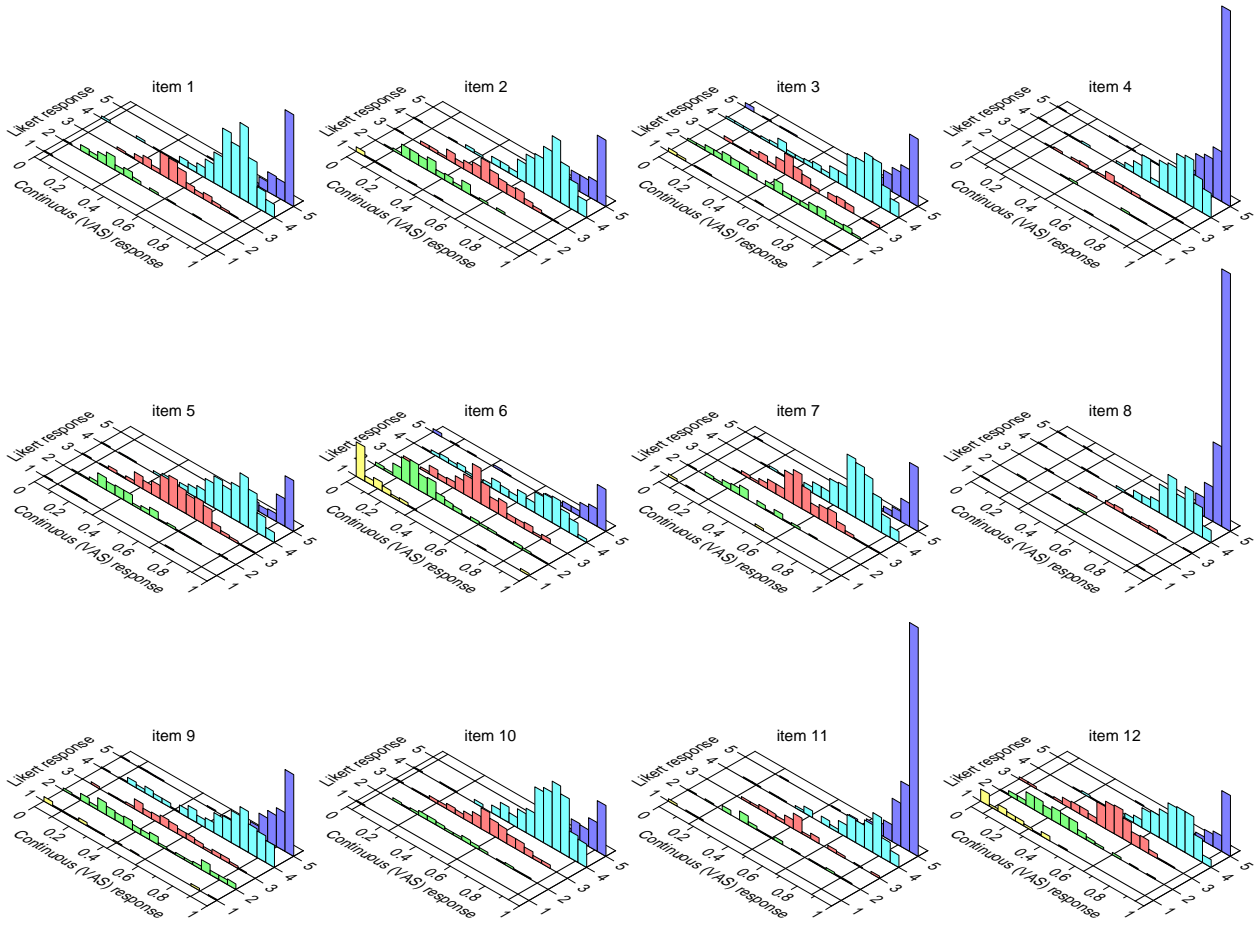Analogous to Fig. 7 in the paper
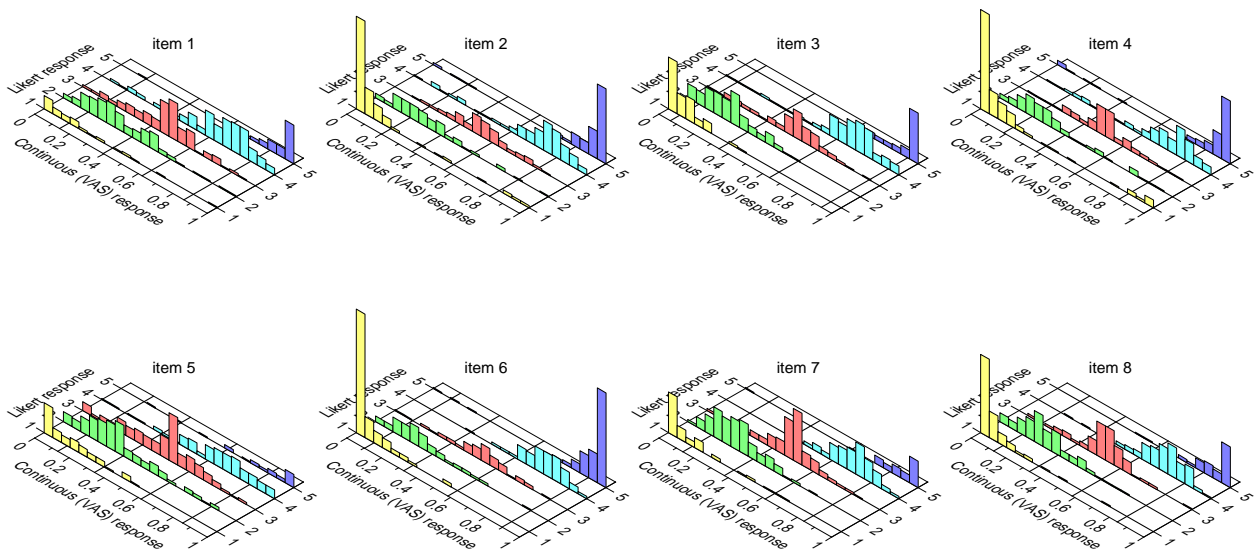

Analogous to Fig. 8 in the paper

Section 2.
Parameter estimates for the items on three personality scales

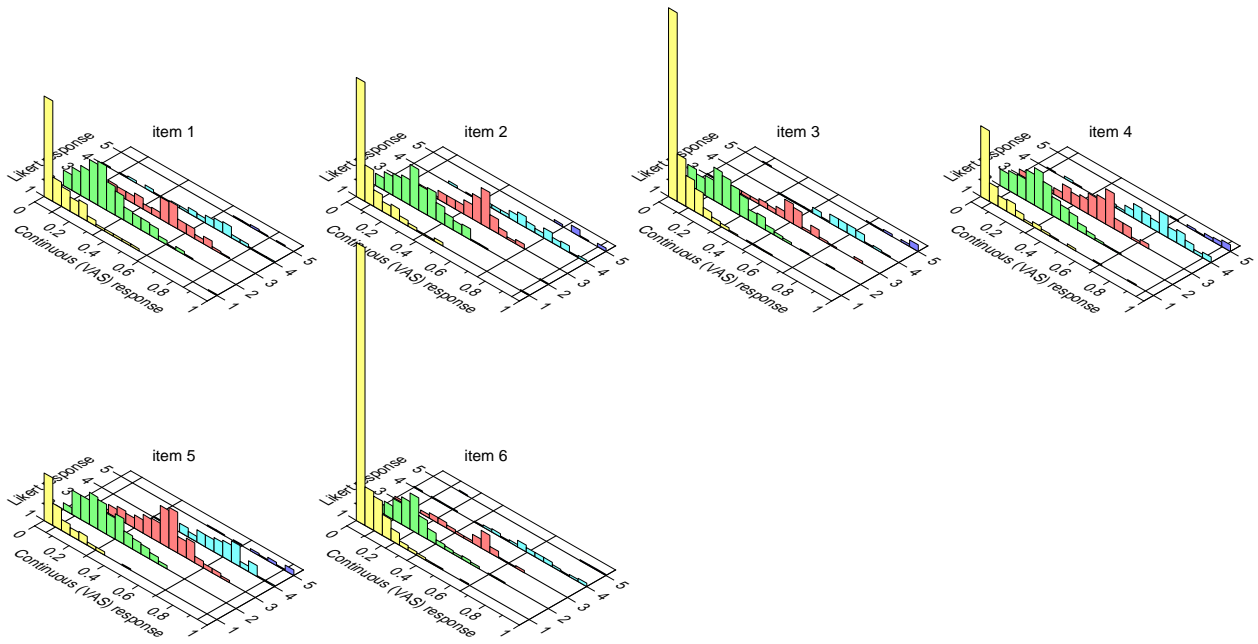|	CRM item parameters			NO-GRM item parameters				
	a_j	b_j	α_j	a_j	$b_{j,1}$	$b_{j,2}$	$b_{j,3}$	$b_{j,4}$
C scale								
Item 1	0.8183	−1.3317	1.0292	1.0070	−4.6025	−2.0072	−0.9890	1.1164
Item 2	0.7721	−1.1619	0.9900	0.9656	−3.3285	−1.6342	−0.6399	1.2247
Item 3	0.4676	−1.5178	0.7558	0.6360	−3.9724	−1.7540	−0.7723	1.3233
Item 4	0.8908	−2.2000	1.0518	0.7968	−4.5304	−3.6822	−2.4811	−0.1196
Item 5	0.8209	−1.0586	0.9196	0.9553	−3.7411	−1.8030	−0.3120	1.4652
Item 6	0.5058	−0.1275	0.8826	0.6878	−2.3394	−0.8951	0.3125	1.8518
Item 7	0.6902	−1.3398	0.8444	0.6401	−4.5457	−2.7628	−0.7552	1.7499
Item 8	0.7645	−2.7636	0.9582	0.8081	−4.4596	−3.7801	−2.8063	−0.4846
Item 9	0.5622	−1.4387	0.8926	0.5714	−3.8755	−1.8019	−1.0596	1.0770
Item 10	1.0355	−1.3117	1.0281	1.0070	−4.7081	−2.4179	−0.9841	1.2912
Item 11	0.6187	−2.5101	0.9278	0.8212	−4.1967	−2.5804	−1.7124	−0.3231
Item 12	0.6066	−0.8124	0.9415	0.5029	−3.5762	−1.8264	−0.1537	2.3096
ES scale								
Item 1	0.3912	−0.3368	0.6388	0.5571	−3.1122	−0.9946	0.4421	2.5522
Item 2	0.3905	0.0254	0.9482	0.5577	−1.4325	−0.4993	0.2948	1.6687
Item 3	0.9263	0.1475	1.5154	0.8189	−1.6090	−0.2693	0.5270	1.9590
Item 4	0.3517	0.2209	0.8578	0.4435	−1.4846	−0.3647	0.6992	2.3044
Item 5	0.3807	0.5846	0.6214	0.5359	−2.4343	−0.4332	1.3431	3.4592
Item 6	0.9738	0.0616	1.9871	0.8189	−1.0282	−0.2964	0.2346	1.1639
Item 7	0.3668	0.3274	0.6265	0.5150	−2.6024	−0.4640	1.0742	2.9596
Item 8	0.4937	0.3831	0.9833	0.6771	−1.5406	−0.2977	0.7325	2.1124
N scale								
Item 1	0.7239	1.4603	0.9699	0.9526	−0.7914	0.7564	1.8544	3.3383
Item 2	1.2320	0.9783	1.4104	0.9526	−0.7328	0.6442	1.7770	3.1275
Item 3	0.5404	2.1252	0.9274	0.8214	−0.0858	1.2456	2.0517	3.1225
Item 4	1.1511	0.6979	1.3809	0.9526	−1.2688	0.1302	1.2689	2.8793
Item 5	1.1974	0.6290	1.2213	0.9526	−1.5371	−0.0714	1.3261	2.9126
Item 6	0.3521	3.9751	0.6283	0.5663	0.5428	1.9840	2.9724	4.9948

Section 3.
Relation between VAS and Likert responses in each item on each personality scale

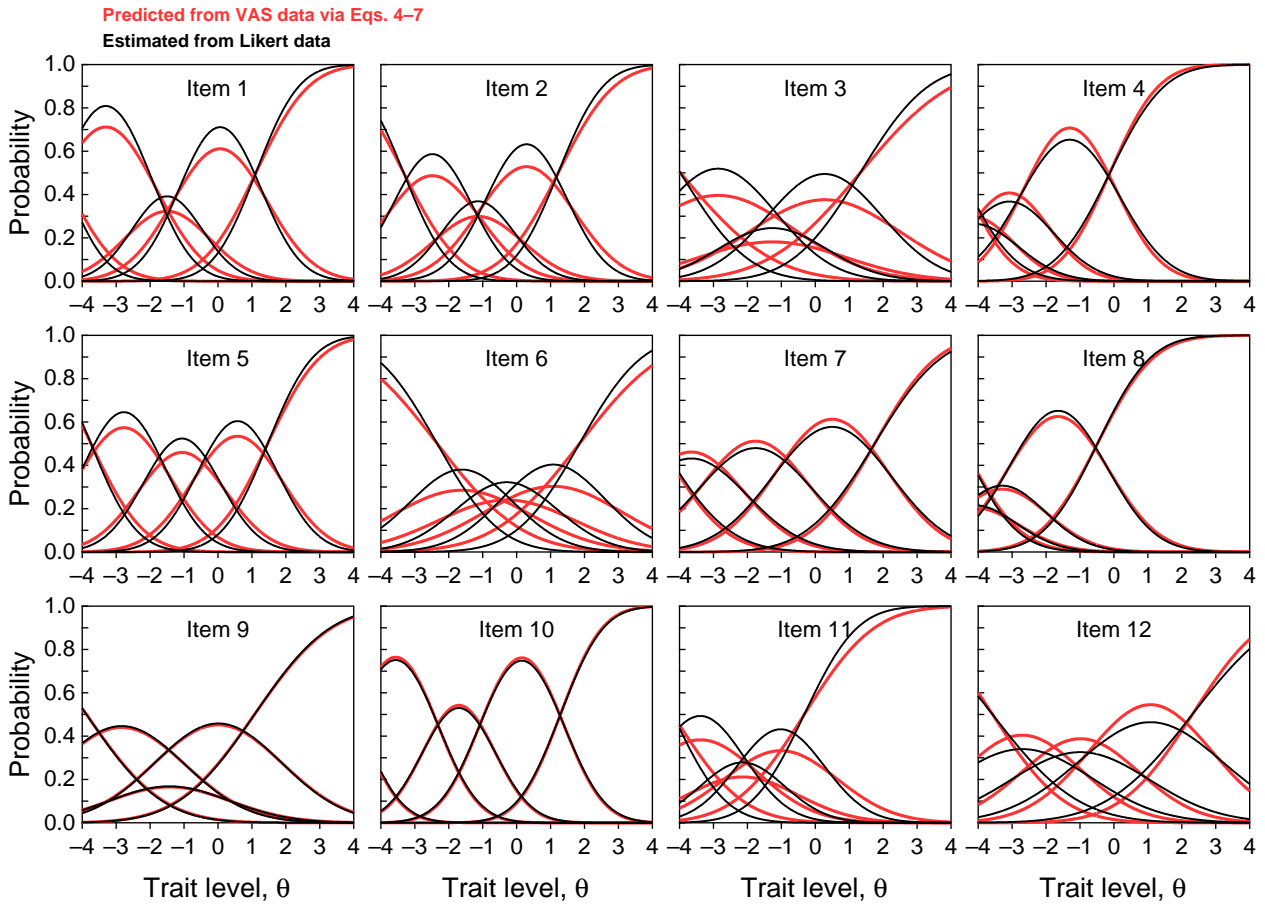Analogous to Fig. 10 in the paper. Items on the C scale.

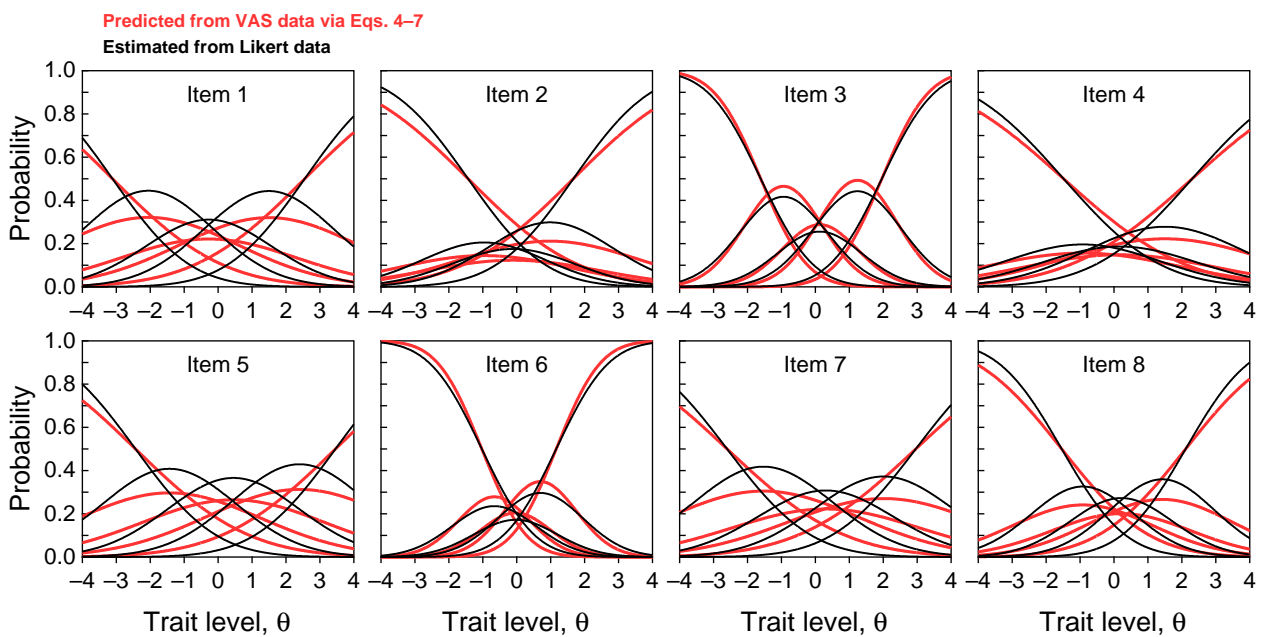Identical to Fig. 10 in the paper. Items on the ES scale

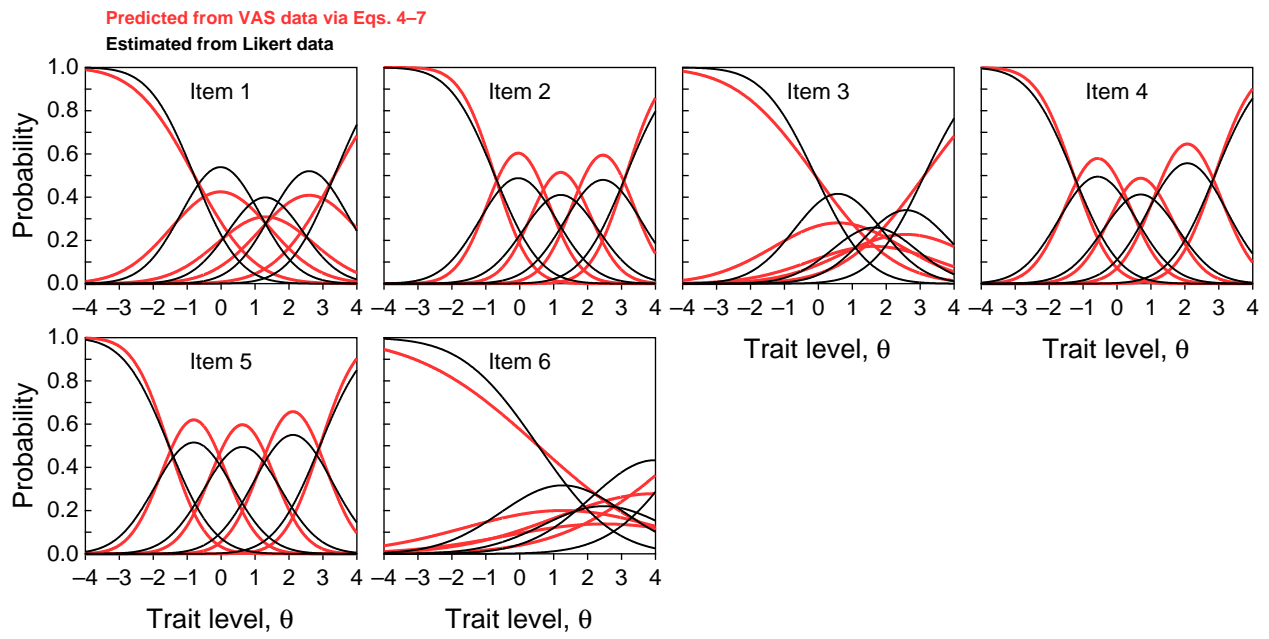Analogous to Fig. 10 in the paper. Items on the N scale.

Section 4.
NO-GRM category response functions estimated from Likert responses on each personality scale versus those predicted from VAS responses

Analogous to Fig. 15 in the paper. Items on the C scale.

Identical to Fig. 15 in the paper. Items on the ES scale.

Analogous to Fig. 15 in the paper. Items on the N scale.