

# Cued Mnemonics for Better Security and Memorability

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# Passwords ... *things we all know*



# Mnemonics

Chosen Phrase



Password

- Generation Effect
- Memorability
- Security
- Future Vulnerability

# Question time

hhelibebocnofnenamgalsipsclarkca



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hhelibebocnofnenamgalsipsclarkca

H He Li Be Bo C N O F Ne Na Mg Al Si P S Cl  
Ar K Ca



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H He Li Be Bo C N O F Ne Na Mg Al Si P S Cl  
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H							He
Li	Be	B	C	N	O	F	Ne
Na	Mg	Al	Si	P	S	Cl	Ar
K	Ca						



# Mnemonics in Chemistry

- Tens of Mnemonics are used in memorizing different aspects, rules, components in Chemistry.
- From RANDOM set of characters to a cued phrase.

*Something to learn from Chemists ...*

# We propose ...

- Reversing the Mnemonic process.
- Generate a random password.
  - System generated complying to the policies.
- Generate a “Cued” phrase
  - Self Reference effect
  - Episodic Memory



# Example

Password: *pa-3mp1y(TNB)*

# Example

Password: *pa-3mp1y(TNB)*

User's interest: *Running*

# Example

Password: *pa-3mp1y(TNB)*

User's interest: *Running*

Phrase: *personal achievement - 3 marathons per 1 year (Tokyo, New York, Boston)*

# The Reverse Process

- Phrase is more personally related ...
  - Self reference effect
  - Trigger for autobiographical episodes
    - Episodic memory
- Can accommodate generation effect ...

# Phrase Generation

- Information Gathering
  - Questionnaire before password creation.
  - Traverse public information - Social Networks, Blogs
  - Eventual knowledge base
- Generation
  - Semantics - to find words.
  - NLP - to generate a meaningful sentence.

# Questions



# Fantastic Four



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