Supplementary Material

for
"A practical approach to designing partial-profile choice experiments with two alternatives for estimating main effects and interactions of many two-level attributes"
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The supplementary material presents for Example 3 of the paper the position arrays $\mathcal{B}_1$ and $\mathcal{B}_2$ which are derived from the annotated position array $\mathcal{B}_2^*$ in Section 3 of the paper. Furthermore, the design that can be constructed by using these position arrays and which was not shown in Section 4 of the paper is given in this document.

In Example 3, there are $K = 11$ two-level attributes. The profile strength is $S = 4$ and the comparison depth is $d = 2$. The position arrays $\mathcal{B}_1$ and $\mathcal{B}_2$ that are obtained from the annotated position array $\mathcal{B}_2^*$ in equation (9) of the paper are

$$\mathcal{B}_1 = \begin{bmatrix} 1 & 1 & 2 & 3 & 1 & 1 & 1 & 1 & 1 & 3 & 1 & 1 & 1 & 1 & 1 \\ 2 & 3 & 3 & 4 & 2 & 4 & 2 & 4 & 4 & 4 & 2 & 2 & 4 & 2 & 2 \end{bmatrix}$$

and

$$\mathcal{B}_2 = \begin{bmatrix} 1 & 1 & 1 & 1 & 1 & 2 & 3 & 3 & 3 & 3 & 4 & 4 & 6 & 6 & 7 \\ 2 & 2 & 5 & 2 & 2 & 6 & 4 & 4 & 8 & 5 & 6 & 5 & 7 & 8 & 9 \\ 3 & 5 & 7 & 8 & 10 & 7 & 5 & 7 & 9 & 10 & 8 & 7 & 10 & 9 & 10 \\ 4 & 6 & 8 & 9 & 11 & 9 & 6 & 10 & 10 & 11 & 11 & 9 & 11 & 11 & 11 \end{bmatrix}.$$

Example 3 was revisited in Section 4. There it was mentioned that by using the position arrays $\mathcal{B}_1$ and $\mathcal{B}_2$ given above and the matrices

$$\mathbf{A} = \mathbf{H}_2 = \begin{pmatrix} +1 & +1 \\ +1 & -1 \end{pmatrix} \quad \text{and} \quad \mathbf{F} = \begin{pmatrix} -1 & -1 \\ -1 & +1 \\ +1 & -1 \\ +1 & +1 \end{pmatrix}$$

a partial-profile design with $N = 120$ pairs and a D-efficiency of $\text{eff}_D = 97.77$ can be generated. This design is shown in the following Table 1.

Table 1: Partial-profile design in Example 3 for $K = 11$ two-level attributes, profile strength $S = 4$, comparison depth $d = 2$ with $N = 120$ pairs

	Alternative 1 ($\mathbf{s} = (s_1, \ldots, s_{11})$)											Alternative 2 ($\mathbf{t} = (t_1, \ldots, t_{11})$)										
Pair	s_1	s_2	s_3	s_4	s_5	s_6	s_7	s_8	s_9	s_{10}	s_{11}	t_1	t_2	t_3	t_4	t_5	t_6	t_7	t_8	t_9	t_{10}	t_{11}
1	1	1	−1	−1	0	0	0	0	0	0	0	−1	−1	−1	−1	0	0	0	0	0	0	0
2	1	−1	−1	−1	0	0	0	0	0	0	0	−1	1	−1	−1	0	0	0	0	0	0	0
3	1	1	−1	1	0	0	0	0	0	0	0	−1	−1	−1	1	0	0	0	0	0	0	0
4	1	−1	−1	1	0	0	0	0	0	0	0	−1	1	−1	1	0	0	0	0	0	0	0
5	1	1	1	−1	0	0	0	0	0	0	0	−1	−1	1	−1	0	0	0	0	0	0	0
6	1	−1	1	−1	0	0	0	0	0	0	0	−1	1	1	−1	0	0	0	0	0	0	0
7	1	1	1	1	0	0	0	0	0	0	0	−1	−1	1	1	0	0	0	0	0	0	0
8	1	−1	1	1	0	0	0	0	0	0	0	−1	1	1	1	0	0	0	0	0	0	0
9	1	−1	0	0	1	−1	0	0	0	0	0	−1	−1	0	0	−1	−1	0	0	0	0	0
10	1	−1	0	0	−1	−1	0	0	0	0	0	−1	−1	0	0	1	−1	0	0	0	0	0
11	1	−1	0	0	1	1	0	0	0	0	0	−1	−1	0	0	−1	1	0	0	0	0	0
12	1	−1	0	0	−1	1	0	0	0	0	0	−1	−1	0	0	1	1	0	0	0	0	0
13	1	1	0	0	1	−1	0	0	0	0	0	−1	1	0	0	−1	−1	0	0	0	0	0
14	1	1	0	0	−1	−1	0	0	0	0	0	−1	1	0	0	1	−1	0	0	0	0	0
15	1	1	0	0	1	1	0	0	0	0	0	−1	1	0	0	−1	1	0	0	0	0	0
16	1	1	0	0	−1	1	0	0	0	0	0	−1	1	0	0	1	1	0	0	0	0	0
17	−1	0	0	0	1	0	1	−1	0	0	0	−1	0	0	0	−1	0	−1	−1	0	0	0
18	−1	0	0	0	1	0	−1	−1	0	0	0	−1	0	0	0	−1	0	1	−1	0	0	0
19	−1	0	0	0	1	0	1	1	0	0	0	−1	0	0	0	−1	0	−1	1	0	0	0
20	−1	0	0	0	1	0	−1	1	0	0	0	−1	0	0	0	−1	0	1	1	0	0	0
21	1	0	0	0	1	0	1	−1	0	0	0	1	0	0	0	−1	0	−1	−1	0	0	0
22	1	0	0	0	1	0	−1	−1	0	0	0	1	0	0	0	−1	0	1	−1	0	0	0
23	1	0	0	0	1	0	1	1	0	0	0	1	0	0	0	−1	0	−1	1	0	0	0
24	1	0	0	0	1	0	−1	1	0	0	0	1	0	0	0	−1	0	1	1	0	0	0
25	−1	−1	0	0	0	0	0	1	1	0	0	−1	−1	0	0	0	0	0	−1	−1	0	0
26	−1	−1	0	0	0	0	0	1	−1	0	0	−1	−1	0	0	0	0	0	−1	1	0	0
27	−1	1	0	0	0	0	0	1	1	0	0	−1	1	0	0	0	0	0	−1	−1	0	0
28	−1	1	0	0	0	0	0	1	−1	0	0	−1	1	0	0	0	0	0	−1	1	0	0
29	1	−1	0	0	0	0	0	1	1	0	0	1	−1	0	0	0	0	0	−1	−1	0	0
30	1	−1	0	0	0	0	0	1	−1	0	0	1	−1	0	0	0	0	0	−1	1	0	0
31	1	1	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	−1	−1	0	0
32	1	1	0	0	0	0	0	1	−1	0	0	1	1	0	0	0	0	0	−1	1	0	0
33	1	1	0	0	0	0	0	0	0	−1	−1	−1	−1	0	0	0	0	0	0	0	−1	−1
34	1	−1	0	0	0	0	0	0	0	−1	−1	−1	1	0	0	0	0	0	0	0	−1	−1
35	1	1	0	0	0	0	0	0	0	−1	1	−1	−1	0	0	0	0	0	0	0	−1	1
36	1	−1	0	0	0	0	0	0	0	−1	1	−1	1	0	0	0	0	0	0	0	−1	1
37	1	1	0	0	0	0	0	0	0	1	−1	−1	−1	0	0	0	0	0	0	0	1	−1
38	1	−1	0	0	0	0	0	0	0	1	−1	−1	1	0	0	0	0	0	0	0	1	−1
39	1	1	0	0	0	0	0	0	0	1	1	−1	−1	0	0	0	0	0	0	0	1	1
40	1	−1	0	0	0	0	0	0	0	1	1	−1	1	0	0	0	0	0	0	0	1	1
41	0	1	0	0	0	−1	−1	0	1	0	0	0	−1	0	0	0	−1	−1	0	−1	0	0
42	0	1	0	0	0	−1	−1	0	−1	0	0	0	−1	0	0	0	−1	−1	0	1	0	0
43	0	1	0	0	0	−1	1	0	1	0	0	0	−1	0	0	0	−1	1	0	−1	0	0
44	0	1	0	0	0	−1	1	0	−1	0	0	0	−1	0	0	0	−1	1	0	1	0	0
45	0	1	0	0	0	1	−1	0	1	0	0	0	−1	0	0	0	1	−1	0	−1	0	0
46	0	1	0	0	0	1	−1	0	−1	0	0	0	−1	0	0	0	1	−1	0	1	0	0
47	0	1	0	0	0	1	1	0	1	0	0	0	−1	0	0	0	1	1	0	−1	0	0
48	0	1	0	0	0	1	1	0	−1	0	0	0	−1	0	0	0	1	1	0	1	0	0
49	0	0	1	1	−1	−1	0	0	0	0	0	0	0	−1	−1	−1	−1	0	0	0	0	0
50	0	0	1	−1	−1	−1	0	0	0	0	0	0	0	−1	1	−1	−1	0	0	0	0	0
51	0	0	1	1	−1	1	0	0	0	0	0	0	0	−1	−1	−1	1	0	0	0	0	0
52	0	0	1	−1	−1	1	0	0	0	0	0	0	0	−1	1	−1	1	0	0	0	0	0
53	0	0	1	1	1	−1	0	0	0	0	0	0	0	−1	−1	1	−1	0	0	0	0	0
54	0	0	1	−1	1	−1	0	0	0	0	0	0	0	−1	1	1	−1	0	0	0	0	0
55	0	0	1	1	1	1	0	0	0	0	0	0	0	−1	−1	1	1	0	0	0	0	0
56	0	0	1	−1	1	1	0	0	0	0	0	0	0	−1	1	1	1	0	0	0	0	0
57	0	0	1	−1	0	0	−1	0	0	1	0	0	0	−1	−1	0	0	−1	0	0	−1	0
58	0	0	1	−1	0	0	−1	0	0	−1	0	0	0	−1	−1	0	0	−1	0	0	1	0
59	0	0	1	−1	0	0	1	0	0	1	0	0	0	−1	−1	0	0	1	0	0	−1	0
60	0	0	1	−1	0	0	1	0	0	−1	0	0	0	−1	−1	0	0	1	0	0	1	0

Table 1: Partial-profile design in Example 3 for $K = 11$ two-level attributes, profile strength $S = 4$, comparison depth $d = 2$ with $N = 120$ pairs (continued)

	Alternative 1 ($\mathbf{s} = (s_1, \ldots, s_{11})$)											Alternative 2 ($\mathbf{t} = (t_1, \ldots, t_{11})$)										
Pair	s_1	s_2	s_3	s_4	s_5	s_6	s_7	s_8	s_9	s_{10}	s_{11}	t_1	t_2	t_3	t_4	t_5	t_6	t_7	t_8	t_9	t_{10}	t_{11}
61	0	0	1	1	0	0	−1	0	0	1	0	0	0	−1	1	0	0	−1	0	0	−1	0
62	0	0	1	1	0	0	−1	0	0	−1	0	0	0	−1	1	0	0	−1	0	0	1	0
63	0	0	1	1	0	0	1	0	0	1	0	0	0	−1	1	0	0	1	0	0	−1	0
64	0	0	1	1	0	0	1	0	0	−1	0	0	0	−1	1	0	0	1	0	0	1	0
65	0	0	1	0	0	0	0	−1	−1	1	0	0	0	−1	0	0	0	0	−1	−1	−1	0
66	0	0	1	0	0	0	0	−1	−1	−1	0	0	0	−1	0	0	0	0	−1	−1	1	0
67	0	0	1	0	0	0	0	−1	1	1	0	0	0	−1	0	0	0	0	−1	1	−1	0
68	0	0	1	0	0	0	0	−1	1	−1	0	0	0	−1	0	0	0	0	−1	1	1	0
69	0	0	1	0	0	0	0	1	−1	1	0	0	0	−1	0	0	0	0	1	−1	−1	0
70	0	0	1	0	0	0	0	1	−1	−1	0	0	0	−1	0	0	0	0	1	−1	1	0
71	0	0	1	0	0	0	0	1	1	1	0	0	0	−1	0	0	0	0	1	1	−1	0
72	0	0	1	0	0	0	0	1	1	−1	0	0	0	−1	0	0	0	0	1	1	1	0
73	0	0	−1	0	−1	0	0	0	0	1	1	0	0	−1	0	−1	0	0	0	0	−1	−1
74	0	0	−1	0	−1	0	0	0	0	1	−1	0	0	−1	0	−1	0	0	0	0	−1	1
75	0	0	−1	0	1	0	0	0	0	1	1	0	0	−1	0	1	0	0	0	0	−1	−1
76	0	0	−1	0	1	0	0	0	0	1	−1	0	0	−1	0	1	0	0	0	0	−1	1
77	0	0	1	0	−1	0	0	0	0	1	1	0	0	1	0	−1	0	0	0	0	−1	−1
78	0	0	1	0	−1	0	0	0	0	1	−1	0	0	1	0	−1	0	0	0	0	−1	1
79	0	0	1	0	1	0	0	0	0	1	1	0	0	1	0	1	0	0	0	0	−1	−1
80	0	0	1	0	1	0	0	0	0	1	−1	0	0	1	0	1	0	0	0	0	−1	1
81	0	0	0	1	0	1	0	−1	0	0	−1	0	0	0	−1	0	−1	0	−1	0	0	−1
82	0	0	0	1	0	−1	0	−1	0	0	−1	0	0	0	−1	0	1	0	−1	0	0	−1
83	0	0	0	1	0	1	0	−1	0	0	1	0	0	0	−1	0	−1	0	−1	0	0	1
84	0	0	0	1	0	−1	0	−1	0	0	1	0	0	0	−1	0	1	0	−1	0	0	1
85	0	0	0	1	0	1	0	1	0	0	−1	0	0	0	−1	0	−1	0	1	0	0	−1
86	0	0	0	1	0	−1	0	1	0	0	−1	0	0	0	−1	0	1	0	1	0	0	−1
87	0	0	0	1	0	1	0	1	0	0	1	0	0	0	−1	0	−1	0	1	0	0	1
88	0	0	0	1	0	−1	0	1	0	0	1	0	0	0	−1	0	1	0	1	0	0	1
89	0	0	0	1	1	0	−1	0	−1	0	0	0	0	0	−1	−1	0	−1	0	−1	0	0
90	0	0	0	1	−1	0	−1	0	−1	0	0	0	0	0	−1	1	0	−1	0	−1	0	0
91	0	0	0	1	1	0	−1	0	1	0	0	0	0	0	−1	−1	0	−1	0	1	0	0
92	0	0	0	1	−1	0	−1	0	1	0	0	0	0	0	−1	1	0	−1	0	1	0	0
93	0	0	0	1	1	0	1	0	−1	0	0	0	0	0	−1	−1	0	1	0	−1	0	0
94	0	0	0	1	−1	0	1	0	−1	0	0	0	0	0	−1	1	0	1	0	−1	0	0
95	0	0	0	1	1	0	1	0	1	0	0	0	0	0	−1	−1	0	1	0	1	0	0
96	0	0	0	1	−1	0	1	0	1	0	0	0	0	0	−1	1	0	1	0	1	0	0
97	0	0	0	0	0	1	−1	0	0	−1	1	0	0	0	0	0	−1	−1	0	0	−1	−1
98	0	0	0	0	0	1	−1	0	0	−1	−1	0	0	0	0	0	−1	−1	0	0	−1	1
99	0	0	0	0	0	1	−1	0	0	1	1	0	0	0	0	0	−1	−1	0	0	1	−1
100	0	0	0	0	0	1	−1	0	0	1	−1	0	0	0	0	0	−1	−1	0	0	1	1
101	0	0	0	0	0	1	1	0	0	−1	1	0	0	0	0	0	−1	1	0	0	−1	−1
102	0	0	0	0	0	1	1	0	0	−1	−1	0	0	0	0	0	−1	1	0	0	−1	1
103	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	−1	1	0	0	1	−1
104	0	0	0	0	0	1	1	0	0	1	−1	0	0	0	0	0	−1	1	0	0	1	1
105	0	0	0	0	0	1	0	1	−1	0	−1	0	0	0	0	0	−1	0	−1	−1	0	−1
106	0	0	0	0	0	1	0	−1	−1	0	−1	0	0	0	0	0	−1	0	1	−1	0	−1
107	0	0	0	0	0	1	0	1	−1	0	1	0	0	0	0	0	−1	0	−1	−1	0	1
108	0	0	0	0	0	1	0	−1	−1	0	1	0	0	0	0	0	−1	0	1	−1	0	1
109	0	0	0	0	0	1	0	1	1	0	−1	0	0	0	0	0	−1	0	−1	1	0	−1
110	0	0	0	0	0	1	0	−1	1	0	−1	0	0	0	0	0	−1	0	1	1	0	−1
111	0	0	0	0	0	1	0	1	1	0	1	0	0	0	0	0	−1	0	−1	1	0	1
112	0	0	0	0	0	1	0	−1	1	0	1	0	0	0	0	0	−1	0	1	1	0	1
113	0	0	0	0	0	0	1	0	1	−1	−1	0	0	0	0	0	0	−1	0	−1	−1	−1
114	0	0	0	0	0	0	1	0	−1	−1	−1	0	0	0	0	0	0	−1	0	1	−1	−1
115	0	0	0	0	0	0	1	0	1	−1	1	0	0	0	0	0	0	−1	0	−1	−1	1
116	0	0	0	0	0	0	1	0	−1	−1	1	0	0	0	0	0	0	−1	0	1	−1	1
117	0	0	0	0	0	0	1	0	1	1	−1	0	0	0	0	0	0	−1	0	−1	1	−1
118	0	0	0	0	0	0	1	0	−1	1	−1	0	0	0	0	0	0	−1	0	1	1	−1
119	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	−1	0	−1	1	1
120	0	0	0	0	0	0	1	0	−1	1	1	0	0	0	0	0	0	−1	0	1	1	1