

# Error Analysis of a Forensic Controlled Substance Case

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# Error Rates and the Law

- *Daubert v. Merrell Dow Pharmaceuticals, Inc.*
  - 509 US 579 (1993)
- “Many considerations will bear on the inquiry, including...***its known or potential error rate...***”





24.4% unforced errors in women's matches round of 16 through final at 2013 Wimbledon







Blank



1



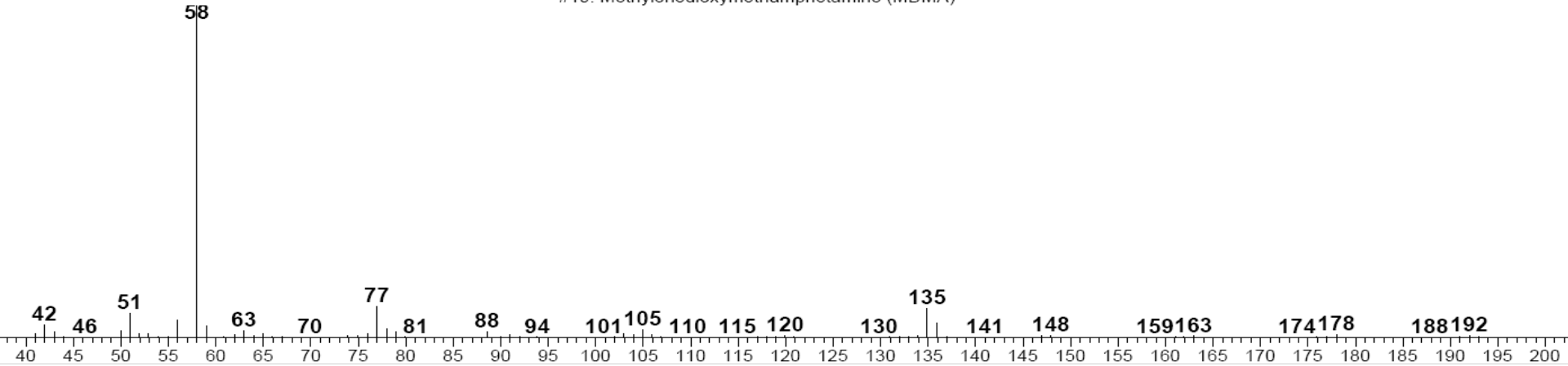
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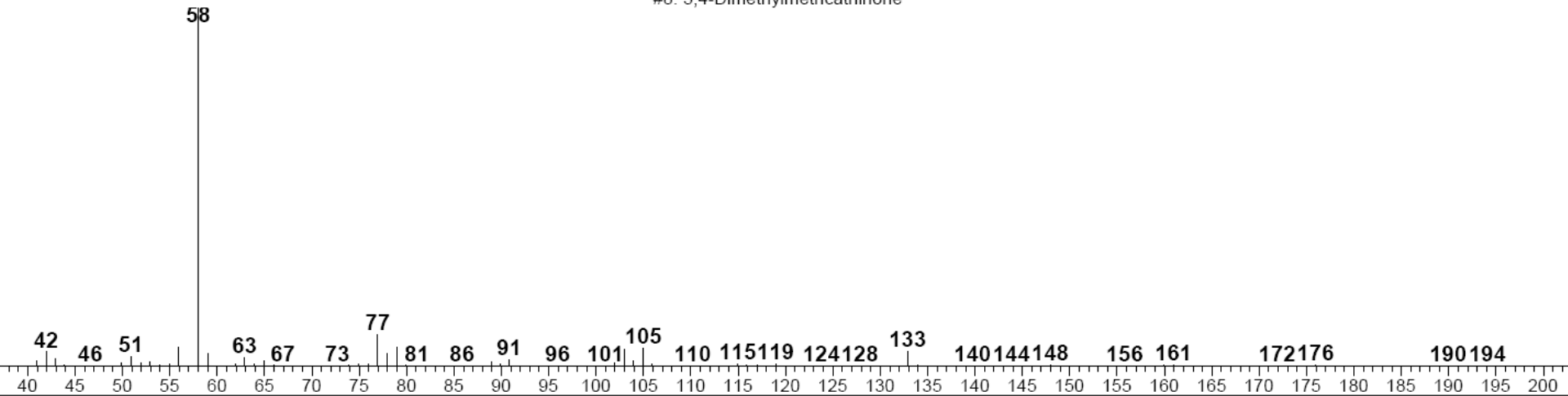
3

003588

#10: Methylenedioxyamphetamine (MDMA)



#8: 3,4-Dimethylmethcathinone





# How do we assess these errors?

- Re-testing cases
- Proficiency test reports
  
- But, the real question is...

Can we generate an error rate for  
qualitative tasks?



# Measurable Tasks

- Measurement of weight of evidence
- Proper generation, management and correlation of testing aliquots
- Proper transcription of testing aliquot information into data systems
- False positive and false negative identification rates



# Error Rates Associated with Use of Equipment

- Reading a gauge incorrectly • 0.5%
- Interpreting indicator on lamp • 0.1%
- Reading an analog meter • 0.3%
- Turning control in wrong direction under extreme stress • 50.0%

# Error Rates Associated with Mental Tasks

- Errors per dose of medication • 1.6%
- Multi-part calculations with calculator and table look-up tasks • 1.5%
- Respond to flash on display screen • 0.6%

# Error Rates Associated with Data Entry

- Entering mail codes • 0.5%
  - Expert typists' keystrokes • 1.0-4.0%
  - Bank machine operators • 0.03%
  - Entering information into aircraft flight management system • 10.0%
- ★ Error rate higher under heavy workload





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