

# APA MAGAZINE

The Magazine for the Polygraph Professional

January/February 2018

Volume 51,1



## 53<sup>rd</sup> American Polygraph Association

### Annual Seminar

### Austin, Texas



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EXPERIENCE

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Accredited by the APA and recognized by AAPP, our **Basic, Advanced,** and **PCSOT** courses ensure an excellent understanding of not only polygraph systems but also the methodology and science behind their usage.

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May 7, 2018

September 4, 2018

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**Ben Blalock, Director**

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## **APA MEMBERS**

**Take the most out of your membership**

**If you have not already done so, please go to the APA Website and register for access. We stay in contact with our membership via the email address registered on the website.**

**Get registered so you can continue to receive important messages and publications from the APA.**



## ***Advertising in the APA Magazine***

For pricing and payment information, contact Lisa Jacocks at the APA National Office, P.O. Box 8037, Chattanooga, TN 37414, (800) APA-8037, or email - [manager@polygraph.org](mailto:manager@polygraph.org)

Then, all you need to do is send your electronic ad in .jpeg or .pdf file format, to the editor at [editor@polygraph.org](mailto:editor@polygraph.org)

Don't worry, short line items in the Buy and Sell and Upcoming Seminar sections are still free. We also publish (at no charge) in each *Magazine* a listing of upcoming polygraph training sessions for APA accredited schools.

Submissions and/or technical questions regarding your ad should be sent to [editor@polygraph.org](mailto:editor@polygraph.org). Please note that submission deadlines are posted on the first page of Membership News section on each issue.

## **Upgrading Membership Classifications from Associate to Full Member**

If you have a baccalaureate degree or higher, you have served as an Associate of the APA for 24 months, you have completed a minimum of 200 polygraph examinations, you have attended at least one APA Annual Seminar, and have completed 60 hours of CEH in polygraph, request that your membership classification be upgraded from **ASSOCIATE** to **MEMBER**.

In order for the Board of Directors to act upon your request, it will be necessary for you to:

Provide a copy of your transcripts, a ***notarized*** statement from your supervisor ***or*** knowledgeable colleague, who must be a Member of the American Polygraph Association (APA), attesting that you have completed a minimum of 200 polygraph examinations, and proof of your 60 hours of continuing education in the field of polygraph within the last 36 months.

Please forward the certification directly to:

APA National Office  
P.O. Box 8037  
Chattanooga, TN 37414

If you have any problems or questions regarding your membership, please call the National Office Manager at 800/272-8037 or 423/892-3992.

# Contents

JANUARY/ FEBRUARY 2018

## Membership News



- 7 2018 APA Election Cycle Dates
- 9 An Examiner's Best Friend
- 11 ASTM Standard on Polygraph Post-Test Practices



## Training & Seminars



- 12 Polygraph Examiner Training Schedule
- 13 Utah Polygraph Association 2018 Spring Conference
- 16 Maryland Polygraph Association Annual Seminar
- 17 53rd APA Annual Seminar
- 133 Polygraph Schools Accredited by the APA



## From the Board



- 25 President's Message
- 27 Board of Director's Report
- 41 Secretary's Report of Board Actions

## Regular Features



- 43 Words of Wisdom: A Polygrapher's Most Important Gift ... People Lie! by George Baranowski
- 60 Five-minute Science Lesson: Review and Discussion of the American Statistical Association's "Statement on Statistical Significance and P-Values" and Polygraph Test Results by Raymond Nelson



## Special Features



**47** &#%!@Math: Hand Scores, Algorithms and Competing Opinions by Jared Rockwood

**54** The Seeable Objective by Erika E. Thiel and Mark Handler



**65** Care and Feeding of a Polygraph Examiner by Kenneth A. Stauff

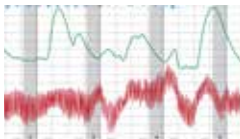
**69** Crime is an Event, Criminality is a Trait learning What to Target in the Interview by J Patrick O'Burke



**78** Comparison of DLST/ESS and RIT Screening Outcomes at the Vermont State Police by Mark Handler, Daniel Trottier and Raymond Nelson



**82** Effective Defense Polygraphs by Christophir Kerr



**116** Practical Polygraph: Seven Things to Know About Feature Extraction with Electrodermal and Cardio Data by Raymond Nelson and Mark Handler

## Contributors to this issue

George Baranowski  
 Barry Cushman  
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 Pamela Shaw  
 Darryl Starks  
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 Daniel Trottier  
 Daniel Violette

### Deadlines

This issue closed on  
 January 31, 2018

Deadline for March/April  
 issue:  
 March 31, 2018

## Submission of Articles

The *APA Magazine* is published by the American Polygraph Association. All views, opinions and conclusions expressed in this magazine are those of the authors, and do not necessarily reflect the opinion and/or policy of the APA or its leadership. References in this magazine to any specific commercial products, process, or service by trade name, trademark, manufacturer or otherwise, does not necessarily constitute or imply endorsement, recommendation, or favoring by the APA or its leadership.

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2017-2018

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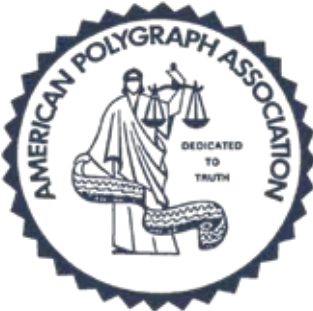
Mark Handler  
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### Managing Editor

Nayeli Hernandez  
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Take the wheel and contribute to our future...



# 2018 APA Election Cycle Dates

President Elect, one year

Directors 2,4,6 & 8, two years

- April 1 - 30 - submit nominations to National Office
- May 1 - 4 - validation of candidate's eligibility
- May 7 - last day to submit candidate statement up to 500 words for Magazine and website
- June 4 - candidacy letter published on website and in Magazine in the order they are received
- June 11 - email notification of elections
- June 17 - 23 - electronic election
- June 27 - posting results on website
- July 8 - 14 - runoff if necessary
- July 16 - notify winner
- August 30 - officers sworn in at APA Annual Banquet





# An Examiner's Best Friend



Darryl Starks and Linus working



Darryl Starks and Linus time to eat





Kharlha is a 30 year old Arabian mare who my wife has had for 20 years. Growing up in a city, I had vowed never to date a farm girl and then I married one! At 30 years old, she does not get a lot of activity, such as riding, but a lot of responsibility come with horse ownership. Never the less, seeing her always brings a smile to our faces having a "backyard barn" with multiple other animals is very rewarding. She joins a menagerie of three dogs, two cats, fish and a rabbit!

Regards,

Kenneth A. Stauff





## **ASTM Standard on Polygraph Post-Test Practices**

The American Society for Testing and Materials (ASTM) committee that creates polygraph standards has taken under consideration a draft proposal regarding post-test interrogation/interviews.

ASTM standards are not legally binding, but are regularly used by US courts to determine whether processes were performed according to professional and industry standards. ASTM members all have equal votes on all standards under their committee.

Any ASTM member on the Forensic Psychophysiology (Polygraph) committee can comment and vote on the proposed standard now being circulated. APA members interested in shaping the draft standard on post-test interrogation/interviews should join ASTM immediately to have input on that document. Go to <https://www.astm.org/MEMBERSHIP/participatingmem.htm> and click on the button Join Now!

ASTM standards have an impact on polygraph professional practices worldwide, and being an ASTM member means you will personally contribute to the beneficial effect these standards have. Membership also includes free copies of all ASTM standards developed by the Forensic Psychophysiology committee. Anyone having questions should contact Don Krapohl at [apakrapohl@gmail.com](mailto:apakrapohl@gmail.com).





# Polygraph Examiner Training Schedule

## American Polygraph Association

**53rd Annual Seminar**  
August 26 - 31, 2018  
Austin, Texas

## PEAK Credibility Assessment Training Center

### Basic Examiner's Course (Cape Coral, FL)

May 7 - July 13, 2018  
September 4 - November 9, 2018

### Advanced Examiner's Course

March 26 - 30, 2018 (Cape Coral, FL)  
July 23 - 27, 2018 (Cape Coral, FL)

## 2018 A.S.I.T. Courses

### Polygraph 101 Basic

March 5 - May 11  
September 24 - November 30  
Guatemala: Contact school for dates

### Post Conviction (PCSOT)

May 14- 18; December 3 - 7

### Advanced Polygraph

July 23 - 24

### Advanced PCSOT

July 25 - 26

**Forensic Assessment Interviewing and Integrated Interrogation Techniques**  
March 12-16; October 1 - 5 Philadelphia

**Morgan Interview Theme Technique (MITT)** Contact school for dates

## National Polygraph Academy

### Basic Polygraph Courses

January 29 - April 6, 2018 Moyock, NC  
June 4 - August 10, 2018 Amarillo, TX  
September 5 - November 9, 2018 Columbus, OH

### Basic PCSOT Courses

April 9-13, 2018 Moyock, NC  
April 23-28, 2018 Baton Rouge, LA  
August 13-17, 2018 Amarillo, TX

## Advanced Continuing Education (ACE) Courses

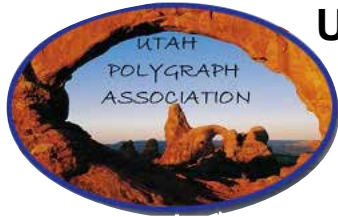
August 10, 2017 (1-day) Amarillo, TX  
November 12-16, 2018 Columbus, OH

## Backster School of Lie Detection Limestone Technologies

**Basic Polygraph Examiners Course**  
June, 2018 Kingston, Ontario  
Fall 2018 Denver, CO

## Attention School Directors

If you would like to see your school's course dates listed here, simply send your upcoming course schedule to [editor@polygraph.org](mailto:editor@polygraph.org)



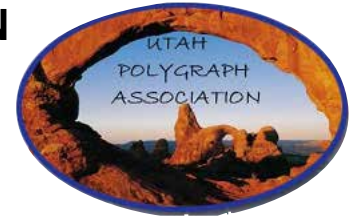
## UTAH POLYGRAPH ASSOCIATION 2018 SPRING CONFERENCE

April 11, 12 and 13, 2018

Salt Lake City Doubletree Suites by Hilton  
110 W 600 S, Salt Lake City, UT 84101

(Contact the Hotel directly for lodging reservations (801) 359-7800)

**Qualifying continuing education featuring the following Instructors and Topics**



### **Trent Lund, PhD**

President Stoelting Company  
Physiology as it Relates to Polygraph  
April 11, 2018

Trent Lund is an actively engaged husband and father of 4. Professionally he is the President of Stoelting. Prior to joining Stoelting Trent received degrees from BYU (PhD and MS) and Weber State University (BA) and was a Professor at Colorado State University.

### **Stanley M Slowik**

Reid Technique of Interview and Interrogation  
April 12, 2018

Mr. Slowik received his polygraph training from Reid College (John E. Reid & Associates) in Chicago in 1973 and was employed as a polygraph examiner, Director, criminal interrogator and instructor with John E. Reid & Associates from 1968 to 1986. He helped create and teach the *Reid Interviewing and Interrogation* course serving as both C.E.O. and Chairman of the Board of Directors of Reid & Associates. Mr. Slowik is a contributing author to several texts on polygraph and has published numerous studies and articles on polygraph and related topics. In 2013 the APA presented Mr. Slowik with the John E. Reid Award for Distinguished Achievement in Polygraph Research, Teaching and Writing. Into his 50<sup>th</sup> year as an examiner, Mr Slowik has consistently conducted at least 200 exams per year.

### **Utah Polygraph Association Business Meeting**

April 12, 2018

### **Lafayette Instrument staff**

Lafayette Instrument Company will be providing 1 day advance Software training, covering customizations, report writing, paperless transition, software scoring algorithms, ESS and many other functions in the software.

April 13, 2018

**Lunch is included all three days**



## REGISTRATION FORM:

Name \_\_\_\_\_ Phone \_\_\_\_\_

Address \_\_\_\_\_ City, State \_\_\_\_\_ Zip \_\_\_\_\_

Email \_\_\_\_\_

### Register before 3/11/18

\_\_\_\_\_ \$200 UPA member

\_\_\_\_\_ \$400 Non UPA member

### Register after 3/11/18

\_\_\_\_\_ \$250 UPA member

\_\_\_\_\_ \$450 Non UPA member

The Utah Polygraph Association (UPA) has open enrollment  
Examiners wishing to attend may join the UPA by application (attached) even if they don't live in Utah. Former members may register at the UPA member price after becoming current on their membership dues

Send Registration form (and membership application) and payment to:

Utah Polygraph Association  
Attention, Jared Rockwood, Secretary/treasurer  
PO Box 652  
Provo, UT 84603-0652

Questions to:

John Pickup  
[Intermountainpolygraph@gmail.com](mailto:Intermountainpolygraph@gmail.com)  
801-368-9406



# SCIENCE & POLYGRAPH

Inspiring Polygraph Leaders



## *Upcoming Courses in Mexico*

Vanguard and Scientific  
Innovation In Polygraphy

**Mark Handler**

Mar 29-31

Quality Control Course

**Selene Martinez**

Feb 22-24

[contacto@escueladepoligrafia.com](mailto:contacto@escueladepoligrafia.com)

[www.escueladepoligrafia.com](http://www.escueladepoligrafia.com)

Homero 229 ms3, Col. Polanco V Secc. Del. Miguel Hidalgo. C.P. 11560 CDMX



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**2018 Maryland Polygraph Association Annual Seminar**  
**May 10-11, 2018**



Visit [mdpolygraph.org](http://mdpolygraph.org) for more information





# 53<sup>rd</sup> American Polygraph Association

## Annual Seminar

Austin, Texas

August 26 - 31, 2018



SUNDAY, AUGUST 26, 2018

CLASSROOM A

1:00 - 3:00 PM  
TBA  
Steve Duncan  
APA President-elect

3:00 - 5:00 PM  
TBA  
Steve Duncan  
APA President-elect

SCHOOL DIRECTOR'S MEETING  
1:00 - 3:00 PM  
(ROOM TO BE ANNOUNCED)

APA WELCOME RECEPTION  
6:30 - 8:30 PM



MONDAY, AUGUST 27, 2018

CLASSROOM A (disponible en Espanol)

7:30 - 8:00 AM Break Sponsored by:

8:00 - 9:30 AM OPENING CEREMONIES

Call to Order -	Jamie McCloughan, APA President
Presentation of Colors -	Texas DPS Honor Guard and Fife and Drum
The National Anthem -	
Pledge of Allegiance -	Jamie McCloughan, APA President
Taps -	Richard Pascuito, Raymond Nelson
Invocation -	Barry Cushman, APA EAC Program Manager
Welcome to Austin -	Steve McCraw, Texas DPS
Seminar Program Chair -	Michael C. Gougler

9:30 - 9:45 AM Break Sponsored by:

9:45 - 12:00 NOON

Chart Scoring: Believing is Seeing  
Donald J. Krapohl, APA Past President  
Donnie W. Dutton, APA Past President

12:00 NOON - 1:00 PM Lunch on your own

1:00 - 5:00 PM

Update to ESS (ESS-M) - improved cutscores,  
improved sensors, and improved analytics  
Raymond Nelson  
APA Past President

2:45 - 3:00 PM Break Sponsored by:



TUESDAY, AUGUST 28, 2018

7:30 - 8:00 AM Break Sponsored By:

CLASSROOM A (disponible en Espanol)	CLASSROOM B	CLASSROOM C
8:00 - 10:00 AM TBA Matt Hicks Matt Mull Texas DPS TDLR Approved	8:00 - 10:00 AM Legal Update Gordon Vaughan, Esq. APA General Counsel	8:00 - 10:00 AM Testing Juveniles in PCSOT: A Review of the Information Discussed at the ATSA Conference 2017 Erika Thiel APA Director

9:45 - 10:00 AM Break Sponsored By:

**APA ANNUAL BUSINESS MEETING**  
**10:00 AM - 12:00 NOON**  
**CLASSROOM A**

12:00 Noon - 1:00 PM Lunch On Your Own

1:00 - 5:00 PM TBA Matt Hicks Matt Mull Texas DPS TDLR Approved	1:00 - 5:00 PM TBD Pam Shaw APA Past President	1:00 - 3:00 PM Comments on Decision- Making and Numerical Scoring of Polygraphic Data Frank Horvath APA Past President
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2:45 - 3:00 PM Break Sponsored By:

(CONT'D) TBA Matt Hicks Matt Mull Texas DPS TDLR Approved	(CONT'D) TBD Pam Shaw APA Past President	3:00 - 5:00 PM
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WEDNESDAY, AUGUST 29, 2018

7:30 - 8:00 AM Break Sponsored By:

CLASSROOM A (disponible en Espanol)	CLASSROOM B	CLASSROOM C
8:00 - 12:00 NOON Panel Discussion Gordon Vaughan	8:00 - 12:00 PM The Law Enforcement Package Chad Russell	8:00 - 12:00 NOON Objective Pre-employment Interviewing Stanley Slowik 25+ Year APA Member

9:45 - 10:00 AM Break Sponsored By: **MARYLAND POLYGRAPH ASSOCIATION**

(CONT'D) Panel Discussion Gordon Vaughan	(CONT'D) The Law Enforcement Package Chad Russell	(CONT'D) Objective Pre-employment Interviewing Stanley Slowik 25+ Year APA Member
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12:00 Noon - 1:00 PM Lunch On Your Own

1:00 - 5:00 PM Investigative Interviewing Using the PEACE Model Mark Handler, APA Editor Michael C. Gougler, APA Past President	1:00 - 3:00 PM Concealed Information Test Jaime McCloughan APA President	1:00 - 5:00 PM Practical Polygraph - sensors, scores, test formats and test data Raymond Nelson APA Past President
--	---	---

2:45 - 3:00 PM Break Sponsord By:

(CONT'D) Investigative Interviewing Using the PEACE Model Mark Handler, APA Editor Michael C. Gougler, APA Past President	3:00 - 5:00 PM Testing the Adult and Juvenile Sex Offender and Their Differences Sabino Martinez APA Director <b>PCSOT</b>	(CONT'D) Practical Polygraph - sensors, scores, test formats and test data Raymond Nelson APA Past President
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THURSDAY, AUGUST 30, 2018

7:30 - 8:00 AM Break Sponsored By:

CLASSROOM A (disponible en Espanol)	CLASSROOM B	CLASSROOM C
8:00 - 12:00 NOON The Dark Web Richard Dusto NCCA	8:00 - 12:00 NOON Protecting Yourself from Cognitive Bias and Accusations of False Confession Chip Morgan APA Member	8:00 - 12:00 PM

9:45 - 10:00 AM Break Sponsored By:

12:00 Noon - 1:00 PM Lunch On Your Own

1:00 - 5:00 PM Elicitation Techniques Using Verbal and Non-Verbal Indicators Dan Baxter Lorry Ginovsky NSA Retired	1:00 - 5:00 PM Trauma and Dissociation: What Happens in the Brain and How This Impacts Your Polygraph Erika Thiel APA Director	1:00 - 5:00 PM Conducting Polygraph Examinations on Deaf People Dr. Jessica Bentley Ddr. Kelly Roth Dr. Kristin Lazor Bloomsburg University
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2:45 - 3:00 PM Break Sponsored By:

(CONT'D) Elicitation Techniques Using Verbal and Non-Verbal Indicators Dan Baxter Lorry Ginovsky NSA Retired	(CONT'D) Trauma and Dissociation: What Happens in the Brain and How This Impacts Your Polygraph Erika Thiel APA Director	(CONT'D) Conducting Polygraph Examinations on Deaf People Dr. Jessica Bentley Ddr. Kelly Roth Dr. Kristin Lazor Bloomsburg University
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APA ANNUAL BANQUET AND AWARDS  
6:30 - 7:00 PM COCKTAILS  
7:00 PM DINNER  
KEYNOTE SPEAKER: MEDAL OF HONOR RECIPIENT JAMES C. MCCLOUGHAN



FRIDAY, AUGUST 31, 2018

7:30 - 8:00 AM Break Sponsored By:

CLASSROOM A (disponible en Espanol)	CLASSROOM B	CLASSROOM C
<p>8:00 - 3:00 NOON</p> <p>Behavioral Intervention; the evolution of criminology and forensic interview methods</p> <p>J. Patrick O'Burke APA Chairman of the Board</p> <p><b>TDLR Approved</b></p>	<p>8:00 - 10:00 AM</p> <p>Bayesian Analytics - What, Why and How</p> <p>Raymond Nelson APA Past President</p>	<p>8:00 - 10:00 AM</p> <p>The Ethical Confessional</p> <p>Dani Pruett Tim Benson Hertfordshire Constabulary United Kingdom</p>

9:45 - 10:00 AM Break Sponsored By:

<p>(CONT'D)</p> <p>Behavioral Intervention; the evolution of criminology and forensic interview methods</p> <p>J. Patrick O'Burke APA Chairman of the Board</p> <p><b>TDLR Approved</b></p>	<p>10:00 AM - 12:00 NOON</p>	<p>10:00 AM - 12:00 NOON</p>
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12:00 Noon - 1:00 PM Lunch On Your Own

<p>(CONT'D)</p> <p>Behavioral Intervention; the evolution of criminology and forensic interview methods</p> <p>J. Patrick O'Burke APA Chairman of the Board</p> <p><b>TDLR Approved</b></p>	<p>1:00 - 3:00 PM</p>	<p>1:00 - 3:00 PM</p>
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**3:00 PM**  
**CLOSING REMARKS**  
**STEVE DUNCAN**  
**APA PRESIDENT**





The APA 2018 Seminar at the Austin Hilton will be from August 26, 2018 – August 31, 2018. Registration is currently open. While the APA does not endorse membership in any hotel program, Hilton has advised that Hilton Honors and Hilton App users with reservations at the hotel will be able to skip check in without going through the front desk check in procedure and to select on the App their rooms among from the allocation of rooms for the APA. Additionally the rooms are accessible with an electronic key via the App. This convenience may assist in shortening the waits both for those with and without the App that is often experienced during the rush of Sunday check-ins.



# President's Message

**Jamie McCloughan**

I hope everyone is staying warm during this unusual weather we have had this winter. For this report, I will again give a short summary of what the Board has been working on.

Since my last report, the Board has approved and implemented a conflict policy. The policy includes a form that all board members must complete. This form helps to ensure that there are no inherent conflicts of interest in those carrying out business for the APA.



The board is continuing its work on updating the organizational model for the APA. The plan is to have something ready for the board to consider by the winter board meeting.

The Education Accreditation Committee (EAC) is working with Google software to convert and update forms, as well as incorporate an interactive calendar. Although the process is at the beginning, it looks promising that this direction will help to streamline the accreditation process and increase communication between the committee and its stakeholders. The EAC is also working on improving the accreditation process and looking at the current model to see if changes are necessary to make how education is handled better for students and the profession. This is important, as CHEA has recently called for accreditors to write standards that allow for educational institutes to have the ability to innovate how they carry out educating students.

If you have any questions or suggestions, please feel free to contact me. As always, may those who are fighting for our freedom against threats, both foreign and domestic, be safe, and have Godspeed in their return to friends and loved ones.



# Board of Directors' Reports

## **Steve Duncan** **President Elect**

Hello again, APA Members. I hope the Holiday Season was pleasurable for all. Your APA Office Staff and Board of Directors have started off the New Year busy as usual. The appointed committees are working on tasks assigned by President McCloughan.

The Ethics and Grievance Committee is still hard at work. Most of the few complaints we are receiving are issues beyond the control of the APA. The remaining complaints seem to evolve around an examiner not following our current Standards of Practice. I urge you, as a Member, to follow the Standards of Practice in order to protect our profession. Work continues with the Committee Policy.

I am still working with other board members on several projects to keep the APA moving forward. President McCloughan has made assignments to board members to facilitate several advances in making the APA function more smoothly and efficiently.

As a board member I have continued to assist Members with issues as re-

quested and I am here to help with problems if I can. I have continued working on projects with other board members on quality assurance, elections and other issues.

As always, feel free to call or email me if I can be of assistance to you.

## **Patrick O'Burke** **Chairman of the Board**

Winter has fully embraced most of the United States as we are recovering from the holiday season. This leaves many of performing those winter chores reserved for when we are stuck inside and have lots of time. As you are handling your doldrums, I hope that your career is one of those things you are still working on. Currently, I am finishing my Masters degree this spring, as well as writing a book. It is amazing what you can put off in life if you try hard enough. The topic of college education and its importance in polygraph as a forensic science has been at the forefront of things the APA Board has tackled over the last few years.

If you do a study you will find the



membership of the American Polygraph Association is made up of a significant number of law enforcement examiners, many of whom lack a bachelors degree. This is not surprising since the FBI reports that 99% of people enter the law enforcement profession without a degree. Studies have shown that significant numbers obtain a bachelors degree after the desire to promote forces many to do so. No doubt, online colleges have made finishing a degree plan far simpler than in the past. It is much easier to open my computer online than the days when I had to drag myself to campus after a graveyard shift. Colleges are also desperate to increase their online enrollment and offer credit for training and professional courses that have been taken as incentives to get people enrolled.

One of the things the APA has recently done is to obtain membership with the Association of Specialized and Professional Accreditors (ASPA) for the APA's Education Committee that inspects polygraph schools. As such, the APA is now part of an organization that gives our education committee professional standards and guidelines to go by in school inspections. As such, colleges and universities and State Regulatory agencies should be far more willing and accepting of polygraph examin-

er course attendance as part of things that would be acceptable as credit for course hours. Several of my polygraph school students have reported back to me that they have been given college course credit for polygraph training when they re-enrolled to finish their degrees. If you have recently used your polygraph school as credit for college courses, it would help if you let me or Barry Cushman know about this.

I hope that my message will inspire some of you to finish your degree plan. I would urge everyone to approach your local community college and ask for credit for the hours you attended in polygraph school, and perhaps other law enforcement training courses, and get that degree. Trust me, the time will fly by and it is that much more convenient in online formats. The forensic science demands of the future will require college degrees for us to remain relevant in the future. Yes, I know that there are many competent examiners without degrees and several not so competent people even with advanced degrees. That is not the point. We are judged as a profession by what people expect to see. People value education and expect us to have that.

Trivia question: Who was the first



police officer with a PhD? John Larson at Berkley PD in the 1920's. August Volmer had invited Larson to the Berkeley Police Department to help professionalize police in the 1920s. The Wickersham reports of that time frame had shown the widespread abuses of police interview practices and polygraph was deemed to be one method for an improvement over the "third degree" methods prevalent back then. One more trivia question; who was the 1955-56 President of the American Academy of Forensic Scientists (AAFS)? The AAFS is the largest scientific group in the world promoting science in forensics and has over 7,000 members. If you are serious about polygraph and polygraph research, you should consider joining. And now for the answer to the second trivia question. If you guessed Fred Inbau you would be correct. Surely, you will recognize Fred Inbau as one of the authors of the Reid and Inbau book on criminal interrogation, and maybe some will know of Inbau's considerable work in Chicago's Scientific Crime Laboratory.

Many will ask so why science is important in the field of polygraph, or anything else in the field of credibility assessment. I would answer that police officers spend most of their

time talking to people yet receive little training in the best way to do that. There is actually almost no research on how police verbally interact. We have spent millions of dollars on, "if you see something then say something". Yet nothing has been spent on helping police interview and decide what is actually suspicious. While most police academies teach no interviewing, investigators are usually sent to whatever class is closest or cheapest. There are three basic schools of thought in interviewing style; the Classical method authored by Reid and Inbau, the PEACE method, and some type of statement analysis. I recently asked a committee chair at AAFS where are the evidence-based principles for forensic interviewing identified at AAFS. I was told there are none currently compiled. The closest thing to a study is the EASI Consult study on interview which is not somewhat dated.

Everyone should also see that evidence-based principles for forensic interviewing have to transcend proprietary training methods and provide a foundation for everyone to work with. Most everyone is familiar with forensic principles for interviewing children. These principles primarily work to avoid contaminating the memory of highly impressionable children. No one sees a need to do that for adults?



Unfortunately, many think we are interrogating adults to get at the truth. This is somewhat incorrect since we continue to be working with perception and memory with adults as well.

As a result of inquiring at AAFS, I believe that a committee will soon be formed to try and develop evidence-based practices for interviewing. I would urge you to get in contact with me if you have an interest in this area of research. Further, I would also urge you to join AAFS as a working group that can benefit our profession. Several have commented from recent articles, but I really hope to hear from more of our readers. Please share your thoughts with me. Thanks, and I hope to see you at a training conference soon.

**Mike Gougler**  
**Seminar Chair**

### **APA 2018 Seminar Dates & Updates**

Fellow Professionals,

Plans are moving forward for the 53rd Annual APA Seminar to be held August 26 thru August 31, 2018 in Austin, Texas. The conference will be held at the beautiful Austin Hilton Hotel.

We are anticipating a large turnout based on the quality training classes being offered, coupled with a very favorable room rate. Please make your reservations early, as we expect to sell out our allotment of rooms.

We are currently organizing a Tuesday night event to be held in the downtown Austin area. Periodically check back to the website for updates.

A schedule of classes is now posted on the website. The remainder of the schedule should be finalized within the next 60 days. Please remember to nominate deserving individuals for the various APA awards.

Interpretation services will again be offered in Classroom A on Monday through Friday for all classes. For those wanting to take advantage of these services, the cost will be \$100 per person if you pay at the door. Those paying in advance before arriving at the seminar will be charged \$50. Please take advantage of the discount by paying early so we can better project the number of headsets required. (No headset will be issued without payment.)

I would again like to thank all of our sponsors for their support. See you in Austin.



## Barry Cushman EAC Manager

For those who are not aware, at the annual conference the membership approved an ex-officio board position (a “program manager”) to oversee the APA accreditation program and remove some of the burden from the national office, and the board of directors subsequently appointed me to the position. (Chairman O’Burke has discussed more of the details here before, so I will not restate them again.) After accepting the appointment, I wound things down at the police department, officially retiring on the last day of November, and I began tending to the needs of the EAC, full-time, on December fourth.

I have been lurking in the background a bit trying to get my first major task in order. President McCloughan has stated it is his desire to make the process more user-friendly, allowing for submission of necessary documentation electronically. He, Chairman O’Burke and I have each, independently, looked at accreditation software, and we all came to similar conclusions: They’re nice, but once used, we’re essentially married to them, and the costs (particularly with the need for a programmer to write some of the software to

meet our needs) are high. We have been experimenting with Google’s G Suites, which is relatively inexpensive, and it allows us to keep digital copies of our documents in Google’s secure cloud, which means if I process a document (e.g., an accreditation application) from anywhere in the world, the national office can have it almost instantaneously. If we can get all the moving pieces to work well enough – and I think we can – then the board can approve a more permanent solution. Currently, we’re doing testing on a separate domain, but once things are settled, we will let folks know how to best contact the EAC.

Also, for those who have not followed Chairman O’Burke’s prior reports, the APA became a member of ASPA, the Association of Specialized and Professional Accreditors, just before our annual conference. What that means has been a source of confusion, so let me explain it a bit. First, ASPA is, like the APA, a professional association. Rather than taking in individual (human) members like the APA does, it takes in corporate members that meet its eligibility criteria. Those criteria include endorsement of and compliance with ASPA’s Code of Good Practice. The APA applied to ASPA, and in the process, the APA had to demonstrate it met all the criteria established by ASPA.



In other words, the APA had to evaluate its accreditation processes and policies against ASPA's membership standards. It was not an easy process, and, as is the point with any self-evaluation, we learned some things about our process that could be made clearer. In any event, the APA's membership in ASPA is much like your membership in the APA. If you do what you say you do (i.e., follow the standards of the profession as articulated in the APA's Standards of Practice), then you are fulfilling your responsibility as agreed for membership, and continued membership, in the APA.

The APA itself has a similar responsibility to ASPA. Neither the APA's nor ASPA's standards are arbitrary. They are designed to result in examiners and accreditors, respectively, operating according to well-accepted national standards. The APA has a continued obligation to maintain the standards set by ASPA in its Code of Good Practice (comparable to our Standards of Practice). ASPA has nothing to do with the inner workings of the EAC. They do not do school inspections or get involved in day-to-day activities of the EAC any more than the APA gets involved in the day-to-day activities of its individual members. I hope the clears up any confusion that might remain.

I mentioned earlier that we learned some things about our accreditation program during the application process. One thing we learned is that we need to reduce more of our day-to-day practices to writing - either in our accreditation standards or in supplemental policies. We also need to involve more of our stakeholders in the process when changes are made to accreditation standards. We have only recently begun to discover who are stakeholders are though. At the request of some board members, our general counsel did a search of laws and rules (in US jurisdictions) that reference APA standards in some way or another. There are a lot more than I had realized, and, I am sure we have missed some. So, I am asking for your help. If your laws or (legal) rules reference the APA in any way, please send me an email and let me know. The more information you provide, the better. (For those wondering, laws tended to reference APA accreditation for a jurisdiction to grant licensure to an individual polygraph examiner, and rules tended to reference the 40-hour PCSOT training for post-conviction work.) At some point, it would be nice to compile all that information for members, but the immediate need is to know which jurisdictions are depending on which APA standards.



The EAC is reviewing our current standards based on feedback from schools, school inspectors, the self-evaluation process with ASPA, etc. Recommended changes will likely result very soon, but remember, as a member of the APA, your contributions are helpful. If you have ideas, comments (good or bad), please, make them known. Under ASPA's Code of Good Practice, we are required to make decision making more public, and that includes reporting on public comments. So please, ensure comments are suitable for wide audiences as they will be more effective if we can share those comments with other stakeholders and the board as it has the final say on any changes.

Finally, this is a busy year for school inspections. We need more school inspectors to facilitate the process. An inspector is responsible for making the site visit to a polygraph training program in one of the last stages of the accreditation process. The inspector essentially is responsible for verifying the information provided by a program (in its self-evaluation) is accurate. The inspector reviews the relevant data and provides a report back to the EAC. If you are interested, let me know. We are planning on providing training at the annual conference.

If there is anything accreditation-relat-

ed that I can help you with, please let me know. Email is the best way to start the conversation. Currently, I can be contacted via [eac@apapolygraph.org](mailto:eac@apapolygraph.org) – that's the new domain we're using to test things, so it is (possibly) subject to change at some point. If I don't hear from you before then, I hope to see you at the conference.

**George Baranowski**  
**Director**

### **Juvenile Sex Offender Testing:**

Director Ray Nelson and I have been appointed as Co-Chairpersons of the American Polygraph Association's, Sex Offender Testing Committee, which is a mission I have been involved with for a number of years.

In this role, we of course receive a number of questions regarding sex-offender testing from not only our APA membership, but also from Probation and Parole officers, from treatment professionals, and sometimes even members of the general public.

Personally, I suppose it's to be expected since my life partner Paula and I have been conducting sex-offender examinations for close to 30 years now, and about 70% of all the tests we



conduct, are testing individuals who are on some form of probation and/or in treatment for the offense of sex-offending. We do such tests for many different County Jurisdictions in Indiana and the Federal Contract we have, yep, is regarding sex offenders under Federal Probation and in treatment.

However, it was a surprise to both Paula and I to see the change when testing “juvenile sex offenders” over the years, who are on some form of supervision, including probation, and also directed into treatment facilities for their offense. The number of juveniles that we deal with has increased considerably. These are juveniles who have been found guilty of this form of offense and sentenced into a process of probation and also, enrolled into a treatment facility that both, houses and provides treatment for these juvenile offenders. And just like adult offenders who have been found guilty of such offenses, juvenile sex offenders are also directed to participate in polygraph examinations for the same concerns as adult offenders, such as Sexual History Tests, Maintenance Examinations or Specific Issue Examinations.

From my observation, juvenile sexual misconduct or behavior is idiosyncratic. There is simply no “one-size-fits-all”

process for understanding this adolescent offender. That means there is no one process utilized in sex-offender treatment, in every case that comes along. We have observed that in the nearly 30-years of conducting such tests, we have found many societal changes have occurred that have had a significant influence on such offenders. This now includes the numerous, inappropriate and easy sources of pornography and related sexual entertainment material that has become so easily available today. This clearly has had a significant influence to juvenile offenders regarding this concern. Internet pornography is easily obtainable to today’s youths who are also considerably more technologically advanced than youths 30-years ago. Sexually explicit magazines and related material is also so much more available, and the degree of such material has also exploded. Years ago, probably the most sexually pornographic magazine that was accessible was a “Playboy” magazine. Today, juveniles regard that magazine more like a “Mechanics Illustrated” publication, than pornography. Also, many of today’s youths are much more involved with technology, including the internet, I-phone and computer games, etc., etc. There are also today, numerous electronic games that contain sexual



themes and even pornography. It has become obvious that all such factors have a significant influence on today's youth to engage in sexual misconduct, because that's what they are exposed to, and beginning such activity in early ages.

The main point of my article today however, was that there was a recent discussion among the board, about including short basic instruction of Sex Offender Training to be included with the basic polygraph student training. The bottom line of this phenomena for sex offender examiners, is that this expertise obviously requires a professional degree of skill and knowledge. In my view, it is too important to just talk a little about sex offender testing within APA's basic examiner training. Sex Offender testing is indeed a specialized skill. This is also why so much care had been taken to develop the American Polygraph Associations Sex Offender training course, an effort that was provided by Ray Nelson, Mark Handler, Don Krapohl and other APA experts, and to also keep it current, and up-to-date, and indeed, keep it as a Separate Professional Proficiency, above and beyond basic and even advanced APA training.

Different policies and standards are required for adolescents who engage

in sexual abusive behaviors from adult offenders for many reasons, including the significant differences in rapid and continuing adolescent development.

Sex-offender testing, and especially Juvenile Sex-offender testing is indeed, a specialized proficiency and I feel it needs to be kept that way.

### **Sabino Martinez** **Director**

Greetings from San Antonio

I would like to thank those of you who have shown an interest in the Mexico polygraph seminar of 2019. According to small survey the week after Easter is perfect for the majority. We are currently in contract negotiations with Hilton Reforma in downtown Mexico City which is located within walking distance of the oldest part of town near the cathedral. This cathedral is sitting above an Aztec pyramid which is a site to see among many other attractions. We will be sending out an email to our members in Latin America as soon as we get everything approved.

On another note, I have yet to receive any more nominees for our awards banquet and would like to encourage all of the membership to please send



us your nominations for the awards. If you go to the APA website you will find the criteria for each of the awards. Take the time to nominate someone who deserves recognition for their hard work and professional accomplishments that make our profession shine. Until next time, God Bless and be safe.

Hola desde San Antonio les mando un saludo a toda la comunidad hispano parlante, deseándoles muy buena salud.

Les doy las gracias a todos ustedes que ayudaron en escoger una fecha para el congreso que se llevara a cabo en la ciudad dc México en 2019. Estamos en negociaciones con el hotel Hilton Reforma, que está ubicado en el centro de la ciudad frente a la Alameda Central y a unos cuantos metros del Palacio de Bellas Artes. Como varios de ustedes ya se dieron cuenta, se escogió como la mejor opción la semana después de Pascua, los días para el congreso serán del jueves 24 al sábado 26 de abril. Me gustaría escuchar de ustedes sugerencias de temas para ser abordados durante el congreso. Algunos de ustedes me han hecho saber que estan interesados en temas como entrevista e interrogación y técnicas validadas: no obstante, sigo en espera de más sugerencias, todo esto con la fi-

nalidad de que todos aquellos que no han tenido la oportunidad de asistir a un congreso de APA, puedan tener un congreso que cubra sus expectativas de capacitación y actualización continua.

También les recuerdo que por favor no olviden nominar a esa persona que ustedes consideren hace la diferencia en su hacer diario como poligrafista, esa persona que ustedes visualicen o crean hace que nuestra profesión brille, todo esto, obviamente con el fin de que sea reconocido en nuestro banquete en el próximo congreso. Adios y que dios los bendiga.

**Brian Morris**  
**Director**

The Research and Development Committee was pleased to add Michael O. Mitchell to its numbers. We have been looking at a number of different possibilities for new test format research. If any of our members are interested in participating in the planning and execution of a new test format research project, please reach out and let us know of your interest. We are certainly interested in continuing to find and develop the best methods and formats for the polygraph profession.



**Pam Shaw**  
**Director**

Hello fellow APA members,

I hope each of you are off to a great start in the new year! Though we are early in the year, it has seemingly been busy for the APA. One great opportunity that has recently developed involves initiated efforts to hold our 4th APA Asia-Pacific seminar in Singapore at the end of July. As many of our international members will attest, there are extra demands and expense involved to attend annual APA seminars in the U.S. when residing half way around the world. These extra demands often limit the ability for agencies to send teams or multiple examiners to annual APA training. By bringing the training to the Asia-Pacific area, many examiners from that region are able to benefit from an APA caliber learning event, as well as network and interact with each other. The APA first hosted this type of international event in 2010, and due to its success and desire by those in the region to have the training again, seminars were also held in 2012 and 2014. Those seminars grew in number and also proved to be a success. It is with eagerness and excitement that plans begin again for another seminar in 2018. Registration forms and oth-

er information will become available over the next month. If you are interested in attending the APA Asia-Pacific seminar in late July, please check our website in a few weeks for more information or feel free to contact me at [directorshaw@polygraph.org](mailto:directorshaw@polygraph.org).

As part of the duties assigned to me this year, I have been asked to take on the elections process. Though the elections for our association seem to be a long way off, I'd like to go ahead and plant seeds of thought in those who have considered running in the past but were leery of the journey or decided to wait until another time. I would encourage you to consider your next move in the profession and search your heart to know if you would like to make a difference through service to your fellow professionals. Getting involved can be rewarding, challenging and inspiring. ....If you're not sure, there's only one way to know without a doubt.

I wish each of you the best in the coming months and I look forward to providing even more extensive updates in the next issue of the magazine. As always, your board is here to serve you. Please feel free to reach out to any of us with your questions, concerns or requests. Your voice is important, and we appreciate your membership in



this association.

**Darryl Starks**  
**Director**

Greeting my fellow APA members. I hope that 2018 has started on a positive note for you and your loved ones wherever you may be. Additionally, I hope that you are already making plans to attend this year's family reunion (AKA the 2018 APA Seminar in Austin, TX).

2018 marks my 20th year as polygraph examiner and my membership in the APA. Having met so many of my fellow APA members over these years, the most common thread that resonates with me is our commitment to the highest levels of professional integrity through a "Best Practices" model. We achieve this model through our belief in education, research and training. This is what the APA is all about!

The Ethic's and Grievance Committee works diligently to investigate and resolve reports of alleged misconduct and/or inappropriate behavior involving an APA member. As Co-General Chair, I'm pleased to report that such reports appear to be on the decline. With that being said, I'd like to make a simple request of the membership,

and that is to (if you haven't done so recently), review the APA Code of Ethics, Bylaws, Standards of Practice and any policies that may address your specific area of practice. All these documents are published and accessible on the APA website.

The utility of polygraph is ever expanding and with this expansion comes increased scrutiny from the scientific and legislative communities, as well as the court of public opinion. Understanding and commitment to the Associations Code of Ethics, Standards of Practice, etc., enhances the integrity and professionalism of our association. Onward and Upward!

**Erika Thiel**  
**Director**

Hello and Happy New Year! I hope that everyone has been experiencing the surge of renewed energy with the 2018 finally here. The new year is truly an opportunity for us to reflect on the past year and evaluate the goals we have set for ourselves in the coming year. If in 2017 you set goals for yourself that you never started or have yet to achieve, that is okay! Keep going or try a new approach - just never give up on yourself.



I know that one of the goals of the newly elected APA board has been to set forth a motion of change that was more than just talk. This is something that the entire board; especially President McCloughan, is extremely passionate about. One of the changes that we hoped to see is the inclusion of more social media. Darryl Starks did a wonderful job his previous two years on the board getting this ball rolling. However, President McCloughan shifted his responsibilities and passed the ball on to me.

One of the biggest changes that I am proud to have made in our social media is posting in multiple languages. I post primarily in English and Spanish but have the ability to post or respond in other languages. I have received complimentary feedback so far because it seems that this is promoting more questions, which is what we are all here for! Social Media may not always be the quickest form of communication, but I can assure that if a message comes to me, I will be responding and redirecting as best as I can.

As much as positive feedback feels great, I would love to know what it is that the followers feel the pages are missing. So far, I am primarily running off of Facebook and Twitter. Should there be a linked Instagram page? Do

people use Twitter more than Facebook? Has this form of informal communication been helpful, especially for those who may have agency emails? Please send me a message through the Facebook page and let me know! These pages are for you and if there is something missing, then I need to know.

I am excited at the growth already occurring this year within the polygraph field. You can see our published papers are starting to expand beyond the same old thing in very exciting and more scientific ways. If you are not currently following any of our social media pages, please be sure to start for I am always posting updates and exciting news on there like the changes we all know were needed in the upcoming year.

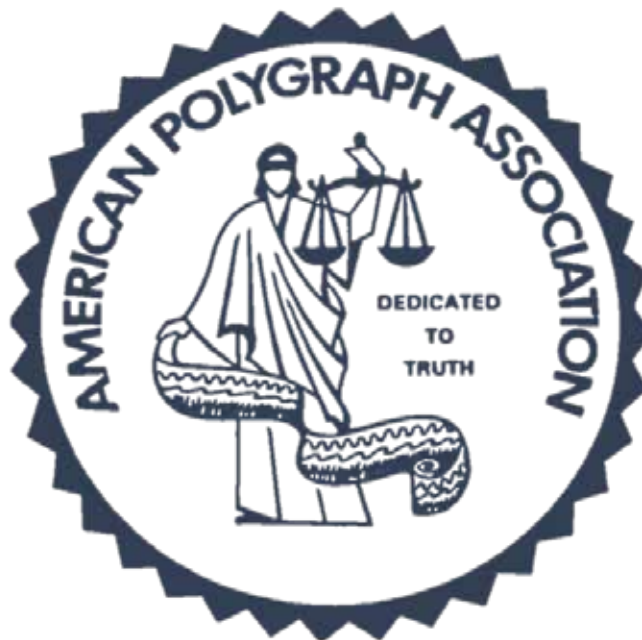
If you have not evaluated some goals for your 2018, maybe it is time to start. Becoming more involved with the APA is a great place to start if one of your goals is to grow within the polygraph field. Come say hi on the Facebook page or Twitter. I will be there with a response.



**Daniel Violette**  
**Director**

Several months have passed since the 52nd Annual APA Seminar out in Las Vegas. As the Chairman of the Education and Accreditation Committee this year I have continued to work closely with Jaime McCloughan and Lisa Jacocks to keep the committee going steady while also working closely with Barry Cushman as he transitions into the new Accreditation Program Manager position we created when we were in Las Vegas. Barry is excited about getting things up and running in his new position and he has several great ideas that he is working hard to

implement in the very near future. I'm sure he will do a great job. I am looking forward to upcoming APA Winter Board Meeting that will be held in Austin, TX in March. We have several interesting items on our agenda and we also have a few great suggestions from the membership that we will need to discuss. I am also very much looking forward to the 53rd Annual APA Seminar and Workshop which will also be held at the Austin Hilton Hotel in Austin, TX this coming August. I'm told we are expecting a large turn-out this year so people are strongly encouraged to register early. I hope to see you there.



# Secretary's Report of Board Actions

**Submitted by Lisa Jacocks**

This report covers the time period of August 2017 through November 2017

## August 25-26, 2017 – BOD Meeting

- Approved the Model Policy for Domestic Polygraphs
- Approved the Vendor/Exhibitor Policy
- Approved the Sexual Harassment Policy
- Approved the travel, lodging and per diem expenses for one expert witness for the Massachusetts Daubert hearing
- Approved the class marker online testing as the APA upgrade test

## September 2, 2017 – BOD Meeting

- Approved the job description and requirements for the EAC Program Manager
- Approved a sell order of \$100k on the investment
- Approved investing in corporate bonds
- Approved placing the APA Magazine on the public side of the website
- Approved the funding for three board members to attend the ATSA conference in Kansas City, October 2018
- Approved for evidentiary examinations – any disagreement with computer scoring must be addressed by the examiner in writing



- Approved any applicant for Associate that was in the process of being approved on or before 8-31-17, and is approved at a later date, will have an effective date of 8-31-17

#### September 19, 2017 – BOD Teleconference Meeting

- Rescinded the approval of funding the expenses for three board members to attend the ATSA conference in Kansas City, October 25-28, 2017
- Approved the funding for Raymond Nelson, Pat O’Burke, Erika Thiel and Don Grubin to attend the ATSA conference in Kansas City, October 25-28, 2017
- Ratified the vote approving the investment of \$300k into corporate bonds

#### October 10, 2017 – BOD Teleconference Meeting

- Approved the merging of the Professional Development Committee with the Education Accreditation Committee, to be the Education Accreditation Committee
- Approved the Web Administrator standard operating procedure
- Approved a 24-month time period from the time of presentation to the use of the Yankee Scholarship
- Approved the Yankee Scholarship standard operating procedure
- Approved the required continuing education hours for PCSOT to mirror that of which is already in place for APA members
- Approved the updated Reimbursement Policy
- Approved the temporary hiring of Jill Duncan to assist the office staff with scanning of documents
- Approved the funding to send Barry Cushman to TDLR board meeting for the Polygraph Advisory Committee on January 31, 2018 in Austin, Texas





## A Polygrapher's Most Important Gift ...

### People Lie!

By George Baranowski

Yes, I'm well aware that we as examiners want to bury the term "*Lie Detector*" in favor of "*Truth Determinator*," or "*Truth Determination*," and for the record, I am completely in agreement with that side of the team. I still cringe when someone from the public calls it a "*Lie Detector*," or our profession as being "*Lie Detectors*." But let's face it, the opposite of telling the truth is what? Yep, lying, and although we don't like to present our work in that fashion, most sources use our expertise to make sure the person being tested, is not lying.

Now it would obviously take groups of psychologists who make such studies

to investigate all the human psychology connected to why people lie. As examiners, I don't think we have that degree of psychological expertise to discuss that quality of cerebral science. But because of our training, and even more, because of our work experiences, we have obtained a good amount of knowledge, and understandings.

We might say that the history of criminal acts is sprinkled with crafty and seasoned liars. Many are criminals who spin lies and weave deceptions to gain undeserved rewards. Sometimes people lie to inflate their image, a motivation many might think is best to explain President Donald Trump's



assertion that he reported in the news that his inauguration crowd was bigger than President Barack Obama's.

I started thinking about this statement because of a good deal of what people are calling "*White House News*," seems to have brought a good deal of fabrications and falsehoods into our everyday lives. The concept that human beings possess a talent for deceiving one another shouldn't surprise us. I remember reading an article years ago that said researchers speculate that lying as a behavior arose not long after the emergence of language.

The ability to manipulate others without using physical force likely brought about an advantage in the competition to obtain resources, and even to the point of obtaining nuptial mates.

Let's face it, "*Lying is so easy, compared to other ways of gaining power.*" I got a kick out of a guy I tested years ago, who told me that he didn't like the term "*Lying*," and preferred to refer to this as, "*Just bending the truth a little.*" I have to tell you, that's the term I thought about when I first heard the weird term, "*Alternative Facts.*"

Of course, as we know, there's all kinds of motivations why the people we test lie, here's some I thought of. Probably the largest group lie because of:

"*Personal Wrongdoing or Transgression*" - Lying to try to get out of trou-

ble, or keep from getting caught.

Some lie for "*Economic Advantage*" - Lying for financial benefits.

Some for "*Personal Advantage*" - Benefits beyond money, power, position.

Others for just simple "*Avoidance*," - Lying To escape, to avoid being found out, or just plain to avoid getting caught.

There are some that lie for "*Self-Improvement*" - Like saying things to shape a positive image of themselves.

Some of course are "*Pathological*" - Have reality problems, or "*Malicious*" - Lying to purposely hurt people.

I'm sure there are tons of others, but let's say these are the popular ones.

In getting back to the White House Era problems, we could talk about President Richard Nixon, who denied involvement in the Watergate Scandal when he declared, "*I am not a crook*" during a nationally televised press conference. Other famous fibs might note when our current president stated on a number of occasions "*I won the popular vote, if you deduct the millions of people who voted illegally.*" It's been reported of course numerous times, that he won the Electoral College but lost the popular vote, and there's no evidence of any such voter fraud. Then there's President Bill Clinton, whose



also famous statement in 1998 was, “*I did not have sexual relations with that woman, Monica Lewinsky.*”

An example of “*Avoidance*” comes to mind that happened just a couple years ago by an American Olympics Swimmer during the Summer Olympics in 2016, who claimed to have been robbed at gunpoint at a gas station when in fact, he and his teammates, who were drunk after a party, were confronted by armed security guards after damaging property. I saw this on a TV news report.

In turning again to President Trump, there’s no surprise that one lie can lead to another and another, as evidenced. Much of the knowledge we use to navigate our lives comes from what others have told us. And of course, there has to also be a degree of trust. Without this implicit trust that we place in human communication, we would be paralyzed as individuals or examiners and even cease to have common or social relationships. I’m saying that we of course, also have to be trusting, and not absolutely hardwired, and refuse to believe or trust anyone at any time. Here’s where training and experience comes into play.

Of course, there’s still caution to talk about. Researchers have shown that human beings are especially prone to accepting lies that support their own views. There are still apparently a number of people who seem to

believe Donald Trump’s early belief in the claim that President Obama was not born in the United States, or the spread of other “*Alternative facts*” as Trump advisors called his inauguration crowd claims. The interesting point about this is that debunking anything like this does not demolish their belief. It’s obvious that there is a human factor in play, that if a fact comes in that doesn’t fit into their frame of belief, they will either not notice it, or ignore it, or ridicule it, or be puzzled by it, or worse yet, attack it if its threatening.

Early this year I found a published study that I think was from the University of Western Australia on all this that was pretty interesting. It documented the ineffectiveness of “*Evidenced-based information*” in refuting incorrect beliefs. It stated that in 2015, 2,000 adult Americans were presented with one of two statements: One was: “*Vaccines cause autism*” and the other one was, “*Donald Trump said that vaccines cause autism.*” (By the way, the study also noted that Trump has repeatedly suggested there is a link to this and autism, despite the lack of scientific evidence for it.) However, not surprisingly, participants who were Trump supporters showed a decidedly stronger belief in the misinformation when it had Trump’s name attached to it.

In looking back at all these issues, many of which we address everyday in our work as “*Truth Determinators,*” and to stop and think about all this, and





to realize the benefit we give to society, humanity, and even the world, becomes an obvious realization of the importance of our profession. What then might be the best way to impede the advance of untruths into our society? The answer is clear that we have to *“Strive to be the best, the most advanced and trained examiners,”* to combat this obvious traffic flow for deceit. Technology continues to develop, and we as professional specialists need to make sure we involve ourselves in these technological discoveries. We at the American Polygraph Association are blessed with amazing experts to keep us on track with ever developing technology for our profession. Raymond Nelson, Mark Handler, the efforts by Donald Krapohl, and the list goes on and on of individuals who over the years continue to work to upgrade technology, and regularly share their knowledge, innovations

and expertise. In addition, we are also blessed with excellent product manufacturing of polygraph instrumentation like *“Lafayette, Limestone, Stoelting and Axciton”* that are also working on modernizations and updates. A rather interesting discussion took place during a recent APA Executive Board teleconference, where the issue of the value of test scoring was debated. Significant information was presented during the discussion that the technology of computerized scoring algorithms involved in test conclusions, is absolutely and most strongly accepted by the scientific community, and well over human hand evaluation.

The point is that Technology continues to advance, and we obviously need to embrace advancement also.



# &#%!@Math: Hand Scores, Algorithms and Competing Opinions



**by Jared Rockwood <sup>1</sup>**

One of the important reasons for institutions like the American Polygraph Association (APA) is to allow those of us engaged in the practice to stay abreast of research and to refine our understanding and skills to keep us in line with best practice. Among the struggles with this mission is that people struggle to change their opinions and practice in part because of a psychological dynamic called confirmation bias. The basic premise of confirma-

tion bias is that we all have schemas, or preferred patterns of thinking, that shape what information we attend to and what we will ultimately think/believe. This is one of the reasons that politics and religion can be hot potato topics that are best avoided. People tend to believe what they believe, regardless of evidence to the contrary. I would like to take a minute to reflect on polygraph scoring, and more specifically hand scoring vs. algorithmic

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analysis as well as spot scoring vs. chart scoring on multi-issue screening exams. I will not be presenting a solution to the debate, only introducing the conversation as a way of processing my own internal conflict in these areas. The dialogue is the focus of this article.

I want to start this discussion using another psychological concept, the double bind. Schizophrenia is a fascinating psychological disorder where the mental barriers that separate reality from imagination are broken down. One way to think of it would be the blending of our nocturnal dream life with that of our waking reality. Psychology has a long history of blaming disorders on the conduct of parents, and the double bind is one of these theories. It is largely considered erroneous based on our current understanding of neurology and genetics. Nevertheless, the basic idea will be illustrative for the frustration I have found within polygraph data analysis. The double bind theory basically stated that schizophrenia was the byproduct of a family system where mixed messages were the norm. Where a child was presented with information about being loved and nurtured while at the same time being victimized. To illustrate, this would be like spanking a child severely, perhaps using a stick/paddle/belt/etc. while at the same

time telling the child "I am doing this because I love you," "I am sorry you made me do this to you," etc. There is a verbal message of affection at the same time that the child is feeling terrorized by the parent's behavior. This double message repeated over and over was believed to cause schizophrenia.

There is little doubt that the development of a numerical scoring system has revolutionized polygraph. It was one of the leaps forward in the profession that moved the psychophysiological detection of deception from being an impressionistic subjective process to a more scientific objective method. Global analysis of charts, where one takes a broad look at trends in the chart, has been scientifically proven to be far inferior to data analysis that uses specific scoring rules on all channels on each comparison and relevant question (CQ/RQ). The emergence of the comparative question technique (CQT) as the hegemon of polygraph is supported by research as to improved accuracy of using replicable scoring criteria. There seems to be very little doubt about this within the field, with the exception of some holdouts for the Relevant/Irrelevant Test (R&I).

When I was in the basic examiner's course it was very exciting to learn the steps to scoring charts. We were



trained in the empirical scoring system (ESS) and within days of learning how to score charts we would have virtual concordance on practice charts that were presented to the class. The instructors would project the chart onto a screen. We would individually score the charts and record our scores and outcome (DI/NDI). Then we would discuss our decision-making process as a class and come up with the “class solution.” In the first few days there would be a minority of people that would have opposite calls (or that would have inconclusive on a chart where the majority had either a pass or fail scores). Within a week or two of scoring charts as a class we were to the point where the inter-rater reliability was excellent. Virtually 100% concordance for decisions between all the examiners in the class (about 24 people).

After a few weeks of scoring charts, we were introduced to the concept of Relative Line Length (RLL) for scoring pneumos. It was interesting the amount of resistance that immediately emerged to this small change in our training. People would become highly frustrated that there were no visible features and yet RLL algorithms would score them. RLL vs. hand scoring became a contentious issue that increased the amount of debate in the class significantly. The reality was that using RLL or feature scoring rare-

ly changed the overall direction of the call (passed/failed), but it did affect the magnitude of the overall numeric score. The importance of highlighting this point is that it was the first double bind that emerged in relation to the  $\&\#\%!@$  math. It was my first experience debating between hand scoring (features) versus computer analysis (RLL). It was emphasized that you either use one or the other because cherry picking responses would introduce significant bias and variation, thus reducing the accuracy of the overall process.

My tendency would be to rely in the computer algorithms because my personal bias is that the observable features were simply manifestations of the dynamics being measured by the algorithm. For example, in RLL a slowing of the rate or reduction of amplitude would reduce the overall RLL in comparison to other spots. The lack of any visually observable features is not technically what predicts deception, but the change in the respiration rate, so therefore intuitively it makes sense that RLL would be a useful tool. That being stated the principle of “garbage in, garbage out” becomes salient in that a computer cannot adapt to poor quality of data, which should be excluded, regardless of which scoring system is one employing (hand/algorithm).



During my basic polygraph training I had the opportunity to score two different data sets. The first were charts that were quality controlled by my instructor, and the second were charts provided to me from the mentor that would supervise my yearlong internship as part of the licensing process in my state. In the first data set I compared my hand score to that of the computer (Stoelting CPS pro, N-155). When controlled for inconclusive results (IC) the inter-rater agreement between the hand score and the computer algorithm was 94%. For the same data set inter-rater agreement between scores compared to another person (N-116) was 98%. In a second data set, provided by my mentor, the inter-rater agreement between him and me (I did not calculate computer algorithm on this data set) after controlling for IC was 98% both for screening exams (DLST, N-48) and for diagnostic exams (Utah Single Issue, N-50). After engaging this exercise, I felt ready to move into practice where I would be making decisions about people's futures. I was optimistic that I was prepared for the task at hand.

During my internship I was taught that I should always hand score, and then check the computer algorithm. The ideal is that the two agree with one another, which is the case in the vast majority of charts. In the event

that there was an inconclusive in either the hand score or computer algorithm the final call is determined by the conclusive result. More challenging is a situation where there are cross findings. When the computer algorithm and the hand score point to opposite outcomes (DI/NDI). My mentor trained me to trust the hand score. Algorithms do not use the same scoring criteria as hand scoring nor do they use the same criteria from one system to another (Stoelting vs. Lafayette vs. Axciton vs. Limestone). Many rely on different Response Onset Windows (ROW) or use a mean comparison of all CQs vs. all RQs. These differences in calculation criterion tend to reinforce the idea that hand scoring be the differentiating decision tool for making a final call on exams.

After being indoctrinated to trust my hand score and preparing myself through meticulous comparison of both grand totals and spot scores with the hundreds of charts I previously mentioned, I felt prepared to make life changing decisions based on hand scored chart data analysis. Then, last Fall I was able to attend my first APA conference. It was very exciting for me to be able to attend these sessions and put faces to the names I read in many of the articles I had been exposed to in the Polygraph Journal and in the Polygraph Magazine. Many



of the biggest researchers in the polygraph world were providing seminars on the cutting edge of the industry. It was a truly exciting and exhilarating experience to be face to face with these great minds and bounce ideas around with the movers and shakers of polygraph. One of the take homes from my experience at the Las Vegas APA conference in 2017 was that the multi-issue math was confusing and contentious. There were many different competing opinions by different examiners and researchers and it left me feeling a bit disoriented/schizophrenic.

I remember in one of the conferences I attended the questions asked by the presenter were, “who is using spot scores to make decisions in multi-issues screening exams?” Not one hand went up in the room (that likely had more than 50 people). I will confess that I caved to the group-think of the moment and did not raise my hand, despite definitely using spot scores for making decisions on multi issues screening exams. That was the way I was trained in school and was then reinforced throughout my internship. I had never been exposed to the idea that there were viable alternatives. The presentation went on to discuss the fallacy of believing that questions are independent, or in other words stand-alone stimuli within the test. They

convincingly argued that there is an interconnection to the questions and statistically we are the most accurate when we look at the chart as a whole, versus independent spot scores to relevant questions. This coincides with the idea that I had been taught that we are not allowed to make decisions about individual questions but only a chart as a whole.

Now I will say that the argument was not black or white. Presenters were not saying that the only way to score a multi-issues screening exam is as a chart total, but they were saying it minimizes error. They argued that you can spot score or score chart totals but you have to understand that the types of errors that are made are a direct result of how you interpret the numbers. This information was hard to digest and disorienting. After multiple presentations that argued along a similar line I decided that I should move in the direction of a chart score, versus spot score, for the multi-issue screening exams in my own practice. Being in line with best practice is important to me and I wanted to not be reliant on my training alone, but on the research, to guide my practice.

The second earth shattering experience I had during the conference was an invitation to score the 100 diagnostic exams that are frequently used in



research because of they have confirmed ground truth. Being a bit of an arrogant over achiever I thought for sure I would be able to hand score better than the computer algorithms. In the face-off with the algorithm I learned that I was not as good as the computer. The computer scored those 100 charts with an accuracy rate in the low 90s. I personally scored them with an accuracy rate in the mid 80s. Outside of being an ego blow, it was an eye-opening experience that perhaps I should put greater weight on the computer algorithm than I had to that point. The evidence suggests that perhaps when there are opposing calls I should not rely on my own hand score, but instead on the computer algorithm. That cognitive shift has been difficult to put into practice.

Within the first week of returning to my private practice I completed a PC-SOT multi-issue where the chart total was passing, but the spot score in one of the areas would have been a failure based on the way I had scored up until the Vegas APA conference. I made the decision to call the chart total in line with what I had learned at the conference, and ignore my impulse to fail him as I had been trained with spot scoring on this style of test. The problem is I second-guessed myself for days after that exam. I could not shake the feeling that the examinee

had gotten away with something and I questioned the decision to abandon the practice of spot scoring RQs on these multi-issue screening exams.

After this experience I have periodically wrestled with the competing concepts of spot scores versus chart scores on multi-issue screening exams. I have never struggled with this same concept in a single-issue exam because the questions are overtly non-independent, but when addressing disparate issues in a screening exam the clear nature of the interdependence is more abstruse. Hence the double bind I described at the outset. The debate between hand score vs. algorithm, or spot score vs. chart score has created a schizophrenic double bind in my mind.

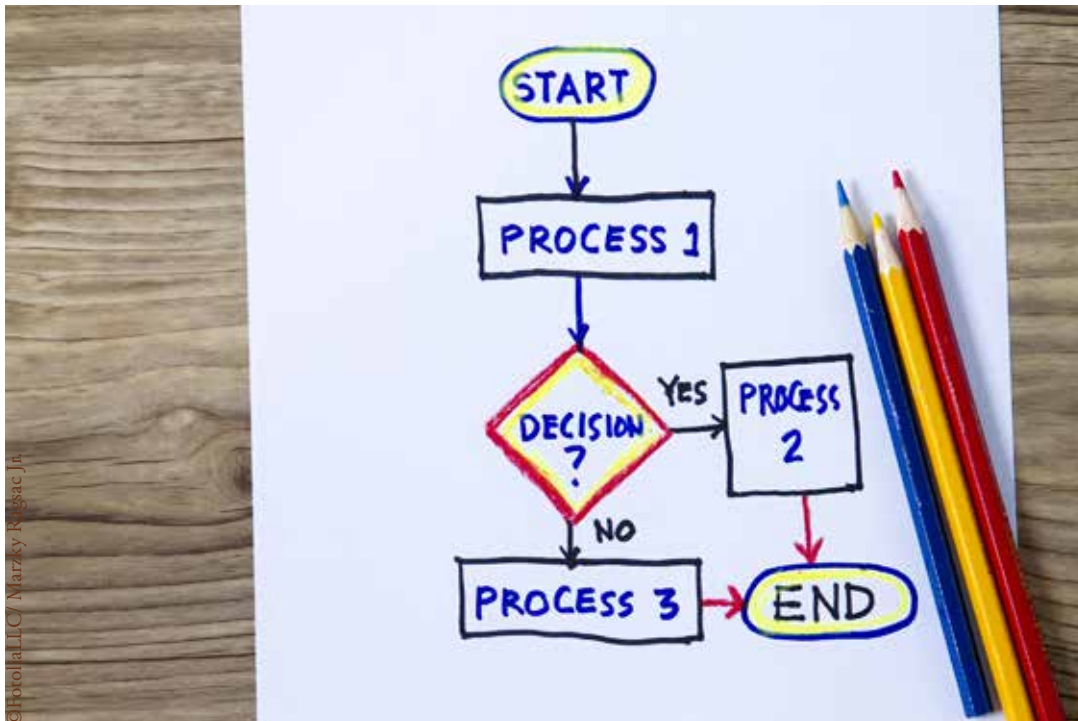
In discussing these issues with friends and colleagues in the field there seems to be a general bias towards hand scoring over computer algorithms, and to spot scoring in multi-issues screening exams versus chart scores. I have heard an argument specific to DLST that unless chart scores versus spot scores are studied specific to that type of test we should use the spot score in the way the DLST was originally designed. This thinking feels a bit myopic to me only because the general principles involved in polygraph are more similar than they are



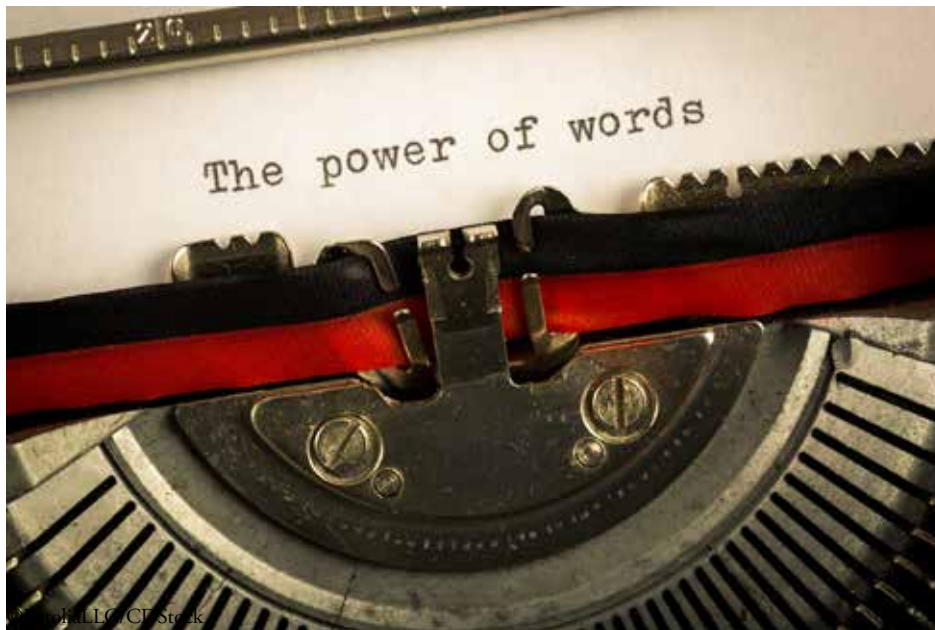
different. The general concept of how CQT tests function is constant. The theoretical underpinning is the same. Research likely does not have the luxury of breaking each layer of research into specific techniques (MGQT, DLST, etc), nor would it be necessary as the theoretical operations are the same.

I have doubts that these questions regarding math will be resolved with unanimity. That stated, I think that having a dialogue about what we are doing and why we are doing it is healthy for the industry. In the end I am hopeful that research will be the

guide as to how to resolve these problems and not just the traditions from which we were indoctrinated (confirmation bias). I don't know that there is a "right answer," but for now it is worth recognizing that using numeric scoring significantly increases the accuracy of our predictions. Math therefore will always be an integral part of what we do in polygraph, and therefore being aware of the costs and benefits of different choices in these areas will be important as we articulate to consumers of polygraph the decision making process and overall accuracy of the tests we administer.



# The Seeable Objective



by Erika E. Thiel and Mark Handler

The concept of the “see-able” object should be no stranger to any competent polygraph examiner. However, tests are often conducted in which this vital aspect of the polygraph is omitted. This comes down to grasping language skills that revolve around the basics of nouns, adjectives and verbs. Disregarding basic sentence structure (and how it is absorbed by the brain) could lead to an increase in false-positive test results.

## The Basics:

Sentence structure may be something you slept through in elementary school, clearly not everyone’s favorite class. Nonetheless, this is something that we must pay attention to when

creating strong, direct relevant questions. Perhaps a little review may be in order.

Nouns are the person, place or thing within the sentence. It is who or what or where the sentence is about. *John Doe excitedly went to the big Store.* There are two nouns in this sentence. John Doe and Store. Verbs are the actions that are in the sentence and cannot be present without the noun. *John Doe went to the store.* In this sentence, the word “went” is the verb. Adjectives are descriptions words. The descriptor “big” is the adjective in this sentence as it describes the store. Adverbs are word that modify the verb, an adjective or even another adverb. They often end with the letters *ly*. For



our sentence, *excitedly* is the adverb that modifies the verb *went*. It describes how John Doe felt when he went to the store.

### **Why is this important?**

Re-read the whole sentence on its own.

*John Doe excitedly went to the big store.*

What did you feel happening within your body? If you are unsure read it again and pay attention to where your brain goes and what you feel happening. Was it curiosity? Did you feel excited with John? Were you frustrated that you did not have more information about why John was so excited? All of these answers are possible and possibly correct. It is also possible that you felt disinterested because unless John was excited about going to the store to buy you something, it didn't matter to you. All of these thoughts had the ability to produce some kind of feeling within your body which could have happened in your chest, in the way you breathe, in your skin, in your heartbeat... sound familiar? If the question got you thinking, then your body was likely producing a reaction. Were you the subject of a polygraph, your examiner would identify these responses and compare them to another reaction within a chart to attempt to ascertain if you were likely telling truth or if you were lying to the target questions.

### **So, what is happening in our brain?**

This answer may not be as easy to answer because we are all different (which is part of the reason we have the margin of errors built into scoring models like the ESS.) We process the question and our brain begins to associate it with other sentences that we have read or heard before. We try to understand the question and the appropriate response we should have. If you are someone who loves to shop, you may share in the excitement about shopping. If you hate shopping, you may scoff at John and think of how ridiculous he is being. The more complex the question, the more your brain has to find associations to make you feel the proper response.

*John Doe excitedly went to the big store.*

*John Doe excitedly went to the big store to buy a gift.*

*John Doe excitedly went to the big store to buy a gift for a loved one.*

*John Doe excitedly went to the big store to buy a gift for a loved one he had not seen in a while.*

Each of those sentences likely got you thinking about different situations. Go back and re-read each sentence and see where they take you and how you feel. You may find you have the least amount of association (that caused emotional reactions) to the first sen-



tence and had the most amount of association to the question you could relate to the most. That is probably the one that caused the most positive emotion (because it went really well) or negative emotion (because it did not go as well as you hoped). Now, if we remove the adverb, notice what happens to the image that comes to your head:

*John Doe went to the big store.*

*John Doe went to the big store to buy a gift.*

*John Doe went to the big store to buy a gift for a loved one.*

*John Doe went to the big store to buy a gift for a loved one he had not seen in a while.*

You may still relate to those statements, but they have become more factual, thus not painting a fully descriptive story imbued with stronger emotions.

### **Why is this important in polygraph?**

Pick out the sentence that you related to the most with the adverb. Think of the situation that came up and remember it in full detail and notice what your body is doing. Positive or negative, you may notice that your breathing has changed a little bit, your heart rate may be increasing or even decreasing, you may feel tingles

in your skin, etc. All signs that your body is having a reaction.

The more descriptors you put into your sentence the more a person can paint the story; however, the story may be untrue. What does excited look like? To one person it may just be a fast pace walk, for others, it may be a skip, for others a run. If we had a round-table discussion about what excited looked like for each person, we would have a “polygraph shutdown” and never come to an agreement. This is true for most adverbs and adjectives and is the very reason why they should be left out of the relevant question when possible.

### *Scenario 1*

You were at the scene of a jewelry store that was burglarized. The only thing that was taken was a gold necklace. The cops ask you to take a polygraph and you consent. Your statement is fairly simple, you were only in the area because you had just gotten lunch. You stopped into the jewelry store to look at engagement rings but then left because you realized picking out a ring was something better done with your fiancé.

Pick out the question you think you would have a fairer chance of passing:

Option One: Did your hand touch that necklace?



Option Two: Did you steal that gold necklace?

Option Three: Did you take that gold necklace with diamonds?

All three of these questions are technically acceptable relevant questions to ask and some of you may have used questions with similar verbs in a criminal investigation, pre-employment, or PCSOT testing. Now repeat the exercise we have been doing throughout this paper. Re – read each question and after each question pay attention to where your brain went to and what your body felt.

Now some of you may say “I never touched any necklace, so I don’t feel anything towards these questions.” However, the exercise is not “how do you feel about the question?” The exercise is “what is your brain doing?” When you read the simplest form of the question, your brain likely did not come up with much. Your brain is not making too much of an association with touching a necklace. However, when we start adding the adjectives about the necklace, you probably started imaging a necklace you have once seen that was gold with diamonds that you have touched. When you read the word “steal” you may have imagined quickly about what you would do if you had stolen something. All of these are natural ways for a brain to go, but the more we are thinking about the descriptors, the more reaction we are

going to produce. Let us add onto the question again:

Option One: Did your hand touch that necklace in that jewelry store?

Option Two: Did you steal that missing gold necklace from that jewelry store?

Option Three: Did you take that missing gold necklace with the diamonds from that jewelry store?

All we did was add in the jewelry store, but our brains are starting to paint more of a picture. It is likely that reading this paper, you all envisioned a jewelry store that you had been to at some point in your life and maybe even recalled a gold necklace with diamonds in the store. The memory may be a good one or a bad one, but either way you are having some kind of a reaction to your trip down memory lane.

Again, all of these questions are acceptable questions, but it is important to realize yourself how the body works when hearing these questions so that we are not creating false reactions.

*Scenario Two:*

You are working with a sex offender and he is denying his offense. The victim reported to the police that he forcibly raped her. She was an unknown adult female. You bring him in for the instant offense and he reports he



understands that she stated that she was pulled into the alley by your client and that he held a knife to her throat, pulled her pants down and inserted his penis into her vagina. He reports that he walked past that alley way on his walk home from work everyday. He reported that she was in the alley way with a different man and it appeared they were having consensual sex but reiterated it was not him, and he never touched her. Let's look at some of our options:

Option One: Did you have any physical contact with that woman?

Option Two: Did your bare penis touch that woman's bare vagina?

Option Three: Did you forcibly rape that woman?

Option two and three will likely paint a stronger picture for the client because he might start thinking about the fact that his penis was not touching her vagina, but that another man's penis was touching her vagina. He may react strongly to question three because of the inflammatory language used (especially if he did not do it). It would be harder for the honest person to pass question two and three.

### Scenario 3

You are testing a sex offender who admits he had sexual contact with the person identified as the victim, but states that it was consensual sex. She states she told him "no" and to stop several times, but he threatened her after each form of verbal resistance by stating "*I will kill you if you do not stop saying no*" and continued with the sexual acts.

Option One: Did you continue with any sexual act with that woman after she said no?

Option Two: Did you ever tell that woman you would "kill her if she did not stop saying no?"

Option Three: Did that woman resist you any way during sexual contact?

All three of these questions again may be acceptable questions. The third question will likely be the question that causes the strongest reaction because it does not address the "see-able" act in the scenario. Questions to avoid (although still not technically wrong) would be:

Option One: Did you rape that woman?

Option Two: Did you threaten that woman while having sex with her?

Option Three: Did you force sex on



that woman after she said no?

The descriptive words in these questions circle back around to the concept of “what is excited?” Whose perception are we going off for these questions to be correct? The first set of questions address the see-able behavior in the following manner:

Continuing with a sexual act after the woman said no – if we were a fly on the wall, we would all hear her say no, and we would all see him continue sexual contact if he truly did.

Did you ever tell that woman you would “kill her if she did not stop saying no.” – if we were a fly on the wall, we would hear her say no, and we would hear the statement from the client to follow.

Did that woman resist you in any way during sexual contact – (again this is not a strong question) but if we were

a fly on the wall, we would see sexual contact continuing when she resisted in a manner *that we could see or hear*.

If we were a fly on the wall during the second set of questions then we are back to a “polygraph shutdown” as we would all have to agree on what “rape” looks like, what a “threat” sounds like, and what is considered “force.”

To recap, none of the questions would disqualify your polygraph from being a valid polygraph. The purpose of this paper is to promote an understanding of how emotionally provoking questions can be a source of problems. When we do not break down our relevant question to the most basic form and focus on what we can perceive (see, hear, smell, touch, feel or taste) we leave our subjects more vulnerable to false positive results.

Never forget to have a fly on the wall: you owe that to your test subject.



# Five-minute Science Lesson: Review and Discussion of the American Statistical Association's

## “Statement on Statistical Significance and P-Values” and Polygraph Test Results



by **Raymond Nelson**

Scientific experiments and scientific tests are used to investigate questions that cannot be answered through simple and perfect deterministic observation or through direct physical measurement. Scientific results and conclusions often take the form of a statistical or probabilistic value. In practice these results often take a dual form of categorical conclusion – typically either “positive” or “negative” along with a probabilistic value. The p-value is a commonly used – and commonly abused – probabil-

ity metric used to describe scientific conclusions. Formally, the p-value is the probability for a given statistical model when the null-hypothesis is true. What exactly does this mean? What does it mean for the polygraph test? Understanding the meaning of this requires a careful understanding of the process of acquiring scientific evidence and scientific knowledge.

Scientific conclusions are made by analyzing the evidence for different possible conclusions. This is the basis for



null-hypothesis test. Whether in the formal context of null-hypothesis significance testing or other context, all scientific conclusions are made with regard for how the evidence may be compatible or incompatible with different possible conclusions. This is the basis for polygraph test data analysis, in which the probabilistic evidence for a conclusion of deception is weighed against the probabilistic evidence for a conclusion of truth-telling.

Statistics and data analytics are the mathematical language upon which analysis relies. For this reason, it is important to understand what different statistics are capable of telling us. One commonly used, and commonly misunderstood statistic is the p-value. Formally, a p-value is the probability, when the null-hypothesis is true, that the data would produce a result of similar or greater magnitude than the observed result. P-values are used commonly in many fields of science, research and testing, and have been the subject of controversy due mainly to the difficulty in understanding p-values.

The p-value has proven to be an imminently mistakable concept for many – unless adequate training and time are devoted developing the correct understanding and intuition about its use. This difficulty has led to frequent misuse and abuse of p-values, both within and outside the scientific community. To better understand the

meaning of p-values, the American Statistical Association has published a statement of six principles. That statement can be obtained at:

<http://amstat.tandfonline.com/doi/abs/10.1080/00031305.2016.1154108#.Vt2XIOaE2MN>

Here we consider the meaning of these principles in the context of polygraph test results.

1. *P-values can indicate how incompatible the data are with a specified statistical model.*

Smaller p-values indicate a greater incompatibility between the data and the specified model. For polygraph algorithm such as OSS, OSS2, OSS-3 and ESS, the statistical model is the normative reference distribution (i.e., data tables) that are assumed to be representative of the populations of all guilty/deceptive or innocent/truthful person. Because polygraph results are a choice of which of two possible conclusions is better accounted for by the available data, the p-value for a polygraph test result will express the probability that a deceptive test result was produced by a member of the population represented by the truthful reference table. Similarly, a p-value



can express the probability that a truthful result was produced by a member of the population represented by the deceptive reference table.

2. *P-values do not measure the probability that the studied hypothesis is true, or the probability that the data were produced by random chance alone.*

A p-value is probability statement about the data, not a probability statement about a conclusion or categorical test result. In polygraph testing a p-value cannot represent the probability that a deceptive or truthful result is correct. Polygraph examiners should not attempt to portray the mathematical complement of a p-value ( $1 - p$ ) as a confidence level or probability that a deceptive or truthful conclusion is correct. Neither can a p-value represent the probability that a deceptive or truthful result is incorrect. A p-value is an estimate of the proportion of proportion of persons from the population represented by the other reference distribution that are expected to produce a similar or more extreme score.

3. *Scientific conclusions and*

*business or policy decisions should not be based only on whether a p-value passes a specific threshold.*

Practical decisions about deception or truth-telling should always be made with full awareness for the test referral context. Categorical and probabilistic test result from diagnostic polygraphs should always be considered alongside other available evidence. Screening polygraph results can be interpreted with consideration for known incidence rates in addition to inform about the practical or economic costs associated with test sensitivity, specificity and testing errors. Practical decisions and contextual awareness around polygraph results may also include attention to the quality of the test administration, interpretable quality of the test data, and factors related to the physical condition, level of functioning and suitability of the examinee.

4. *Proper inference requires full reporting and transparency.*

To avoid problems from p-hacking and data-dredging polygraph examiners and data-dredging examiners should report when



an examination was subject to analysis using multiple evaluation protocols or multiple analysis algorithms – especially in circumstances when there may be disparity between different analytic results. Polygraph examiners should provide a description of the analysis method and make use of all available data in a manner consistent with published information on test development, test administration, and test data analysis. For example, it would be incorrect to exclude some data from the analysis simply to achieve a deceptive or truthful result, or to avoid inconclusive results. Valid interpretation and correct use of polygraph examination results cannot be accomplished if information critical to the result is withheld from others – including recorded test data, test stimulus questions, audio/video recordings that enable the observation of the pretest interview and discussion, and sufficient referral information to determine the adequacy of the test target selection.

5. *A p-value, or statistical significance, does not measure the size of an effect or the importance of a result.*

The term effect-size refers to the phenomena that we want to measure or quantify. The purpose of scientific tests is often to quantify phenomena that cannot be measured directly or physically, and so scientific test results are fundamentally probabilistic. Formally, a p-value is not a statement about the effect-size of interest. A p-value is a statement about the data itself – with the understanding that data can be noisy and variable even when reality (i.e., the phenomena of interest) is often thought to be fixed or to exist in only one way. Just as physical measurements have measurement error and associated tolerance, probabilistic measurements are also variable. A p-value is a probabilistic description of the data if the phenomena of interest exists in a manner that is represented by a particular mathematical or statistical reference model. For this reason, p-values for polygraph test results cannot be taken as a description of the probability of deception or truth-telling.

6. *By itself, a p-value does not provide a good measure of evidence regarding a model or hypothesis.*



Because a p-value cannot be interpreted as an effect size, neither can it be interpreted as a measure of probabilistic evidence that the data fit a model or hypothesis. As stated earlier, a p-value is a measurement of how in-compatible the data are with a model. In the polygraph testing context, where the objective is to select one of two possible conclusions, this means that a p-value – an expression of incompatibility with the model or conclusion not selected – cannot be interpreted as measure of compatibility with the conclusion that is supported by the test data.

Understanding the p-value – a statistic that has been central to the scientific method and null-hypothesis significance testing throughout most of the 20<sup>th</sup> century and early 21<sup>st</sup> century – has been an enduring challenge in all areas of science and data analysis. The p-value has been a source of confusion and contro-

versy since its inception – mostly due to its propensity for being misunderstood, but also for his vulnerability to abuse. Those abuses can include p-hacking, multiplicity (multiple comparisons), and misrepresentation of the p-value as a measure of effect size, as well as other potential problems. It is hoped that this brief review of the American Statistical Association’s “Statement on Statistical Significance and P-Values” will prompt awareness and discussion about the need to clearly understand and discuss the meaning of scientific test results such as those from polygraph testing of deception and truth-telling. One aspect that has not been discussed herein is the various suggestions for replacing p-values with other statistics more suited to use as a direct measure of effect-size, including: confidence-ratios, odds, likelihood ratios, Bayes factors and others. These will have to be the subject of other manuscripts.

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# Care and Feeding of a Polygraph Examiner



by **Kenneth A. Stauff**<sup>1</sup>

Starting my fifth year as an examiner, I look back on what has kept me going for the past several years. In January 2014, I was hired to a team of six examiners that exclusively administered Post Conviction Sex Offender Testing (PCSOT) examinations. I was immediately sent to polygraph school and upon my return, started testing. Since then I, like all members of the team, average nine full examinations per week. We test three clients per day, three times per week, sometimes more. As any experienced examiner knows, this

process brings an exorbitant amount of client pre-test paperwork and case review, in addition to the actual time with the clients and post-test work. There is no automation of any of these steps in our program.

Our team has seen a half dozen people come and go in the last few years. Some never made it through polygraph school and we have seen others leave to pursue careers outside of polygraph. When I was hired I was told that most examiners don't last more

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<sup>1</sup> The opinions in this article do not necessarily reflect the opinions of any organizations the author is a member of or employed by.



than about 18 months before burn-out takes hold. At this point, the three people who have been here longest (myself and two others) have all been here a minimum of four years with several thousand tests completed. The rest of the examiners have two years or less experience. You're probably wondering: what makes people stay?

For me it has been variety. Approximately one year into working as a PC-SOT examiner I started my own private side-business to expand my horizons. I became certified by the State of Connecticut Police Officer Standards and Training Council to perform pre-employment examinations. Continuing education has also been a source of relief from the daily grind. I have attended Post Conviction Domestic Violence Testing (PCDVT) polygraph classes, Advanced PCSOT training, conventions and seminars. I have administered examinations for criminal defense attorneys, police investigations and even dreaded fidelity testing. It has kept my routine interesting. I also started with contracts with local cities for pre-employment polygraphs. In our busiest season, this increased my client load to 15-20 per week and over 60+ hours per week. The advantage of PCSOT testing is that there is variety. Pre-employment has the same steps, the same interviews, the same test methods used with only minor changes in the admissions being made. When doing PCSOT examinations my day can bring three differ-

ent tests with three vastly different reasons for testing. Our organization administers Instant Offense Examinations, Full Sexual History Examinations and Maintenance Examinations. We rarely administer any other type of PC-SOT examination that is described in the APA Model Policy.

I have worked many jobs: factory production, office work, police officer and more. A common factor through it all is that most of the workplaces didn't care much for employee moral or support. They expected you to punch in, do your work, and punch out. It was strange to be hired to a company that was so clinically focused. The PCSOT team I work for is a very small part of a large community services organization. Our team is integrated with approximately 30 clinicians who treat sexual offenders released on probation and parole. The nearly 40 of us that comprise the polygraph and clinician teams are only a small part of a much larger organization that employs several hundred. Admittedly this was not a place that I thought would put much stock into employee well-being – but they do! Prior to becoming an examiner, I never put much thought into mental self-health; I always thought that anyone should just be able to “man up” and push through it.

When the company I worked for started mandating trainings and conferences I attended a Trauma-Informed



Care workshop. This training (among other topics) dealt with making sure you, the examiner, the clinician, the social worker, the employee, were taken care of from a mental health standpoint first. Their thought was that we needed to be the best we could be before we could give our clients our best. I have since attended multiple trainings on various topics mandated over the years, but they do keep coming back to a central theme of making sure we had adequate mental health.

By now, I've digressed to a point that most of you are wondering how this related to the polygraph. Being a PCSOT examiner means dealing with some pretty heavy subjects. Not everyone can sit across the table from someone who has been convicted of molesting his three minor children and pimping them out to dozens of people over a decade. Many people would want to do anything other than sit down and discuss their sex lives and how they are successfully reintegrating into the community. Even fewer people would want to make this their career and there can be a lot of burn-out if there are not coping mechanisms set in place.

Walking down the hallway of our organization the six polygraph examiners are in one office, and there are various group offices for clinicians further along the hallway. Our coworkers commonly do not understand why our room is always filled with

laughter and joviality. Our organization has all polygraph examiners and clinicians in the office for collaboration meetings every Monday. Many people are perplexed at why we could have a good time with the subject matter. One of the coping skills our team has developed is a sense of humor - though sometimes dark. If we didn't laugh at the absurdity of some of the things that happen we would just break down. We have seen it before and continue to see it throughout the field. Another thing we are able to do is "vent" to each other. Sometimes, people just need to discuss the things they experience. There are times that we share a client's ridiculous attempt at countermeasures that just spectacularly fail.

This is not to say we do not take our jobs seriously - we do. I would put this polygraph team against any in the country in terms of professionalism, how hard we work and what we do. But sometimes the most bizarre things happen. A client once said to an examiner on the team, "I didn't stab her, I just poked her a little bit." I've had a client who was instructed to get comfortable in his chair, so he started to take off his pants (please note he was instructed to keep his pants on). In my experience, clients will constantly blame the victim and flirt with examiners (regardless of gender), among other inappropriate behaviors.

People need to find a coping mecha-



nism that works for them – whether for “heavy” work or for large quantities. I have a wonderful wife who supports what I do. I have a great group of co-workers that all know we can depend on each other. The people on our team have a variety of hobbies from motorcycles and fast cars to video games, dogs and sports. We are all very different people but one thing we all try hardest to do is to separate work and personal lives. To me, that has been the most important thing to keep going through all the work and all of the client issues. Leave work at work and make sure you have a healthy home life.

Taking advantage of training opportunities is another excellent way to alleviate burn-out. I have been fortunate to attend several Connecticut Polygraph Association training seminars and attend the American Association of Police Polygraphists convention when it was in Connecticut. We have also had the pleasure of bringing several well-known examiners into our company

for multiple day trainings. As of this writing we are having an interviewing training refresher to earn our APA Continuing Education Units. A week away from clients always leaves us refreshed and ready to get back to work.

So how can an examiner keep their head above water? In a word: variety. Try to keep things interesting. Try new things with your work. Keep your work out of your personal life. Whatever you do for fun, for family or for work make sure you keep it healthy and know that you and your family must come first. Work will always be there, no matter how much you prepare for future clients and paperwork. There will always be more work. Keep your work out of your personal life. Whenever possible, put some variety into your work to keep it interesting. Most importantly, make sure you have a healthy support system in place from your coworkers and your family. Above all else, put yourself first.



# Crime is an Event, Criminality is a Trait

## Learning What to Target in the Interview



by **J Patrick O'Burke**<sup>1</sup>

You may have lived under a rock the last few years if you fail to notice that the concept of “interrogation” has been widely criticized, if not outright rejected. Some of this criticism is probably deserved, yet some of it not. Most of the criticism is centered around blaming the particular methodology used by the interviewer. However, it seems as unfair to blame the interview method as to blame the songwriter and not the singer when egregious blunders occur. Perhaps we should consider that it was not the particular methodology, but the interviewer’s failings that led to the bad outcome. Clearly,

confirmation bias that helps the interviewer ignore facts contrary to his conclusion, and prolonged questioning of suspects who are mentally vulnerable are the two likely culprits. However, it seems obvious that most professional interviewers would be aware of cognitive bias and routinely use tools like analysis of competing hypotheses (ACH) and substantive statement corroboration before accepting any confession.

As far back as Aristotle, it has been recognized that people can be prone to errors in logic and reasoning. In

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<sup>1</sup> Conflict of Interest Statement: The author is a polygraph school instructor and the author of the “Validated Interview Technique”



fact, in soft sciences like behavioral research, it is recognized that research does not “prove” anything, only that things may be disproved. Tools such as the null hypothesis were designed to help researchers not be trapped into believing that which they wish to believe. In the null hypothesis, you try to prove that two variables do not have a relationship, and if you fail, then it can be assumed that there is some relationship. Conversely, the investigator is normally focused on trying to prove that the suspect did something, a likely trap. Would it be uncomfortable to try and prove your suspect did not commit the crime, and in failing to do so that the suspect did the crime?

Looking for methods to battle confirmation bias, Richards Heur developed the ACH to compel the investigator to look at alternative hypotheses, as well as thinking about faulty evidence, to fully consider their analytical conclusions. For example, did anyone consider other possibilities about Iraq having Weapons of Mass Destruction, or that key evidence was flawed in making assumptions? Substantive corroboration of a confession should also be considered an analytical tool to help combat interviewer confirmation bias and ensure that the interviewer is not simply satisfying an internal need for closure. If you cannot corroborate the confession, then perhaps you should consider rejecting it. This may make some feel uncomfortable. As such, I am going to write a series of articles

regarding alternatives we teach in interview technique in overcoming bias and what to issues to target first in a behavioral intervention with a suspect.

For the last thousand years, the prevailing method to elicit a confession was probably some form of torture, duress or the use of things described as trial by ordeals. No doubt they were efficient and produced information. However, using faulty methods comes at the exorbitant cost of false confessions and loss of credibility for the interviewer. Following the comprehensive evaluation provided by the 1931 Wickersham Committee reports, law enforcement began the slow but deliberate withdrawal from the use of “third degree” methods. The IACP response to the accusations of widespread abuse in the Wickersham Report was that 1) no one used those abusive methods, and 2) that law enforcement could not do without them. You can draw your own conclusions from that conflicting response. No doubt, the interview method of behavioral analysis and nine-step confrontation developed by John Reid and Fred Inbau was designed to eliminate harsh interview methods and the most predominantly taught interview method in America.

The United Kingdom also experienced similar poor outcomes from police interviewers. The PEACE Method was thus developed and is widely used in the United Kingdom where the Reid



method for confrontation is outright rejected. The PEACE Method is a narrative style that does not involve confrontation, which seems foreign to American law enforcement. However, in the UK a suspect can be asked questions and their refusal to answer can be admitted into court, as well as a suspect's untruthful responses. This works well in the UK legal framework but would seem to have limitations in American jurisprudence. At some point, I draw that simply asking narrative questions in the PEACE method is limiting, and yet direct confrontation in the Reid method has become tainted. It seems intuitive that something in between may be useful.

It is not that well known that Hans Scharff was one of the most successful interrogators for the Germans during World War II. Scharff used a technique that has been referred to as "perspective taking" which avoided any of the harsh methods normally associated with wartime interrogation. Raymond Tolliver has an excellent book about Scharff that should be read by every serious interviewer. This concept is supported in our training as I advocate that during an interrogation that the interviewer should never ask why the suspect did the crime. I frequently see interviewers expressing how baffled they are at the motivation for a suspect to have committed a crime. My analogy is, think about what you tell someone who asks why you love police work so much. If I must tell you,

you will probably never understand. So, for the interviewer to ask why is to inform the suspect that the interviewer completely does not share his perspective. We can agree that people reveal the most information to those we respect or trust, then how do you accomplish that if you exhibit an obvious lack of understanding the suspect?

Perhaps, this a good place to discuss deviant behavior, as well as how we define bad, and correspondingly evil. Do you see occasionally see your suspect as bad, or perhaps even evil? Do you define someone as bad when they have violated the law and are now a criminal? Without thinking, many of us would say "yes". I recently sat in a training course where the instructor said repeatedly, "who cares what he thinks, he's a sex offender". Would you confess to that person? If you were talking to a person would you ask how they got to be fat? Do you think they don't know? Thus, consider when and how the suspect got to that place in his life. Is it nature or is it learned? If you had lived the trauma of their life how would you respond? If this is confusing, think about the differences between a terrorist and a freedom fighter. If you say it is someone who damages another's property, or another people for political purposes you would not be alone. If this is your definition, then what do you call the Boston Tea Party, or perhaps even the American Revolution?



Taking our discussion further, how do you now define evil? As an example, many will say anybody who commits murder. Yet, I know people who have committed murder and I do not consider them evil. They may have done a terrible act, but I would not call them evil. Could you understand the parent of a sexually abused child who wanted to dole out the ultimate penalty to the offender who hurt his child? So, who or what is evil? Charles Manson will come to the minds of many in our courses. I would agree, however let us consider him. Manson was born to a 16 year old unwed mother, and a father who abandoned him. Manson's mother raised him around a variety of low-life miscreants involved in drinking and petty crime. Manson became involved in petty crime and was sent to a strict reform school at a very young age where he was repeatedly raped by older boys. Manson later claimed to develop the "insane game" to convince others he was so crazy they would not assault him. He later escaped from the youth facility and went on a crime spree. By the time he was 32 years old, Manson had spent half of his life in institutions or prisons. This was the path until Manson created a cult family who would worship him and murder for him. Understand, I do not want to bestow any sympathy at all on Manson, but where did bad end and evil begin?

If such an evil suspect were in your interview chair, what would you want

to talk about? Almost universally, we bore in for a confession on the crimes that were committed never understanding who they are. I am not so sure this is best. The crime is the result of the chaos that preceded it. Crime is an event, but criminality is a trait. If I cannot understand this person how do I take on his perspective? I interviewed a suspect about a murder in a Texas prison. The suspect, a short white male had stabbed a black inmate to death and then began howling like a dog and crawling around licking the blood off the floor. As I talked to him I understood he was not that crazy at all. He explained, "I want all of the "mother f...s" in here to think I am crazy so I aint never getting raped". Not so hard to understand. Yet probably overlooked is how did he get to be in front of me and why consider that a rational response. So, here is a guy named Manson who learned to adapt to his world by acting crazy to control his world. He may have obtained exactly what he wanted from his perspective.

So, what other alternatives exist to talk about if not the crime itself? Consider the book Pete Earley authored, the Serial Killer Whisperer, which is a true story about Tony Ciaglia. Ciaglia suffered a traumatic brain injury as a 16-year-old teenager from a wave runner accident. Not being able to function well, Ciaglia began to write to more than forty serial killers in prison to occupy his time. Ciaglia only wanted to talk



about his feelings of intense anger and share his personal problems that were consuming him. Many of these killers then began to write back and open up to Ciaglia revealing crimes they had not confessed to. Sharing Ciaglia's feelings for uncontrolled anger connected him to some very bad people and they felt more comfortable talking about their crimes. Many of these serial killers had abusive and traumatic backgrounds that are hard for us to understand.

A lot of those killer's lives parallel the abuse found in Manson's life. One of the serial killers Ciaglia befriended was Joe Metheny. Metheny was a notorious serial killer who ate portions of victims and is reported to have sold human flesh in barbecue sandwiches at a local sandwich stand. Metheny shared with Ciaglia that he always kept a cup of his own excrement in a cup under his bunk. Metheny told Ciaglia that he kept several sharpened pencils in the excrement for months to prepare them for use as a prison weapon. Metheny said that he wanted to be able to use the pencils to jab them into another person's body. However, there is no evidence that Metheny ever did this. In a book report I wrote, I made the observation that Metheny was fantasizing about how he visualized his own life. Metheny saw his life as that cup of excrement and that he was the pencil. Can you relate to that?

As forensic interviewers, can psycho-

logical and criminology theories help to understand a suspect's behavior? Normally, we should define behavior as simply something done to get the person what he wants. Sometimes behavior is done in socially acceptable ways, and sometimes not. Perhaps it is more important to understand what the suspect wanted to achieve than what it is they did. As well, there are always consequences to behavior, some are good, and some are not. If the consequence to a bad behavior is not that bad, or is even good then it may be repeated. So, we should see behavior as A-an Antecedent, B-a Behavior, and C-a Consequence. Within criminology, there are many biological, sociological, rational choice, and cognitive theories that attempt to explain this ABC relationship for why people do things.

Criminologists such as Cesare Lombroso believed that criminals were always born. While most biological theories have been found lacking, some still linger. There are recent developments that correlate brain injury and a lack of prefrontal cortex development suggesting it may be linked to psychopathy. Hauser (2016) contends that neuroimaging science is just now helping us understand how brain injury may be related to an inability to control anger and behavior. You need only look at CTE among professional football players to see this potential. However, most theories for violence and crime are related to social learning.



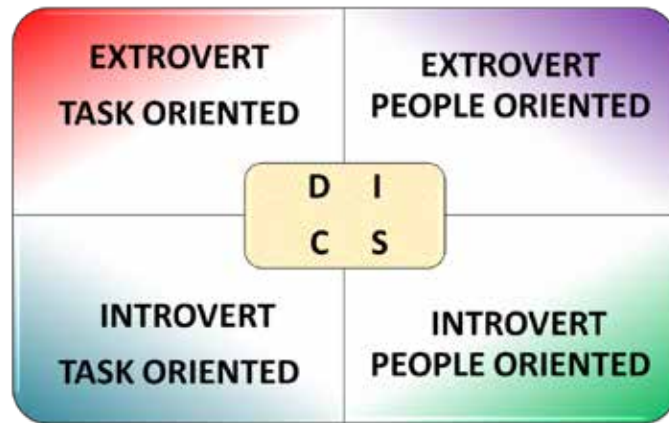
Other criminology theories show that juveniles commit a lot of crime yet are most likely to age out of this behavior. These theories fail to support the idea that crime is linked to bad neighborhoods, even though more crime may occur there. Wolfgang, Figlio and Sellin (1972) conducted a cohort study for all the male children born in Philadelphia. Their work showed that about 35% of all the males born in a particular year would commit crimes, yet most aged out of criminal behavior. More important, Wolfgang studies showed that 6% of the males committed 51% of the crimes and that punishment was not really effective for them. A later study in 1992 found nearly the same conclusions. However, that study included females and revealed that males commit a disproportionate 90% of the criminal offenses.

Criminology has helped us understand that crime is not easily linked to being poor, that most juveniles age out of crime, and males commit a disproportionate amount of crime. Yet we do not clearly understand why male and female development seems different and what separates the small segment of chronic offenders from those who age out. In my opinion, we must look at cognition and personality for some clues. If we are not taking individual differences in personality and social learning into our interview suite, then we are going to fall short.

Personality types are simply defined

as how we process information, and how we interact with others. There are numerous theories about personality and typing. Currently, most agree that the Big Five of personality traits include; openness, conscientiousness, extraversion, agreeableness, and neuroticism, which can be remembered using "OCEAN". The issue for the interviewer is most personality tests take 50 to 100 or more questions to make an evaluation. Thus, they are not really suited for the forensic interviewer. So, in our school we teach a simple field method formulating two observations, is the person more extroverted or introverted, and is the person more people or task oriented. This is done without telling the subject what is going on and performed while collecting a personal history. These two observations facilitate a rather simplistic DISC personality matrix, which makes a workable tool in the field. The interviewer is then taught to adapt his style of interacting to match that of the subject. In our training courses, approximately 95% of our students get one observation right and about 75% get both right. This is good enough for fieldwork.





We must also consider cognitive distortions and thinking errors being exhibited as contributing causes for deviant behavior and personality disorders. Normally, everyone uses some form of thinking errors as part of their thoughts, which is quite normal. Simple things like thinking, “you made me angry”, are an easy example. This thought allows us to see that the subject is blaming another person for how the subject feels. This can become irrational thinking, with some sense of feeling out of control, leading to anger and acting out against the other person.

When there is an overuse of these cognitive distortions or they persist over time, they can cause anxiety and problems for that subject, perhaps leading to personality disorders. Generally, personality disorders involve significant manipulations of interactions with others to manage anxieties. The DSM-V describes ten personality disorders under Clusters, A, B and C. Underneath Cluster B, we find Antisocial Personality Disorder (APD), Nar-

cissism and Borderline. APD includes sociopathic and psychopathic trait disorders. Antisocial is usually found more often among males than females and is marked by impulsive behavior and a lack of empathy, among other traits. Manson and Ted Bundy would be good examples. In Borderline Personality Disorder, we find it is more often found among females than males. Borderlines are also seen as having marked by impulsive behavior, unstable relationships and a fear of abandonment. Glenn Close in *Fatal Attraction* is a good example. I will discuss these in greater depth on my next article.

As children we all start out pretty much the same. Learning socially acceptable ways to express sex and aggression, as we mature these two are very important and dynamic components in avoiding unhealthy interactions with others, and potentially avoiding deviant behavior. Knowing this, perhaps the most important thing we want to talk about in an interview is how the suspect learned to



interact with others and any presence of learned cognitive distortions. If we can recognize such unhealthy thinking in our suspect, then perhaps that should be the first target to address in a criminal interview. If we simply focus on getting a confession, we are more likely to overlook key information, as well as not relate to our suspect. More importantly, if the interviewer is labeling the suspect as bad, then it is easier to accept using less effective critical communication methods.

Learning to share and understand a suspect's perspective should increase information flow. However, you do not have to sympathize with them or accept bad behavior to understand how someone got to the point in life, nor do you have to absolve them of

consequences for their actions. However, if your goal is to manage your conversation with another, consider who you would trust your darkest secrets to, and why? Identifying the feelings, attitudes and emotions that precipitated their bad (criminal) behavior may be a better target to focus your discussion on.

I will discuss more on personality disorders and how to use behavioral intervention methods to replace the suspects' irrational thinking with rational thinking in my next article. Until then, stay safe!

J. Patrick O'Burke  
School Director, the Polygraph Institute

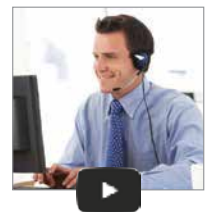
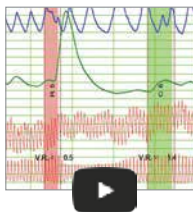
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# Comparison of DLST/ESS and RIT Screening Outcomes at the Vermont State Police



by Mark Handler, Daniel Trottier and  
Raymond Nelson\*

## Introduction

Outcomes were compared for Directed Lie Screening Test (DLST) results and Relevant-Irrelevant Test (RIT) exam results at the Vermont State Police (VSP) using data from calendar years 2013 and 2017. Prior to 2016, the VSP applicant screening process relied on the

RIT with global analysis. VSP examiners sought and received management approval to change their screening technique in 2016, adopting the DLST format scored with the Empirical Scoring System (ESS). Suggested target questions for the DLST in police applicant screening can be found in Handler et al (2009).

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\* The authors are indebted to the generosity and efforts of the following Vermont State Police personnel, without whom this manuscript would not have been possible: Colonel Matt Birmingham, Major Glenn Hall, Captain Dan Trudeau, Lieutenant Lance Burnham, Sergeant Sam Truex and Sergeant Jason Rogers.



DLST/ESS data for this analysis were from calendar 2017, following the 2016 implementation and transition to the DLST/ESS protocol. It was decided that data collection would include only those examinations conducted after the VSP examiners had a full year's experience with the new technique. The RIT data from calendar year 2013 were available with sufficient detail for comparative purposes.

### **A description of the VSP unit and testing history**

The following is presented by the Vermont State Police (VSP) polygraph unit (the unit) as an overview of our transition to the Directed Lie Screening Test (DLST) for pre-employment purposes. We present this information in an effort to share our overall success with the process that so many of us are involved in. The unit is likely representative of most units throughout the country in terms of numbers and size. The unit is comprised of three full time examiners and its main workload is pre-employment screening.

In late 2015, based on a number of different factors, it was determined that the unit was going to make a change from its previous screening test format, Relevant/Irrelevant (R/I), and move to the DLST. As a unit, we did not believe that this was a change that should be rushed, and that deliberate and care-

ful thought should go into the transition. In January 2016, we shut down all testing for the month and completely revamped our testing process. We reviewed and modified our applicant questionnaire, we recreated many of our forms and, with input from a multitude of sources, we created our DLST testing format. We gave careful consideration to the questions that were asked and the way that we asked them. We did this to protect the integrity of the process because, we knew our decisions would affect the hiring process for years to come.

Following this review, we rolled out the new test format in the spring of 2016 and we have been making subtle changes ever since based on our experiences. We have debated about going to a more automated format similar to Texas DPS but, we are still in the process of seeing what that would actually look like for us.

In 2017, we began to keep track of our test results for several reasons, the most important one, was so that we could see and determine the most accurate and efficient way to quantify the results that we were getting. These statistics are not intended to be anything more than our own in-house checks and balances to make sure that we are keeping on track with national trends and procedures. As a comparison, we reviewed the stats from an earlier year using the previous R/I format. The year we chose was a year



that we felt would be a good comparison based on the number of tests. We chose 2013 and at that time, the unit was the main test administrator for every police department in the state. This has since changed due to a loss of positions and we now test applicants for our agency only.

In discussions as a unit, we all agree that at least on the surface, the results are more definitive and, we are seeing fewer cases in which applicants are being asked to return for a retest. With that in mind, we expect to see in the years to come, a more consistent number of tests given which, in turn, should provide us an opportunity to assist the law enforcement community in other ways. Such as quicker turnaround times on criminal tests, more opportunity to assist and be involved early on in major investigations in the event a polygraph is determined to be needed, as well as providing educational opportunities in the aspect of interviewing.

In discussing these results with others, we felt it would be productive and helpful to share our experience with others to help them if they are planning a transition or, just to compare what other units are seeing and doing across the nation. We hope that you find this information useful and most importantly, we hope that it helps improve the process for all of us. Finally, the unit would like to thank the VSP command staff for allowing us to

share this information with others, in what hopefully is a positive and useful way.

## **Breakdown of testing and results**

In 2017, VSP conducted 156 DLST/ESS pre-employment screening tests, 84/156 (54%) were conclusive. In 2013, VSP conducted 278 RIT pre-employment screening tests, 85/278 (31%) were conclusive.

VSP categorizes test results in one of the following five ways.

1. SR- there was a statistically significant result in the test data.
2. NSR- there was no statistically significant result in the test data.
3. Inconclusive- numerical scores were insufficient to meet the SR or NSR threshold for statistical significance.
4. No Opinion- the data quality was insufficient to warrant evaluating.
5. Discontinued- the test subject made disqualifying admissions prior to completing the data collection. See table 1 for a comparison of test results.



**Table 1- VSP testing results raw numbers (percentage in parenthesis)**

Year	Technique	SR	NSR	INC	NO	Discontinued	Conclusive	Total
2017	DLST/ESS	11(.07)	73(.47)	11(.07)	31(.20)	30(.19)	84(.54)	156
2013	RIT	4 (.01)	81(.29)	46(.17)	62(.22)	81(.29)	85(.31)	278*
* Results were unknown for 4 exams								

Differences in results for the RIT and DLST were statistically significant on each axis of interest using a series of two-sample z-tests for proportions.

- DLST exams produced more conclusive results overall than the RIT ( $p < .001$ ).
- DLST examinations also resulted in fewer inconclusive results ( $p = .002$ ),
- DLST exams had more truthful classifications than results using the RIT ( $p < .001$ ).
- DLST examinations resulted in more deceptive classifications than the RIT ( $p = .001$ ).

The only measurement that did not differ significantly was the occurrence of unusable or uninterpretable test data ( $p = .277$ ).

The purpose of this exploratory analysis was not to compare accuracy, but rather to evaluate differences in test outcomes. Although no statistical corrections were made for the calculation of multiple statistical comparisons, the strength of the observed results appears interesting and informative in terms of data exploration. These results suggest that the DLST/ESS may be uniformly more powerful than the RIT for applicant screening. In practical terms this suggests that DLST/ESS test results may provide a more usable basis of information, compared with RIT results, to supplement the polygraph interview information content as a basis of information when screening applicants. Continued interest and research is recommended to further understand potential differences and advantages of the DLST and RIT as police applicant screening methods.

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# Effective Defense Polygraphs<sup>1</sup>



by **Christophir Kerr<sup>2</sup>**



Christophir Kerr was as an FBI agent for 26 years before beginning work as a criminal defense attorney in 2009.

He has published an article on national security letters in *Wm. & Mary Pol'y Rev.*, and *RICO*, a book that tells the true story of an FBI agent who died in jail falsely charged in a murder conspiracy with James "Whitey" Bulger.

The polygraph examination can be an extremely effective defense tool. From persuading a client with unrealistic ideas about his prospects at trial—to carrying the defense burden on a sentencing issue or corroborating a defendant's testimony<sup>1</sup>—the polygraph should almost always be considered. Widely used and trusted by prosecutors, law enforcement, and intelligence agency officials, this versatile test can greatly benefit the defense practitioner—if used correctly.

This article provides some practice

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tips using recent federal cases where defense polygraphs helped save defendants from prison and millions of dollars in criminal forfeiture, along with successful and unsuccessful efforts to use test results at trial.<sup>2</sup> There are lessons in each; the cases demonstrate the importance of using a highly credible examiner, carefully crafting test questions, and consulting with a highly qualified scientist for any evidentiary hearing. While admitting polygraph results in sentencing or other proceedings with relaxed evidentiary rules should ordinarily not be too difficult, making a sufficient showing under *Daubert*<sup>3</sup> to use the test at trial is a much greater challenge. Along the way, the reader is provided some proven arguments, research, and methods for presentation at any evidentiary hearing.

### **Polygraph Evidence is Expert Opinion Testimony.**

The polygraph is not actually a "lie detector." The modern version measures "involuntary and uncontrollable physiological responses by the autonomic nervous system" caused by "[a]ny conscious effort at deception by a rational individual."<sup>4</sup> The polygraph instrument records changes in blood pressure, pulse, respiration, and perspiration (galvanic skin response), and other physical movements of a subject.<sup>5</sup> Introduction of polygraph evidence requires tendering an expert witness who will tender an opinion on a sub-

ject's veracity during a test.<sup>6</sup> There are obvious advantages to using a highly credible examiner, preferably someone on whom the government has previously relied.

### **Admissibility Varies**

Since *Daubert* replaced the *Frye*<sup>7</sup> standard in 1993, polygraphs have been admissible at the judge's discretion<sup>8</sup> in most federal courts, except in the Fourth Circuit, where a *per se* ban holds,<sup>9</sup> and in military courts where they are barred by regulation.<sup>10</sup> New Mexico routinely allows polygraphs;<sup>11</sup> while admissibility in two states, Alaska and South Carolina, is similar to most federal courts.<sup>12</sup> The majority of states and the District of Columbia<sup>13</sup> bar polygraph evidence entirely either by statute or common law;<sup>14</sup> a minority allows polygraph evidence if both parties stipulate to its use.<sup>15</sup>

Broad discretion is uniformly given to judges where polygraphs are admissible, making a victory in the trial court even more important than it already is for other evidence. Judges have often found grounds under either FRE Rules 702 and/or 403 to exclude the evidence.<sup>16</sup> In *United States v. Piccinonna*, a 1989 *en banc* decision in the Eleventh Circuit overturning a blanket ban on polygraphs, the court made clear that "[t]he trial judge has wide discretion in [deciding to admit polygraphs] and rulings on admissibility will not be reversed unless a clear



abuse of discretion is shown."<sup>17</sup> True to its word, the court has not found an abuse of discretion in the exclusion of polygraph evidence since 1989.<sup>18</sup>

## Sentencings

*Defense polygraphs can make a real difference at sentencing.* There, judges have the widest possible discretion to consider virtually "any information, (including hearsay), regardless of its admissibility at trial," provided it bears "sufficient indicia of reliability."<sup>19</sup> Fed. R. Evid. 1101(d)(3) exempts sentencings from the rules of evidence, and a federal statute gives courts explicit, broad authority: "No limitation shall be placed on the information concerning the background, character, and conduct of a person convicted of an offense which a court of the United States may receive and consider for the purpose of imposing an appropriate sentence." 18 U.S.C. § 3661.

## Three Key Points

In any proceeding and jurisdiction, the proponent of polygraph evidence must ensure that the defense test is invulnerable to attack in three areas: 1) the examiner's qualifications; 2) the fair administration of the examination and test procedures, i.e., following scientifically validated polygraph protocols, and; 3) the relevance of the test questions.<sup>20</sup> A few cases serve to illustrate:

## Credibility of the Examiner

*The testimony of a former FBI polygraph examiner kept Laura Leyva out of prison and saved her from \$2.5 million dollars in criminal forfeiture.*<sup>21</sup> In late 2014, James Orr, the former chief examiner for the Tampa FBI office (a special agent who had conducted 2,300 tests for the Bureau, the U.S. Attorney, and other federal agencies) examined Laura Leyva, a medical consultant trained as a physician, facing sentencing in January 2015 on Medicare Fraud Conspiracy charges. The indictment alleged that Leyva and others conspired to use her South Florida rehabilitation clinics to bill \$2.5 million in fraudulent charges.<sup>22</sup>

The polygraph corroborated Leyva's consistent claim that she knew nothing of the fraudulent billing until after it had ended. Leyva's ownership of the clinics, other circumstantial evidence, and some pre-trial government tactics promised to make her defense difficult at best.<sup>23</sup> Leyva's admission that she wrongfully destroyed some patient files after she became aware of the federal investigation made her defense at trial untenable.

The prosecution insisted that she accept responsibility for the large losses as part of any plea agreement—virtually ensuring 70–87 months in federal prison and \$2.5 million in criminal forfeiture with restitution. Declining to sign a plea agreement, Leyva simply



pled guilty to the indictment. During her plea colloquy, she carefully admitted only to the file-shredding long after the fraud was over, a criminal act the judge found sufficient to support her conspiracy plea. The prosecutor agreed that the Defendant's overall offense conduct would be litigated during the presentence investigation—and ultimately decided by the sentencing judge.

Judge Charlene Honeywell noted the widespread use of polygraphs by the government and found both the Defendant's and the examiner's testimony highly credible.<sup>24</sup> Judge Honeywell sustained the defense objection to the 18-level fraud/loss enhancement, finding that the Defendant "did not learn of the fraud until after the actions had occurred," refusing to hold her accountable for any of the fraud losses.<sup>25</sup> This translated to eight months' home detention rather than 6-7 years in prison, and zero criminal forfeiture rather than the \$2.5 million sought by the government—a debt that likely would have stuck with the Defendant the rest of her life.<sup>26</sup>

### **Did the Defendant Obstruct Justice?**

*A second defendant, although convicted by a jury of wire fraud, denied lying in her trial testimony; the polygrapher's credibility counted—a lot—and helped her avoid prison. One of the risks defendants take when they testify in a federal trial is that additional sentenc-*

*ing guidelines' offense levels are usually imposed if the jury convicts; i.e., if the jury believed the defendant, she would have been acquitted. Overcoming this "obstruction" enhancement is normally a heavy lift post-trial;<sup>27</sup> Kathryn Jasen's defense prevailed using the polygraph, and the test helped save her from federal prison.<sup>28</sup>*

Ms. Jasen was tried with her husband, Glenn Jasen, by a federal jury in Tampa, Florida in 2015, and both were convicted of wire fraud in connection with a real estate transaction. Ms. Jasen's trial testimony directly conflicted with a government witness on a key point, and the guilty verdict drew the expected recommendation for an enhancement that supported 24–30 months in prison.<sup>29</sup>

The judge gave considerable weight to the examiner's (Jim Orr) "years as a full-time polygraph examiner for the FBI, conduct[ing] more than 2300 . . . examinations . . . always subject to critical review, [the judge] thought the questions posed to Mrs. Jasen were unambiguous." While he could "easily justify 24 months imprisonment," instead the judge imposed 6 months home confinement and probation. During the lengthy sentencing hearing, the judge relied on the polygraph to sustain a defense objection to the obstruction enhancement. Mr. Orr's "remarkable" credentials and the quality of his exam were important factors, something the judge contrasted with



other polygraphs over the years with "ambiguous questioning and circumstances that undermine reliability."<sup>30</sup>

## The Comparison Question Test

Most polygraphers use the comparison question test ("CQT"),<sup>31</sup> where the examiner compares a subject's responses to "relevant questions" directly related to a crime, with "comparison questions," designed to provoke a reaction but not directly related to the issue at hand, and neutral questions intended to evoke no response.<sup>32</sup> An example of a "comparison question" could be, "Have you ever lied to a friend?" A truthful examinee would be expected to have a stronger reaction to a question of that kind than to a relevant question, whereas the deceptive examinee would have a comparatively stronger physiological reaction to the relevant question.<sup>33</sup> This is the exam that the federal government uses and the point is that tried and true is the rule here, for obvious reasons.<sup>34</sup> This will not stop opposing counsel from arguing that polygraphs are "junk science." However, examinations conducted by scientifically trained or former government examiners, using a standard CQT, help to take the wind out of the government's sails.

## The "Relevant Questions"

*The "relevant questions" must be carefully constructed to ensure that a truthful answer unambiguously addresses*

*the intended point.* David Kwong was charged with attempting to murder Catherine Palmer, a federal prosecutor, by sending her a booby-trapped briefcase.<sup>35</sup> Kwong passed a polygraph with what at first glance appear to be good questions and answers:

1. Did you conspire with anyone to send that package to Assistant United States Attorney Catherine Palmer? NO.
2. Were you the one that sent that package to Assistant United States Attorney Catherine Palmer? NO.
3. Do you know for sure who used a driver's license in the name of Wing Yeung Chan to buy the gun in question? NO.

The Second Circuit agreed with the district court's conclusion that "the questions posed to Kwong were inherently ambiguous no matter how they were answered." Kwong need not have conspired with anyone to have attempted murder; Kwong's guilt or innocence did not depend on whether he *personally* mailed the package; and qualifying the question about the driver's license with "for sure" rendered the answer "chimerical at best." Reaching no conclusion as to admissibility under Rule 702, the court held that Mr. Kwong's test was properly ex-



cluded under Rule 403.<sup>36</sup>

## Using a Defense Polygraph at Trial

Admitting a defense polygraph at trial is a difficult challenge, but it *can* be done. At a *Daubert* hearing, the proponent is required to establish that the expert evidence is reliable, relevant, and not unduly misleading or prejudicial.<sup>37</sup> Many courts are predisposed to exclude polygraphs; but whatever the ultimate decision on admissibility, it is difficult to see the downside to letting the trial judge know that a defendant is most likely telling the truth.

## The Cook on a Colombian Freighter with 1,500 Kilos of Cocaine

*The cook on a large freighter repeatedly denied that he knew of the 1,500 kilos of cocaine found carefully hidden deep in the ship— at trial, the defense wanted to use the polygraph he passed.*

One day in August 2014, after almost a month in dry-dock for repairs, the freighter *Hope II* was slipped back into the harbor in Cartagena, Colombia.<sup>38</sup> Just hours before, Jesus Angulo-Mosquera, a 53-year old cook, returned by bus from home leave and boarded the ship, believing it was headed out for a brief test of the repairs. As soon as the ship proved seaworthy, however, the captain told the crew they were headed to Costa Rica to pick up a load of gravel.

Forty-eight hours later, the U.S. Coast Guard boarded the large cargo ship in international waters. After an intensive 17-hour search using sensitive ion scan equipment, officers found 1,500 kilograms of cocaine carefully concealed inside a false fuel tank. Angulo and the other seven crewmembers were brought to Tampa, Florida for prosecution.

From his first interview by agents in September 2014 through trial in October 2015, Angulo told anyone who would listen that he was *not* part of this smuggling venture and did not know the drugs were on the ship. The government's circumstantial case was eventually bolstered by plea-bargained testimony from four of the eight crewmembers. While their combined testimony was a confusing bundle of contradictions and lies over two trials, the four defendants stuck together on the only point that mattered to the prosecution (and the jury)—each claimed *the entire crew was in on it*.<sup>39</sup>

On November 6, 2014, Jim Orr conducted a polygraph exam at the jail, recording video, audio and all physiological responses.<sup>40</sup> Angulo easily showed no deception answering questions designed to test his knowledge of the cocaine smuggling venture—several versions of, "Before the Coast Guard searched the ship, did you know drugs were on board?" Orr's report and the recordings were immediately forwarded to the prosecutor,



with a hope that the former Tampa FBI examiner's polygraph might persuade the government to drop the weak case against Angulo. The prosecutor, however, was unmoved.

## **Polygraph Evidence is Admissible in the Eleventh Circuit**

Research revealed that, in the Eleventh Circuit, the trial judge has broad discretion to allow polygraph evidence to "corroborate testimony of a witness at trial."<sup>41</sup> There are three conditions: First, adequate notice must be provided to the government. Second, the prosecutor must be given the opportunity to have its own expert administer a test on substantially the same issue(s).<sup>42</sup> Third, the evidence must be otherwise admissible under the Federal Rules of Evidence.<sup>43</sup>

## **The Proponent of Expert Testimony Has the Burden**

*The proponent has the burden at a Daubert hearing,<sup>44</sup> an uphill battle, meaning the defense needs a scientist as a primary witness.* The next step was a defense motion for an evidentiary hearing. With initially low expectations of success, it was difficult to see any downside to letting the trial judge know of the very favorable test results.

A highly qualified polygraph research scientist, Dr. David Raskin (Ph.D. in Psychology, UCLA)<sup>45</sup> was the sole defense witness at the December 23,

2014 *Daubert* hearing. Many examiners are well trained and have sufficient knowledge of the science behind the tests, but they ordinarily lack the scientific background and knowledge necessary—as well as the experience testifying—to withstand cross-examination by a well-informed prosecutor. Bottom line—the proponent of the expert polygraph evidence has the burden to establish its admissibility under FRE 702, meaning that it is reliable and relevant.<sup>46</sup> A scientist is crucial to that effort.

## **Dr. Raskin Filed a Declaration**

*Prior to the hearing, Dr. Raskin filed a detailed declaration, thoroughly addressing the five "Daubert Factors,"<sup>47</sup> also giving his evaluation of Mr. Orr's exam.* Dr. Raskin proved an excellent *Daubert* witness, in part because of his encyclopedic knowledge of polygraphs, but also because of his experience testifying—examiners typically do not have nearly as much experience on the stand.<sup>48</sup> Filing a detailed declaration by Dr. Raskin in advance allowed for an abbreviated direct examination at the hearing, beginning with adoption of his declaration, followed by a short summary of his credentials and the *Daubert* factor evidence. The hearing quickly moved to cross-examination, re-direct, and argument.

## **The All-Important *Daubert* Hearing**

*Before concluding the story of Jesus*



*Angulo, the cook on the ill-fated Hope II, however, it may be useful to review what may be anticipated in the all-important Daubert hearing. Those who have trod this path have done much excellent work. The arguments needed to prevail are available—and the prosecution's counter-arguments have, almost all of them, been heard before.*

## **Daubert and the Polygraph**

The science behind the modern polygraph and the CQT supports admissibility under *Daubert*.<sup>49</sup> With the passage of time since the high Court's landmark affirmation of FRE 702, more sensible courts focus on a bottom-line determination: Whether the proponent of expert evidence has marshaled a preponderance of empirical data and reasoning supporting the expert's proffered inference.<sup>50</sup> It may be useful though—and some courts may require—a *Daubert* checklist addressing each factor.

## **The Daubert Factors**

Probably the most useful template for *Daubert* factor arguments is available in *Lee v. Martinez*, 96 P.3d 291 (N.M. 2004). In *Lee*, a unanimous Supreme Court of New Mexico, with 30 years' experience admitting polygraphs, affirmed a long-standing state polygraph rule of evidence (NMRA 11-707).<sup>51</sup> *Lee* was decided in response to a challenge by criminal defendants to the routine demands of prosecu-

tors for full *Daubert* proceedings proving the polygraph's general reliability again and again, notwithstanding the separate rule explicitly allowing polygraphs.<sup>52</sup>

The state's highest court decided that, if a trial court determined the examiner was qualified and the examination had been conducted according to NMRA 11-707,<sup>53</sup> the party seeking to admit polygraph results could not be required to independently establish reliability in a *Daubert* proceeding. Further, judges retained the authority to exclude polygraphs under NMRA 11-403 (the equivalent of FRE 403), but *not* "if the district court's reasons for excluding the evidence are grounded in a general disbelief in the reliability of polygraph results or a general hostility toward polygraph evidence."<sup>54</sup>

## **The New Mexico Court's Daubert Analysis**

The court relied heavily on *The Polygraph and Lie Detection*, a 2003 report of the National Academy of Sciences ("NAS").<sup>55</sup> This evaluation ("NAS Report") was produced for the benefit of federal agencies and policy-makers. *Lee's* detailed analysis of the *Daubert* factors is a must-read for those preparing for an evidentiary hearing, but some highlights include:<sup>56</sup>

(i) Testability—the technique can be tested and opponents effectively concede the factor—"By



claiming that a number of . . . studies establish that polygraph examinations do not work, the State has implicitly conceded that the hypothesis underlying [the CQT] can be tested."

(ii) Peer review and publication—"a sizable number of polygraph studies have . . . appeared in good-quality, peer-reviewed journals. NAS Report at 108."

(iii) Rate of error—"Polygraph results are far from conclusive; however, as the NAS Report concluded, numerous studies have shown polygraph tests can detect deception at rates well above chance . . . accuracy is similar to many diagnostic techniques . . . including magnetic resonance imaging (MRI), CAT scanning, ultrasound and x-ray film." (The Court of Appeals of Alaska came to the same conclusion in 2015).<sup>57</sup>

(iv) Maintenance of standards controlling the technique—"The American Polygraph Association (APA), the leading polygraph professional association, has developed protocol standards [similar to those in NMRA 11-707]." New Mexico (and other states) also license polygraphers.

(v) Acceptance by relevant scientific community—"[T]here is heated debate in the scientific

community on the validity of [the CQT], leading the court to find that the technique has been neither "generally accepted" nor "uniformly rejected."<sup>58</sup>

In sum, the court found that polygraphs satisfy all the factors except the last, which, under the more liberal *Daubert* (and Federal Rules of Evidence) regime, was no longer determinative (While the court was "cognizant of problems with polygraph results, such as the use of physical and mental countermeasures to 'beat the polygraph,' . . . any doubts about scientific admissibility of scientific evidence should be resolved in favor of admission.").<sup>59</sup> The court quoted *Daubert*, "Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking *shaky but admissible* evidence. [These conventional devices, rather than wholesale exclusion . . . are the appropriate safeguards where the basis of scientific testimony meets the standard of Rule 702]." *Daubert*, 509 U.S. at 596 (excerpted from Justice Blackmun's opinion for the Court) (italics added).

*"Often the same government officials*



who vigorously oppose the admission of exculpatory polygraphs of the accused find polygraph testing to be reliable enough to use in their own decision-making.<sup>60</sup>

Finally, the court, in part, reaffirmed Rule 11-707 "on principles of fairness," noting the widespread use of polygraphs by government officials who oppose use of the technique by criminal defendants.<sup>61</sup> Federal and state law enforcement officials rely on polygraphs even in jurisdictions where they are not admissible. Polygraphs are used to establish probable cause and make decisions on whether to prosecute or not, to make sentencing and prison disciplinary decisions, and are often required for probationers and others under supervision.<sup>62</sup>

### Reliable When Used by the Government and "Junk Science" in the Hands of the Defense?

To this list, the court could have added the use of polygraphs in admission to (and exit from) the federal Witness Security Program.<sup>63</sup> Justice Anthony Kennedy's concurrence in *United States v. Scheffer* (523 U.S. 303, 318 (1998)) (doubting the wisdom of *per se* exclusion of polygraphs) noted "much inconsistency between the Government's extensive use of polygraphs to make vital security determinations and [its arguments] stressing the inaccuracy of the tests." The federal government, including every U.S. law en-

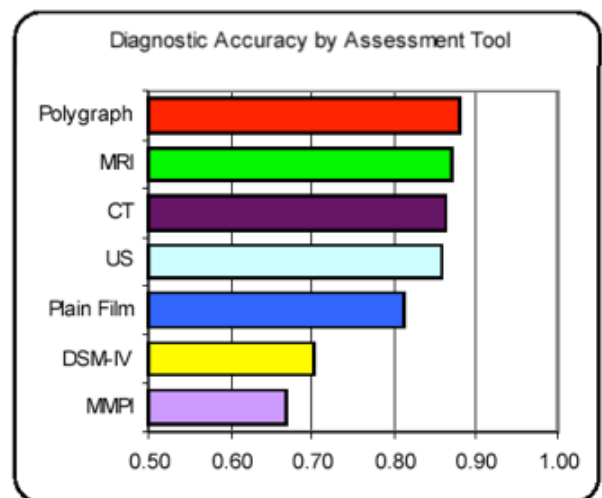
forcement and intelligence agency, is the largest user of polygraphs in the world.<sup>64</sup> Prosecutors routinely include polygraph requirements in plea agreements and introduce the evidence in criminal proceedings.<sup>65</sup> That does not deter government counsel from using some form of "the polygraph is junk science" argument in opposing defense polygraphs.<sup>66</sup>

### Polygraph Reliability Compared with Other Expert Evidence

The chart entitled "Accuracy of Various Diagnostic Tools" is from a detailed 2001 study done for the Department of Defense, evaluating 198 published studies with the objective of comparing the accuracy of the polygraph with several common medical diagnostic tools.<sup>67</sup>

#### Accuracy of Various Diagnostic Tools

The average accuracy reported for 37 diagnostic polygraph studies (specific issue) was similar to MRI (17 studies), CT (19 studies), and ultrasound (38 studies). MMPI had the lowest reported accuracy (17 studies).



With an average accuracy of over 90%, the polygraph CQT compares very favorably with other "diagnostic" evidence commonly presented in court.<sup>68</sup> In fact, the reliability for a truthful CQT result for an innocent subject is even higher.<sup>69</sup> Polygraphs compare "favorably with such other scientific evidence such as X-ray films, electrocardiograms, fiber analysis, ballistics comparison tests, [and] blood analysis."<sup>70</sup> It is "far more reliable than other forms of expert testimony, such as psychiatric and psychological opinions of sanity, diminished capacity, dangerousness, and many forms of post-traumatic stress/recovered memory syndromes,"<sup>71</sup> not to mention *eyewitness testimony*, which one respected and often-cited study has estimated to be 64% accurate.<sup>72</sup>

### **Daubert II Posed a Key Question**

"*Daubert II* elucidated the Supreme Court's opinion by stating that the most persuasive reason for concluding that an expert's testimony is derived from the scientific method is that 'the testimony . . . is based on legitimate research unrelated to the litigation.'"<sup>73</sup> Also not mentioned in *Lee*, but nonetheless important, is a point made by a federal court admitting polygraph evidence under *Daubert* in *United States v. Crumby*.<sup>74</sup> The court, after an extensive hearing, wrote a detailed (and also useful) analysis of the *Daubert* factors, drawing on the Ninth Circuit's analysis on remand of *Daubert*, in a decision dubbed

"*Daubert II*."<sup>75</sup> There, the court gave great weight to whether a party seeking to introduce scientific research was attempting to use expert evidence developed for particular litigation. The court, in *Crumby*, noted, "The modern science of polygraphy has been in existence for approximately twenty-five years [now more than forty-five years] . . . . Polygraph evidence is used in a wide variety of circumstances including law enforcement, employment testing, etc."<sup>76</sup> The court thus weighed this in favor of admitting Mr. Crumby's polygraph.<sup>77</sup>

### **Use and Misuse of *Scheffer***

*The government should be expected to rely heavily on minority dicta from United States v. Scheffer: The proponent of polygraph evidence needs to know the case well.* During argument in *United States v. Angulo*, the government relied heavily on *United States v. Scheffer*, 523 U.S. 303 (1998) (finding that presidential rule banning polygraph evidence in military justice courts was constitutional—only as applied, not facially). This is a favorite of polygraph opponents and should be expected. It is fair to cite *Scheffer* for the phrase, "there is simply no consensus that polygraph evidence is reliable."<sup>78</sup> However, in *Angulo*, the government argued two points from *Scheffer* which were explicitly rejected by five members of the Court: 1) that polygraphs "usurp" the role of the jury as "lie detector" and, 2) that juries can be



distracted and confused by the collateral battle over polygraph evidence.

In fact, a majority of the *Scheffer* Court rejected these two arguments, stating that the claim of jury usurpation "demeans and mistakes the role and competence of jurors in deciding the factual question of guilt or innocence."

<sup>79</sup> Peer-reviewed studies presented to the district court in *Angulo* show that juries, in fact, are not over-awed, distracted, or confused by polygraph evidence.<sup>80</sup> The same five justices in *Scheffer* explicitly refused to endorse language as to the burden of "collateral litigation."<sup>81</sup> However, while the government inaccurately cited *Scheffer* as authority for these critiques of polygraphs in *Angulo*, the prosecutor correctly observed that this dicta had found its way into "other cases throughout the country."<sup>82</sup>

*The Scheffer Court very simply held the military justice regulation banning polygraph evidence to be constitutional—not necessarily wise. The Scheffer Court surveyed other lower courts, finding that the Fourth Circuit and many states had per se bans on polygraph evidence, while other federal circuits did not and the State of New Mexico routinely allowed it.<sup>83</sup> With that varying approach, the Court reached its fundamental holding. The Court could not "say, then, that . . . the President acted arbitrarily or disproportionately in promulgating a per se rule excluding all polygraph evidence."<sup>84</sup>*

In dissent, Justice Stevens found *per se* exclusion of polygraphs unconstitutional and unwise,<sup>85</sup> and a majority agreed that it was neither good policy nor wise. Justice Kennedy, representing four justices, wrote that he "doubt[ed] though, that the rule of *per se* exclusion is wise, and [thought] some later case might present a more compelling case for introduction of the testimony than this one does."<sup>86</sup> His four-justice plurality was unwilling to join the dissent to invalidate the evidentiary rules of the Fourth Circuit and the majority of states, but took note of the "tension" between the *Scheffer* holding and "the considerable discretion given to the trial court in admitting or excluding scientific evidence" by the Court in *Daubert*.<sup>87</sup> "The upshot is that a five-Justice majority appeared willing to entertain an accused's argument that a *per se* statutory or common-law restriction on the admissibility of exculpatory expert testimony is unconstitutional as applied."<sup>88</sup> Thus, "*Scheffer* cannot be read as squarely holding that categorical limitations on defense expert testimony invariably pass constitutional muster."<sup>89</sup>

As Justice Stevens put it, "even highly dubious eyewitness testimony is, and should be, admitted and tested in the crucible of cross-examination."<sup>90</sup> Further, "[e]xpert testimony about a defendant's 'future dangerousness' to determine his eligibility for the death penalty, even if wrong 'most of the



time," is routinely admitted."<sup>91</sup> "Just as flight or other evidence of 'consciousness of guilt' may sometimes be relevant, on some occasions evidence of 'consciousness of innocence' may also be relevant to the central issue at trial."<sup>92</sup>

### **Other Shaky But Admissible Evidence Is Routinely Presented**

Justice Stevens might well have included forensic brain-scan evidence, routinely admitted in often wholly circumstantial "Shaken-Baby Syndrome" cases.<sup>93</sup> In the face of often-tearful denials by nannies and other child-care workers, attorneys frequently confront this evidence in a battle of experts. The science in these cases is open to serious question, yet it is almost always admitted and it often results in convictions drawing lengthy prison terms in circumstantial prosecution cases.<sup>94</sup> Similarly, those accused of child sex crimes often face suggestively coached alleged victims and expert testimony on "grooming" (of the victim).<sup>95</sup> The eyewitness testimony referred to by Justice Stevens, though not expert testimony, is both commonly relied upon by juries and notoriously *unreliable*.<sup>96</sup>

### **Rule 403 and Polygraphs**

*Courts inclined to exclude defense polygraphs may rely on Rule 403, deeming the evidence excessively confusing or prejudicial. Courts skeptical of de-*

fense polygraphs often use Rule 403 to exclude the evidence.<sup>97</sup> In a typical example (*Kwong*, cited earlier) the Second Circuit affirmed a district court's exclusion of a defense polygraph because the test questions were "inherently ambiguous." The court held that while the defendant's polygraph was arguably admissible under Fed. R. Evid. 702, it would "mislead and confuse the jury" and was thus excludable under 403.<sup>98</sup>

In comparison with polygraphs, any reader who has tried cases to juries can recall relatively more confusing and even prejudicial expert testimony presented. Prosecutors routinely offer hair and carpet fibers recovered from defendants and purportedly "consistent with" evidence found at crime scenes; juries are expected to distinguish the "consistent-with" standard from "identical-to" during deliberations. Moreover, the Rule 403 analysis begins with a strong presumption in *favor* of admissibility (relevance is conceded), *minimizing* estimates of prejudicial impact—appellate review almost always gives the prosecution the right to its chosen proof.<sup>99</sup> It is also worth noting that 403's language implies that (the reverse of Rule 702)<sup>100</sup> the burden is on the *opponent* of the evidence to justify its exclusion.<sup>101</sup> In practice, however, a fair number of courts appear willing to put a thumb on the scale in excluding defense polygraphs.



## Some Intractable Resistance to Polygraphs

One stark example of the intractability of some courts' resistance to polygraph evidence is *United States v. Posado*, 57 F.3d 428 (5th Cir. 1995), otherwise notable for reversing a circuit *per se* ban in the wake of *Daubert*.<sup>102</sup> In *Posado*, three defendants were arrested at Houston International Airport after officers opened their luggage and found a large quantity of cocaine. In a motion to suppress, the defendants supplied affidavits alleging that the officers arrested them and searched their bags *before* attempting to get their consent. The defense backed up these claims with an offer to stipulate in advance to the admissibility of polygraph examinations of all three defendants. The prosecutor declined.

Each defendant submitted to two examinations administered by separate experts, including the former chief of the FBI's national polygraph unit. In the six examinations, the defendants showed "no deception" to questions that included: "Before opening that first bag, did any police official ever ask for permission to search any of those bags? No;" and "Did you deliberately lie in your affidavit? No."<sup>103</sup> The odds that the polygraph results were *all* inaccurate in this circumstance are infinitesimal.<sup>104</sup> The trial judge, although "a great believer in polygraphs, that polygraph technique," did not believe that it "belongs in the courtroom, ei-

ther before the Court or before a jury . . . and [he didn't want to] get into that same battle of experts that we get into in so many areas of the law." He excluded the results.<sup>105</sup>

The Fifth Circuit reversed and remanded for a hearing under *Daubert*, noting "factors in the record which substantially boost the probative value of this [polygraph] evidence."<sup>106</sup> These factors "call[ed] the officers' recollection of events into question," and included, 1) the inability of the only "Spanish-speaking" officer on scene to read the Spanish consent form at both the probable cause and suppression hearing, 2) that officer's testimony that the defendants held suspicious "one-way" tickets when theirs were actually round-trip, 3) testimony of a (disinterested) airline employee that contradicted the officers' account of the retrieval of the baggage, and 4) a finding by another district judge that the testifying officer had falsely testified about a consent search in a separate case (leading to the exclusion of that evidence).<sup>107</sup>

On remand, the district court held an evidentiary hearing, again excluded the polygraph evidence, noting in a simple docket entry: "Defts' request to admit polygraph evidence is denied pursuant to Rule 702 and Rule 403 of the Federal Rules of Evidence and Deft's motion to suppress is denied."<sup>108</sup> Four conclusions appear clear from the record—1) the defendants actual-



ly committed the drug-smuggling offense for which they were charged, 2) the drugs used to convict them were illegally seized, 3) the trial judge was willing to exclude polygraph evidence he likely thought was valid, and 4) he overlooked an officer's probable perjury to reach the desired outcome. Remarkably, Rule 403 was invoked although there was no jury to prejudice, confuse or mislead.

### **The Government Uses Polygraphs— but Does Not Need Polygraph Evidence**

*Key to the government's opposition to a defendant's use of exculpatory polygraphs—the prosecution can present the testimony of the officer who obtained an incriminating statement following a failed test under Fed. R. Evid. 801(d)(2); i.e. the government doesn't need polygraph evidence and doesn't want the defense to use it.* Every criminal defense attorney is familiar with investigators' use of polygraphs as a tool to extract admissions from suspects. A failed test followed by a confession often results in a negotiated disposition. When negotiations fail, the government need only put the officer who took the statement on the witness stand to recount every ugly detail for the jury.<sup>109</sup> The polygraph becomes irrelevant. Having this enormous advantage likely explains the government's consistent opposition to any courtroom use of polygraph results, where, in argument, the tech-

nique is dubbed junk science unfit for jury consumption. This pitch did not carry the day, however, in the case of Jesus Angulo, the cook on the *Hope II*.

### **The Court Admitted Angulo's Polygraph**

*The district court admitted Angulo's polygraph evidence subject to restrictions designed to minimize confusion and misuse of the testimony by the jury.* The district court in Tampa admitted Mr. Angulo's defense polygraph evidence.<sup>110</sup> The judge adopted restrictions on the defense polygraph patterned after the Arizona district court's (in *Crumby*),<sup>111</sup> limiting the defendant's and expert's testimony to the facts that the defendant took a polygraph examination in the case and passed it, without details of the specific test questions and answers.<sup>112</sup> So, if the Defendant testified and his credibility impeached, he was entitled to present testimony that "he was willing to take a polygraph and in fact, passed the examination."

Forbidding testimony about the precise questions means that the "jury [would] not be permitted to infer from the test, that because the Defendant passed the test, he could not have committed the crime, [but] the jury [would be permitted] to draw the inference that the Defendant took the test because he believed he was innocent."<sup>113</sup> The examiner would be



permitted to testify as to the exam procedures, the validity of the test, and the fact that the Defendant passed—again without reference to the specific questions and answers. This procedure was designed to allow the defense to present what the court saw as evidence "highly probative . . . of a criminal defendant's propensity for truthfulness with respect to the issues in the case" while forbidding testimony about the ultimate issue, which the court saw as "highly prejudicial."<sup>114</sup>

### **The Government Dismissed After Crumby's Polygraph Was Admitted**

*In the face of the polygraph's admission in Arizona, the government dismissed the charges against David Crumby, but Jesus Angulo was not so fortunate.* Happily for Mr. Crumby, the judge's admission of the defense polygraph prompted the government to dismiss.<sup>115</sup> Mr. Angulo, in Tampa, Florida, was not so lucky. The trial judge refused to sever Mr. Angulo, notwithstanding the fact that his three co-defendants had no polygraph evidence to present.<sup>116</sup> Angulo was permitted to testify that he voluntarily took a polygraph examination concerning his statement and passed it. The examiner was allowed to educate the jury on the technique, how the test was conducted; that the government declined the opportunity to test Angulo, and that he passed.<sup>117</sup>

After a two-week jury trial, he was convicted along with the captain of

the freighter and two other crewmembers.<sup>118</sup> Mr. Angulo's conviction at least demonstrated that fears of the jury's role being "usurped" by a machine were here, at least, unwarranted. On appeal, the defense is primarily challenging the government's conduct of Angulo's cross-examination, including the prosecution's dramatic finale, leveling an unfounded accusation that the ship's cook was the cartel's personal enforcer or "load guard" on this smuggling venture.<sup>119</sup> Whatever the Eleventh Circuit decides, it cannot be claimed that Angulo's jury was distracted, confused, or forfeited its role as "lie detector."

### **Conclusion**

The polygraph can be a useful and versatile defense tool if used properly. While its introduction at trial is presently an uphill battle,<sup>120</sup> its use at sentencing presents fewer obstacles. Whether used to corroborate a defendant's or other witness' truthfulness at trial or to support a defense position on a sentencing issue, it is important to choose a highly-qualified examiner, carefully craft the relevant questions, and prepare very thoroughly for an evidentiary hearing, that must include a qualified scientific expert. More routine use of defense polygraphs and better *Daubert* advocacy, might make admission of this evidence easier for all practitioners.

Federal and state courts would do well



to draw on the 30 years' experience with courtroom use of polygraphs encompassed in the unanimous 2004 decision of the state supreme court in *Lee v. Martinez*. The state's experience vindicates the liberalization of rules on expert testimony as expressed in *Daubert* and FRE 702, prompting the court to endorse the observations of "one notable commentator:"

Universality of education and the almost instantaneous dispersal of information through modern technology have created a citizenry with a remarkable and historically unique breadth of knowledge, perception, and sophistication. These mature men and women should be treated with the respect they deserve. Excluding information on the ground that jurors are too ignorant or emotional to evaluate it properly may have been appropriate in England at a time when a rigid class society created a yawning gap between royal judges and commoner jurors, but it is inconsistent with the realities of our modern American informed society and the responsibilities of independent thought in a working democracy. Jack B. Weinstein & Margaret A. Berger, *Weinstein's Federal Evidence* xix (2d ed. 2003).<sup>121</sup>

The bottom line—the polygraph is as accurate or more accurate than many of the diagnostic medical tests seen in courtrooms every day. It is far more accurate than eyewitness testimony, and juries can properly weigh

polygraph evidence in the context of the other evidence presented at trial. Most courts presently have too much discretion in judging the *science* behind polygraphs.<sup>122</sup> There is legitimate room for a trial judge's scrutiny of an examiner's qualifications, the test procedures used, the relevance of the questions asked, and the manner in which the evidence is presented. However, it is no more reasonable to reject the *science* underlying polygraph evidence than it is to require the same for DNA, ultrasound, or x-rays.

Some judges seem to have personal, *per se* bans on polygraph evidence. A defendant's opportunity to present what might be the only available corroboration for his or a key defense witness's testimony appears to depend far too much on the judge's preconceived ideas about this particular evidence. While *Scheffer* means that excluding a properly administered polygraph *may not*, for now, violate a defendant's Sixth Amendment right to present a defense, exclusion comes close enough to warrant very serious deliberation by civilian courts.<sup>123</sup>

Exclusion means that a defendant asserting factual innocence is prevented from presenting independent, scientific, corroboration of "consciousness of innocence." The plain language of *Daubert* and its application to other routinely admitted expert evidence strongly favors admissibility. Testing polygraph evidence through the



"traditional means" at trial may either help the defendant, or it may reveal what appears to be an attempt to con the jury, which is almost always fatal to the defense. In the end, the jury retains its role as the ultimate "lie detector." Admission at least vindicates a defendant's constitutional right to present a full defense in the face of the government's awesome power and resources—particularly the prosecutor's ability to trade years of its witnesses' lives for incriminating testimony while simultaneously conferring the state's imprimatur.

The nanny who denies murdering a child and faces trial based on *shaky but admissible* brain scan evidence; the

parent who denies molesting a child, but faces a questionable expert on "grooming," or the cook on a freighter facing an effective life sentence in a prosecution based on plea-bargained testimony—all deserve a zealous defense that includes any legitimate expert evidence reasonably available. None should be denied what may be the only meaningful defense evidence at hand merely because of a judge's personal biases or a prosecutor's desire to tilt the playing field. For now, judging polygraph admissibility currently falls short of "Equal Justice Under Law,"<sup>124</sup> but scientific progress and persistent, skilled defense advocacy may be turning the tide.



## Endnotes

- 1 In the Eleventh Circuit, trial courts have discretion to admit polygraph evidence to corroborate or impeach testimony, provided the opposing party is given sufficient notice, an opportunity to conduct its own test and the requirements of FRE 608 are met. *United States v. Piccinonna*, 885 F.2d 1529, 1536 (11th Cir. 1989) (en banc).
- 2 In two of the case examples (*United States v. Laura Leyva*, Case No. 8:14-cr-00107 (M.D. Fla.) and *United States v. Jesus Angulo-Mosquera*, Case No. 8:14-cr-00379 (M.D. Fla.)) the author served as counsel of record for the defendants.
- 3 *Daubert vs. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).
- 4 Declaration of Dr. David Raskin (*infra* note 45), Doc. 95-1 at 2–3 (Dec. 16, 2014) ("Raskin Decl., Doc. 95-1"), in *Angulo-Mosquera*, *supra* note 2.
- 5 *Id.*
- 6 Yigal Bander, *United States v. Posado: The Fifth Circuit Applies Daubert to Polygraph Evidence*, 57 La. L. Rev. (1997) 691, 693 (citing 22 Charles A. Wright & Kenneth W. Graham, Jr., *Federal Practice and Procedures* § 5169 (1978)).
- 7 *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923) (Holding that "expert opinion based on a scientific technique is inadmissible unless the technique is 'generally accepted' as reliable in the relevant scientific community;" *Frye* as characterized in *Daubert*, 509 U.S. at 584; the D.C. Court of Appeals excluded a crude "polygraph" precursor that measured changes in blood pressure).
- 8 Even so, the circuit courts remain generally skeptical and unlikely to be sympathetic to a defendant whose polygraph is excluded. See, e.g. *United States v. Montgomery*, 635 F.3d 1074, 1094 (8th Cir. 2011) (internal quotes and citation omitted) ("Although there is no per se ban on the use of polygraph evidence in this circuit, our cases make clear that polygraph evidence is disfavored.").
- 9 *United States v. Prince-Oyibo*, 320 F.3d 494, 501 (2003).
- 10 *United States v. Scheffer*, 523 U.S. 303 (1998).
- 11 *Lee v. Martinez*, 96 P.3d 291 (N.M. 2004). (New Mexico is unique in that polygraph evidence has been routinely admitted in its courts for almost 30 years, governed by specific rules.).
- 12 *State v. Alexander*, 364 P.3d 458 (Alaska App. 2015) reversed a 50-year ban on polygraphs, af-



ter adopting the federal *Daubert* standard for scientific evidence. In 2015 Alaska allowed the use of polygraph evidence in a criminal case. In South Carolina, there is no per se ban on polygraphs, which is "rarely admitted," but the evidence is to be evaluated using evidentiary rules similar to the federal rules. *Lorenzen v. State*, 657 S.E.2d 771, 778 (S.C. 2008).

13 *Klayman v. Segal*, 783 A.2d 607 (D.C. 2001).

14 Of course, the practitioner considering a defense polygraph will want to research the current law in the relevant jurisdiction. With the exception of Alaska, which reversed its ban on polygraph evidence after adopting the *Daubert* standard for scientific evidence (*State v. Alexander*, 364 P.3d 458 (Alaska App. 2015)), a good list of admissibility in other states is available in *State v. A.O.*, 965 A.2d 152, 161–63 (N.J. 2009) (Affirming New Jersey's rule allowing only polygraphs stipulated by the parties). ("Twenty-eight\* states bar the admission of polygraph evidence outright. *Pulakis v. State*, 476 P.2d 474, 479 (Alaska 1970)\*; *Bloom v. People*, 185 P.3d 797, 807 (Colo. 2008); *State v. Porter*, 241 Conn. 57, 698 A.2d 739, 742

(1997); *State v. Okumura*, 78 Hawaii 383, 894 P.2d 80, 94 (1995); *People v. Jackson*, 202 Ill.2d 361, 269 Ill. Dec. 481, 781 N.E.2d 278, 282 (2002); *Morton v. Commonwealth*, 817 S.W.2d 218, 221–22 (Ky.1991); *State v. Legrand*, 864 So.2d 89, 98 (La.2003), cert. denied, 544 U.S. 947, 125 S. Ct. 1692, 161 L.Ed.2d 523 (2005); *State v. Harnish*, 560 A.2d 5, 8 (Me.1989); *State v. Hawkins*, 326 Md. 270, 604 A.2d 489, 492 (1992); *Commonwealth v. Martinez*, 437 Mass. 84, 769 N.E.2d 273, 278 (2002); *People v. Jones*, 468 Mich. 345, 662 N.W.2d 376, 382 (2003); *State v. Jones*, 753 N.W.2d 677, 690 (Minn.2008); *State ex rel. Kemper v. Vincent*, 191 S.W.3d 45, 49 (Mo.2006); *State v. Hameline*, 344 Mont. 461, 188 P.3d 1052, 1055–56 (2008); *Mathes v. City of Omaha*, 254 Neb. 269, 576 N.W.2d 181, 184 (1998); *Petition of Grimm*, 138 N.H. 42, 635 A.2d 456, 464 (1993); *State v. Fleming*, 350 N.C. 109, 512 S.E.2d 720, 738 (1999); *Thornburg v. State*, 985 P.2d 1234, 1241–42 (Okla.Crim. App.1999), superseded by statute on other grounds by *Okla. Stat. tit. 12 § 2403* (2008); *Commonwealth v. Brockington*, 500 Pa. 216, 455 A.2d 627, 629 (1983); *State v. Werner*, 851 A.2d 1093, 1104 (R.I. 2004); *Sabag v. Continental South Dakota*, 374



*N.W.2d* 349, 352 (S.D.1985); *State v. Damron*, 151 *S.W.3d* 510, 515-16 (Tenn. 2004); *Nesbit v. State*, 227 *S.W.3d* 64, 66 n. 4 (Tex.Crim.App.2007); *State v. Hamlin*, 146 *Vt.* 97, 499 *A.2d* 45, 53-54 (1985); *Elliott v. Commonwealth*, 267 *Va.* 396, 593 *S.E.2d* 270, 282-83 (2004); *State v. Lewis*, 207 *W.Va.* 544, 534 *S.E.2d* 740, 744 (2000); *State v. Dean*, 103 *Wis.2d* 228, 307 *N.W.2d* 628, 653 (1981); see also *People v. Angelo*, 88 *N.Y.2d* 217, 644 *N.Y.S.2d* 460, 666 *N.E.2d* 1333, 1335 (1996) (polygraph evidence properly excluded where there continues to be no showing that such evidence is generally accepted as reliable by scientific community)." \*As noted above, Alaska has reversed its ban, changing the number of states banning polygraphs to twenty-seven, *State v. Alexander*, 364 *P.3d* 458 (Alaska App. 2015). Admissibility may have changed in other states also since 2009. However, two prominent polygraph scientists, Dr. David Raskin and Charles Honts, advised just prior to publication that they are unaware of any other legislation or appellate decisions changing polygraph admissibility in other jurisdictions. Over the past several decades, these two scientists have either consulted on or

15 kept abreast of polygraph litigation nation-wide. A "stipulated" polygraph generally means that the parties agree in advance that the results will be admissible. *State v. Valdez*, 371 *P.2d* 894 (Ariz. 1962), pioneered the use of stipulated polygraphs. See *State v. A.O.*, 965 *A.2d* 152, 162 (N.J. 2009). ("Eighteen [states] limit admission of polygraph evidence to cases where both parties stipulate to its use. *Wynn v. State*, 423 *So.2d* 294, 297 (Ala. Crim.App.1982); *State v. Hoskins*, 199 *Ariz.* 127, 14 *P.3d* 997, 1014 (2000); *Ramaker v. State*, 345 *Ark.* 225, 46 *S.W.3d* 519, 525 (2001); *People v. Wilkinson*, 33 *Cal.4th* 821, 16 *Cal.Rptr.3d* 420, 94 *P.3d* 551, 564-67 (2004); *Melvin v. State*, 606 *A.2d* 69, 71 (Del.1992); *Davis v. State*, 520 *So.2d* 572, 573-74 (Fla.1988); *Thornton v. State*, 279 *Ga.* 676, 620 *S.E.2d* 356, 360 (2005); *State v. Perry*, 139 *Idaho* 520, 81 *P.3d* 1230, 1235 (2003); *Jackson v. State*, 735 *N.E.2d* 1146, 1152 (Ind.2000); *State v. Countryman*, 573 *N.W.2d* 265, 266 (Iowa 1998); *Wilkins v. State*, 286 *Kan.* 971, 190 *P.3d* 957, 970 (2008); *Rose v. State*, 123 *Nev.* 24, 163 *P.3d* 408, 417 (2007); *State v. Weatherpoon*, 583 *N.W.2d* 391, 393 (N.D. 1998); *State v. Souel*, 53 *Ohio St.2d* 123, 372 *N.E.2d* 1318, 1323-



24 (1978) (only for corroboration and impeachment); *State v. Brown*, 297 Or. 404, 687 P.2d 751, 776 n. 35 (1984) (citing *State v. Bennett*, 17 Or.App. 197, 521 P.2d 31, 33 (1974)); *State v. Crosby*, 927 P.2d 638, 642 (Utah 1996); *State v. Thomas*, 150 Wash.2d 821, 83 P.3d 970, 989-90 (2004); *Schmunk v. State*, 714 P.2d 724, 731 (Wyo.1986).").

16 See Fed. R. Evid. 702, "Testimony by Expert Witnesses," provides that:

A witness who is qualified as an expert by knowledge, skill, experience, training or education may testify in the form of an opinion or otherwise if:

- (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case;

Fed. R. Evid. 403, "Excluding Relevant Evidence for Prejudice, Con-

fusion, Waste of Time, or Other Reasons" provides that:

The court may excluded relevant evidence if its probative value is substantially outweighed by a danger of one or more of the following: unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence.

Analysis under FRE 403 is intended to begin with a strong *presumption in favor of* admissibility, *minimizing* estimates of prejudicial impact. The language of 403 implies that unlike FRE 702, where the burden is on the proponent, FRE 403 presumes relevance and puts the burden on the opponent of the evidence. See *infra* notes 99–100 and accompanying text. See, also *United States v. Black*, 78 F.3d 1, 7 (1st Cir.1996)(polygraphs generally inadmissible); *United States v. Santiago-Gonzalez*, 66 F.3d 3, 6 (1st Cir.1995) (admissible if agreed to in plea bargain); *United States v. Hester*, 2016 WL 7436513 at \*3 (2nd Cir. Dec. 22, 2016) (Summary Order) ("While we have never held that polygraph evidence is *per se* inadmissible, we have upheld its exclu-



sion on grounds that it may be unreliable, unfairly prejudicial, or misleading to the jury. See *United States v. Kwong*, 69 F.3d 663, 668 (2nd Cir.1995) (balancing test under Rule 403)); *United States v. Lee*, 315 F.3d 206, 214 (3rd Cir.2003) (noting lack of per se exclusionary rule and admissibility to rebut claim of coerced confession but declining to rule on admissibility at trial or revocation hearing), *Petition for Certiorari Filed*, (June 2, 2003)(NO. 02-11166); *United States v. Posado*, 57 F.3d 428, 434 (5th Cir.1995) (must meet Rule 702 and Rule 403 standards); *United States v. Thomas*, 167 F.3d 299, 308–09 (6th Cir. 1999) ("This court has never adopted a per se prohibition on the introduction of polygraph evidence. . . . We do, however, generally disfavor [them]. . . . We have repeatedly held that unilaterally obtained polygraph evidence is almost never admissible under Evidence Rule 403."); *United States v. Lea*, 249 F.3d 632, 640 (7th Cir.2001) ("[W]e continue to hold that a district court need not conduct a full *Daubert* analysis in order to determine the admissibility of standard polygraph evidence, and instead may examine the evidence under a Rule 403 framework. None-

theless, we posit that the factors outlined by the Supreme Court in *Daubert* remain a useful tool for gauging the reliability of the proffered testimony, as reliability may factor into a 403 balancing test."); *United States v. Gill*, 513 F.3d 836, 846 (8th Cir. 2008) ("Polygraph results are rarely admissible [because they have] long been considered of dubious scientific value" (quotation and citation omitted)); *United States v. Cordoba*, 194 F.3d 1053 (9th Cir.1999)(must meet 702 and 403), see also *United States v. Ramirez-Robles*, 386 F.3d 1234, 1245–46 (9th Cir.2004) (affirming exclusion of polygraph evidence under R. 704 (one test question was improper expert testimony on mental state and R. 403 ("the significance" of two of the questions "combined with the powerful persuasive power of polygraph testimony" was sufficient to exclude without a *Daubert* hearing); *United States v. Call*, 129 F.3d 1402 (10th Cir.1997)(evidence properly excluded under 403 where requested *Daubert* hearing not held).

17 *United States v. Piccinonna*, 885 F.2d 1529, 1537 (11th Cir. 1989) (en banc).

18 See *United States v. Henderson*, 409 F.3d 1293, 1303 (11th



Cir. 2005); research of decisions post-*Henderson* failed to reveal any 11th Circuit holding that a district court abused its discretion in excluding polygraph evidence.

19 *United States v. Ghertler*, 605 F.3d 1256, 1269 (11th Cir. 2010). "[T]he court may consider relevant information without regard to its admissibility under the rules of evidence applicable at trial, provided that the information has sufficient indicia of reliability to support its probable accuracy." (citing USSG §6A1.3(a)).

20 *Piccinonna*, *supra* note 17.

21 *Leyva*, *supra* note 2.

22 *Id.*

23 The prosecutor threatened to indict the few available defense witnesses. While Leyva's counsel did not believe these threats to be credible, the Defendant was unwilling to ask the witnesses (one of whom was the Defendant's sick, elderly father, a retired physician) to testify under threat of their prosecution. Ms. Leyva was represented by the author. *Supra* note 2.

24 See Transcr. of Day Two of Sentencing Hrg., Doc. 90 at 48–49, in *Leyva*, *supra* note 2.

25 *Id.*

26 See *Id.*

27 See USSG §3C1.1, comment.

(n.4(B)) (cited in Govt's Sent. Memo. Concerning Defense Guidelines Application Objections to the Presentence Report filed 1/22/16, Doc. 130 at 5, in *United States v. Jasen*, Case No. 8:15-cr-00214 (M.D. Fla.)).

28 See *Jasen*, *supra* note 27.

29 See *id.*, Transcr. of Sentencing Hearing, Doc. 191 at 29.

30 *Id.* at 9–11, 72–73, 85.

31 Also referred to as the "Control Question Technique." For clarity, the more accepted "Comparison Question Test" or "CQT" is used in this article.

32 *United States v. Gilliard*, 133 F.3d 809, 813–14 (11th Cir. 1998) (describing the Comparison Question Test (CQT) commonly used, as well as other polygraph techniques.;

33 See also *Lee v. Martinez*, *supra* note 11, for a comparison of polygraph techniques ("The [CQT] is the most widely used questioning technique for evidentiary polygraph examinations.").

34 One example of an experiment gone awry can be found in *Gilliard*, *supra* note 32. In a Medicare Fraud case, the defendant passed a test by a highly respected polygraph scientist, Dr. Charles Honts, who used a "hybrid technique" combining two accepted forms of the CQT in



an unusual procedure. A federal magistrate judge determined that the polygraph should be admitted after an evidentiary hearing. The government objected, and, at a hearing conducted by the district judge, presented expert testimony showing that "the hybrid technique is disfavored not only by the Government's experts, but also by federal government agencies." Interestingly, in the litigation the government acknowledged that the CQT was based on "good science." In the end, though, the circuit court affirmed the district court's exclusion of the polygraph under Rules 702 and 403, in large part based on the use of the unproven hybrid technique. *Id.* at 813–16.

35 *United States v. Kwong*, 69 F.3d 663 (2nd Cir. 1995).

36 *Kwong*, 69 F.3d at 667–69.

37 *United States v. Frazier*, 387 F.3d 1244, 1260–63 (11th Cir. 2004) (en banc).

38 *Angulo-Mosquera*, *supra* note 2.

39 Each co-defendant testifying for the government received a sentence of 63 months; each defendant who stood trial received 235 months in prison. Realizing that he faced steep odds in *proving* he was not involved in the smuggling, Angulo might well

have pled guilty for leniency except for the fact that, being factually innocent, he was *unable* and unwilling to "cooperate" in the manner the government would have expected—making his decision to go to trial truly a Hobson's choice. See *Angulo-Mosquera*, *supra* note 2.

40 The current standard for polygraphs requires that the entire examination be recorded in the manner used with Angulo-Mosquera. See Transcr. of testimony of Dr. David Raskin, at *Daubert* hearing, Doc. 508 at 12–14 (Dec. 23, 2014) ("*Raskin Daubert Test.*, Doc. 508"), in *Angulo-Mosquera*, *supra* note 2.

41 *United States v. Henderson*, 409 F.3d 1293, 1302 (11th Cir. 2005) (citing *Gilliard*, 133 F.3d at 811–12 and *Piccinonna*, 885 F.2d at 1536).

42 While *Piccinonna* (885 F.2d at 1536) requires the opposing party be given the opportunity to conduct its own test, the government declined Angulo-Mosquera's offer. Polygraph experts generally recommend that the opposing party be given full access to the full recording of the original test to evaluate, rather than conduct a second test. Dr. David Raskin explained that a second test on the same issue



is problematic. In 1989, when *Piccinonna* was decided, audio/video recording of polygraphs was not common practice. See Raskin *Daubert* Test., Doc. 508 at 14, in *Angulo-Mosquera, supra* note 2.

43 *Henderson*, 409 F.3d at 1302.

44 *Daubert*, 509 U.S. at 592 n. 10; Fed. R. Evid. 702 advisory committee's note (2002).

45 Dr. David C. Raskin received his Ph.D. in psychology from the University of California, Los Angeles (UCLA) in 1963. He has specialized in experimental psychology, human psychophysiology, quantitative methods, and statistical analysis. He has served on the faculties of UCLA, Michigan State University, the University of British Columbia, and the University of Utah, where he holds the rank of Professor Emeritus of Psychology. For [more than] 51 years, he has conducted and published scientific research in human psychophysiology. For [more than] 44 years, he has conducted laboratory and field research on polygraph techniques for the detection of deception, taught university and applied courses about polygraph techniques, trained government and law enforcement polygraph examiners, and published extensively on

polygraph techniques. He has served as an expert witness in approximately 250 criminal and civil cases in federal and state applied courses about polygraph techniques, trained government and law enforcement polygraph examiners, and published courts in the United States, Canada, and Sweden. Raskin Decl., Doc. 95-1 at 1, in *Angulo-Mosquera, supra* note 2.

46 *Supra* note 44.

47 "[*Daubert* does not] presume to set out a definitive checklist or test." However, it identifies five factors that a court should evaluate concerning the theory or technique at issue: (1) whether it can be and has been tested, (2) whether it has been subjected to peer review or publication, (3) its known or potential rate of error, (4) the existence and maintenance of applicable standards controlling its operation, and (5) its general acceptance within the relevant scientific community. *Daubert*, 509 U.S. at 593–94.

48 Dr. Raskin, *supra* note 45, estimated he has testified approximately 250 times in federal and state courts in the United States, as well as Canada and Sweden.

49 Certainly, the science and research underlying the modern polygraph are more than ade-



quate for admissibility in comparison with the foundation for other expert testimony discussed in this article, e.g., expert opinion on "future dangerousness" in death cases, and forensic brain-scan evidence in "Shaken-Baby Syndrome" cases. See *infra* notes 90–94 and accompanying text. The manner in which a *particular examination* was conducted, the examiner's qualifications, and the relevant questions used are always subject to challenge under both Rules 702 and 403. See *Lee v. Martinez*, *supra* note 11.

50 See David L. Faigman, David H. Kaye, Michael J. Saks & Joseph Sanders, *Science in the Law: Standards, Statistics and Research Issues*, Section 1-3.4.2, at 35 (2002).

51 The court first found polygraphs admissible in *State v. Dorsey*, 539 P.2d 204 (N.M. 1975). The state codified the requirements for admissibility in Rule 11-707 in 1983.

52 *Lee v. Martinez*, 96 P.3d at 293–94 (*supra* note 11) (reversing a state district judge tasked with holding a full "evidentiary hearing as to the scientific reliability of polygraph evidence").

53 NMRA 11-707, first adopted June 1, 1983, (A) defines the relevant terms, (B) minimum qualifications for examiners, and, (C) test

procedures (currently requiring recording in full of the entire exam, including pretest and any post-test interview). NMRA 11-707 (2016).

54 *Lee v. Martinez*, 96 P.3d at 294.

55 *The Polygraph and Lie Detection* (2003), available at <https://www.nap.edu/download/10420>. The full title of the committee that produced this report is "Committee to Review the Scientific Evidence on the Polygraph, Board on Behavioral, Cognitive and Sensory Sciences and Committee on National Statistics, Division of Behavioral and Social Sciences and Education, National Research Council of the National Academies." The National Academy of Science is "a private, non-profit society of distinguished scientists and engineers that advises the federal government on scientific and technical matters." *Lee v. Martinez*, 96 P.3d at 295. This should universally be considered an objective authority and makes the court's findings useful in almost any admissibility proceedings.

56 See *Lee v. Martinez*, 96 P.3d at 298–306 (characterized as "Alberico Factors" (*State v. Alberico*, 861 P.2d 192 (N.M. 1993))).

57 *State v. Alexander*, 364 P.3d 458, 464 (Alaska App. 2015) ("[T]he ac-



curacy rate for the [CQT] was still in line with the accuracy rates of other commonly admitted forms of scientific evidence—evidence such as fingerprint analysis, handwriting analysis, and eye-witness testimony.”).

58 *Lee v. Martinez*, 96 P.3d at 305–06.

59 *Id.* at 306.

60 *Id.*

61 "The United States Government is the most frequent user of polygraph tests." Raskin Decl., Doc. 95-1 at 23–24, in *Angulo-Mosquera*, *supra* note 2. They are used in "vet[ting] employees . . . . criminal investigations, counter-intelligence, foreign intelligence, national security screening . . . . In Fiscal Year 2011, the Department of Defense ran 43, 434 polygraph examinations (this does not include certain classified programs or the NSA whose polygraph activities are classified). . . . [T]he Department of Defense places heavy reliance on the polygraph to detect hostiles who attempt to penetrate our national security system." *Id.*

62 *Lee v. Martinez*, 96 P.3d at 306.

63 See Trial Transcr., testimony of Mr. James Orr, (Vol. VII, 10/22/15), Doc. 499 at 118–20, in *Angulo-Mosquera*, *supra* note 2.

64 Raskin *Daubert* Test., Doc. 508

at 38, in *Angulo-Mosquera*, *supra* note 2.

65 In *United States v. Marshall*, 986 F.Supp. 747 (E.D.N.Y. 1997), the government polygraphed an incarcerated defense witness and used the failed test to rebut a defense claim at sentencing. In *United States v. Smellie*, No. 10-10950 (11th Cir. Nov. 30, 2010) (unpublished), the court affirmed a district court that allowed the government to use a defendant's (mandatory) failed polygraph to justify denying her the benefit of the "safety valve" (18 U.S.C. § 3553 (f)).

66 See, e.g., Govt's Mot. in Limine to Exclude Polygraphy Testimony (Including under *Daubert*), filed 8/18/15, Doc. 56 at 5, in *Jasen*, *supra* note 27.

67 For example, in the polygraph studies, test results were compared with external criteria of truth or deception; ultrasound or x-rays were compared with actual medical findings (e.g., malignant tumors found); DSM diagnoses were compared with more thorough forensic evaluations. Philip E. Crewson, *A COMPARATIVE ANALYSIS OF POLYGRAPH WITH OTHER SCREENING AND DIAGNOSTIC TOOLS* (DoD-PI01-R-0003). Department of Defense Polygraph Institute, Fort Jack-



- son, SC 29207-5000. DTIC No. ADA403870. (Cited in Raskin Decl., Doc. 95-1 at 30 (Dec. 18, 2014), in *Angulo-Mosquera, supra* note 2. Useful charts demonstrating the high reliability of the polygraph using the CQT are available in Charles R. Honts & Bruce D. Quick, *The Polygraph in 1995: Progress in Science and Law*, 71 N. D. L. REV. 987, 1018–19 (1995).
- 68 Raskin Decl., Doc. 95-1 at 8, in *Angulo-Mosquera, supra* note 2, (citing four published field studies (*id.* at n. 12), also noting that "inconclusive" results were excluded (*id.* at n. 13) because they were not "decisions" about whether a subject was deceptive).
- 69 See Raskin Decl., Doc. 95-1 at 8, in *Angulo-Mosquera, supra* note 2.
- 70 Raskin Decl., Doc. 95-1 at 11, in *Angulo-Mosquera, supra* note 2, (citing Charles R. Honts & Mary V. Perry, *Polygraph Admissibility Changes and Challenges*, 16 L. & HUM. BEHAV. 357 (1992), and Charles R. Honts & Bruce D. Quick, *The Polygraph in 1995: Progress in Science and Law*, 71 N. D. L. REV. 987 (1995).
- 71 *Id.*
- 72 See Jan Widacki & Frank Horvath, *An Experimental Investigation of the Relative Validity and Utility of the Polygraph Technique and Three Other Common Methods of Criminal Identification*, 23 J. FORENSIC SCIENCES 596, 596–600 (1978) (cited in *United States v. Scheffer*, 523 U.S. 303, 334 n.24 (1998) (Stevens, J. dissenting) (discussing this study); (also cited in *State v. Alexander*, 364 P.3d 458, 464 n.4 (Alaska App. 2015).
- 73 *United States v. Crumby*, 895 F. Supp. 1354, 1358 (D. Ariz. 1995) (quoting *Daubert v. Merrell Dow Pharmaceuticals*, 43 F.3d 1311, 1317 (9th Cir. 1995) ("*Daubert II*").
- 74 *Crumby*, 895 F. Supp. 1354.
- 75 *Daubert II*, 43 F.3d 1311.
- 76 *Crumby*, 895 F.Supp. at 1360–61.
- 77 See *Daubert II*, 43 F.3d at 1317–19.
- 78 See *United States v. Scheffer*, 523 U.S. 303, 311–12 (1998). Justice Clarence Thomas wrote the majority opinion containing the comment on the lack of consensus, also noting that only the Fourth Circuit has a *per se* ban on polygraph evidence. Many states also exclude it, but New Mexico routinely admits it (N.M. Rule Evid. § 11-707).
- 79 Justice Anthony Kennedy wrote a concurrence joined by three other justices (*Scheffer*, 523 U.S. at 318–20), and on several important issues, including "jury



usurpation" and the collateral distraction of juries, these four joined a dissent by Justice Stevens:

[I]t seems the principal opinion overreaches when it rests its holding on the additional ground that the jury's role in making credibility determinations is diminished when it hears polygraph evidence. I am in substantial agreement with Justice STEVENS' observation that the argument demeans and mistakes the role and competence of jurors in deciding the factual question of guilt or innocence. In the last analysis the principal opinion says it is unwise to allow the jury to hear 'a conclusion about the ultimate issue in the trial.' I had thought this tired argument had long since been given its deserved repose as a categorical rule of exclusion.

*Id.* at 318–19.

80 "The literature consistently shows that juries are not inclined to give undue weight to polygraph evidence." Raskin Decl., Doc. 95-1 at 21–22 in *Angulo-Mosquera*, *supra* note 2, (citing Charles R. Honts & Mary V. Perry, *Polygraph Admissibility Changes and Challenges*, 16 L. & HUM. BE-

HAV. 357 (1992); N. J. Brekke, P. J. Enko, G. Clavet & E. Seelau, *The Impact of Nonadversarial Versus Adversarial Expert Testimony*, 15 L. & HUMAN BEHAV. 451 (1991); S. C. Carlson, M. S. Passano & J. A. Jannunzzo, *The Effect of Lie Detector Evidence on Jury Deliberations: An Empirical Study*, 5 J. POLICE SCI. & ADMIN. 148 (1977); A. Cavoukian & R. J. Heslegrave, *The Admissibility of Polygraph Evidence in Court: Some Empirical Findings*, 4 L. & HUMAN BEHAV. 117 (1979); A. Markwart & B. E. Lynch, *The Effect of Polygraph Evidence on Mock Jury Decision-Making*, 7 J. POLICE SCI. & ADMIN. 324 (1979); Bryan Meyers & Jack Arbuthnot, *Polygraph Testimony and Juror Judgments: A Comparison of the Guilty Knowledge Test and the Control Question Test*, 27 J. Applied Social Psych. 1421 (1997).

81 Justice John Paul Stevens, in his dissent, objected that the "potential burden of collateral proceedings . . . is a manifestly insufficient justification for a categorical exclusion of expert testimony." *Scheffer*, 523 U.S. at 337. Justice Anthony Kennedy, writing for himself and three other justices, explicitly refused to endorse the section (II-C) of the principal opinion (*id.* at 314–15), which contains the objection to



- the collateral litigation of polygraphs. "Justice Kennedy, with whom Justice O'Connor, Justice Ginsburg, and Justice Breyer join . . . I join Parts I, II-A, II-D and the opinion of the Court." *Id.* at 318.
- 82 See Argument of AUSA Joseph Ruddy, at Dec. 23, 2014 *Daubert* hearing, Doc. 508 at 38, in *Angulo-Mosquera*, *supra* note 2.
- 83 See N.M. Rule Evid. § 11-707.
- 84 *Scheffer*, 523 U.S. at 312, 317.
- 85 *Id.* at 320–39.
- 86 Justice Anthony Kennedy wrote a concurrence joined by three other justices (*Scheffer*, 523 U.S. at 318–20). The four joined Justice Stevens in opining that the ban on polygraph evidence was bad policy. However, the four were unwilling to hold that the ban was unconstitutional.
- 87 *Id.* at 318.
- 88 Edward J. Imwinkelried, *A Defense of the Right to Present Defense Expert Testimony: The Flaws in the Plurality Opinion in United States v. Scheffer*, 69 TENN. L. REV. 539, 544 (2002).
- 89 *Id.*
- 90 *Scheffer*, 523 U.S. at 334–35 (Stevens, J., dissenting).
- 91 *Id.* at 334 (Stevens, J., dissenting) (citing *Barefoot v. Estelle*, 463 U.S. 880, 898–901 (1983)).
- 92 *Id.* at 332 (Stevens, J., dissenting).
- 93 See, e.g., *Commonwealth v. Epps*, 53 N.E.3d 1247 (Mass. 2016) (containing numerous references to studies casting doubt on experts whose testimony often results in convictions in these cases).
- 94 See, e.g., Emily Bazelon, *Shaken-Baby Syndrome Faces New Questions in Court*, NEW YORK TIMES MAGAZINE, Feb. 2, 2011.
- 95 See Kathleen Stilling & Jerome Buting, *Motion Practice in a Child Sex Case*, THE CHAMPION, Aug. 2016 at 24, 28.
- 96 Edward J. Imwinkelried, *A Defense of the Right to Present Defense Expert Testimony: The Flaws in the Plurality Opinion in United States v. Scheffer*, 69 TENN. L. REV. 539, 557 (2002) (citing a 1996 Justice Department study of 28 cases in which defendants were convicted largely on the basis of mistaken eyewitness testimony but exonerated later by DNA expert testimony, and referencing "a large body of empirical research documenting a substantial incidence of error in 'factual' testimony by eyewitnesses.").
- 97 See *United States v. Henderson*, 409 F.3d at 1302 (Citing *Daubert*, 509 U.S. at 595, as suggesting an "enhanced role" of Fed. R. Evid. 403 under the broadened admissibility regime announced in *Daubert*.)
- 98 *United States v. Kwong*, 69 F.3d



663, 668 (2d Cir. 1995). Interestingly, the Second Circuit simultaneously ruled a highly questionable eyewitness identification admissible. *Id.* at 665–66.

99 *See, e.g., United States v. Brown*, 441 F.3d 1330, 1362 (11th Cir. 2006) (Rejecting an objection to extremely gruesome crime-scene photographs. "In reviewing issues under Rule 403, we look at evidence in the light most favorable to its admission, maximizing its probative value and minimizing its undue prejudicial impact." (citation omitted).

100 *Supra* note 44 and accompanying text.

101 Rule 403 specifies exclusion only when probative value of relevant evidence is "substantially outweighed" by certain "indicated risks." *See* Dale A. Nance, 34 SETON HALL L. REV. 191, 226 (2003–2004) ("Under [FRE] 403, the burden is on the objecting party to convince the trial judge that the testimony's probative value is outweighed by the indicated risks").

102 Yigal Bander, *United States v. Posado: The Fifth Circuit Applies Daubert to Polygraph Evidence*, 57 LA. L. REV. (1997) 691.

103 *United States v. Posado*, 57 F.3d 428, 431 (5th Cir. 1995).

104 Dr. David Raskin, *supra* note 45, was consulted on this scenario in

*Posado* just prior to publication. He wrote: "The two sets of tests are not independent because they are the same examinees, so one can use only one set of three tests in this analysis. If the polygraph has an error rate of 10%, then the probability that all three truthful results were wrong is  $(.10) \times (.10) \times (.10) = .001$ . Thus the likelihood that all passed their tests even though actually lying is approximately 1 in 1,000. Even if one assumes that polygraphs are only 80% accurate, the probability is still  $(.20) \times (.20) \times (.20) = .008$  or 8 in 1,000." E-mail from Dr. David Raskin (Jun. 20, 2017, 13:29 EST) (on file with author).

105 *Posado*, 57 F.3d at 431.

106 *Id.* at 435.

107 *Id.*

108 Doc. 78, *United States v. Pablo NMI Ramirez, Irma Clemencia Hurtado, Miriam Henao Posada*, Case No. 4:93-cr-00252 (S.D. Tex.) (Nov. 17, 1995).

109 "An Opposing Party's Statement" is not hearsay, according to Fed. R. Evid. 801(d)(2).

110 Order issued Apr. 19, 2015, Doc. 161, in *Angulo-Mosquera*, *supra* note 2.

111 *Crummy*, 895 F. Supp. at 1363–65.

112 *Id.*

113 *Id.* at 1364.

114 *Id.* at 1363.



- 115 See Order Dismissing Indictment, Doc. 118, in *United States v. Crumby*, Case No. 2:94-cr-00122-RGS (D. Ariz. 1995).
- 116 The complications caused by this refusal to sever, prejudicial cross-examination of Mr. Angulo, and other issues are pending appeal in the Eleventh Circuit as of this writing. See *United States v. Jesus Angulo Mosquera*, No. 16-10261 (11th Cir.).
- 117 Trial Transcript (Vol. VII, Oct. 22, 2015), Doc. 499, in *Angulo-Mosquera*, *supra* note 2.
- 118 *Angulo-Mosquera*, *supra* note 2..
- 119 As of this writing, this case is on appeal in the Eleventh Circuit (*United States v. Jesus Angulo-Mosquera*, Case No. 16-10261) based on challenges to the prosecution's cross-examination of Angulo, other non-harmless errors and (by co-defendants) based on the district court's failure to sever the co-defendants who did not have polygraph evidence to present Oral argument is scheduled for Sep. 2017.
- 120 See, e.g., *United States v. Resnick*, No. 14-3791 at 12–15 (7th Cir. May 4, 2016) (discussing adverse district court admissibility rulings on polygraphs in the Seventh and other circuits); in the Eleventh Circuit since *Piccinonna* in 1989, research has identified no reversal of a district court exclusion of a defense polygraph.
- 121 Quoted in *Lee v. Martinez*, 96 P.3d at 297.
- 122 As opposed to use of the court's gatekeeping role to ensure admission of only properly administered exams with relevant questions, see *Piccinonna*, 885 F.2d at 1537, much as other routinely accepted scientific evidence, such as DNA, remains subject to exclusion if the court deems it unreliable or irrelevant for fact reasons. "Most courts" rather than "Courts" is used because New Mexico has well-established rules that routinely allow polygraph evidence. N.M. Rule Evid. § 11-707.
- 123 See Part II of Justice Stevens' dissent, *Scheffer*, 523 U.S. at 325–30 ("The Court barely acknowledges that a person accused of a crime has a constitutional right to present a defense." *Id.* at 325–26.) In this section, Justice Stevens argues forcefully that a ban or unreasonable exclusion of polygraph evidence clearly violates a defendant's constitutional right to present a defense.
- 124 Inscription on the front of the Supreme Court building in Washington, D.C.



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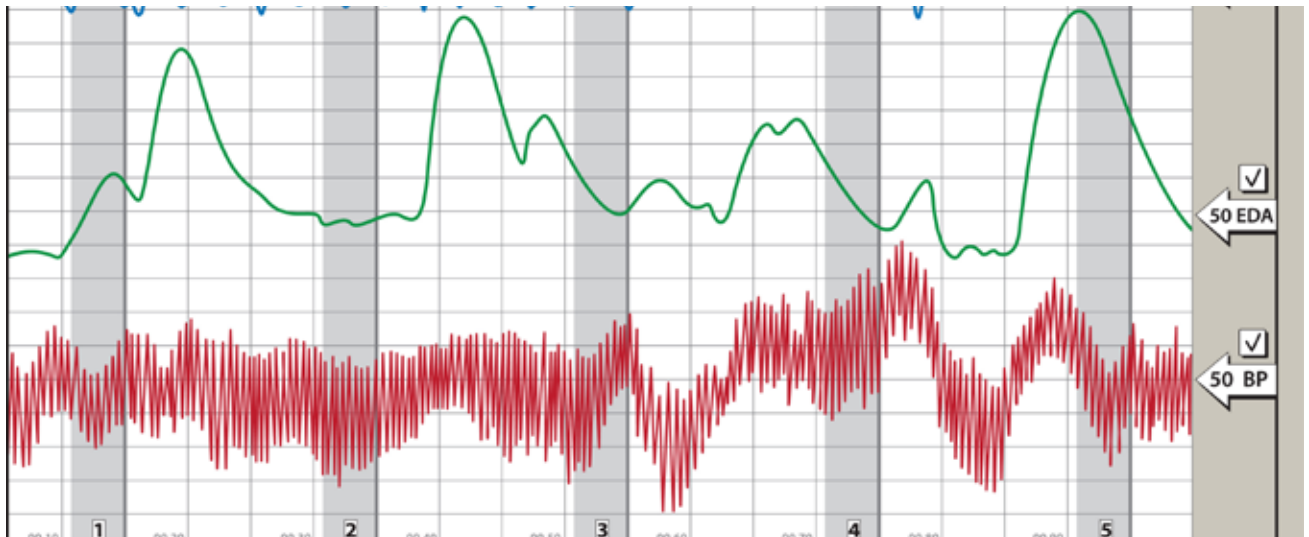


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# Practical Polygraph: Seven Things to Know About Feature Extraction with Electrodermal and Cardio Data



by Raymond Nelson and Mark Handler

This document describes seven different parameters that can affect the feature extraction with polygraphic electrodermal (EDA) and cardio activity data. Those parameters include: the response latency requirement, the response onset window and whether to interpret the response onset window in a strict or permissive manner, the evaluation window and whether to interpret the evaluation window in a strict or permissive manner, the imputing of a response onset when the data are already ascending at stimulus onset, and the interpretation of descending segments during the measurement period. Each of these parameters is an opportunity for inconsistency, differences of opinion,

subjectivity and unreliability in field practice.

All scientific tests can be thought of as consisting of a common set of operations. These operations can include: feature extraction; numerical transformations and data reduction; a likelihood function in the form an empirical reference distribution, theoretical reference distribution, or other device for the computation of a statistical or probabilistic value for the observed data; and structured rules that determine the interpretation of the statistical and categorical test result. Bayesian analytic methods will also include a prior probability that will be computed together with the data and



likelihood function. It is possible that some of these operations can occur together; for example, when dealing with big data (a term that refers to the use of large datasets) some data reduction may be completed prior to feature extraction in order to reduce redundancy of information within the data. Or, decision rules may specify which values, after numerical transformation and data reduction, are to be computed with the normative reference data or likelihood function.

Regardless of the exact design and organization of an analysis method, all test data analysis begins with feature extraction. Feature extraction is the process of identifying the useful information or signal of interest within the data, so that numerical scores can be obtained for analysis. For polygraphic EDA and cardio data, response amplitude is the primary signal of interest. Response amplitude has been described as a function of positive slope<sup>1</sup> activity in response to the test stimuli (Bell, Raskin, Honts & Kircher, 1999; Boucsein, 2012; Harris, Horner & McQuarrie, 2000; Kircher & Raskin, 1988; Kircher, Kristjannoson, Gardner & Webb, 2005; Podlesny & Truslow, 1993). Positive slope activity is easily observed visually by human experts, though there are a number of issues of

ambiguity and potential inconsistency. Descriptions of feature extraction research and computer algorithm development can illustrate the complexity of the actual logic and process that experienced human experts can execute intuitively and virtually automatically, with little executive attention.

Boucsein (2012), Kircher and Raskin (1988) and Podlesny and Truslow (1993) described response onsets as the beginning of positive slope segment. They described response peaks as the highest point between onsets, and EDA and cardio response amplitude as the maximum difference between a low point and subsequent high point in the data within the evaluation window (Bell et.al., 1999; Kircher & Raskin, 1988). Similarly, Harris, Horner and McQuarrie (2000) also described response amplitude as a function of the difference between a peak of positive slope activity within the evaluation window and an onset of positive slope activity that occurred prior to the response peak and within a specified period for an expected response onset. In another similar description, Kircher et.al. (2005) described response onsets as changes from negative or zero slope to positive slope and response peaks as changes from positive slope to zero or nega-

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<sup>1</sup> The slope of a time-series data segment is said to be positive when it is moving upward, because the difference between each successive data point will be a positive number. A time-series data plot is said to be negative when moving in a downward direction because the difference between each data point will be a negative number. Time-series data that are moving horizontally – neither upward nor downward – can be said to have zero slope.



tive slope, with response amplitude defined as the maximum observed difference between a response onset and each subsequent response peak.

Although succinct, this definition has proven unsatisfactory when the slope of the EDA or cardio data is already positive at stimulus onset, when there is no change from negative or zero slope to positive slope, and when there are multiple changes in slope within the data segment of interest. With experience, many of the subtleties and nuances of feature extraction can be executed quickly and easily, almost automatically and with potentially little executive attention – giving rise to the possibility that some professionals may not be prepared to discuss the exact details of how they extract a particular score. Others may execute the feature extraction tasks inconsistently and may therefore be vulnerable to a variety of secondary influences. For these and other reasons, polygraphic test data analysis is a complex skill with numerous areas for potential ambiguity and subjectivity and inconsistency. The potential magnitude of inconsistency can be illustrated mathematically; although several of these parameters can have numerous possible solutions, with only two options for each parameter the result is that over 128 different feature extraction solutions exist ( $2^7 = 128$ ) for the primary feature of interest when evaluating the EDA and cardio data. For this reason, understanding

these various decision parameters – and their potential to foment errors and disagreement – should be of great interest to polygraph experts.

### Response latency requirement

Response latency generally refers to the period from stimulus onset to response onset. The response latency period refers to the short period of time immediately following a stimulus onset during which a change in physiological activity is not interpreted. The rationale for a response latency requirement is that the speed of activity within the nervous system makes it unlikely that an immediate change in physiology is due to the test stimulus.

Boucsein (2012) describes a response latency of one to two seconds for EDA responses. Edelberg (1972) suggested a 1.2 to 4 second EDA response latency. Levinson and Edelberg (1985) listed all EDA latencies published in Psychophysiology between 1977 and 1982, and showed that 1 to 4 seconds and 1 to 5 seconds were the most often described.

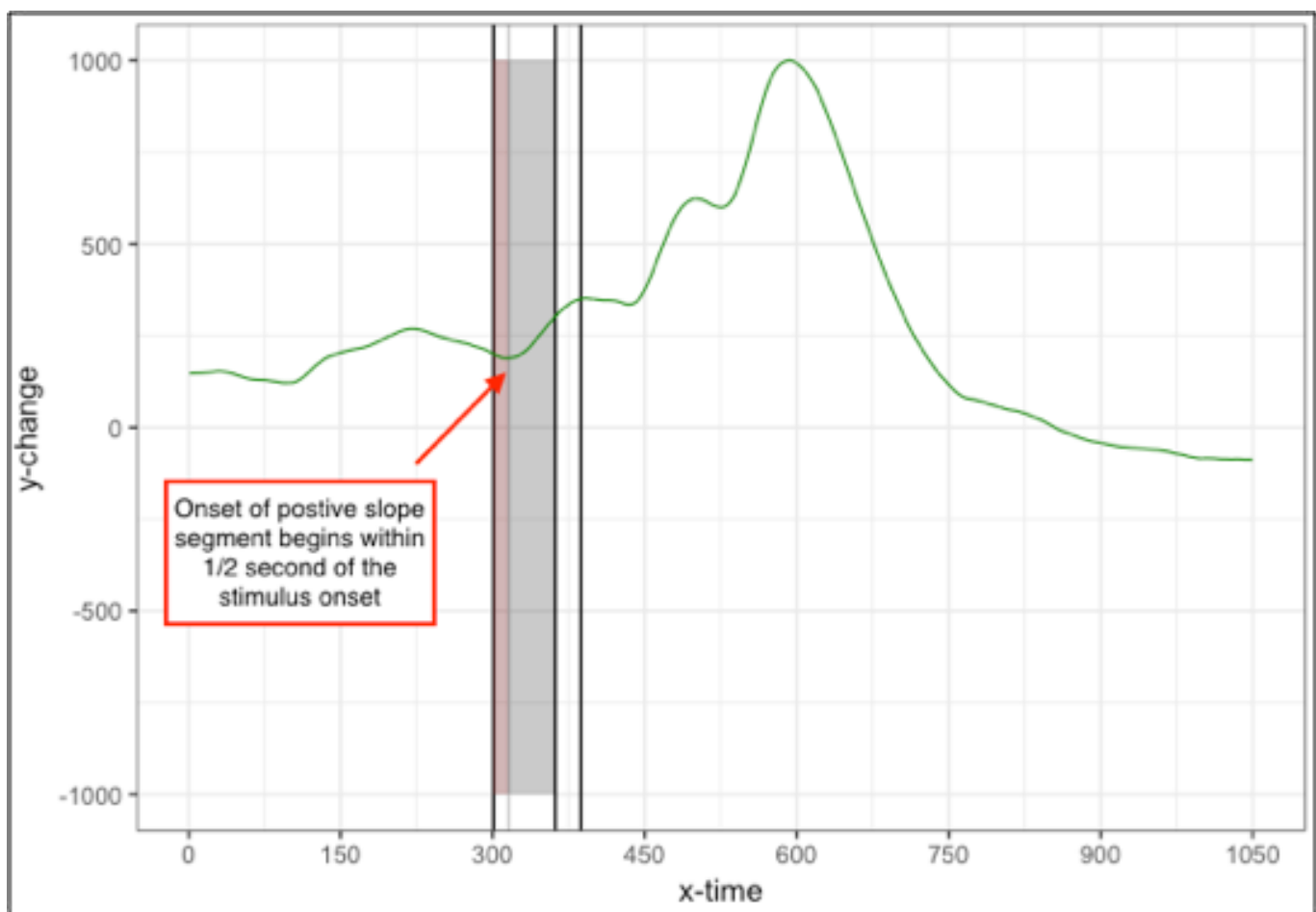
In contrast to research psychophysicologists, field polygraph practitioners have typically used a shorter EDA response latency requirement. Bell et.al. (1999) described a response latency requirement of one-half second following the stimulus onset. Dutton (2000) also described the use of a one-half second response latency requirement



for electrodermal reactions. Krapohl and Shaw (2015), citing Kircher and Raskin (1988), and also described the use of a one-half second response onset latency requirement. Figure 1 shows a change in EDA immediately upon stimulus onset followed by another change a few seconds later. Because manual scoring has continued

to depend almost completely on visual feature extraction methods, it is likely that some field examiners are more attentive than others in their adherence to the response latency requirement. Also, no published description exists for a minimum required latency period for cardiovascular data.

**Figure 1. Response latency for EDA data.**

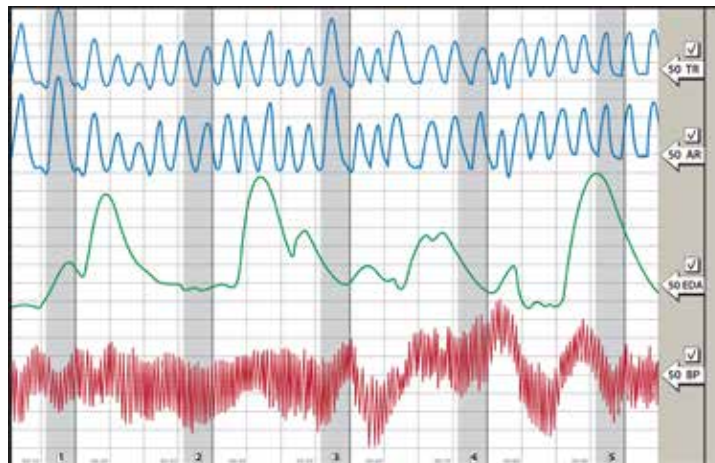


## Response onset window

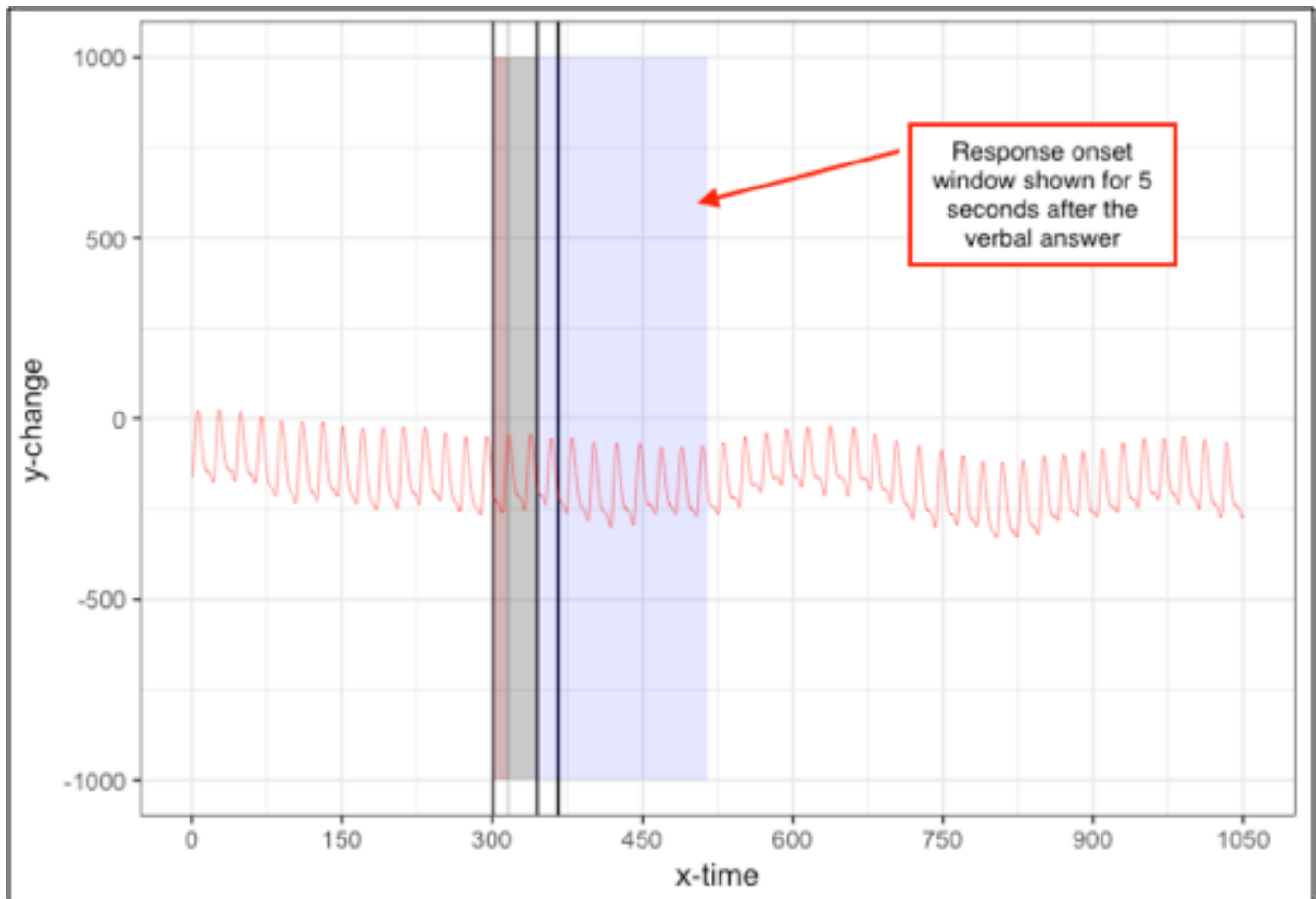
The response onset window and response latency are related. Changes in physiological activity can be attributed to the test stimuli when two requirements are satisfied: 1) the change in physiology is timely with the test stimulus, and 2) there is an absence of any other observable cause for the change in activity. Obviously, if there is any other noted possible cause then change in activity cannot be reliably attributed to the test stimulus. Changes in physiological activity can be interpreted as timely with the test stimulus if they begin within a defined response onset window. The response onset window should be consistent with reasonable assumptions about the ability of normal functioning persons to maintain undistracted attention.

Bell et.al., (1999) described the response onset window as existing from

stimulus onset, following the minimum response latency requirement, until five seconds after the verbal answer. Figure 2 shows a cardio data segment with the response onset window shaded for five seconds after the verbal answer. Others have published different descriptions of the response onset window. Dutton (2000) described the response onset window as the period from stimulus onset to about 8 seconds. A slightly different solution was offered by the Department of Defense (2006) which defined the response onset window as existing from the stimulus onset to the verbal answer under normal circumstances. Harris, Horner and McQuarrie (2005) also described the exclusion of electrodermal and cardio response onsets that began more than one second after the verbal answer. Regardless of the details, the response onset window should not be confused with the evaluation window.



**Figure 2. Cardio data with the response onset window shaded for five seconds after the verbal answer.**

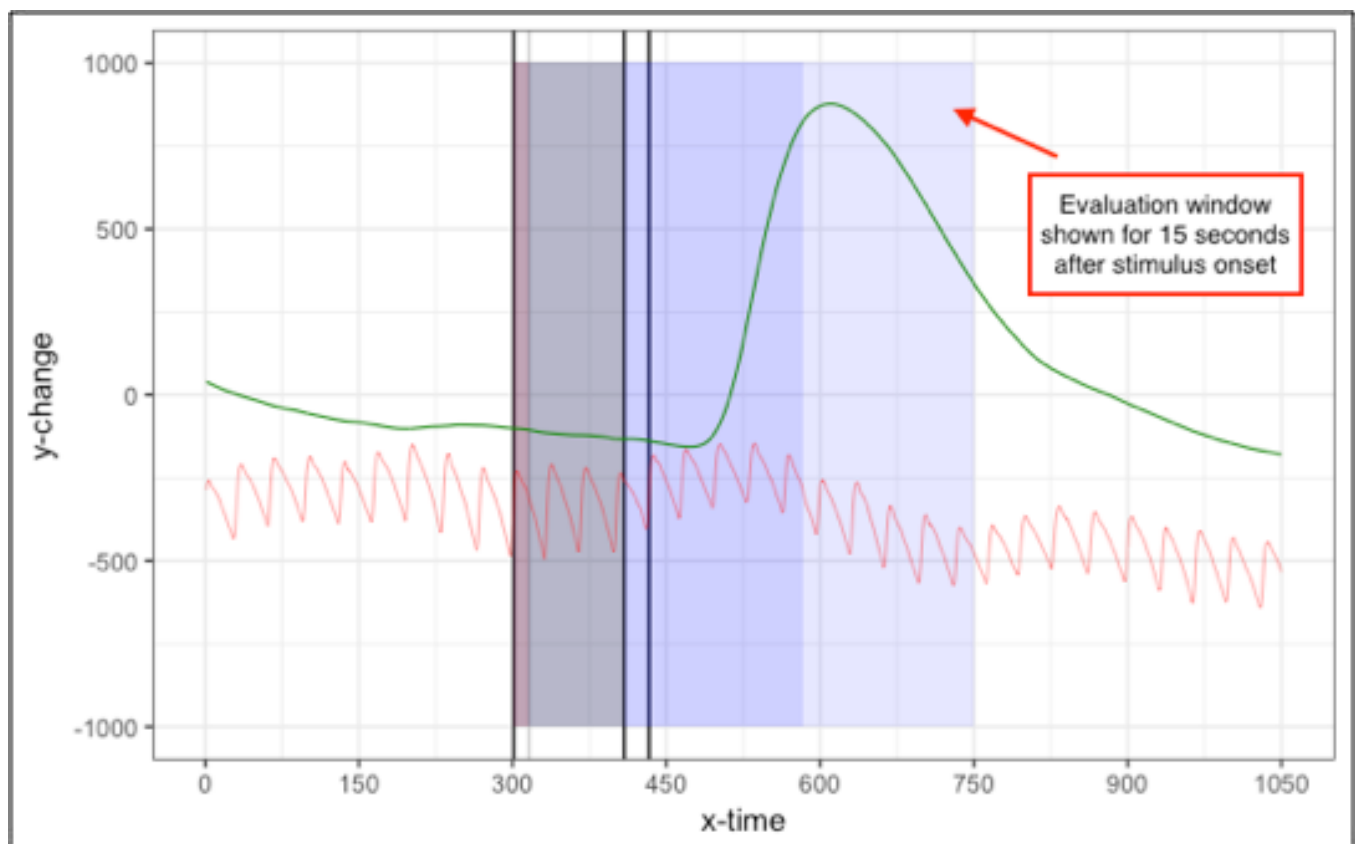


## Evaluation window

The purpose of the evaluation window is similar to that of the response onset window – to ensure that changes in physiological activity can be reliably attributed to the test stimuli. For this reason, the length of time for the evaluation window should conform to reasonable knowledge about the ability of normal functioning persons to maintain undistracted attention and concentration. Different descriptions have been published regarding the length of the evaluation window.

Kircher and Raskin (1988) used a fixed evaluation window of 20 seconds beginning after stimulus onset and including a short latency period. Kircher et.al., (2005) also described the use of a 20 second evaluation window. The OSS-3 algorithm (Nelson, Krapohl & Handler, 2008) was developed using a 15 second evaluation window. Figure 3 shows a segment of EDA and cardio data with a 15 second evaluation window. Harris, Horner and McQuarrie (2005) described the selection of an EDA response peak in a 13 second window of data, and the selection of a cardio response peak in a 10 second window beginning at stimulus onset.

**Figure 3. Evaluation window of 15 seconds.**



In contrast to a fixed length evaluation window, neither the ESS procedural reference (Nelson, et.al., 2011) nor the Federal Polygraph Examiners Handbook (Department of Defense, 2006) describe the use of a fixed evaluation window for EDA feature extraction – and instead indicate that changes in physiological activity are evaluated until the peak of response. Krapohl and Shaw (2015) reported the evaluation window as beginning after stimulus onset, and following a short latency period, and ending at the onset of the next stimulus.

When the length of the evaluation window is determined by the onset of the next stimulus event the effect can be that there is no fixed length for the evaluation window. This is because experienced field practitioners will generally not present each test stimulus at fixed intervals but will instead introduce each question while observing both the examinee and recorded test data to ensure readiness. Computerized scoring algorithms have commonly used a fixed-length evaluation window.

### **Strict or permissive interpretation of the response onset window**

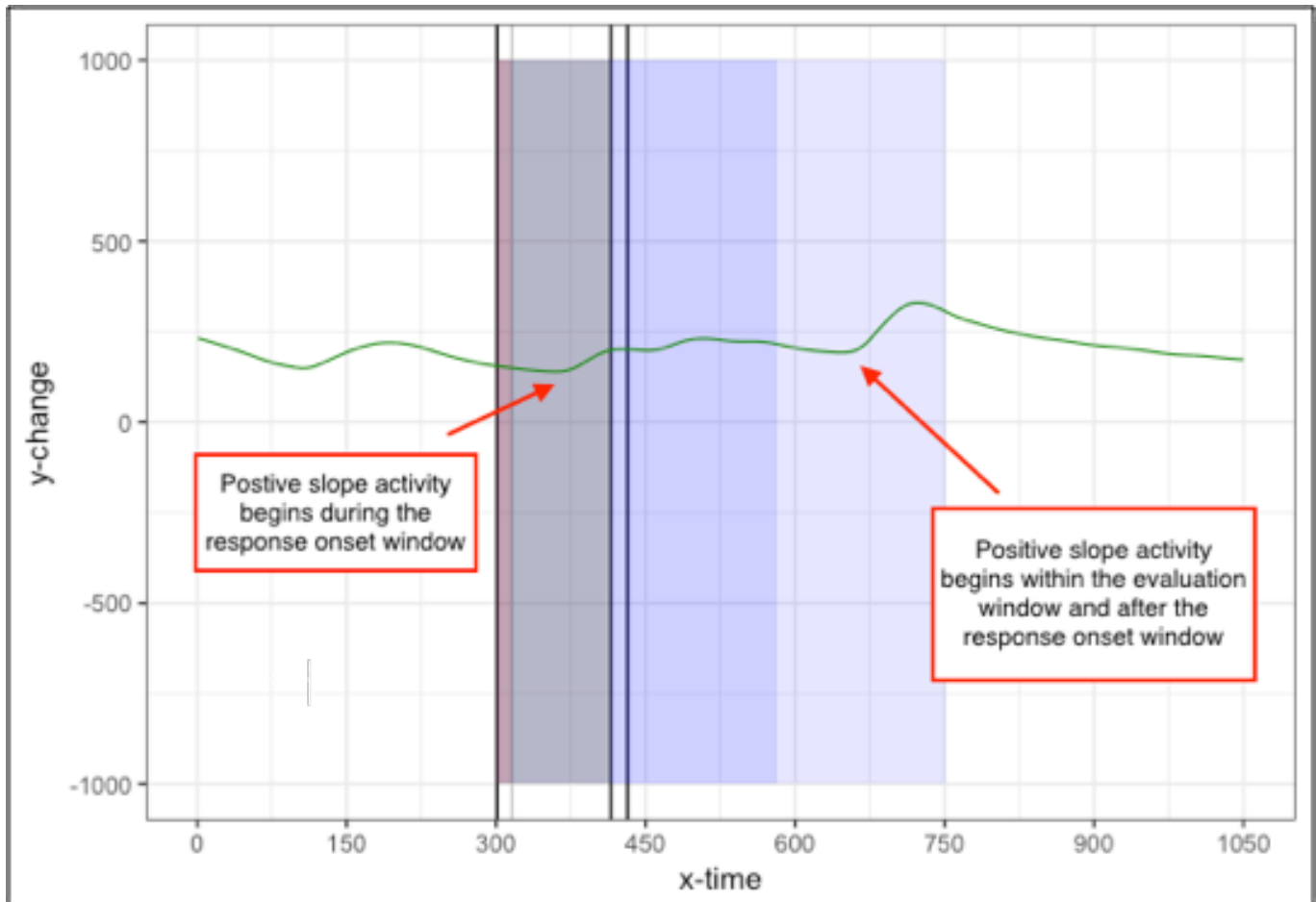
Use of a fixed-length evaluation window can introduce additional ambiguity to the feature extraction process when dealing with complex reactions. Simple reactions include only one positive slope segment. Simple reactions

are also characterized by exactly two changes in slope: the onset of a positive slope segment following a negative or zero slope segment, and the peak of response or end of a positive slope segment. Complex reactions are those that consist of two or more positive slope segments, or three or more changes in slope.

A strict interpretation of the response onset window would extract information from only those positive slope segments that begin within the response onset window, excluding any positive slope segments from analysis if they begin after the response onset window. Figure 4 shows an EDA segment for which a second positive slope segment begins within the 15 second evaluation window yet outside the response onset window. A permissive interpretation of the response onset window would allow the extraction of information from all positive slope segments within the evaluation window as long as the onset of the first positive slope segment has occurred within the response onset window. A permissive interpretation of the response onset window may be reasonable when using a fixed-length evaluation window but may become problematic when using an evaluation window of undefined length – such as when the length of the evaluation window is determined by the onset of the next stimulus question.



**Figure 4. EDA segment with a second positive slope change outside the response onset window.**

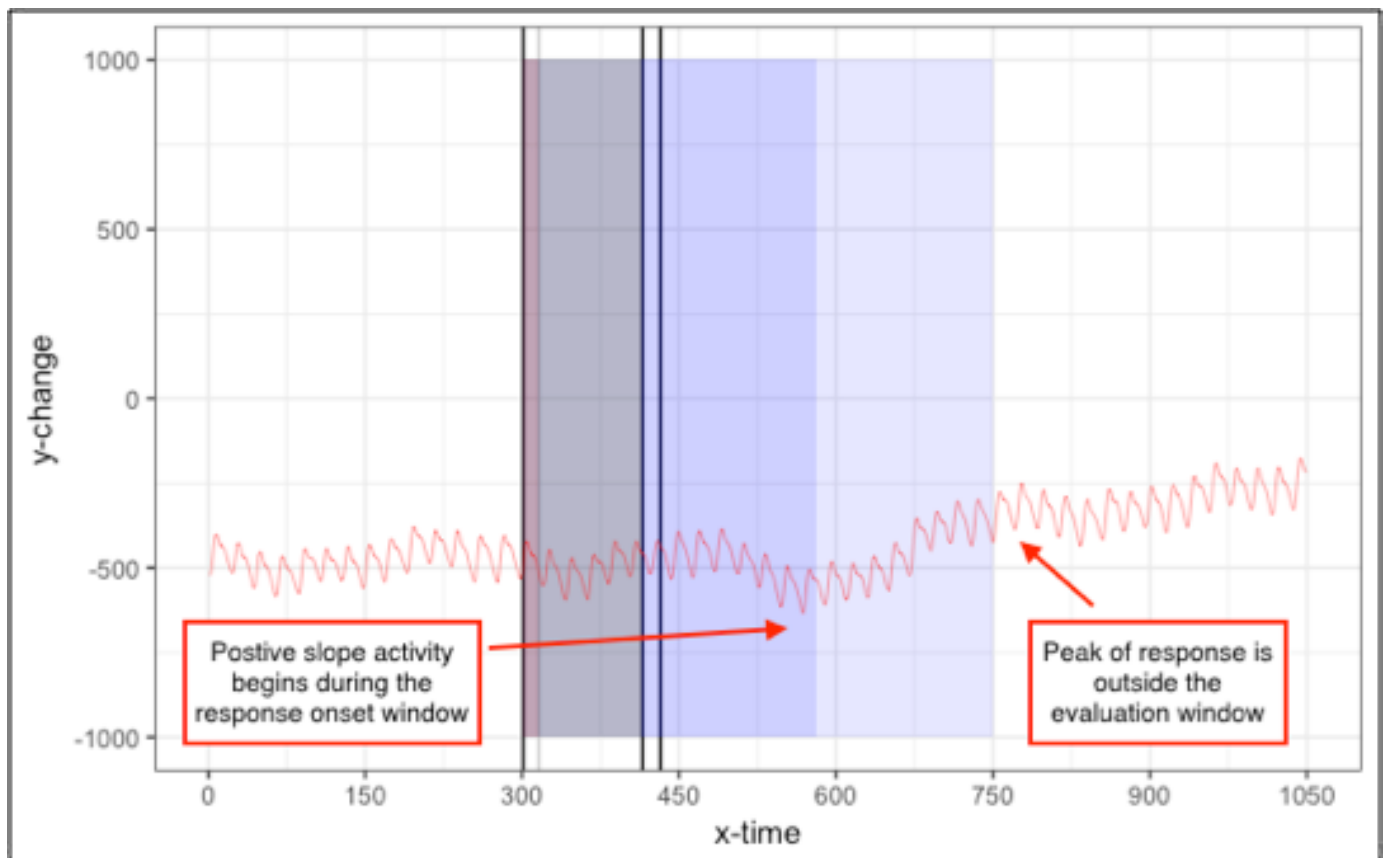


## Strict or permissive interpretation of the evaluation window

Use of a fixed-length evaluation window can also introduce another option or ambiguity to the feature extraction process when a positive slope segment continues past the end of the fixed-length evaluation window. A strict interpretation of a fixed-length evaluation window would require the termination of feature extraction at

the end of the fixed-length evaluation window. Figure 5 shows a cardio data segment that continues outside of the fixed-length evaluation window. A permissive interpretation of the fixed-length evaluation window would permit the extraction of information until the peak of response – even if the response peak occurs after the end of the fixed-length evaluation window.

**Figure 5. Cardio reaction that continues outside a fixed-length evaluation window.**



This matter of ambiguity could be eliminated by the use of an evaluation window that is determined by the onset of the next test stimulus question. However, an evaluation of window of undetermined length would impose a strict interpretation of the response onset window, such that some positive slope segments that begin after the response onset window yet within a fixed-length evaluation window might not be scored.

### **Interpretation of a response onset as a function of a change in positive slope angle**

Positive slope segments that occur prior to stimulus onset are referred to as non-specific physiological responses<sup>2</sup> (Boucsein, 2102). They are often changes in physiological activity that cannot be attributed to the test stimuli. A positive slope prior to stimulus onset may also occur as a result of a positive slope tonic trend in the EDA or cardio data. If the onset of response is defined as the onset of a positive slope segment, then no feature extraction can occur when there is no positive slope segment that begins within the response onset window. Figure 6 shows an EDA data segment for which the slope is positive prior

to stimulus onset. Automated feature extraction algorithms, because they are structured and procedural with no real knowledge or intuition about the data and context, have sometimes been unable to extract a response under these conditions.

Human experts (and perhaps some machine learning algorithms with “artificial intelligence”) may have contextual knowledge about this the data and this potential condition and might therefor apply some creative intuition to these situations. In field practice, when the slope of the EDA and cardio data are already positive at stimulus onset many examiners will look for a change in positive slope angle within the response onset window and impute the onset of response at the point of change. Bell et.al., (1999) described this practice, and it can be often observed in use among field examiners.

Automated or computerized feature extraction algorithms can also be imbued with information or “knowledge” that can enable the feature extraction algorithm to impute the onset of a response in a manner similar to human experts. Harris, Horner and McQuarrie (2000) described the identification of a

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2 Some have attempted to refer to these as “anticipated” or “early” reactions but these terms can be problematic because they can be misinterpreted as attributing the cause to the examinee’s thinking about the forthcoming stimulus question. The cause of these reactions cannot in fact be known and it is possible their cause is unrelated to the test stimuli. It is known only that they have begun before the stimulus. The occurrence of numerous non-specific physiological reactions may be an indicator of problems with attention or cooperation during testing.

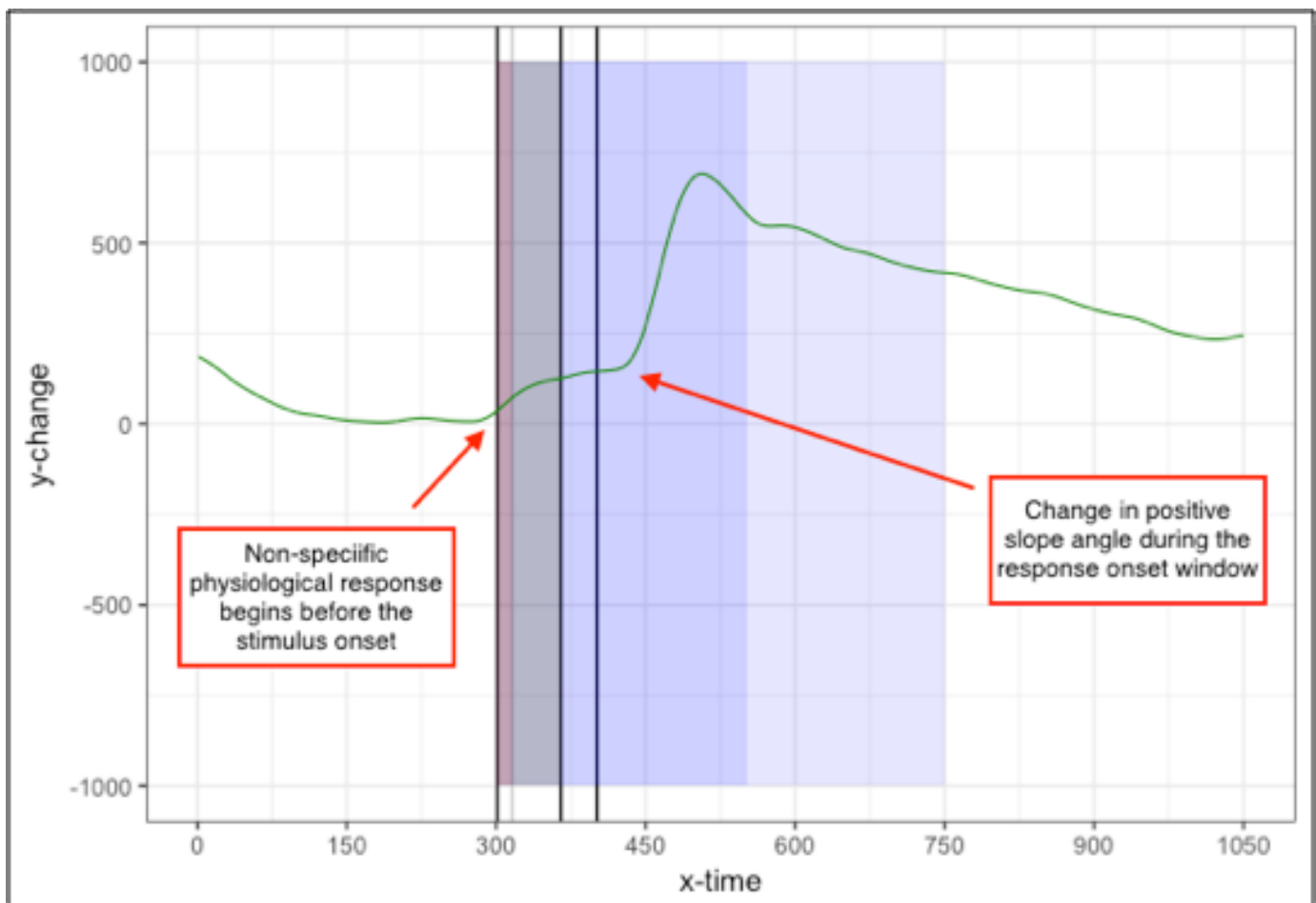


response onset within a positive slope segment as a function of a slope tolerance and the proportion of change relative to the peak of response with the goal of discriminating between positive slope activity that is tonic vs phasic. Other automated solutions also exist for this situation using statistical learning theory or machine learning methods.

When visually imputing a response onset within a positive slope data segment there may always exist some subjective differences in tolerance among

human experts as to how much of a change in positive slope activity is usable or un-useable as a response onset. For automated feature extraction algorithms, the question of tolerance can be resolved in three ways: through the selection of arbitrary parameters, through heuristic observation and experimentation, or through statistical or machine optimization of the parameters that maximize a stated goal in terms of test accuracy or error rates.

**Figure 6. EDA data with positive slope prior to stimulus onset.**



## Interpretation of descending segments of complex reactions

A remaining issue of ambiguity in EDA and cardio feature extraction involves the interpretation of complex responses. As described earlier, complex responses consist of two or more positive slope segments or three or more changes in slope. Complex reactions are those that include at least one negative slope segment within two or more positive slope segments during the evaluation window.

Kircher and Raskin (1988), using the term “electrodermal burst frequency,” reported a negative correlation ( $r = -.05$ ) for response complexity and the criterion of deception and truth-telling. Harris, Horner and McQuarry (2000) reported that response complexity used alone was of little practical value, and further described that counting the number of peaks within the evaluation window was no better than the simple observation of multiple response peaks within the evaluation window. Kircher, et.al. (2005) also reported a weak negative correlation between response complexity and the criterion of deception and truth-telling ( $r = -.11$ ).

Regardless of its weak diagnostic contribution, Bell, et.al., (1999) included response complexity as a scoring feature for EDA responses, as did the Department of Defense (2006). However, Krapohl and McManus (1999) did not

include EDA complexity when scoring the Objective Scoring System (OSS), nor did Krapohl (2000) with the OSS2. Similarly, Nelson Krapohl & Handler (2008) used only EDA and cardio amplitude when scoring the OSS-3. Nelson et.al, (2011) described the use of only EDA and cardio amplitude for the Empirical Scoring System. Both Harris, Horner and McQuarrie (2000) and Kircher et.al., (2005) reported that use of primary response features alone would produce information with the same diagnostic value as the traditional use of both primary and secondary features.

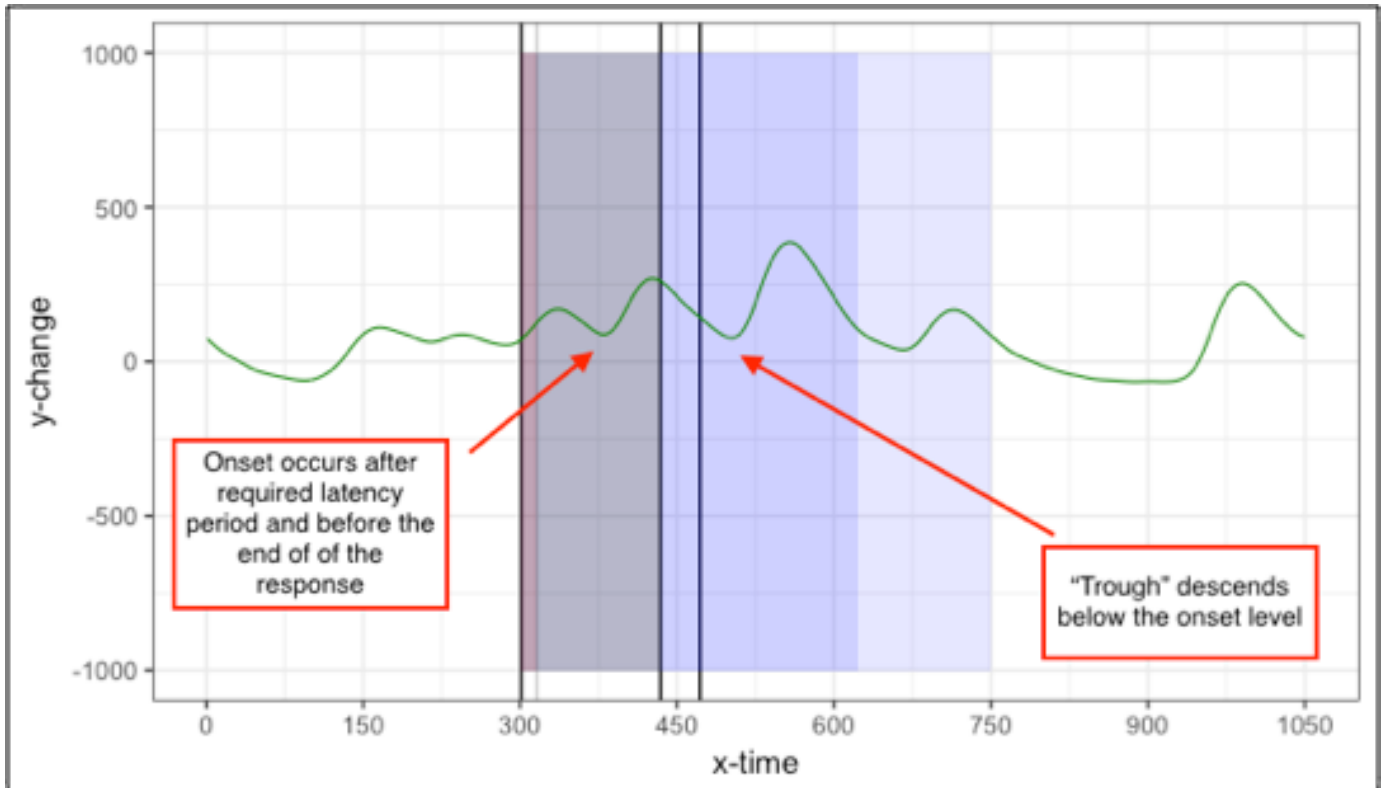
Although the evidence is weak and inconsistent regarding the diagnostic value of response complexity itself, response complexity has been described as a consideration when scoring response amplitude. According to the Department of Defense (2006), descending segments within the evaluation window are meaningful when they descend below the level of the response onset, under which condition the segment is not interpreted as a complex response even though there are multiple positive slope changes subsequent positive slope segment within the evaluation window is not interpreted as a complex reaction. In this case, a negative slope segment that descends below the initial response onset level is referred to as a “trough.” Figure 7 shows a segment of EDA data that includes two positive slope sections for which the interven-



ing negative slope section descends below the onset level of the first posi-

tive slope section.

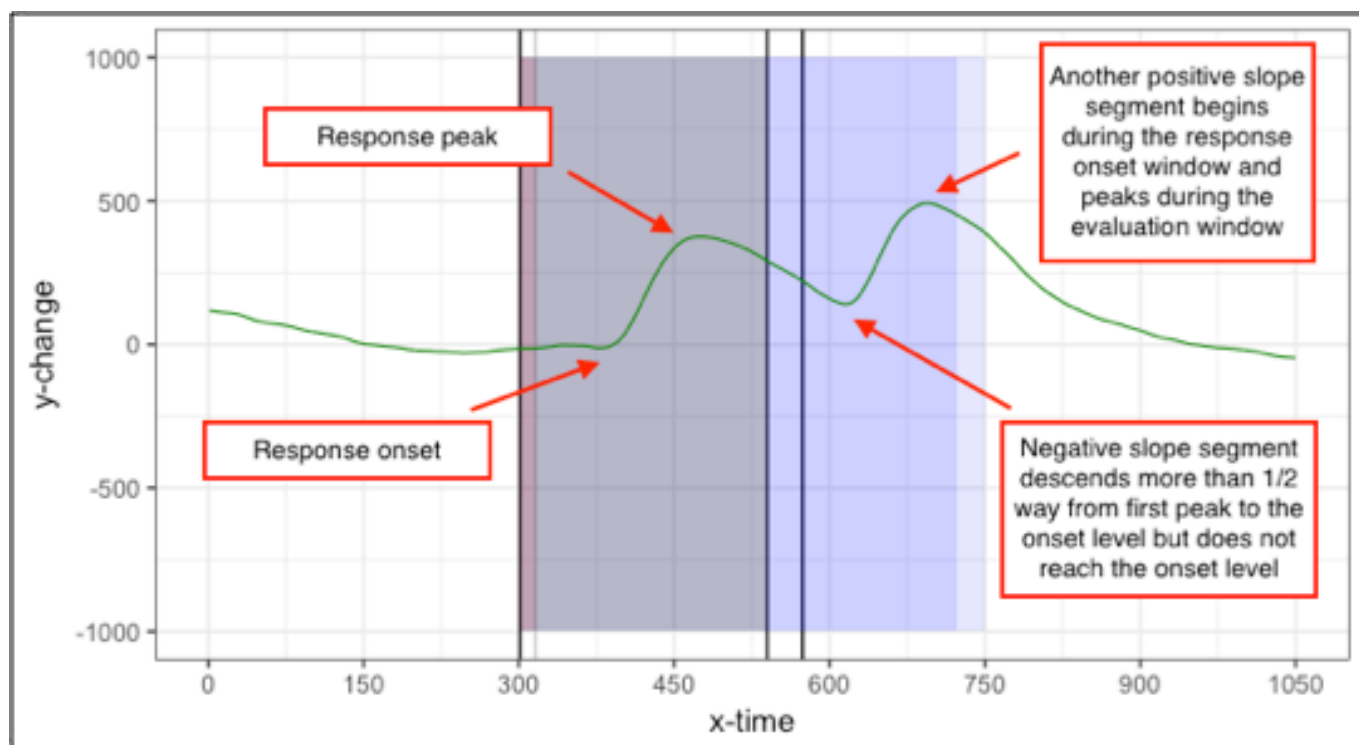
**Figure 7. EDA segment with negative slope that descends below the response onset level.**



It is possible that different examiners can interpret the EDA segment in Figure 7 in different ways. If the “trough,” is interpreted as indicating that the initial response is complete – with the corollary that the subsequent positive slope segment is not assumed to be caused by the test stimulus – then some will score only the first positive slope segment. Others might score the second positive slope segment – in the absence of any observable artifact or outside stimulus – because it begins within five seconds of the verbal answer and is larger than the first positive slope segment.

Another variant of this rule can be observed in discussion among field practitioners wherein a segment that would normally be interpreted as a complex reaction is viewed as two distinct reactions when the negative slope segment had descended more than 50% of the distance from peak of the initial positive slope segment and the response onset level (Boucsein, 2012). Figure 8 shows an EDA segment with two positive slope segments within the evaluation window for which the intervening negative slope segment descends about half-way from the peak to the onset level before the subsequent positive slope segment.

**Figure 8. EDA segment with negative slope that does not descend below the response onset level.**



The variant descending rule shown in Figure 8, wherein the EDA data descend more than half-way from the peak to onset value, ignores that factors other than the examinee may influence these negative slope segments. Those factors can include environmental factors such as tempera-

ture, humidity and convection, which may affect evaporation and hydration at the surface of the skin, and other factors such as differing design characteristics of the Auto EDA filter for different polygraph instruments. Also, this variant rule is not extant in the authoritative publications.

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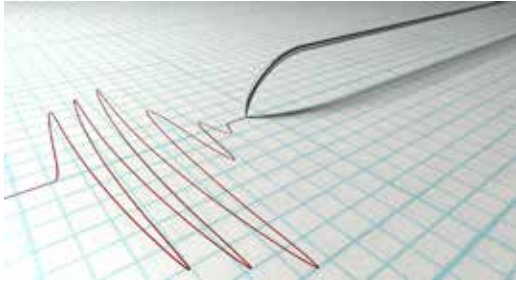
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