Appendix A

Two-question Event-specific Exams / Backster 7-position Scoring Method

Grand total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-12	8	6	10

Deceptive scores		Truthful scores	
Score	p-value	Score	p-value
0	.274	1	.052
-1	.242	2	.040
-2	.212	3	.030
-3	.184	4	.023
-4	.159	5	.017
-5	.136	6	.012
-6	.115	7	.009
-7	.097	8	.006
-8	.081	9	.004
-9	.067	10	.003
-10	.055	11	.002
-11	.045	12	.001
-12	.036	13	.001
-13	.029	14	.001
-14	.023	15	<.001
-15	.018		
-16	.014		
-17	.011		
-18	.008		
-19	.006		
-20	.005		
-21	.004		
-22	.003		
-23	.002		
-24	.001		
-25	.001		
-26	.001		
-27	.001		
-28	<.001		

Means and standard deviations are from Nelson (2012)

Appendix B

Two-question Event-specific Exams / Empirical Scoring System

Grand total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-6	6	6	6

Deceptive scores		Truthful scores	
Score	p-value	Score	p-value
0	.159	1	.122
-1	.122	2	.091
-2	.091	3	.067
-3	.067	4	.048
-4	.048	5	.033
-5	.033	6	.023
-6	.023	7	.015
-7	.015	8	.010
-8	.010	9	.006
-9	.006	10	.004
-10	.004	11	.002
-11	.002	12	.001
-12	.001	13	<.001
-13	<.001		

Means and standard deviations are truncated integers as reported previously in Nelson *et al.*, (2011).

Appendix C

Three-question Event-specific Exams / Empirical Scoring System

Grand total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-9	8	8	7

Deceptive scores		Truthful scores	
Score	p-value	Score	p-value
0	.127	1	.106
-1	.099	2	.085
-2	.077	3	.067
-3	.058	4	.052
-4	.043	5	.040
-5	.032	6	.030
-6	.023	7	.023
-7	.016	8	.017
-8	.011	9	.012
-9	.008	10	.008
-10	.005	11	.006
-11	.003	12	.004
-12	.002	13	.003
-13	.001	14	.002
-14	<.001	15	.001
		16	<.001

Means and standard deviations are truncated integers as reported previously in Nelson *et al.*, (2011).

Appendix D

Multiple-issue Exams / Empirical Scoring System

Sub-total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-2	3	2	3

Deceptive Scores		Truthful Scores				
Score	p-value	Score	p-value	2 RQs	3 RQs	4 RQs
0	0.252	1	.159	0.083	0.056	0.042
-1	0.159	2	.091	0.047	0.031	0.024
-2	0.091	3	.048	0.024	0.016	0.012
-3	0.048	4	.023	0.011	0.008	0.006
-4	0.023	5	.010	0.005	0.003	0.002
-5	0.010	6	.004	0.002	0.001	0.001
-6	0.004	7	.001	0.001	<.001	<.001
-7	0.001	8	<.001	<.001		
-8	<.001					

P-values for truthful classifications of multiple issue exams are statistically corrected using the Šidák correction for the number of relevant questions.

Means and standard deviations are truncated integers as reported previously in Nelson *et al.*, (2011).

Appendix E

Two-question Event-specific Exams / Federal 7-position Scoring System

Grand total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-7	5	5	5

Deceptive Scores		Truthful Scores	
Score	p-value	Score	p-value
0	.159	1	.055
-1	.115	2	.036
-2	.081	3	.023
-3	.055	4	.014
-4	.036	5	.008
-5	.023	6	.005
-6	.014	7	.003
-7	.008	8	.001
-8	.005	9	.001
-9	.003	10	<.001
-10	.001		
-11	.001		
-12	<.001		

Normative parameters are from combined studies using Federal 7-position scores, as reported in American Polygraph Association (2011).

Appendix F

Three-question Event-specific Exams / Federal 7-position Scoring System

Grand total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-8	9	7	8

Deceptive Scores		Truthful Scores	
Score	p-value	Score	p-value
0	.191	1	.159
-1	.159	2	.133
-2	.130	3	.111
-3	.106	4	.091
-4	.085	5	.074
-5	.067	6	.060
-6	.052	7	.048
-7	.040	8	.038
-8	.030	9	.030
-9	.023	10	.023
-10	.017	11	.017
-11	.012	12	.013
-12	.009	13	.010
-13	.006	14	.007
-14	.004	15	.005
-15	.003	16	.004
-16	.002	17	.003
-17	.001	18	.002
-18	.001	19	.001
-19	.001	20	.001
-20	<.001	21	.001
		22	<.001

Means and standard deviations are from combined studies using Federal 7-position scores, as reported in American Polygraph Association (2011).

Appendix G

Multiple Issue Exams / Federal 7-position Scoring System

Sub-total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-2	4	3	3

Deceptive Scores		Truthful Scores				
Score	p-value	Score	p-value	2 RQs	3 RQs	4 RQs
0	.159	1	.227	.121	.082	.062
-1	.091	2	.159	.083	.056	.042
-2	.048	3	.106	.054	.037	.028
-3	.023	4	.067	.034	.023	.017
-4	.010	5	.040	.020	.014	.010
-5	.004	6	.023	.011	.008	.006
-6	.001	7	.012	.006	.004	.003
-7	<.001	8	.006	.003	.002	.002
		9	.003	.002	.001	.001
		10	.001	.001	.001	<.001
		11	.001	<.001	<.001	
		12	<.001			

P-values for truthful classifications of multiple issue exams are statistically corrected using the Šidák correction for the number of relevant questions.

Means and standard deviations are from combined studies using Federal 7-position scores, as reported in American Polygraph Association (2011).

Appendix H

Two-question Event-specific Exams / Federal 3-position Scoring System

Grand total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-5	3	3	4

Deceptive Scores		Truthful Scores	
Score	p-value	Score	p-value
0	.227	1	.023
-1	.159	2	.010
-2	.106	3	.004
-3	.067	4	.001
-4	.040	5	<.001
-5	.023		
-6	.012		
-7	.006		
-8	.003		
-9	.001		
-10	.001		
-11	<.001		

Means and standard deviations are from combined studies using Federal 3-position scores, as reported in American Polygraph Association (2011).

Appendix I

Three-question Event-specific Exams / Federal 3-position Scoring System

Grand total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-7	5	5	5

Deceptive Scores		Truthful Scores	
Score	p-value	Score	p-value
0	.159	1	.055
-1	.115	2	.036
-2	.081	3	.023
-3	.055	4	.014
-4	.036	5	.008
-5	.023	6	.005
-6	.014	7	.003
-7	.008	8	.001
-8	.005	9	.001
-9	.003	10	<.001
-10	.001		
-11	.001		
-12	<.001		

Means and standard deviations are from combined studies using Federal 3-position scores, as reported in American Polygraph Association (2011).

Appendix J

Multiple Issue Exams / Federal 3-position Scoring System

Sub-total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-1	2	2	2

Deceptive Scores		Truthful Scores				
Score	p-value	Score	p-value	2 RQs	3 RQs	4 RQs
0	.159	1	.159	.083	.056	.042
-1	.067	2	.067	.034	.023	.017
-2	.023	3	.023	.011	.008	.006
-3	.006	4	.006	.003	.002	.002
-4	.001	5	.001	.001	.001	<.001
-5	<.001	6	<.001	<.001	<.001	

P-values for truthful classifications of multiple issue exams are statistically corrected using the Šidák correction for the number of relevant questions.

Means and standard deviations are from combined studies using Federal 3-position scores, as reported in American Polygraph Association (2011).

Appendix K

Three-question Event-specific Exams – Utah 7-position Scoring System

Grand total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-10	7	9	8

Deceptive Scores		Truthful Scores	
Score	p-value	Score	p-value
0	.130	1	.058
-1	.106	2	.043
-2	.085	3	.032
-3	.067	4	.023
-4	.052	5	.016
-5	.040	6	.011
-6	.030	7	.008
-7	.023	8	.005
-8	.017	9	.003
-9	.012	10	.002
-10	.009	11	.001
-11	.006	12	.001
-12	.004	13	.001
-13	.003	14	<.001
-14	.002	15	
-15	.001	16	
-16	.001		
-17	.001		
-18	<.001		

Means and standard deviations are from combined studies using Utah scores, as reported in American Polygraph Association (2011).

Appendix L

Four-question Event-specific Exams – Utah 7-position Scoring System

Grand total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-11	9	13	10

Deceptive Scores		Truthful Scores	
Score	p-value	Score	p-value
0	.097	1	.091
-1	.081	2	.074
-2	.067	3	.060
-3	.055	4	.048
-4	.045	5	.038
-5	.036	6	.029
-6	.029	7	.023
-7	.023	8	.017
-8	.018	9	.013
-9	.014	10	.010
-10	.011	11	.007
-11	.008	12	.005
-12	.006	13	.004
-13	.005	14	.003
-14	.003	15	.002
-15	.003	16	.001
-16	.002	17	.001
-17	.001	18	.001
-18	.001	19	<.001
-19	.001		
-20	<.001		

Means and standard deviations are as reported in Raskin, Honts, Nelson and Handler (2015).

Appendix M

Four-question Event-specific Exams – Empirical Scoring System

Grand total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-12	10	11	9

Deceptive Scores		Truthful Scores	
Score	p-value	Score	p-value
0	.111	1	.097
-1	.091	2	.081
-2	.074	3	.067
-3	.060	4	.055
-4	.048	5	.045
-5	.038	6	.036
-6	.029	7	.029
-7	.023	8	.023
-8	.017	9	.018
-9	.013	10	.014
-10	.010	11	.011
-11	.007	12	.008
-12	.005	13	.006
-13	.004	14	.005
-14	.003	15	.003
-15	.002	16	.003
-16	.001	17	.002
-17	.001	18	.001
-18	.001	19	.001
-19	<.001	20	.001
		21	<.001

Means and standard deviations were reported in Raskin, Honts, Nelson and Handler (2015).

Appendix N

MSU-MGQT (5 Question[6]) – 7-position scores

Grand total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-12	17	11	12

Deceptive Scores		Truthful Scores	
Score	p-value	Score	p-value
0	.180	1	.222
-1	.159	2	.205
-2	.139	3	.189
-3	.122	4	.173
-4	.106	5	.159
-5	.091	6	.145
-6	.078	7	.132
-7	.067	8	.120
-8	.057	9	.108
-9	.048	10	.098
-10	.040	11	.088
-11	.033	12	.079
-12	.028	13	.071
-13	.023	14	.063
-14	.019	15	.056
-15	.015	16	.050
-16	.012	17	.044
-17	.010	18	.039
-18	.008	19	.034
-19	.006	20	.030
-20	.005	21	.026
-21	.004	22	.023
-22	.003	23	.020
-23	.002	24	.017
-24	.002	25	.015
-25	.001	26	.013
-26	.001	27	.011
-27	.001	28	.009
-28	.001	29	.008
-29	<.001	30	.007
		31	.006
		32	.005
		33	.004
		34	.003
		35	.003
		36	.002
		37	.002
		38	.002
		39-43	.001
		44	<.001

Means and standard deviations are from Horvath and Palmatier (2008).

[6] We are not aware of anyone using five relevant questions in contemporary field practice. Nor are we aware of any accredited polygraph training program that is presently teaching this technique. The 5th relevant question in the studies on this technique ("Were you assigned to be a guilty person during this research?") is thought to be of unknown ecological and external validity. This information is included for completeness because the available studies on the MSU-MGQT satisfied the requirements for inclusion in the APA (2011) report.

Appendix O

Integrated Zone Comparison Technique[7,8]

Grand total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-21	12	19	4

Deceptive Scores		Truthful Scores	
Score	p-value	Score	p-value
13	.067	-5	.091
12	.040	-4	.078
11	.023	-3	.067
10	.012	-2	.057
9	.006	-1	.048
8	.003	0	.040
7	.001	1	.033
6	.001	2	.028
5	.000	3	.023
4	.000	4	.019
3	.000	5	.015
2	.000	6	.012
1	.000	7	.010
0	.000	8	.008
-1	.000	9	.006
-2	.000	10	.005
-3	.000	11	.004
-4	.000	12	.003
-5	.000	13	.002
-6	.000	14	.002
-7	.000	15	.001
-8	.000	16	.001
-9	.000	17	.001
-10	.000	18	.001
-11	.000	19	<.001
-12	.000		
-13	<.001		

Means and standard deviations are from studies on the Integrated Zone Comparison Techniques, as reported by American Polygraph Association (2011).

[7] This boutique technique involves the use of a proprietary scoring system. Accuracy rates reported in studies on this technique were reported as approaching perfection, and were shown in the 2011 meta-analytic survey to be an outlier to the distribution of other results. Studies supporting this technique have been described as substantially methodologically flawed, and it is considered unlikely that the reported accuracy rates will be achieved in field settings. Although a complete discussion of the statistical errors is beyond the scope of this publication, readers can refer to the 2011 report for more information on the publication citations and discussion about the limitations of the reported findings. Inclusion of information on this technique is not intended to be an endorsement or criticism of the technique. Instead a summary of the reported information is included here so that readers can more fully understanding the issues and controversies, and for completeness of inclusion of all polygraph techniques that were included in the 2011 meta-analytic survey.

[8] Cutscores initially recommended by the developer of the Integrated Zone Comparison Technique (Gordon & Cochetti, 1987) were +18 and -18 for truth-telling and deception, and were subsequently reported as +13 and -13. It is unclear why these cutscores were recommended, as information in the published on this technique suggest that a deceptive cutscore of +5 should be expected to achieve the same near-zero false-positive error rate as -13 or -18.

Appendix P

Matte Quadri-track Zone Comparison Technique[9,10,11]

Grand total scores			
Guilty cases		Innocent cases	
Mean	SD	Mean	SD
-9.1484	2.8433	6.0017	3.099

Deceptive Scores		Truthful Scores	
Score	p-value	Score	p-value
6	.500	-9	.479
5	.373	-8	.343
4	.259	-7	.225
3	.166	-6	.134
2	.098	-5	.072
1	.053	-4	.035
0	.026	-3	.015
-1	.012	-2	.006
-2	.005	-1	.002
-3	.002	0	.001
-4	.001	1	<.001
-5	<.001	2	<.001
		3	<.001

Means and standard deviations are from Matte and Reuss (1989).

[9] This boutique technique involves the use of a proprietary scoring system. Accuracy rates reported in studies on this technique were reported as approaching perfection, and were shown in the 2011 meta-analytic survey to be an outlier to the distribution of other results. Studies supporting this technique have been described as substantially methodologically flawed, and it is considered unlikely that the reported accuracy rates will be achieved in field settings. Inclusion of information on this technique is not intended to be an endorsement or criticism of the technique. Instead a summary of the reported information is included here so that readers can more fully understanding the issues and controversies, and for completeness of inclusion of all polygraph techniques that were included in the 2011 meta-analytic survey. Although a complete discussion of the statistical errors is beyond the scope of this publication, information provided by the developers suggests that 95% of truthful persons can be expected to produce 3-chart totals of +9 or greater, while 95% of deceptive persons can be expected to produce 3-chart total scores of -19 or lower. Readers can refer to the 2011 report for more information on the publication citations and discussion about the limitations of the reported findings.

[10] Published procedures for this technique involve the average total score per chart instead of the more common grand total score. This will require the summation of all scores for all charts and division of the result by the number of charts. We note a procedural inconsistency with statistical and mathematical theory which holds that average scores can be subject to linear multipliers or divisors, but standard deviations are not subject to linear multiplication or division. The standard deviation of three charts is not a simple linear multiplier of the standard deviation of one chart or the average of charts. Instead the variance, calculated as the variance as the square of the standard deviation, can be subject to linear multiplication, after which the standard deviation can be recalculated as the square root of the result.

[11] Information is shown for truthful scores to +3, beyond the limit of necessity, only because the developers have recommended cutscores of -5 and +3 per chart. It is unclear why these cutscores were chosen, as a cutscore of +1 would compute to the same result based on information published by the developers.