Supplementary Material for:
ICTree: Automatic Perceptual Metrics for Tree Models

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1 INTRODUCTION

In this supplementary material we provide additional images, tables, experiment instructions and other results that were left out from the main publication for conciseness.

2 USER STUDY

In this section we provide additional information, data and statistics about the conducted user study. Specifically, we show example screen shots from the user survey which preceded the experiment (Figure 1) and from the user study itself (Figure 2). Finally, we show additional statistics about the participants who completed the user study (Figure 3), including their gender, education, age and average choice.

2.1 Experiment Instructions

Here we provide the experiment instructions presented to the subjects prior to the experiment, as well as the questionnaire filled by them after the experiment.

Introduction: *Welcome and thank you for your interest! This page is a part of an experiment concerning the perception of trees. The goal is to find how people perceive natural trees and their growth structures.* **Instructions:** *In this task, we are trying to rate tree models based on their perceived realism by the user. During the test, please do NOT use your browsers forward / backward buttons, since it may invalidate this form and prevent you from completing it. You will see two images. Choose the one which, based on your perception, looks more realistic. Select your preference by using the buttons at the bottom of the window. Confirm the assignment by pressing the "Submit" button on the last page. Thank you for you time!*

Survey: *Thank you for choosing to complete our experiment. In order to get better results, please fill out following user survey.* The survey section contains selectors for gender, age and highest level of education attained by the worker.

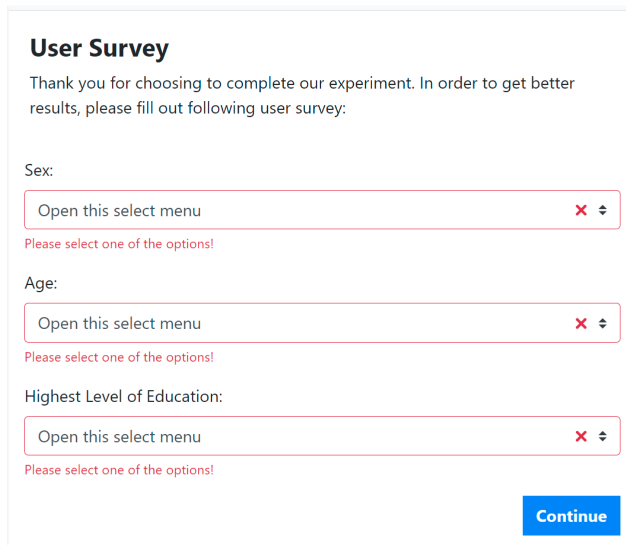

Fig. 1. **User Survey:** User survey at the beginning of the experiment.

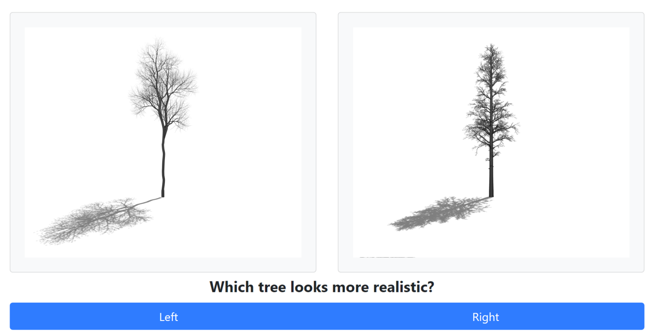

Fig. 2. **User Study:** Example screen shown to the participant during an experiment.

3 DATASET

In Figure 6 we show the ICTree dataset including the 5 base views for each tree. Figure 6 further shows ground-truth perceptual realism scores (in red) and realism predictions by our metrics: ICTreeF (light green), ICTreeI (dark green). Please note that predictions of our metrics were obtained thanks to several trained models (80 : 20 training:test split). We also provide JOD scores, along with their low, high, and variance values for trees (Table 2) and views (Table 3).

3.1 Score Optimization

We utilize the method by Perez-Ortiz and Mantiuk [2017] to calculate the ground-truth JOD scores for our dataset. We use the JOD scores for model training as well as calculation of datset statistics. In case of reporting the results, we first normalize these scores into $\langle 0, 1\rangle$ range as $score = (jod - jod_{min})/(jod_{max} - jod_{min})$. We optimize two types of values – tree scores and view scores. In case of the tree scores, we aggregate user choices on per-tree basis, choosing each tree as a condition. Conversely, for the view scores, each view is a condition by itself. Figure 5 shows a plot of resulting normalized scores along with their confidence intervals.

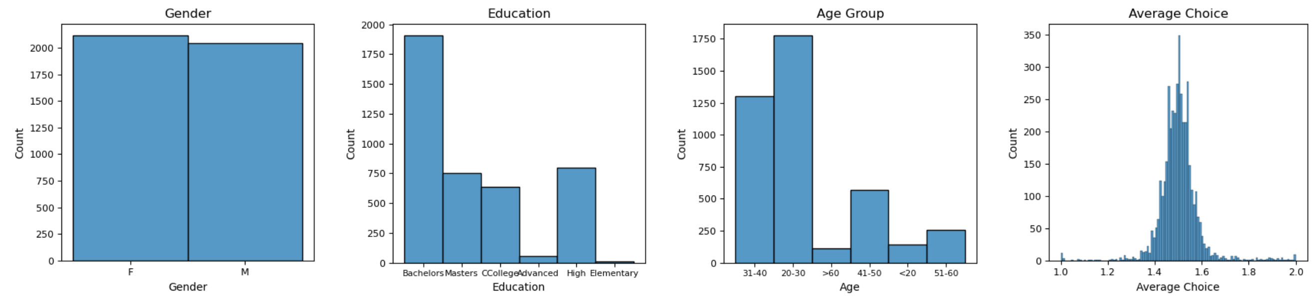

Fig. 3. **User Statistics:** User statistics of gender, education, age, and average answer of all study participants.

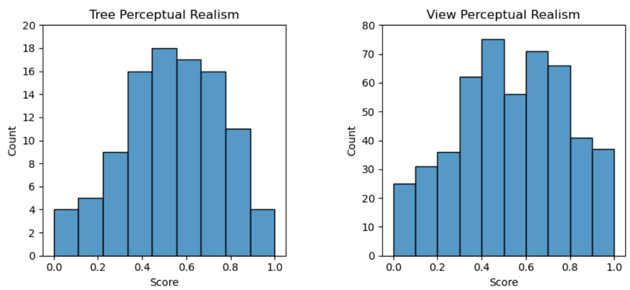

Fig. 4. **Score Statistics:** Optimized tree scores (**left**) and view scores (**right**).

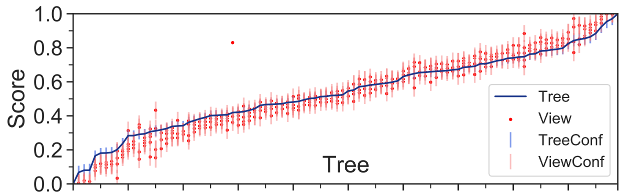

Fig. 5. **ICTree Scores:** Normalized scores obtained from the score optimization [Perez-Ortiz and Mantiuk 2017]. Both tree and view scores are visible along with their confidence intervals. View scores were transformed into the same interval as the tree scores. On average the confidence intervals are within ± 4.47% of the final optimized scores, ± 1.59% for tree score and ± 5.04% for view score.

To further confirm that the dataset is correct, we calculated the confidence intervals for JOD scores, which are available for both tree (Table 2) and views (Table 3).

4 REALISM PREDICTORS

Table 1 contains results from all ablation, `ICTreeF`, and `ICTreeI` experiments. Various models in the *Basic Models* section were implemented using the *sklearn* [Pedregosa et al. 2011] python package, utilizing the recommended parameters. We were unable to successfully fit some of the models to the realism prediction task – specifically the *Lars* and *LassoLars*, even with parameter tweaks.

		ICTree			Importance		
	Model	*MSE*	cor_p	cor_s	MSE	cor_p	cor_s
Basic Models	Linear	1.559	0.458	0.492	1.087	0.005	0.194
	Lasso	0.334	0.479	0.371	1.040	0.157	0.402
	Ridge	0.909	0.512	0.431	**0.878**	0.501	**0.443**
	ElasticNet	0.940	0.524	0.388	1.061	0.150	0.367
	Lars	N/A	N/A	N/A	N/A	N/A	N/A
	LassoLars	N/A	N/A	N/A	N/A	N/A	N/A
	Ortho Matching	3.851	0.374	0.441	2.018	0.263	0.181
	Bayes Ridge	0.917	0.547	0.240	1.169	0.135	0.275
	DNN	**0.277**	0.753	0.747	1.988	0.365	0.355
	Random Forest	0.326	**0.769**	**0.738**	1.038	**0.516**	0.418
ICTreeF	ICTreeF_base	0.191	0.756	0.725	0.913	0.375	0.195
	ICTreeF_d	0.181	0.759	0.740	0.870	0.650	0.463
	ICTreeF_db	0.147	0.825	0.794	0.845	0.666	0.540
	ICTreeF_dbs	0.141	0.845	0.809	0.715	0.678	0.573
	ICTreeF_dbsv4	0.136	0.844	0.802	0.625	0.764	0.618
	ICTreeF_dbsv8	0.133	**0.842**	0.816	**0.625**	0.770	0.692
	ICTreeF_dbsv17	**0.122**	**0.842**	**0.836**	**0.619**	**0.803**	**0.759**
ICTreeI	ICTreeI_RN18NP	1.279	0.384	0.311	0.985	0.411	0.287
	ICTreeI_RN18PT	1.207	0.430	0.450	0.913	0.596	0.565
	ICTreeI_R2N18NP	1.109	0.477	0.455	0.823	0.580	0.592
	ICTreeI_R2N50NP	0.948	0.582	0.608	0.813	0.610	0.622
	ICTreeI_R2N50PT	0.924	0.572	0.588	0.814	0.631	0.603
	ICTreeI_PTdb	0.168	0.778	0.774	0.698	0.696	0.519
	ICTreeI_PTdbs	0.168	0.816	0.820	0.641	0.709	0.569
	ICTreeI_NPdbsv	0.161	**0.846**	0.821	**0.626**	0.711	0.608
	ICTreeI_PTdbsv	**0.155**	**0.852**	**0.838**	**0.619**	**0.782**	**0.649**

Table 1. **Ablation Experiments:** Results of ablation experiments performed on both `ICTree` and `Importance` datasets. Mean-square error (*MSE*), Pearson (cor_p) and Spearman (cor_s) correlation coefficients are provided. Models in rows containing N/A did not train successfully.

REFERENCES

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Maria Perez-Ortiz and Rafal K Mantiuk. 2017. A practical guide and software for analysing pairwise comparison experiments. *arXiv preprint arXiv:1712.03686* (2017).

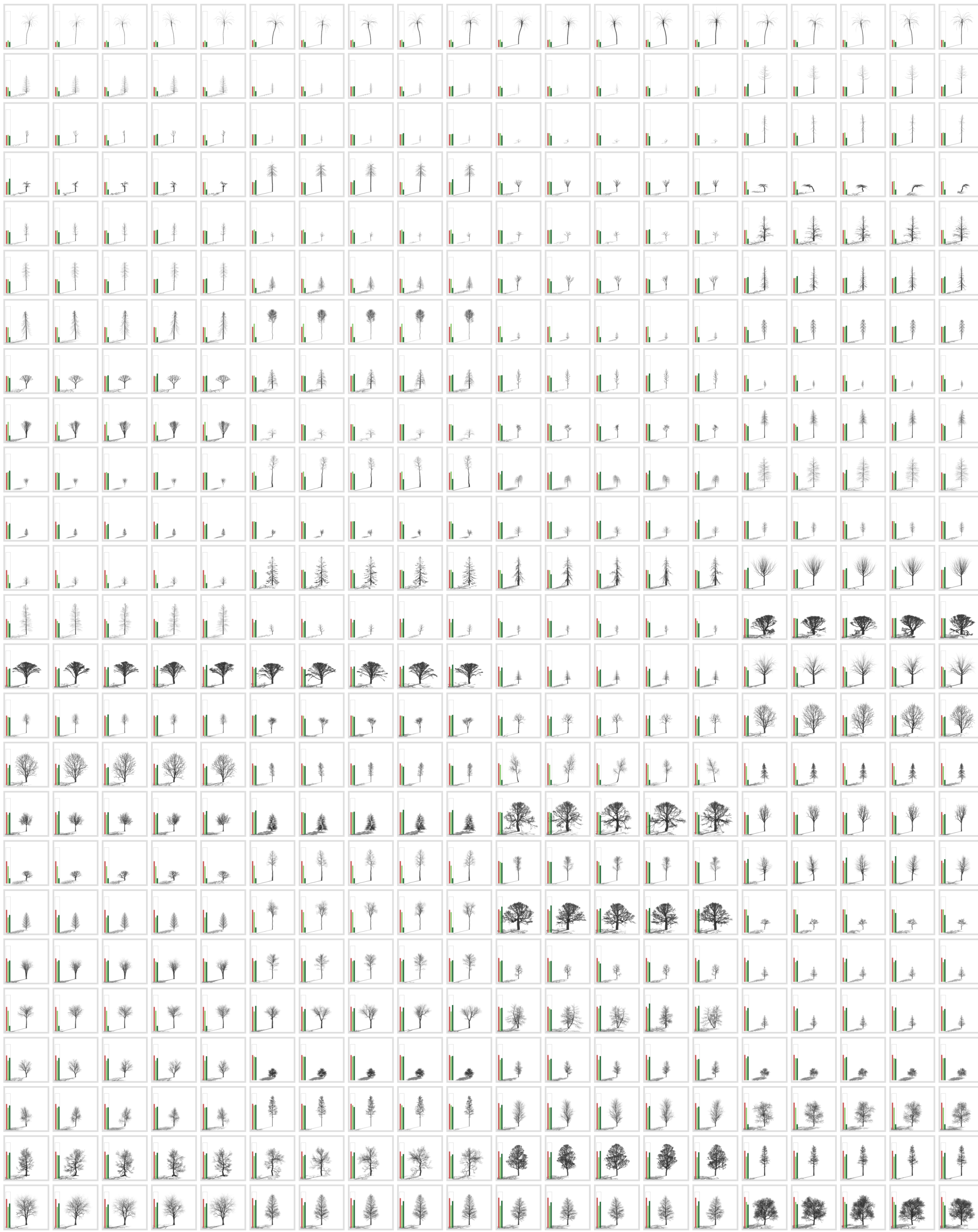

Fig. 6. **ICTree Dataset:** Dataset of 100 trees ordered by the ground-truth score from worst (top left) to best (bottom right) in the reading order. All the views for each tree are shown. Each image contains 3 bars, representing ground truth perceptual realism (left, red), prediction by the ICTreeI (middle, light green) and prediction by the ICTreeF (right, dark green).

Tree	JOD	JOD_l	JOD_h	JOD_{var}	Score
90	1.000	0.938	1.063	0.00100	0.000
91	1.205	1.148	1.266	0.00090	0.068
89	1.243	1.186	1.294	0.00081	0.080
92	1.244	1.186	1.301	0.00078	0.080
55	1.500	1.452	1.548	0.00056	0.165
81	1.548	1.503	1.594	0.00060	0.181
73	1.550	1.503	1.601	0.00064	0.182
29	1.560	1.515	1.610	0.00062	0.185
50	1.610	1.557	1.659	0.00065	0.201
38	1.719	1.672	1.769	0.00058	0.237
70	1.859	1.809	1.906	0.00061	0.284
34	1.860	1.811	1.904	0.00057	0.284
60	1.883	1.837	1.928	0.00055	0.291
31	1.892	1.850	1.935	0.00049	0.294
52	1.929	1.885	1.976	0.00054	0.307
63	1.945	1.891	1.989	0.00060	0.312
36	1.964	1.924	2.009	0.00052	0.318
53	1.986	1.940	2.033	0.00057	0.325
26	2.024	1.979	2.073	0.00058	0.338
25	2.031	1.989	2.072	0.00047	0.340
28	2.037	1.994	2.078	0.00046	0.342
78	2.097	2.050	2.146	0.00054	0.362
32	2.128	2.083	2.173	0.00055	0.372
68	2.159	2.117	2.202	0.00049	0.383
20	2.185	2.144	2.227	0.00047	0.391
39	2.216	2.174	2.263	0.00055	0.401
40	2.220	2.176	2.269	0.00056	0.403
30	2.228	2.188	2.272	0.00049	0.405
100	2.230	2.186	2.274	0.00054	0.406
1	2.271	2.271	2.271	0.00000	0.419
42	2.276	2.234	2.320	0.00052	0.421
13	2.287	2.242	2.334	0.00055	0.425
84	2.310	2.261	2.360	0.00062	0.432
72	2.339	2.294	2.387	0.00061	0.442
51	2.398	2.355	2.444	0.00053	0.462
37	2.412	2.368	2.456	0.00052	0.466
74	2.417	2.369	2.467	0.00058	0.468
44	2.422	2.375	2.469	0.00057	0.469
83	2.428	2.384	2.479	0.00062	0.471
2	2.450	2.409	2.490	0.00044	0.478
3	2.458	2.411	2.508	0.00054	0.481
6	2.470	2.422	2.512	0.00057	0.485
76	2.498	2.456	2.548	0.00052	0.495
71	2.520	2.478	2.564	0.00050	0.502
77	2.528	2.486	2.573	0.00051	0.504
69	2.554	2.506	2.602	0.00059	0.513
35	2.559	2.509	2.605	0.00062	0.515
80	2.575	2.526	2.624	0.00067	0.520
4	2.576	2.533	2.620	0.00045	0.520
75	2.587	2.541	2.633	0.00056	0.524

Tree	JOD	JOD_l	JOD_h	JOD_{var}	Score
18	2.654	2.609	2.704	0.00058	0.546
65	2.672	2.620	2.722	0.00072	0.552
62	2.730	2.682	2.783	0.00065	0.571
61	2.742	2.685	2.792	0.00071	0.575
82	2.761	2.719	2.805	0.00053	0.581
79	2.770	2.720	2.818	0.00065	0.584
17	2.784	2.743	2.831	0.00052	0.589
33	2.795	2.751	2.842	0.00053	0.593
46	2.812	2.769	2.858	0.00056	0.598
85	2.835	2.781	2.884	0.00067	0.606
99	2.911	2.856	2.958	0.00070	0.631
22	2.940	2.891	2.987	0.00054	0.641
10	2.964	2.920	3.011	0.00059	0.648
19	2.982	2.940	3.028	0.00055	0.654
43	2.988	2.940	3.036	0.00061	0.656
56	2.997	2.952	3.048	0.00061	0.659
66	3.005	2.952	3.058	0.00077	0.662
47	3.010	2.958	3.059	0.00067	0.664
64	3.017	2.968	3.066	0.00061	0.666
45	3.031	2.983	3.082	0.00064	0.671
23	3.039	2.996	3.085	0.00053	0.673
5	3.076	3.035	3.126	0.00057	0.685
54	3.084	3.040	3.130	0.00052	0.688
57	3.095	3.042	3.144	0.00069	0.691
67	3.137	3.083	3.191	0.00079	0.705
27	3.139	3.095	3.188	0.00061	0.706
11	3.164	3.121	3.213	0.00062	0.714
24	3.191	3.145	3.238	0.00062	0.723
49	3.208	3.158	3.257	0.00062	0.729
96	3.237	3.186	3.285	0.00068	0.738
48	3.243	3.196	3.290	0.00063	0.740
8	3.259	3.210	3.309	0.00065	0.746
14	3.264	3.215	3.312	0.00065	0.747
95	3.311	3.261	3.367	0.00070	0.763
7	3.316	3.264	3.366	0.00066	0.765
97	3.366	3.311	3.418	0.00078	0.781
21	3.372	3.322	3.422	0.00063	0.783
98	3.390	3.333	3.442	0.00075	0.789
9	3.398	3.346	3.451	0.00070	0.792
94	3.417	3.358	3.468	0.00080	0.798
58	3.497	3.447	3.546	0.00067	0.824
41	3.552	3.497	3.602	0.00072	0.843
87	3.574	3.515	3.629	0.00083	0.850
88	3.589	3.535	3.646	0.00083	0.855
59	3.619	3.562	3.678	0.00083	0.864
93	3.679	3.622	3.740	0.00090	0.884
12	3.796	3.740	3.850	0.00083	0.923
16	3.891	3.831	3.949	0.00087	0.954
15	3.942	3.884	3.999	0.00086	0.971
86	4.029	3.966	4.093	0.00110	1.000

Table 2. **Tree Dataset:** The tree part of the main `ICTree` dataset containing 100 trees and their corresponding JOD scores. Trees are ordered by the JOD score.

Tree	View	JOD	JOD_l	JOD_h	JOD_{var}	Score
90	0	1.000	1.181	1.462	0.00482	0.000
90	1	1.002	1.186	1.471	0.00478	0.001
90	2	1.004	1.187	1.455	0.00489	0.001
90	3	1.007	1.180	1.460	0.00487	0.002
90	4	1.009	1.185	1.447	0.00452	0.003
91	2	1.008	1.190	1.479	0.00482	0.003
91	0	1.008	1.192	1.482	0.00484	0.003
91	4	1.010	1.181	1.453	0.00477	0.003
91	3	1.000	1.185	1.452	0.00474	0.000
91	1	1.006	1.180	1.448	0.00496	0.002
89	3	1.005	1.192	1.473	0.00487	0.002
89	4	1.000	1.188	1.449	0.00468	0.000
89	2	1.048	1.189	1.452	0.00487	0.016
89	0	1.002	1.196	1.477	0.00459	0.001
89	1	1.014	1.181	1.476	0.00479	0.005
92	0	1.009	1.194	1.466	0.00491	0.003
92	1	1.010	1.195	1.457	0.00467	0.003
92	2	1.003	1.190	1.458	0.00495	0.001
92	3	1.006	1.190	1.460	0.00497	0.002
92	4	1.036	1.188	1.461	0.00504	0.012
55	0	1.262	1.355	1.625	0.00469	0.086
55	1	1.202	1.289	1.586	0.00546	0.067
55	2	1.284	1.378	1.653	0.00480	0.094
55	4	1.250	1.347	1.628	0.00501	0.083
55	3	1.240	1.338	1.613	0.00518	0.079
81	4	1.308	1.396	1.682	0.00524	0.102
81	3	1.315	1.408	1.696	0.00524	0.104
81	2	1.298	1.391	1.661	0.00525	0.098
81	1	1.279	1.367	1.654	0.00523	0.092
81	0	1.278	1.374	1.638	0.00450	0.092
73	0	1.250	1.348	1.625	0.00535	0.082
73	4	1.296	1.384	1.671	0.00499	0.098
73	3	1.325	1.422	1.700	0.00506	0.107
73	2	1.291	1.382	1.665	0.00512	0.096
73	1	1.333	1.434	1.709	0.00491	0.110
29	1	1.281	1.373	1.645	0.00473	0.093
29	0	1.286	1.388	1.664	0.00496	0.094
29	4	1.298	1.386	1.660	0.00501	0.098
29	2	1.328	1.418	1.702	0.00475	0.108
29	3	1.344	1.429	1.725	0.00515	0.114
50	2	1.086	1.202	1.460	0.00476	0.028
50	1	1.491	1.590	1.869	0.00504	0.162
50	0	1.394	1.490	1.752	0.00470	0.130
50	3	1.500	1.599	1.876	0.00497	0.165
50	4	1.303	1.392	1.674	0.00509	0.100
38	4	1.442	1.530	1.797	0.00480	0.146
38	0	1.408	1.506	1.776	0.00488	0.135
38	3	1.497	1.594	1.869	0.00475	0.164
38	2	1.467	1.559	1.838	0.00522	0.154
38	1	1.518	1.614	1.879	0.00510	0.171

Tree	View	JOD	JOD_l	JOD_h	JOD_{var}	Score
70	4	1.813	1.907	2.183	0.00473	0.268
70	3	1.532	1.629	1.882	0.00470	0.176
70	2	1.604	1.701	1.981	0.00484	0.199
70	1	1.508	1.605	1.881	0.00497	0.168
70	0	1.567	1.667	1.932	0.00498	0.187
34	4	1.547	1.645	1.923	0.00495	0.181
34	3	1.648	1.735	2.023	0.00503	0.214
34	2	1.598	1.699	1.970	0.00458	0.197
34	1	1.596	1.689	1.960	0.00477	0.197
34	0	1.642	1.741	2.006	0.00477	0.212
60	2	1.499	1.599	1.870	0.00479	0.165
60	1	1.377	1.467	1.739	0.00474	0.124
60	3	1.861	1.970	2.240	0.00446	0.284
60	0	1.902	2.002	2.289	0.00460	0.298
60	4	1.487	1.586	1.853	0.00481	0.161
31	3	1.654	1.756	2.021	0.00460	0.216
31	0	1.704	1.801	2.057	0.00453	0.232
31	1	1.582	1.685	1.948	0.00486	0.192
31	2	1.623	1.715	1.995	0.00489	0.206
31	4	1.623	1.713	1.993	0.00494	0.206
52	2	1.760	1.851	2.144	0.00502	0.251
52	4	1.722	1.812	2.082	0.00493	0.238
52	3	1.411	1.502	1.770	0.00496	0.136
52	1	1.634	1.733	1.997	0.00478	0.209
52	0	1.838	1.948	2.203	0.00484	0.277
63	0	2.124	2.224	2.488	0.00462	0.371
63	3	1.399	1.485	1.788	0.00528	0.132
63	2	1.845	1.950	2.223	0.00457	0.279
63	1	1.524	1.620	1.895	0.00505	0.173
63	4	1.524	1.616	1.896	0.00508	0.173
36	1	1.778	1.873	2.135	0.00447	0.257
36	2	1.537	1.639	1.905	0.00472	0.177
36	3	1.780	1.892	2.134	0.00437	0.257
36	0	1.771	1.872	2.138	0.00470	0.255
36	4	1.673	1.778	2.029	0.00474	0.222
53	3	1.767	1.864	2.131	0.00461	0.253
53	1	1.786	1.887	2.159	0.00459	0.260
53	2	1.614	1.720	1.977	0.00454	0.203
53	4	1.692	1.792	2.062	0.00453	0.228
53	0	1.815	1.910	2.166	0.00464	0.269
26	0	1.853	1.951	2.235	0.00483	0.281
26	2	1.713	1.808	2.085	0.00507	0.235
26	1	1.806	1.904	2.184	0.00476	0.266
26	4	1.772	1.874	2.134	0.00454	0.255
26	3	1.702	1.795	2.062	0.00466	0.232
25	4	1.702	1.800	2.058	0.00457	0.232
25	3	1.969	2.067	2.328	0.00454	0.320
25	2	1.716	1.819	2.082	0.00467	0.236
25	1	1.765	1.863	2.122	0.00456	0.253
25	0	1.725	1.833	2.087	0.00441	0.239

Tree	View	JOD	JOD_l	JOD_h	JOD_{var}	Score
28	0	1.799	1.897	2.153	0.00482	0.264
28	1	1.770	1.862	2.124	0.00478	0.254
28	2	1.790	1.887	2.162	0.00468	0.261
28	3	1.756	1.869	2.109	0.00447	0.250
28	4	1.803	1.900	2.153	0.00446	0.265
78	4	1.963	2.053	2.316	0.00458	0.318
78	1	1.738	1.833	2.115	0.00478	0.243
78	2	1.657	1.754	2.020	0.00478	0.217
78	3	1.909	2.005	2.279	0.00476	0.300
78	0	1.937	2.040	2.303	0.00479	0.309
32	4	1.903	2.000	2.268	0.00465	0.298
32	3	1.790	1.886	2.153	0.00460	0.261
32	2	1.845	1.940	2.213	0.00453	0.279
32	1	1.938	2.041	2.304	0.00474	0.310
32	0	1.891	1.996	2.261	0.00442	0.294
68	2	1.852	1.946	2.202	0.00453	0.281
68	1	1.967	2.081	2.340	0.00448	0.319
68	3	1.883	1.980	2.254	0.00464	0.292
68	4	1.948	2.043	2.308	0.00465	0.313
68	0	1.872	1.970	2.229	0.00423	0.288
20	4	1.949	2.053	2.299	0.00416	0.313
20	3	1.897	2.003	2.266	0.00423	0.296
20	2	1.944	2.048	2.296	0.00453	0.312
20	1	2.002	2.111	2.365	0.00437	0.331
20	0	1.858	1.964	2.220	0.00431	0.283
39	4	1.999	2.099	2.358	0.00460	0.330
39	2	2.048	2.157	2.415	0.00443	0.346
39	1	1.863	1.962	2.232	0.00460	0.285
39	0	1.945	2.037	2.312	0.00482	0.312
39	3	1.947	2.036	2.305	0.00469	0.312
40	3	1.931	2.026	2.293	0.00443	0.307
40	1	1.970	2.071	2.337	0.00472	0.320
40	0	2.033	2.138	2.397	0.00464	0.341
40	4	1.906	1.998	2.272	0.00503	0.299
40	2	1.994	2.094	2.347	0.00444	0.328
30	2	1.961	2.063	2.326	0.00466	0.317
30	1	1.998	2.101	2.374	0.00481	0.330
30	0	1.974	2.069	2.341	0.00463	0.321
30	4	2.026	2.126	2.376	0.00463	0.339
30	3	1.905	2.010	2.288	0.00486	0.299
100	0	2.069	2.163	2.434	0.00496	0.353
100	3	1.964	2.069	2.330	0.00455	0.318
100	1	1.820	1.921	2.187	0.00448	0.271
100	2	1.996	2.095	2.355	0.00442	0.329
100	4	2.033	2.127	2.391	0.00460	0.341
1	0	3.155	3.155	3.155	0.00000	0.711
1	1	2.060	2.166	2.423	0.00435	0.350
1	2	2.042	2.139	2.407	0.00429	0.344
1	3	1.938	2.040	2.300	0.00457	0.310
1	4	2.028	2.132	2.399	0.00476	0.339

Tree	View	JOD	JOD_l	JOD_h	JOD_{var}	Score
42	4	2.041	2.137	2.409	0.00440	0.344
42	3	1.984	2.084	2.356	0.00466	0.325
42	2	2.105	2.214	2.454	0.00461	0.365
42	1	1.895	1.999	2.263	0.00467	0.295
42	0	2.072	2.183	2.429	0.00469	0.354
13	2	1.906	2.009	2.259	0.00469	0.299
13	1	2.104	2.203	2.463	0.00432	0.364
13	0	1.949	2.054	2.301	0.00436	0.313
13	3	2.186	2.296	2.558	0.00433	0.392
13	4	2.018	2.122	2.372	0.00456	0.336
84	4	2.033	2.130	2.405	0.00447	0.341
84	3	2.086	2.187	2.447	0.00450	0.358
84	2	2.144	2.237	2.496	0.00466	0.378
84	1	2.050	2.152	2.410	0.00457	0.347
84	0	1.965	2.069	2.333	0.00465	0.318
72	2	2.031	2.132	2.405	0.00467	0.340
72	0	2.152	2.251	2.516	0.00484	0.380
72	3	2.120	2.223	2.478	0.00452	0.370
72	1	2.097	2.201	2.475	0.00459	0.362
72	4	2.020	2.128	2.377	0.00428	0.337
51	1	2.171	2.270	2.538	0.00453	0.387
51	0	2.165	2.271	2.536	0.00433	0.384
51	3	2.247	2.357	2.605	0.00444	0.412
51	4	2.120	2.222	2.478	0.00448	0.370
51	2	2.009	2.112	2.374	0.00444	0.333
37	4	2.103	2.205	2.455	0.00444	0.364
37	0	2.202	2.314	2.554	0.00392	0.397
37	1	2.174	2.276	2.524	0.00418	0.388
37	2	2.166	2.268	2.525	0.00444	0.385
37	3	2.136	2.232	2.486	0.00468	0.375
74	0	2.195	2.297	2.552	0.00433	0.394
74	1	2.267	2.360	2.627	0.00457	0.418
74	2	2.166	2.262	2.520	0.00478	0.385
74	3	2.039	2.134	2.392	0.00478	0.343
74	4	2.147	2.246	2.526	0.00440	0.379
44	3	2.176	2.275	2.539	0.00441	0.388
44	4	2.171	2.268	2.517	0.00422	0.387
44	0	2.233	2.336	2.588	0.00459	0.407
44	1	2.158	2.264	2.527	0.00448	0.382
44	2	2.087	2.190	2.440	0.00417	0.359
83	1	2.199	2.305	2.584	0.00453	0.396
83	3	2.207	2.297	2.574	0.00480	0.398
83	4	2.143	2.239	2.513	0.00452	0.377
83	0	2.164	2.260	2.529	0.00466	0.384
83	2	2.155	2.248	2.511	0.00451	0.381
2	4	2.246	2.357	2.592	0.00416	0.411
2	3	2.075	2.180	2.442	0.00450	0.355
2	2	2.169	2.262	2.533	0.00453	0.386
2	0	2.213	2.316	2.583	0.00441	0.400
2	1	2.263	2.367	2.607	0.00432	0.417

Tree	View	JOD	JOD_l	JOD_h	JOD_{var}	Score
3	4	2.156	2.250	2.511	0.00435	0.382
3	0	2.332	2.438	2.686	0.00413	0.440
3	2	2.181	2.285	2.544	0.00478	0.390
3	1	2.136	2.242	2.505	0.00413	0.375
3	3	2.203	2.313	2.547	0.00412	0.397
6	0	2.120	2.223	2.498	0.00445	0.370
6	2	2.347	2.441	2.722	0.00441	0.445
6	3	2.125	2.224	2.489	0.00462	0.371
6	4	2.303	2.411	2.674	0.00426	0.430
6	1	2.182	2.276	2.546	0.00452	0.390
76	0	2.239	2.341	2.617	0.00495	0.409
76	4	2.266	2.365	2.629	0.00484	0.418
76	3	2.206	2.305	2.563	0.00469	0.398
76	2	2.256	2.352	2.630	0.00470	0.415
76	1	2.251	2.342	2.610	0.00465	0.413
71	3	2.242	2.344	2.613	0.00444	0.410
71	0	2.321	2.420	2.688	0.00469	0.436
71	2	2.273	2.378	2.633	0.00419	0.420
71	4	2.202	2.300	2.568	0.00460	0.397
71	1	2.285	2.393	2.654	0.00464	0.424
77	3	2.197	2.299	2.552	0.00438	0.395
77	0	2.263	2.360	2.624	0.00475	0.417
77	1	2.281	2.386	2.634	0.00480	0.423
77	2	2.341	2.437	2.705	0.00476	0.443
77	4	2.285	2.385	2.641	0.00438	0.424
69	1	2.319	2.420	2.678	0.00447	0.435
69	3	2.321	2.424	2.692	0.00466	0.436
69	4	2.301	2.399	2.661	0.00419	0.429
69	0	2.246	2.346	2.612	0.00445	0.411
69	2	2.306	2.405	2.673	0.00471	0.431
35	3	2.247	2.350	2.603	0.00428	0.412
35	2	2.332	2.431	2.687	0.00429	0.440
35	1	2.297	2.395	2.667	0.00442	0.428
35	0	2.308	2.404	2.669	0.00463	0.432
35	4	2.343	2.439	2.716	0.00466	0.443
80	4	2.262	2.350	2.612	0.00474	0.416
80	2	2.393	2.481	2.747	0.00488	0.460
80	1	2.285	2.390	2.661	0.00452	0.424
80	0	2.361	2.455	2.709	0.00439	0.449
80	3	2.293	2.389	2.658	0.00456	0.427
4	3	2.368	2.464	2.723	0.00477	0.451
4	2	2.266	2.368	2.609	0.00452	0.418
4	1	2.229	2.333	2.585	0.00450	0.406
4	4	2.325	2.431	2.698	0.00442	0.438
4	0	2.412	2.512	2.776	0.00442	0.466
75	0	2.313	2.415	2.670	0.00414	0.434
75	1	2.327	2.435	2.692	0.00434	0.438
75	2	2.423	2.522	2.777	0.00462	0.470
75	4	2.353	2.436	2.717	0.00528	0.447
75	3	2.240	2.334	2.603	0.00462	0.409

Tree	View	JOD	JOD_l	JOD_h	JOD_{var}	Score
18	4	2.419	2.511	2.782	0.00462	0.468
18	3	2.338	2.440	2.694	0.00458	0.442
18	2	2.458	2.561	2.814	0.00447	0.481
18	1	2.410	2.508	2.771	0.00450	0.466
18	0	2.352	2.458	2.717	0.00448	0.446
65	4	2.257	2.351	2.622	0.00464	0.415
65	3	2.372	2.462	2.732	0.00474	0.453
65	1	2.416	2.515	2.790	0.00482	0.467
65	0	2.520	2.611	2.891	0.00452	0.502
65	2	2.521	2.619	2.888	0.00480	0.502
62	1	2.390	2.490	2.766	0.00484	0.459
62	2	2.520	2.613	2.900	0.00480	0.502
62	4	2.430	2.532	2.791	0.00478	0.472
62	3	2.439	2.538	2.808	0.00478	0.475
62	0	2.600	2.702	2.972	0.00451	0.528
61	4	2.350	2.456	2.718	0.00445	0.446
61	3	2.590	2.686	2.946	0.00439	0.525
61	2	2.452	2.540	2.808	0.00480	0.479
61	1	2.446	2.543	2.833	0.00479	0.477
61	0	2.586	2.679	2.950	0.00487	0.523
82	0	2.631	2.733	2.987	0.00438	0.539
82	1	2.558	2.665	2.921	0.00449	0.514
82	4	2.386	2.486	2.737	0.00442	0.458
82	2	2.446	2.539	2.802	0.00488	0.477
82	3	2.503	2.602	2.865	0.00417	0.496
79	1	2.555	2.652	2.909	0.00422	0.513
79	2	2.533	2.632	2.893	0.00473	0.506
79	3	2.440	2.534	2.787	0.00433	0.475
79	4	2.579	2.678	2.936	0.00433	0.521
79	0	2.456	2.554	2.814	0.00442	0.481
17	4	2.491	2.590	2.844	0.00429	0.492
17	2	2.518	2.626	2.886	0.00429	0.501
17	1	2.589	2.699	2.969	0.00418	0.524
17	0	2.504	2.603	2.868	0.00427	0.496
17	3	2.539	2.644	2.909	0.00473	0.508
33	4	2.642	2.744	2.996	0.00444	0.542
33	0	2.621	2.731	2.994	0.00460	0.535
33	2	2.542	2.641	2.901	0.00407	0.509
33	3	2.377	2.487	2.723	0.00417	0.455
33	1	2.503	2.606	2.868	0.00452	0.496
46	3	2.599	2.704	2.968	0.00452	0.528
46	0	2.594	2.699	2.954	0.00433	0.526
46	1	2.600	2.697	2.964	0.00449	0.528
46	2	2.455	2.560	2.830	0.00451	0.480
46	4	2.533	2.632	2.900	0.00442	0.506
85	4	2.604	2.697	2.957	0.00458	0.529
85	3	2.591	2.689	2.935	0.00430	0.525
85	2	2.573	2.663	2.926	0.00451	0.519
85	1	2.551	2.652	2.914	0.00452	0.512
85	0	2.570	2.671	2.936	0.00458	0.518

Tree	View	JOD	JOD_l	JOD_h	JOD_{var}	Score
99	3	2.598	2.701	2.948	0.00452	0.527
99	2	2.561	2.664	2.911	0.00452	0.515
99	1	2.733	2.827	3.091	0.00439	0.572
99	4	2.720	2.818	3.075	0.00455	0.568
99	0	2.662	2.756	3.015	0.00433	0.549
22	3	2.686	2.787	3.042	0.00427	0.556
22	0	2.656	2.760	3.020	0.00470	0.547
22	1	2.759	2.860	3.113	0.00425	0.581
22	2	2.649	2.747	3.001	0.00461	0.544
22	4	2.666	2.760	3.025	0.00478	0.550
10	4	2.614	2.714	2.971	0.00439	0.533
10	1	2.790	2.889	3.155	0.00465	0.591
10	2	2.465	2.570	2.838	0.00453	0.484
10	3	2.855	2.952	3.221	0.00458	0.612
10	0	2.802	2.901	3.158	0.00455	0.595
19	3	2.704	2.807	3.055	0.00445	0.562
19	2	2.654	2.750	3.020	0.00493	0.546
19	1	2.703	2.799	3.061	0.00473	0.562
19	0	2.721	2.825	3.069	0.00437	0.568
19	4	2.848	2.963	3.196	0.00429	0.610
43	1	2.764	2.868	3.119	0.00420	0.582
43	4	2.777	2.876	3.128	0.00430	0.586
43	0	2.767	2.865	3.122	0.00422	0.583
43	2	2.708	2.802	3.068	0.00435	0.564
43	3	2.645	2.741	3.004	0.00425	0.543
56	0	2.807	2.916	3.167	0.00422	0.596
56	1	2.552	2.650	2.917	0.00447	0.512
56	4	2.796	2.904	3.144	0.00436	0.593
56	3	2.797	2.899	3.150	0.00452	0.593
56	2	2.752	2.854	3.110	0.00448	0.578
66	0	2.829	2.932	3.185	0.00447	0.604
66	1	2.765	2.865	3.122	0.00455	0.583
66	2	2.744	2.835	3.093	0.00460	0.576
66	3	2.769	2.873	3.120	0.00451	0.584
66	4	2.623	2.720	2.986	0.00461	0.536
47	4	2.742	2.841	3.109	0.00468	0.575
47	0	2.727	2.814	3.092	0.00477	0.570
47	2	2.833	2.934	3.188	0.00458	0.605
47	1	2.716	2.820	3.075	0.00450	0.566
47	3	2.750	2.849	3.102	0.00469	0.578
64	4	2.764	2.861	3.108	0.00430	0.582
64	3	2.780	2.879	3.142	0.00468	0.588
64	2	2.700	2.799	3.057	0.00453	0.561
64	0	2.735	2.828	3.099	0.00435	0.573
64	1	2.819	2.920	3.187	0.00447	0.600
45	0	2.765	2.864	3.126	0.00450	0.582
45	1	2.742	2.832	3.113	0.00454	0.575
45	2	2.873	2.979	3.242	0.00452	0.618
45	3	2.772	2.869	3.119	0.00445	0.585
45	4	2.720	2.824	3.083	0.00452	0.568

Tree	View	JOD	JOD_l	JOD_h	JOD_{var}	Score
23	0	2.646	2.749	3.017	0.00467	0.543
23	1	2.861	2.962	3.238	0.00416	0.614
23	4	2.873	2.975	3.226	0.00439	0.618
23	2	2.739	2.844	3.087	0.00444	0.574
23	3	2.787	2.892	3.134	0.00439	0.590
5	0	2.911	3.024	3.260	0.00405	0.631
5	3	2.835	2.943	3.192	0.00465	0.606
5	2	2.876	2.971	3.239	0.00462	0.619
5	1	2.664	2.768	3.024	0.00429	0.549
5	4	2.792	2.899	3.156	0.00427	0.592
54	0	2.834	2.937	3.182	0.00438	0.605
54	1	2.844	2.948	3.213	0.00459	0.609
54	2	2.843	2.942	3.200	0.00469	0.609
54	4	2.802	2.893	3.156	0.00445	0.595
54	3	2.815	2.924	3.167	0.00440	0.599
57	1	2.924	3.029	3.283	0.00420	0.635
57	0	2.807	2.916	3.150	0.00434	0.596
57	2	2.950	3.045	3.307	0.00461	0.644
57	3	2.669	2.771	3.025	0.00480	0.551
57	4	2.832	2.930	3.194	0.00459	0.605
67	1	2.719	2.812	3.077	0.00439	0.567
67	3	2.840	2.920	3.198	0.00464	0.607
67	4	3.014	3.098	3.367	0.00490	0.665
67	0	2.928	3.023	3.320	0.00472	0.636
67	2	2.909	3.001	3.277	0.00485	0.630
27	0	2.902	3.004	3.270	0.00466	0.628
27	1	2.786	2.892	3.141	0.00415	0.590
27	2	2.898	2.996	3.258	0.00437	0.626
27	3	2.833	2.933	3.188	0.00441	0.605
27	4	2.991	3.089	3.348	0.00457	0.657
11	1	2.966	3.073	3.331	0.00426	0.649
11	2	2.941	3.036	3.295	0.00455	0.641
11	3	2.898	3.004	3.265	0.00428	0.627
11	0	2.790	2.887	3.142	0.00457	0.591
11	4	2.944	3.036	3.321	0.00495	0.642
24	0	2.899	2.997	3.262	0.00462	0.627
24	1	2.910	3.010	3.274	0.00489	0.630
24	4	2.941	3.046	3.289	0.00413	0.641
24	3	2.983	3.081	3.338	0.00441	0.655
24	2	2.930	3.036	3.291	0.00454	0.637
49	4	2.888	2.988	3.239	0.00443	0.623
49	3	2.991	3.093	3.352	0.00453	0.657
49	2	2.990	3.084	3.334	0.00434	0.657
49	1	2.884	2.983	3.233	0.00432	0.622
49	0	3.001	3.098	3.359	0.00464	0.660
96	1	2.997	3.086	3.362	0.00471	0.659
96	2	3.048	3.136	3.400	0.00455	0.676
96	3	2.992	3.092	3.358	0.00476	0.658
96	4	2.999	3.094	3.362	0.00451	0.660
96	0	2.876	2.987	3.235	0.00432	0.619

Tree	View	JOD	JOD_l	JOD_h	JOD_{var}	Score
48	2	3.113	3.213	3.463	0.00431	0.697
48	4	2.961	3.068	3.332	0.00408	0.647
48	3	2.898	2.996	3.253	0.00423	0.627
48	1	2.979	3.076	3.332	0.00452	0.653
48	0	2.972	3.080	3.332	0.00433	0.651
8	3	3.112	3.217	3.464	0.00444	0.697
8	2	3.101	3.197	3.469	0.00445	0.694
8	1	2.915	3.016	3.267	0.00436	0.632
8	0	2.891	2.987	3.251	0.00434	0.624
8	4	2.998	3.097	3.368	0.00447	0.659
14	0	3.078	3.177	3.415	0.00449	0.686
14	1	2.790	2.890	3.155	0.00463	0.591
14	2	2.995	3.099	3.342	0.00438	0.659
14	4	2.889	2.990	3.238	0.00429	0.624
14	3	3.294	3.400	3.658	0.00411	0.757
95	0	3.116	3.215	3.474	0.00441	0.698
95	1	3.031	3.127	3.389	0.00457	0.671
95	2	3.061	3.160	3.422	0.00443	0.680
95	3	3.027	3.137	3.388	0.00446	0.669
95	4	3.030	3.139	3.398	0.00446	0.670
7	4	3.153	3.261	3.495	0.00431	0.711
7	0	3.048	3.145	3.402	0.00439	0.676
7	1	3.040	3.138	3.392	0.00418	0.673
7	3	3.003	3.099	3.348	0.00461	0.661
7	2	3.050	3.146	3.406	0.00468	0.677
97	0	3.146	3.236	3.500	0.00468	0.708
97	4	3.164	3.264	3.526	0.00452	0.714
97	3	2.979	3.079	3.345	0.00461	0.653
97	2	3.232	3.328	3.594	0.00467	0.737
97	1	3.033	3.133	3.402	0.00472	0.671
21	3	3.145	3.232	3.509	0.00500	0.708
21	4	3.068	3.166	3.422	0.00453	0.683
21	0	3.079	3.189	3.449	0.00437	0.686
21	1	3.079	3.187	3.438	0.00422	0.686
21	2	3.199	3.304	3.553	0.00412	0.726
98	0	3.085	3.188	3.441	0.00443	0.688
98	1	3.050	3.156	3.405	0.00416	0.677
98	2	3.163	3.268	3.519	0.00444	0.714
98	3	3.226	3.331	3.593	0.00441	0.735
98	4	3.149	3.251	3.505	0.00491	0.709
9	1	3.181	3.275	3.528	0.00451	0.720
9	2	3.090	3.187	3.437	0.00420	0.690
9	0	3.122	3.218	3.469	0.00442	0.701
9	4	3.113	3.217	3.467	0.00439	0.698
9	3	3.197	3.299	3.563	0.00453	0.725
94	1	3.220	3.314	3.596	0.00487	0.733
94	2	3.145	3.246	3.491	0.00476	0.708
94	3	3.147	3.246	3.503	0.00468	0.709
94	4	3.108	3.205	3.461	0.00462	0.696
94	0	3.171	3.266	3.527	0.00436	0.717

Tree	View	JOD	JOD_l	JOD_h	JOD_{var}	Score
58	4	3.144	3.238	3.495	0.00485	0.708
58	3	3.313	3.410	3.673	0.00459	0.763
58	2	3.212	3.323	3.567	0.00440	0.730
58	1	3.218	3.321	3.567	0.00462	0.732
58	0	3.308	3.407	3.666	0.00449	0.762
41	1	3.408	3.497	3.764	0.00439	0.795
41	2	3.394	3.494	3.739	0.00445	0.790
41	3	3.169	3.263	3.530	0.00455	0.716
41	4	3.522	3.611	3.852	0.00426	0.833
41	0	3.003	3.107	3.371	0.00445	0.661
87	0	3.414	3.509	3.771	0.00472	0.797
87	1	3.410	3.514	3.778	0.00478	0.796
87	2	3.125	3.230	3.488	0.00470	0.702
87	3	3.212	3.318	3.567	0.00418	0.730
87	4	3.419	3.512	3.789	0.00480	0.799
88	1	3.365	3.461	3.718	0.00441	0.781
88	0	3.254	3.350	3.608	0.00459	0.744
88	4	3.229	3.325	3.585	0.00449	0.736
88	2	3.401	3.494	3.776	0.00492	0.793
88	3	3.409	3.502	3.768	0.00496	0.795
59	4	3.346	3.451	3.702	0.00425	0.775
59	3	3.305	3.402	3.661	0.00467	0.761
59	2	3.342	3.423	3.724	0.00498	0.773
59	1	3.380	3.468	3.735	0.00478	0.786
59	0	3.432	3.525	3.805	0.00459	0.803
93	3	3.334	3.430	3.689	0.00462	0.770
93	2	3.458	3.552	3.821	0.00454	0.811
93	1	3.451	3.540	3.804	0.00465	0.809
93	0	3.430	3.523	3.804	0.00449	0.802
93	4	3.428	3.530	3.781	0.00448	0.802
12	3	3.511	3.598	3.852	0.00419	0.829
12	2	3.552	3.604	3.862	0.00444	0.842
12	4	3.595	3.597	3.858	0.00462	0.857
12	1	3.561	3.604	3.855	0.00433	0.845
12	0	3.453	3.545	3.825	0.00472	0.810
16	4	3.593	3.610	3.857	0.00427	0.856
16	3	3.587	3.607	3.853	0.00410	0.854
16	0	3.592	3.601	3.858	0.00448	0.856
16	1	3.588	3.598	3.848	0.00452	0.854
16	2	3.591	3.606	3.856	0.00428	0.855
15	4	3.587	3.600	3.854	0.00423	0.854
15	3	3.595	3.613	3.852	0.00397	0.857
15	2	3.590	3.603	3.860	0.00430	0.855
15	1	3.593	3.616	3.857	0.00384	0.856
15	0	3.587	3.604	3.841	0.00391	0.854
86	2	3.590	3.618	3.857	0.00429	0.855
86	4	3.585	3.616	3.868	0.00422	0.853
86	1	3.596	3.619	3.853	0.00397	0.857
86	3	3.595	3.613	3.851	0.00402	0.857
86	0	3.587	3.617	3.855	0.00401	0.854

Table 3. **View Dataset:** The view part of the main ICTree dataset containing 500 views and their corresponding JOD scores. Tree IDs are ordered by the tree JOD score (Table 2).