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P R E S E N T A T I O N

T1

Thursday, March 9, 2000
10:30AM

USER ERRORS ARE NOT SOFTWARE BUGS

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ErgoLight Ltd.



ErgoLight

Usability Software

Presents

User Errors

are Not

Software Bugs!

Case study

Source: www.tipworld.com

Software product: MS-Word

Reported problem: Document erased

Reason: User error (Shift+A => Ctrl+A)

Error identification: By chance (Judith)

So what? \$?



Who cares about User Errors?

■ Customers

- Safety critical systems - Prevent accidents
- Mission critical systems - User productivity

■ Users

- User errors reduce user satisfaction

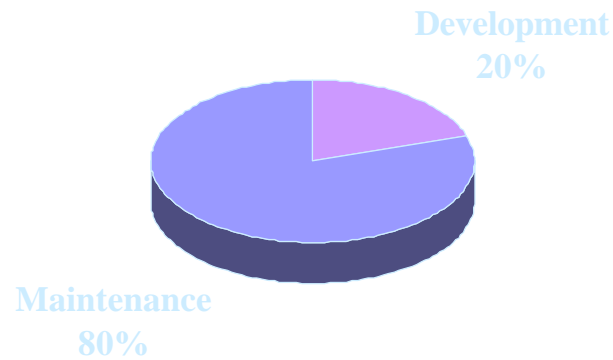
■ Providers

- Marketing - sales decrease
- Customer support - need more information
- Programming team - chasing phantom bugs

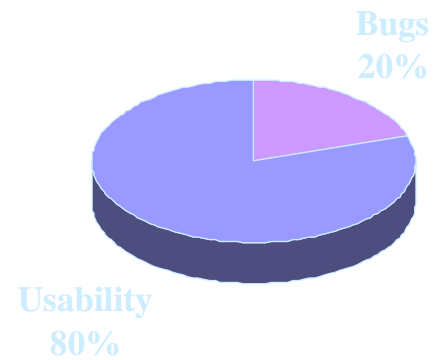
Who pays? \$?

Costs of usability flaws

Life cycle costs of ownership



Maintenance costs



Source: Prasad, 1990



Costs of user errors

Research

Error rates: 1%-30%

50% loss in user productivity

ER experienced = 0.5 x ER novices

Experienced users deny, are not aware of them

Hypothesis

The industry spends many billion \$
because of undetected user errors

Who cares?



Who benefits from user errors?

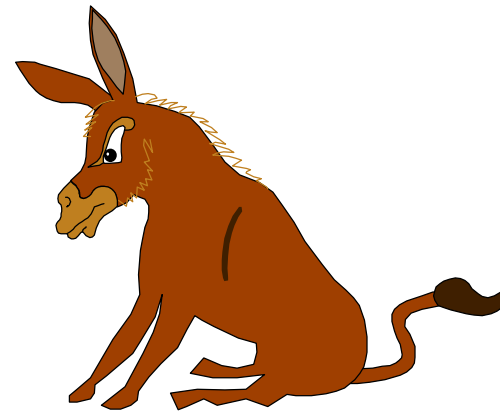
- Customer support
- Development team
- Marketing
- Product managers

All can blame the users

The user rights

- Easy access
- Direct manipulation

NEW !!!!!

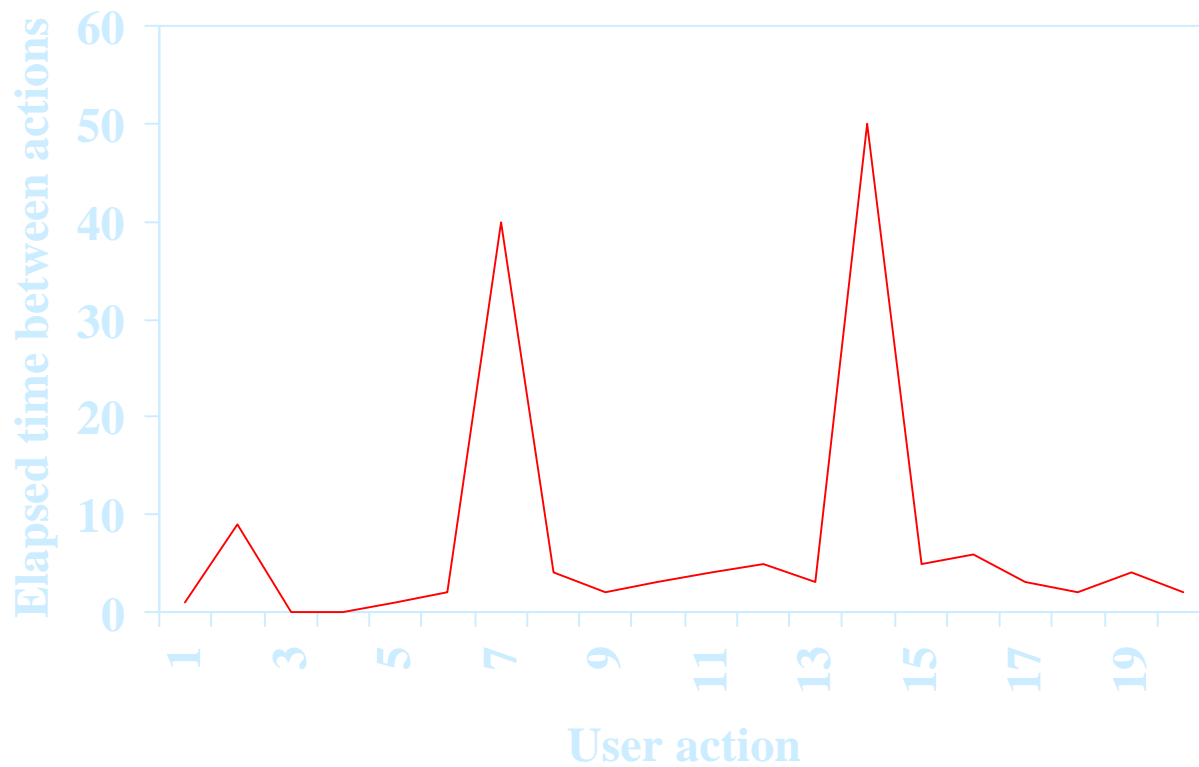


Don.t blame me for my own errors

Managing user errors

- Error prevention
- Graceful response to user errors
- THE PROBLEM - Error Identification
 - Don't expect the user to know what they do
 - Don't expect the users to report about their errors
 - Don't expect usability testers to track the product operation.

Detecting user errors

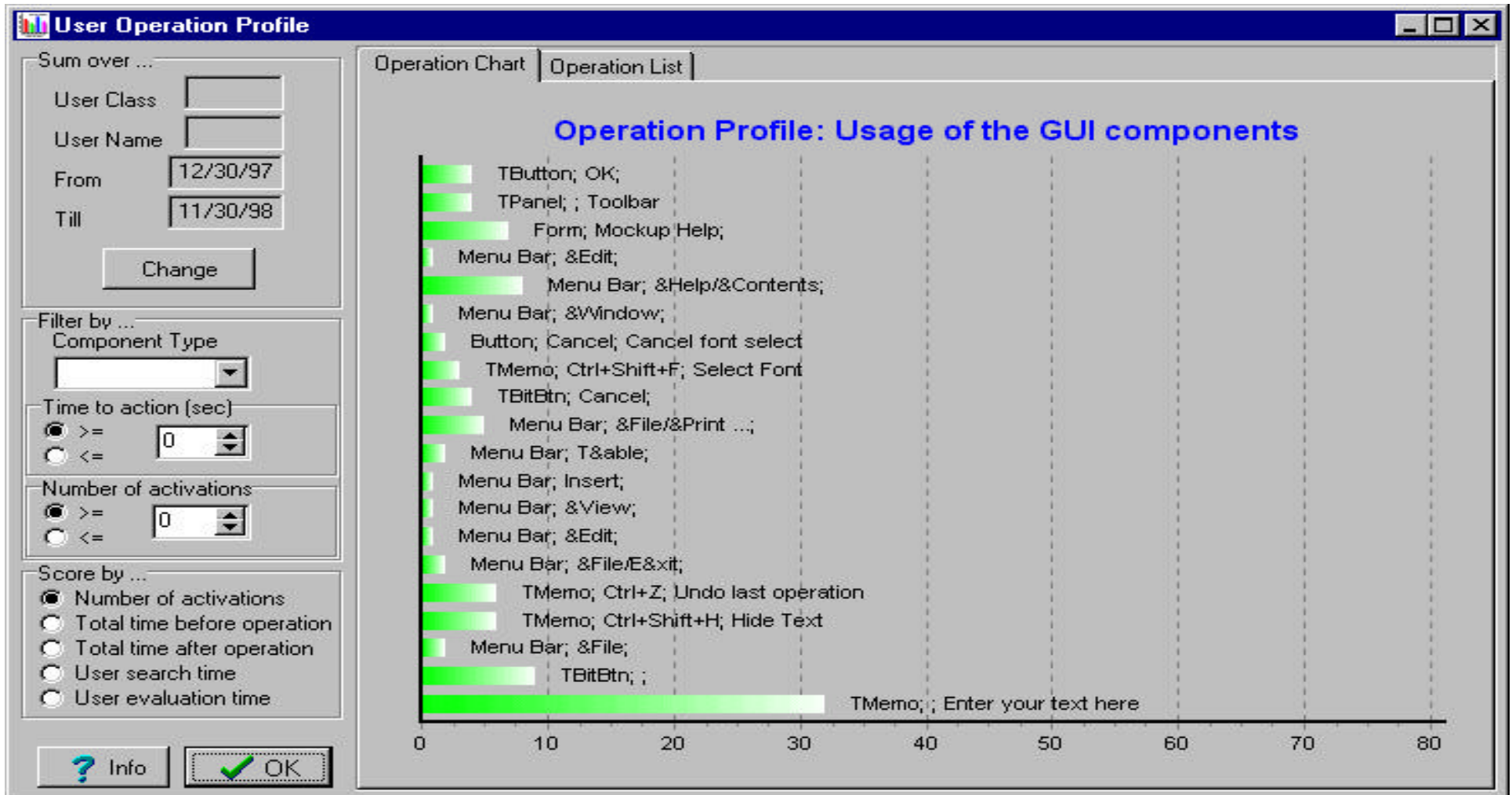




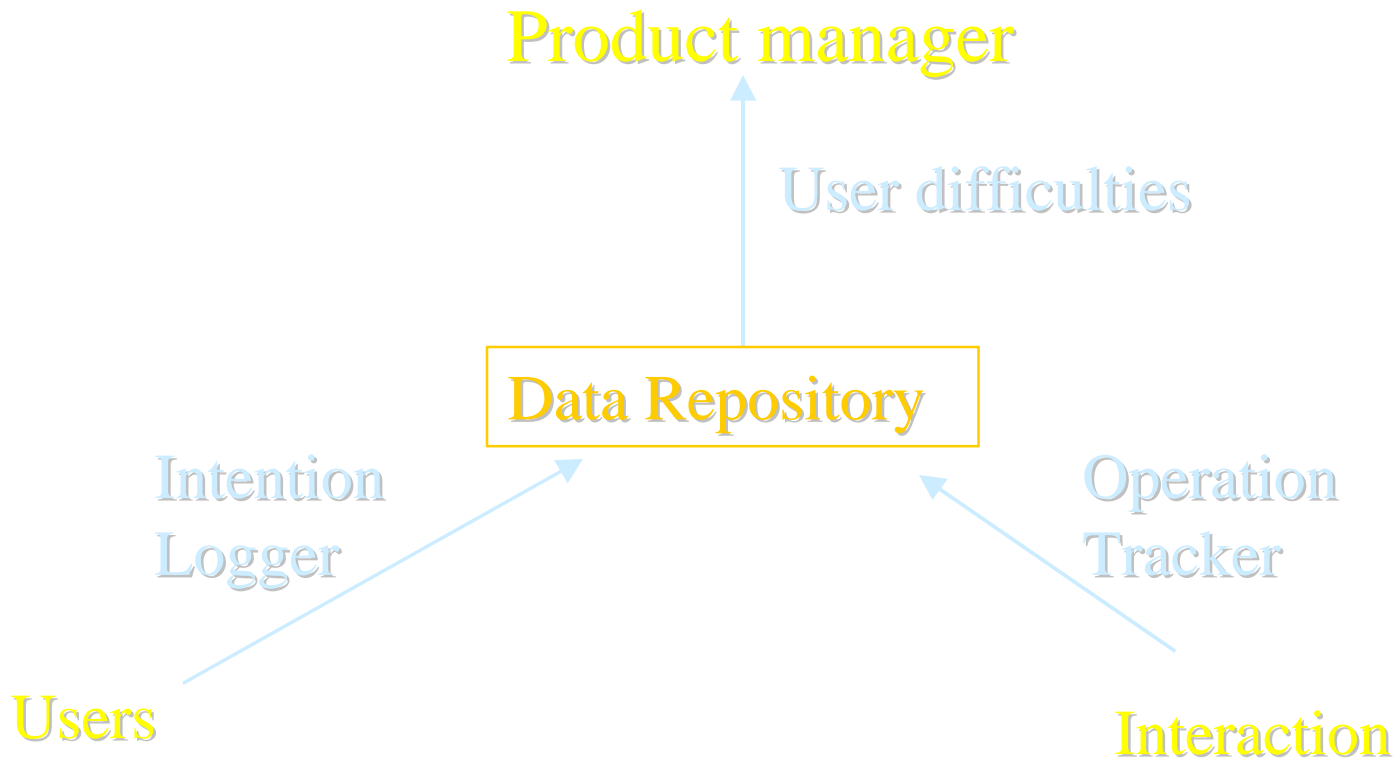
ErgoLight GUI Tester

Express edition

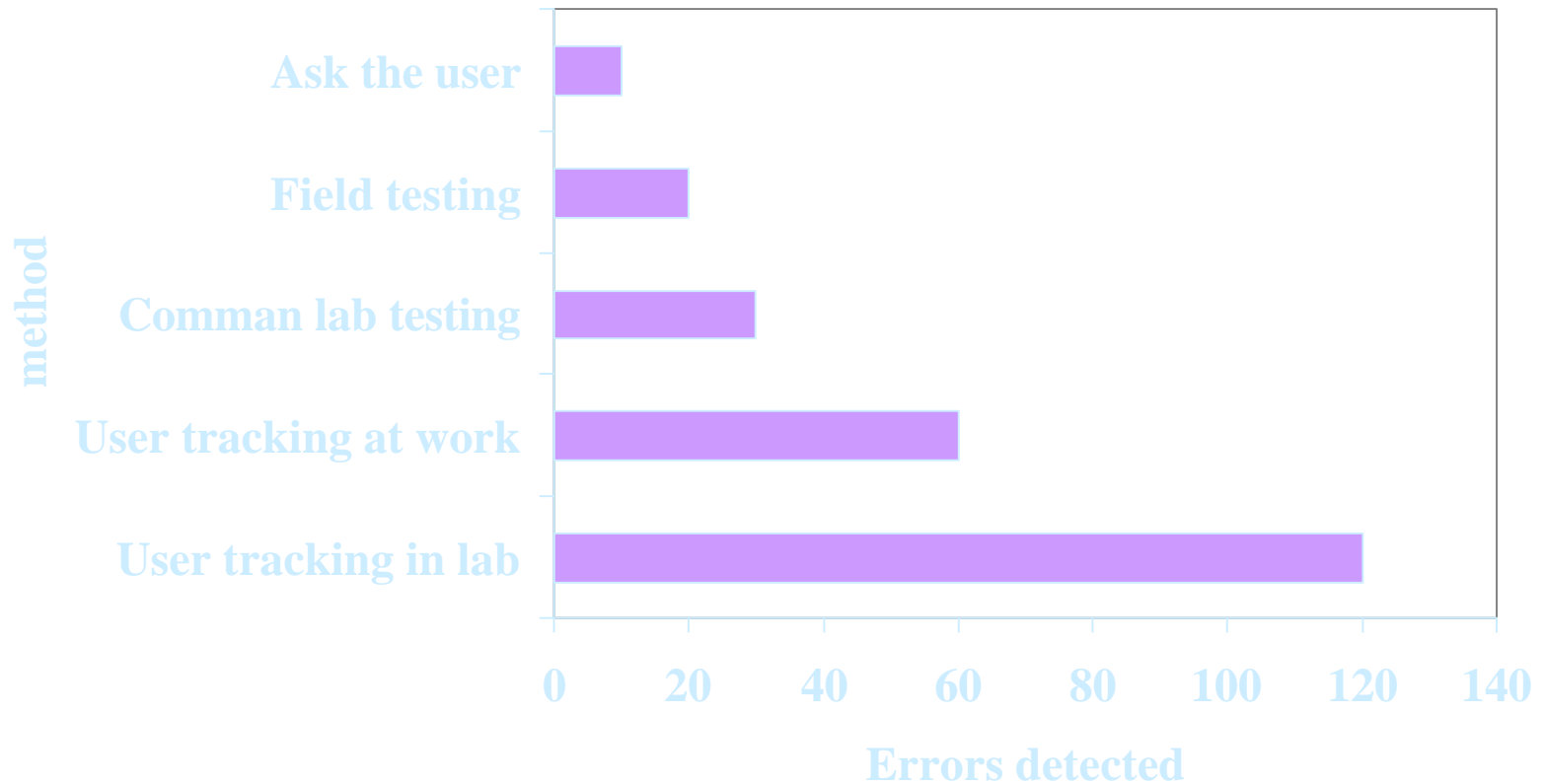
User Operation Profiles



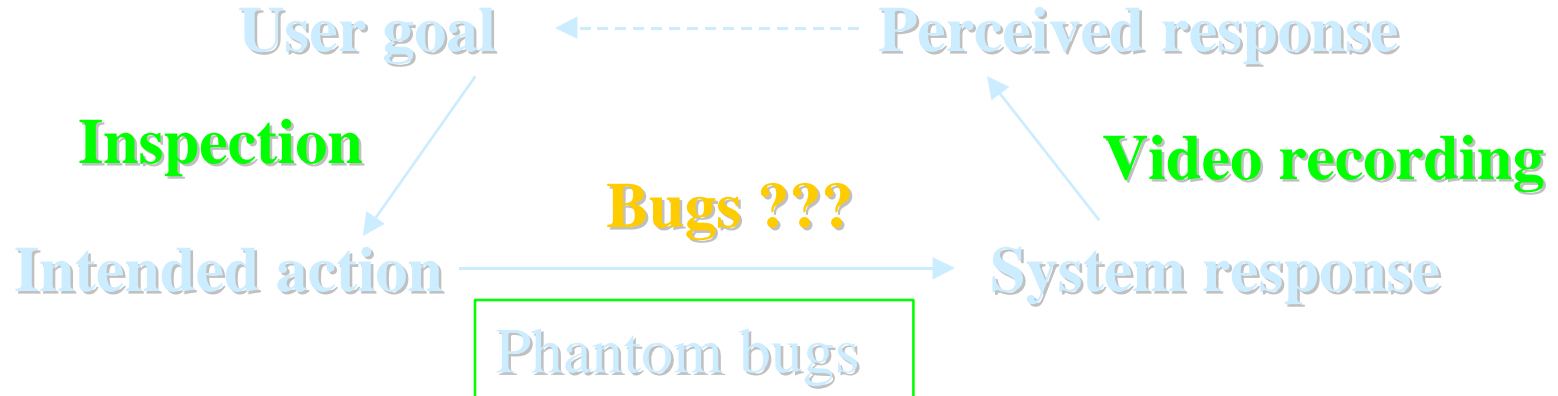
Identifying User slip



Effectiveness of identification methods

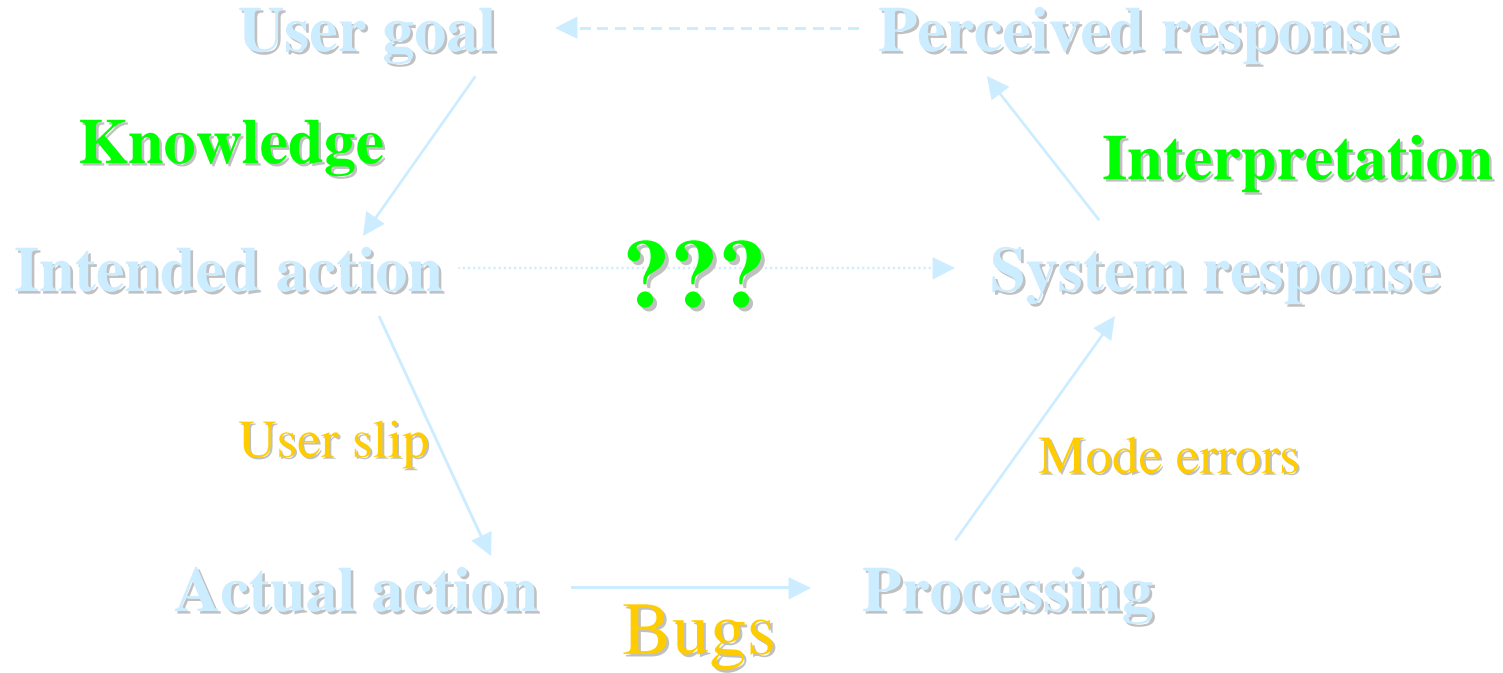


Common Testing Practices

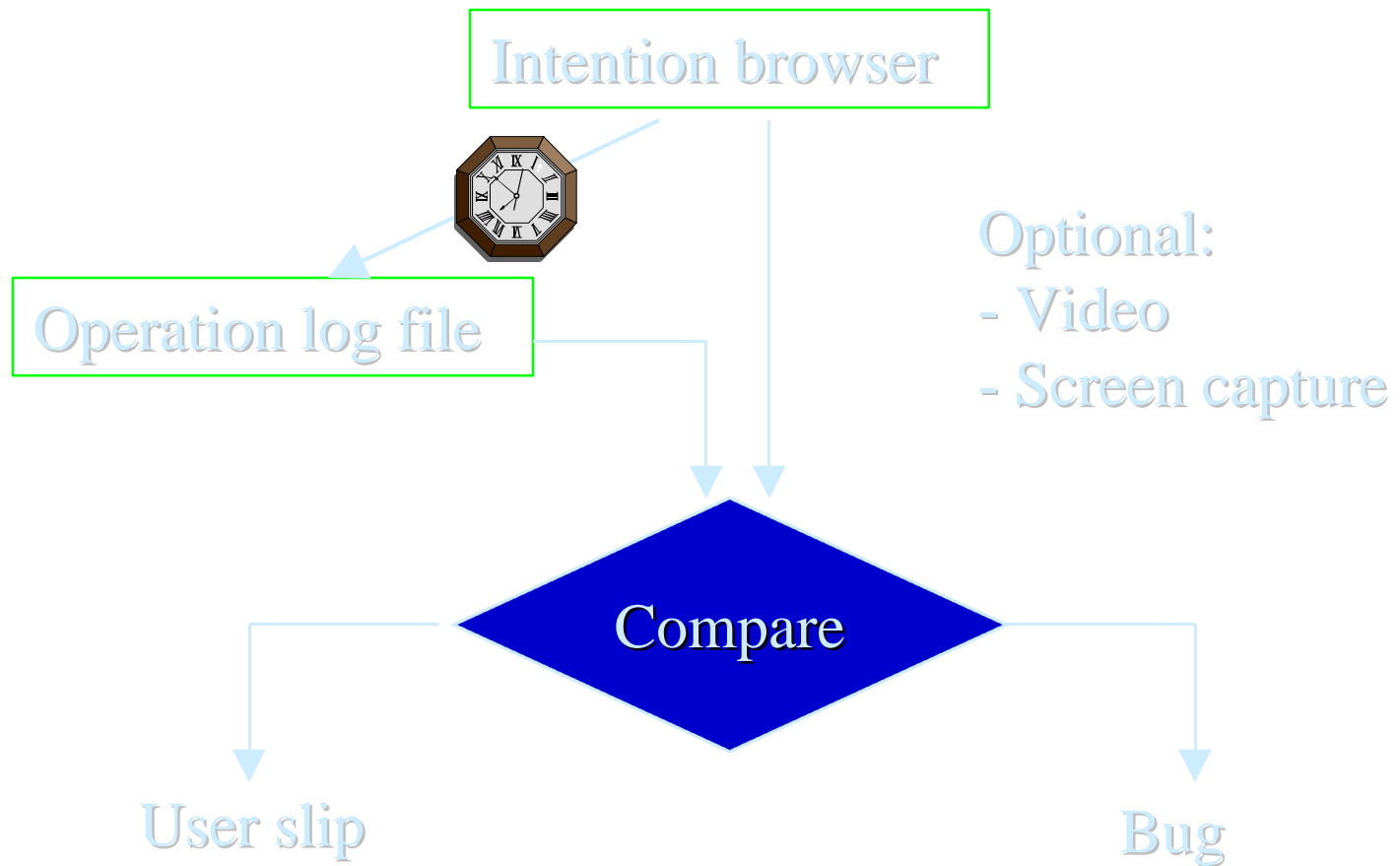


How to distinguish user errors from software bugs?

Refining the usability model



Identifying user slip



Example of slip identification

User data

Intention Browser

Intention: Type A

User difficulties

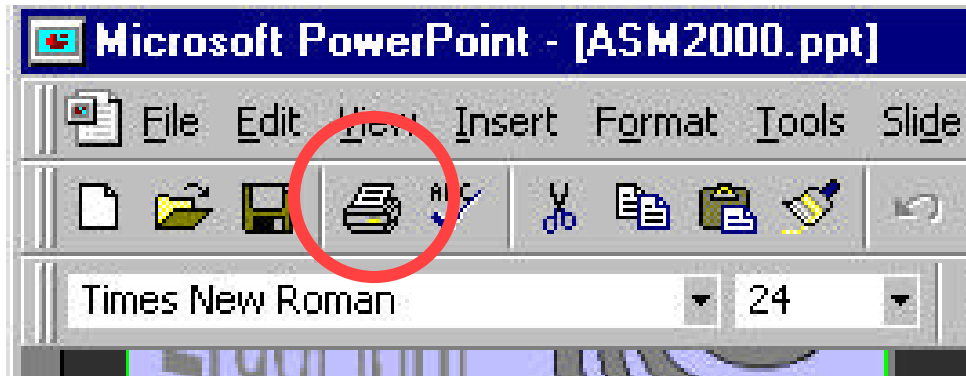
Source: Oops

Backtracking

Action: Ctrl+A, Save

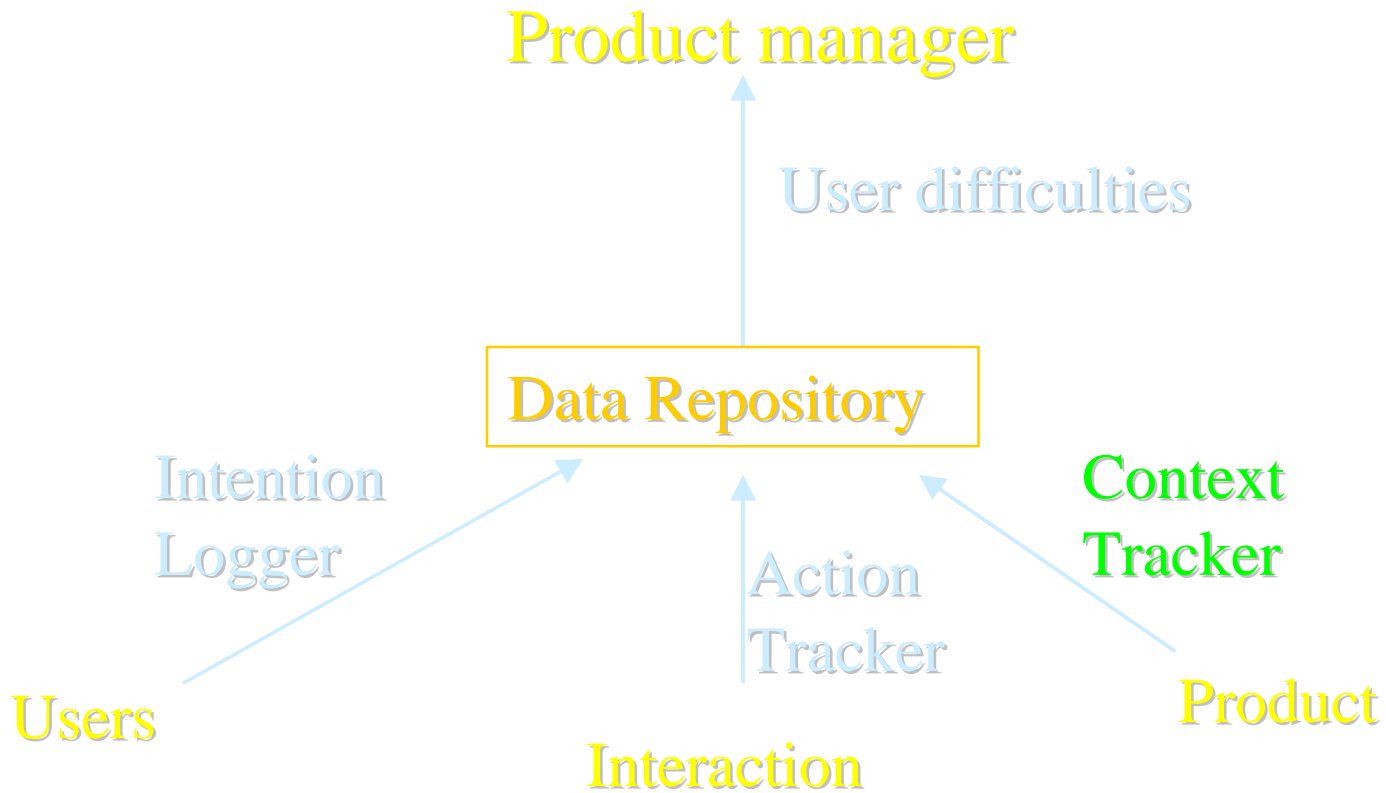
Mode errors

Example



95% of Windows applications have .Print to file.
95% of programmers forget to reset it
Result: Printing after .Print to file. is impossible

Detecting mode errors



Example of Mode Analysis

User data

Intention Browser

Intention: Print

User difficulties

Source: Help desk

Backtracking

Mode: Print to file

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Avi Harel

Avi Harel received his B.Sc. (1970) and M.Sc. (1972) degrees in mathematics from the Technion, the Israeli Institute of Technology, in Haifa, Israel. For his M.Sc. degree he received an outstanding grade. For his master's thesis he was granted the Landau's award. Between the years 1985 and 1989 Avi studied Behavioral and Management Sciences at the faculty of Industrial Engineering of the Technion.

Between 1975-1992 Avi Harel worked for Rafael, the Armament Development Authority of Israel, during which he gained experience in working with a wide range of applications, platforms, operating systems, programming languages and development environments. Between 1977-1980 he was the manager of 30 people in the software department of Rafael's Division of Electronics. Between 1980-1983 he was the manager of the leading project of the Electronics Division of Rafael. Between 1983-1985 Avi designed the software for a touch operated telephone set for the Design Interpretive department of BNR, Canada. Between 1985-1987 he developed a generator of user interfaces, for use by frequent users. Between 1988-91 he conducted various projects in Human Factors engineering in Rafael.

Since 1983, Avi Harel developed a methodology for developing user interfaces, based on human factors. After resigning from Rafael in 1992, he designed a user interface for the Haifa Scientific Center of IBM. Between 1993-1995 Avi designed the user documentation for two software companies. In 1997 Avi Harel founded ***ErgoLight Ltd.*** and initiated the design of ***ErgoLight*** tools. He is currently the President & CEO of ***ErgoLight Ltd.***