**Appendix A**

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**Figure A.1 Average Log Response Time for Normal\_0.5 Condition**

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**Figure A.2 Minimum Log Response Time for Normal\_0.5 Condition**

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**Figure A.3 Maximum Log Response Time for Normal\_0.5 Condition**

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**Figure A.4 Log Response Time Standard Deviation for Normal\_0.5 Condition**

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**Figure A.5 Average Response Accuracy for Normal\_0.5 Condition**

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**Figure A.6 Average Log Response Time for Normal\_1 Condition**

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**Figure A.7 Minimum Log Response Time for Normal\_1 Condition**

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**Figure A.8 Maximum Log Response Time for Normal\_1 Condition**

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**Figure A.9 Log Response Time Standard Deviation for Normal\_1 Condition**

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**Figure A.10 Average Response Accuracy for Normal\_1 Condition**

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**Figure A.11 Average Log Response Time for Normal\_1.5 Condition**

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**Figure A.12 Minimum Log Response Time for Normal\_1.5 Condition**

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**Figure A.13 Maximum Log Response Time for Normal\_1.5 Condition**

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**Figure A.14 Log Response Time Standard Deviation for Normal\_1.5 Condition**

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**Figure A.15 Average Response Accuracy for Normal\_1.5 Condition**

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**Figure A.16 Average Log Response Time for Uniform\_02 Condition**

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**Figure A.17 Minimum Log Response Time for Uniform\_02 Condition**

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**Figure A.18 Maximum Log Response Time for Uniform\_02 Condition**

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**Figure A.19 Log Response Time Standard Deviation for Uniform\_02 Condition**

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**Figure A.20 Average Response Accuracy for Uniform\_02 Condition**

**Appendix B**

**Table B.1** ANOVA Results for the False Negative Rates

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | *SS* | *df* | *F* | *p* | Partial |
| Intercept | 25.947 | 1 | 984.503 | 0.000 |  |
| Distribution of Aberrance Effect (A) | 0.001 | 1 | 0.057 | 0.811 | 0.000 |
| Level of Aberrance Effect (B) | 9.525 | 2 | 180.697 | 0.000 | 0.008 |
| Number of Examinees (C) | 0.068 | 2 | 1.294 | 0.274 | 0.000 |
| Number of Items (D) | 0.204 | 2 | 3.878 | 0.021 | 0.000 |
| Proportion of EWP (E) | 2.143 | 4 | 20.329 | 0.000 | 0.002 |
| Proportion of Compromised Items (F) | 0.669 | 4 | 6.343 | 0.000 | 0.001 |
| AB | 0.505 | 2 | 9.589 | 0.000 | 0.000 |
| AC | 0.022 | 2 | 0.424 | 0.655 | 0.000 |
| BC | 1.886 | 4 | 17.886 | 0.000 | 0.002 |
| AE | 1.521 | 4 | 14.431 | 0.000 | 0.001 |
| BE | 5.113 | 8 | 24.251 | 0.000 | 0.004 |
| CE | 0.642 | 8 | 3.043 | 0.002 | 0.001 |
| AF | 0.350 | 4 | 3.320 | 0.010 | 0.000 |
| BF | 5.728 | 8 | 27.167 | 0.000 | 0.005 |
| CF | 0.673 | 8 | 3.190 | 0.001 | 0.001 |
| EF | 2.372 | 16 | 5.624 | 0.000 | 0.002 |
| AD | 0.121 | 2 | 2.304 | 0.100 | 0.000 |
| BD | 2.584 | 4 | 24.511 | 0.000 | 0.002 |
| CD | 0.118 | 4 | 1.117 | 0.346 | 0.000 |
| ED | 0.676 | 8 | 3.207 | 0.001 | 0.001 |
| FD | 0.585 | 8 | 2.774 | 0.005 | 0.001 |
| ABC | 0.146 | 4 | 1.382 | 0.237 | 0.000 |
| ABE | 0.902 | 8 | 4.277 | 0.000 | 0.001 |
| ACE | 0.303 | 8 | 1.437 | 0.175 | 0.000 |
| BCE | 2.506 | 16 | 5.943 | 0.000 | 0.002 |
| ABF | 0.295 | 8 | 1.398 | 0.192 | 0.000 |
| ACF | 0.350 | 8 | 1.659 | 0.103 | 0.000 |
| BCF | 2.489 | 16 | 5.903 | 0.000 | 0.002 |
| AEF | 2.021 | 16 | 4.792 | 0.000 | 0.002 |
| BEF | 3.567 | 32 | 4.230 | 0.000 | 0.003 |
| CEF | 2.130 | 32 | 2.525 | 0.000 | 0.002 |
| ABD | 0.964 | 4 | 9.142 | 0.000 | 0.001 |
| ACD | 0.076 | 4 | 0.716 | 0.581 | 0.000 |
| BCD | 2.059 | 8 | 9.764 | 0.000 | 0.002 |
| AED | 0.345 | 8 | 1.634 | 0.109 | 0.000 |
| BED | 1.990 | 16 | 4.720 | 0.000 | 0.002 |
| CED | 1.132 | 16 | 2.683 | 0.000 | 0.001 |
| AFD | 0.259 | 8 | 1.230 | 0.277 | 0.000 |
| BFD | 2.654 | 16 | 6.294 | 0.000 | 0.002 |
| CFD | 0.601 | 16 | 1.426 | 0.119 | 0.001 |
| EFD | 1.145 | 32 | 1.358 | 0.085 | 0.001 |
| ABE | 0.675 | 16 | 1.600 | 0.060 | 0.001 |
| ABF | 0.408 | 16 | 0.968 | 0.490 | 0.000 |
| ABEF | 1.725 | 32 | 2.046 | 0.000 | 0.001 |
| ACEF | 1.047 | 32 | 1.242 | 0.163 | 0.001 |
| BCEF | 3.678 | 64 | 2.181 | 0.000 | 0.003 |
| ABCD | 0.530 | 8 | 2.514 | 0.010 | 0.000 |
| ABED | 2.075 | 16 | 4.920 | 0.000 | 0.002 |
| ACED | 0.532 | 16 | 1.262 | 0.212 | 0.000 |
| BCED | 3.145 | 32 | 3.729 | 0.000 | 0.003 |
| ABFD | 1.201 | 16 | 2.848 | 0.000 | 0.001 |
| ACFD | 0.256 | 16 | 0.608 | 0.880 | 0.000 |
| BCFD | 2.364 | 32 | 2.804 | 0.000 | 0.002 |
| AEFD | 0.649 | 32 | 0.770 | 0.821 | 0.001 |
| BEFD | 2.999 | 64 | 1.778 | 0.000 | 0.003 |
| CEFD | 2.647 | 64 | 1.569 | 0.002 | 0.002 |
| ABCF | 1.592 | 64 | 0.944 | 0.605 | 0.001 |
| ABCED | 2.014 | 32 | 2.388 | 0.000 | 0.002 |
| ABCFD | 0.828 | 32 | 0.982 | 0.495 | 0.001 |
| ABEFD | 3.149 | 64 | 1.867 | 0.000 | 0.003 |
| ACEFD | 1.273 | 64 | 0.755 | 0.928 | 0.001 |
| BCEFD | 4.484 | 128 | 1.329 | 0.008 | 0.004 |
| ABCEFD | 3.371 | 128 | 0.999 | 0.486 | 0.003 |
| Residual | 1031.815 | 39150 |  |  |  |

**Table B.2** ANOVA Results for the False Positive Rates

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | *SS* | *df* | *F* | *p* | Partial |
| Intercept | 0.126 | 1 | 38.453 | 0.000 |  |
| Distribution of Aberrance Effect (A) | 0.000 | 1 | 0.003 | 0.960 | 0.000 |
| Level of Aberrance Effect (B) | 0.016 | 2 | 2.444 | 0.087 | 0.000 |
| Number of Examinees (C) | 0.006 | 2 | 0.842 | 0.431 | 0.000 |
| Number of Items (D) | 0.005 | 2 | 0.830 | 0.436 | 0.000 |
| Proportion of EWP (E) | 0.006 | 4 | 0.450 | 0.773 | 0.000 |
| Proportion of Compromised Items (F) | 0.092 | 4 | 6.999 | 0.000 | 0.001 |
| AB | 0.008 | 2 | 1.145 | 0.318 | 0.000 |
| AC | 0.018 | 2 | 2.701 | 0.067 | 0.000 |
| BC | 0.001 | 4 | 0.059 | 0.993 | 0.000 |
| AE | 0.045 | 4 | 3.431 | 0.008 | 0.000 |
| BE | 0.011 | 8 | 0.417 | 0.912 | 0.000 |
| CE | 0.021 | 8 | 0.798 | 0.605 | 0.000 |
| AF | 0.146 | 4 | 11.144 | 0.000 | 0.001 |
| BF | 0.021 | 8 | 0.793 | 0.608 | 0.000 |
| CF | 0.027 | 8 | 1.043 | 0.401 | 0.000 |
| EF | 0.044 | 16 | 0.839 | 0.641 | 0.000 |
| AD | 0.001 | 2 | 0.083 | 0.920 | 0.000 |
| BD | 0.012 | 4 | 0.928 | 0.446 | 0.000 |
| CD | 0.018 | 4 | 1.399 | 0.231 | 0.000 |
| ED | 0.024 | 8 | 0.934 | 0.486 | 0.000 |
| FD | 0.029 | 8 | 1.110 | 0.352 | 0.000 |
| ABC | 0.008 | 4 | 0.614 | 0.652 | 0.000 |
| ABE | 0.018 | 8 | 0.690 | 0.701 | 0.000 |
| ACE | 0.053 | 8 | 2.009 | 0.041 | 0.000 |
| BCE | 0.022 | 16 | 0.427 | 0.976 | 0.000 |
| ABF | 0.126 | 8 | 4.824 | 0.000 | 0.001 |
| ACF | 0.057 | 8 | 2.190 | 0.025 | 0.000 |
| BCF | 0.019 | 16 | 0.353 | 0.991 | 0.000 |
| AEF | 0.281 | 16 | 5.363 | 0.000 | 0.002 |
| BEF | 0.056 | 32 | 0.532 | 0.986 | 0.000 |
| CEF | 0.050 | 32 | 0.475 | 0.995 | 0.000 |
| ABD | 0.010 | 4 | 0.789 | 0.532 | 0.000 |
| ACD | 0.014 | 4 | 1.044 | 0.383 | 0.000 |
| BCD | 0.012 | 8 | 0.443 | 0.896 | 0.000 |
| AED | 0.031 | 8 | 1.199 | 0.295 | 0.000 |
| BED | 0.034 | 16 | 0.646 | 0.848 | 0.000 |
| CED | 0.074 | 16 | 1.402 | 0.130 | 0.001 |
| AFD | 0.039 | 8 | 1.488 | 0.156 | 0.000 |
| BFD | 0.035 | 16 | 0.667 | 0.829 | 0.000 |
| CFD | 0.043 | 16 | 0.818 | 0.667 | 0.000 |
| EFD | 0.091 | 32 | 0.869 | 0.679 | 0.001 |
| ABE | 0.034 | 16 | 0.641 | 0.853 | 0.000 |
| ABF | 0.045 | 16 | 0.855 | 0.623 | 0.000 |
| ABEF | 0.531 | 32 | 5.066 | 0.000 | 0.004 |
| ACEF | 0.249 | 32 | 2.375 | 0.000 | 0.002 |
| BCEF | 0.054 | 64 | 0.255 | 1.000 | 0.000 |
| ABCD | 0.011 | 8 | 0.404 | 0.919 | 0.000 |
| ABED | 0.023 | 16 | 0.439 | 0.973 | 0.000 |
| ACED | 0.083 | 16 | 1.581 | 0.065 | 0.001 |
| BCED | 0.066 | 32 | 0.632 | 0.947 | 0.000 |
| ABFD | 0.055 | 16 | 1.053 | 0.395 | 0.000 |
| ACFD | 0.067 | 16 | 1.276 | 0.202 | 0.001 |
| BCFD | 0.032 | 32 | 0.302 | 1.000 | 0.000 |
| AEFD | 0.256 | 32 | 2.438 | 0.000 | 0.002 |
| BEFD | 0.097 | 64 | 0.460 | 1.000 | 0.001 |
| CEFD | 0.156 | 64 | 0.745 | 0.936 | 0.001 |
| ABCF | 0.245 | 64 | 1.168 | 0.169 | 0.002 |
| ABCED | 0.078 | 32 | 0.740 | 0.856 | 0.001 |
| ABCFD | 0.083 | 32 | 0.787 | 0.799 | 0.001 |
| ABEFD | 0.280 | 64 | 1.334 | 0.039 | 0.002 |
| ACEFD | 0.357 | 64 | 1.703 | 0.000 | 0.003 |
| BCEFD | 0.161 | 128 | 0.384 | 1.000 | 0.001 |
| ABCEFD | 0.423 | 128 | 1.007 | 0.461 | 0.003 |
| Residual | 128.312 | 39150 |  |  |  |

**Appendix C**



**Figure C.1** False Negative Rates for Normal\_0.75



**Figure C.2** Standard Deviation of False Negative Rates



**Figure C.3** Standard Deviation of False Positive Rates



**Figure C.4** Average Size of the Clusters with Strongest Preknowledge Signal