

Emotions and Oracles

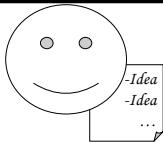
Michael Bolton
<http://www.developsense.com>

Rapid Software Testing

To be able to test a product when it has to be tested *right now*, under *conditions of uncertainty*, in a way that stands up to *scrutiny*.

Skill + Heuristics makes testing powerful

This...



A heuristic is a fallible method for solving a problem.

...not this.

1. Do this
2. Then do this
3. Then do this
4. Then do this
5. And then this...

Hey! Testing isn't just a clerical process!

Most conventional wisdom about testing is empty folklore (yes, Agile Testing too)

Oracles

An oracle is

a heuristic

(usually works, might fail)

principle

or mechanism


by which

someone

might recognize

(but not decide conclusively)

a problem.

 **Bug (n):** Something that bugs someone who matters

Oracles

- When something is okay, it's because an oracle says so.
- When something is wrong, it's with respect to some oracle.

**You're blind to a problem
if you don't have an oracle for it.**

Consistency ("this agrees with that") an important theme in oracles

History
Image
Comparable Products
Claims
User Expectations
Purpose
Product
Standards

Consistency heuristics rely on the quality of your models of the product and its context.

Noticing Problems

- We run the program, and to some, it seems like we just notice problems as we go along.
- Noticing problems is a very logical, objective, **dispassionate** process.

Isn't it?

One Way of Thinking of Testing



Give me only *programmers* to test my code!

Hey... how come we have 650 open reqs for SDET*s?

And how come everybody gripes about security and usability?

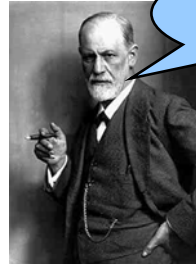
* SDET = "Software Development Engineer in Test"

Besides... Automation Can't...

reframe refine investigate speculate
 empathize anticipate predict suggest
 recognize refocus judge project
 appreciate collaborate
 become resigned evaluate
 teach learn charter assess
 invent work around a problem get frustrated
 model make conscious decisions
 troubleshoot collaborate resource

THINK

Machines Don't Get Aroused



No, not THAT kind of arousal.

arousal (n.): a physiological and psychological state of **being awake**.

important in regulating **consciousness, attention,** and **information processing**.

Machines are cool...

- ...but they **don't** get aroused.
- That is, they don't notice problems...
- ...and they can't even try.

Skilled testers don't think "pass or fail"?

Skilled testers ask "is there a *problem* here"?

Machines and automated tests don't even know to ask.

Examples of Common Cognitive Biases

- Fundamental Attribution Error
 - things are absolutely so, ignoring context
- Anchoring Bias
 - overcommitting to an idea
- Automation Bias
 - machines are better than people
- Reification Error
 - treating ideas, constructs, and people as objects

How Do People React to Software?



Impatience



Frustration



Amusement



Surprise



Confusion



Annoyance

Using Emotion To Help Overcome Bias

- Your biases may cause you to miss bugs
- An emotional reaction is a trigger to learning
- Without emotion, we don't reason well
 - check the psych literature
- When you find yourself mildly concerned about something, someone else could be very concerned about it

An emotion is a signal; consider looking into it

Emotional Triggers

What might they be telling us?

- Impatience ⇒ an intolerable delay?
- Frustration ⇒ a poorly-conceived workflow?
- Amusement ⇒ a threat to someone's image?
- Surprise ⇒ inconsistency with expectations?
- Confusion ⇒ unclear interface? poor testability?
- Annoyance ⇒ a missing feature?
- Boredom ⇒ an uninteresting test?

Our clients are human

- *Our* humanity as testers helps to reveal important information about our products.
- Emotions provide a rich source of oracles—principles or mechanisms by which we recognize problems.
- I'll wager that any time we've seen a bug, our emotions were a big factor in recognizing or interpreting it.
- Why do so many in our profession seem to be so oblivious to the value of emotions?