Exploring Implicit Memory for Painless Password Recovery

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Talk Goals

Novel authentication concept

...is not implausible.

Future directions identified.

The Problem

Authentication

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Password Recovery

- Passwords

- Graphical Passwords

password1

- Life Questions

- Preferences

Implicit Memory   Explicit Memory

Unconscious influence   Conscious retrieval

Motor memory   Fact recall

Different biological mechanisms

Priming

1. Stimulus

2. Time Delay

3. Task

System Concept

Enrollment | Authentication (Password Recovery)

Primed

Snodgrass & Vanderwart (1980)

Snodgrass & Corwin (1988)
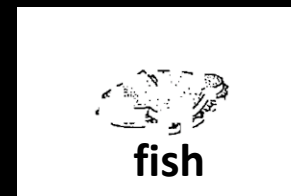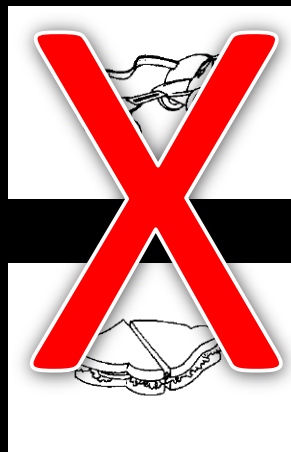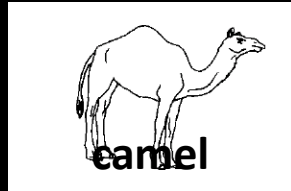
Authentication Secret

The secret is *not* the image completion.

The secret is the set of assigned images.

User Study

1. Stimulus (label complete images)

2. Time Delay (~26.8 days)

3. Task (label fragmented images)

User Study

- ~70 participants

- Primed + correctly labeled: 984 / 2149 (45.8%)

- Unprimed + correctly labeled: 834 / 2143 (38.8%)

Strengths & Weaknesses

No memorization required

Password strength precisely quantifiable

Potentially long-lasting
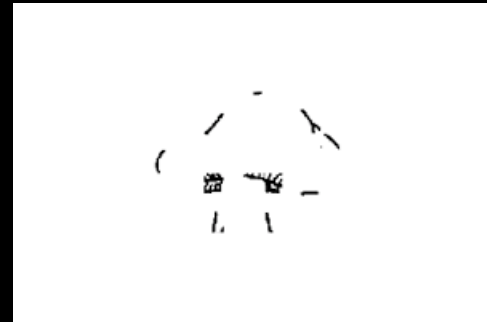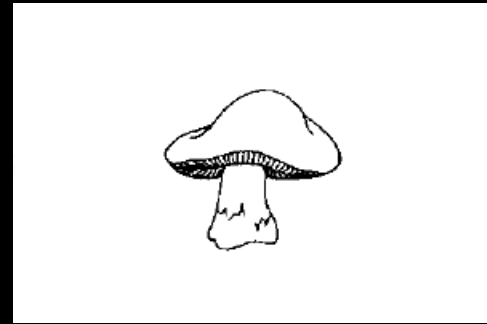

Slow = weak priming effect on many images

Limited information per image: correct/incorrect

New enrollment required after every use

Further Investigation

1. The corpus

2. Increase amount of information per image

Questions?

Thanks to study participants from EMC.