

Structural Analysis of Computer Vocabulary

How do Users Conceptualize the Computer?

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Research Questions

What are the concepts non-technical users have about the computer?

What are the words most frequently used to describe computers & computer related tasks?

Background

The data was collected from a study that used design principles to design secure and usable interfaces for users to administer their computers*.

- User studies, with both existing Windows XP interfaces & newly designed interfaces, comprised of four tasks:
 - 1) Account creation
 - 2) Log in to visit a website that shows a certificate
 - 3) Log in to install software
 - 4) System Configuration

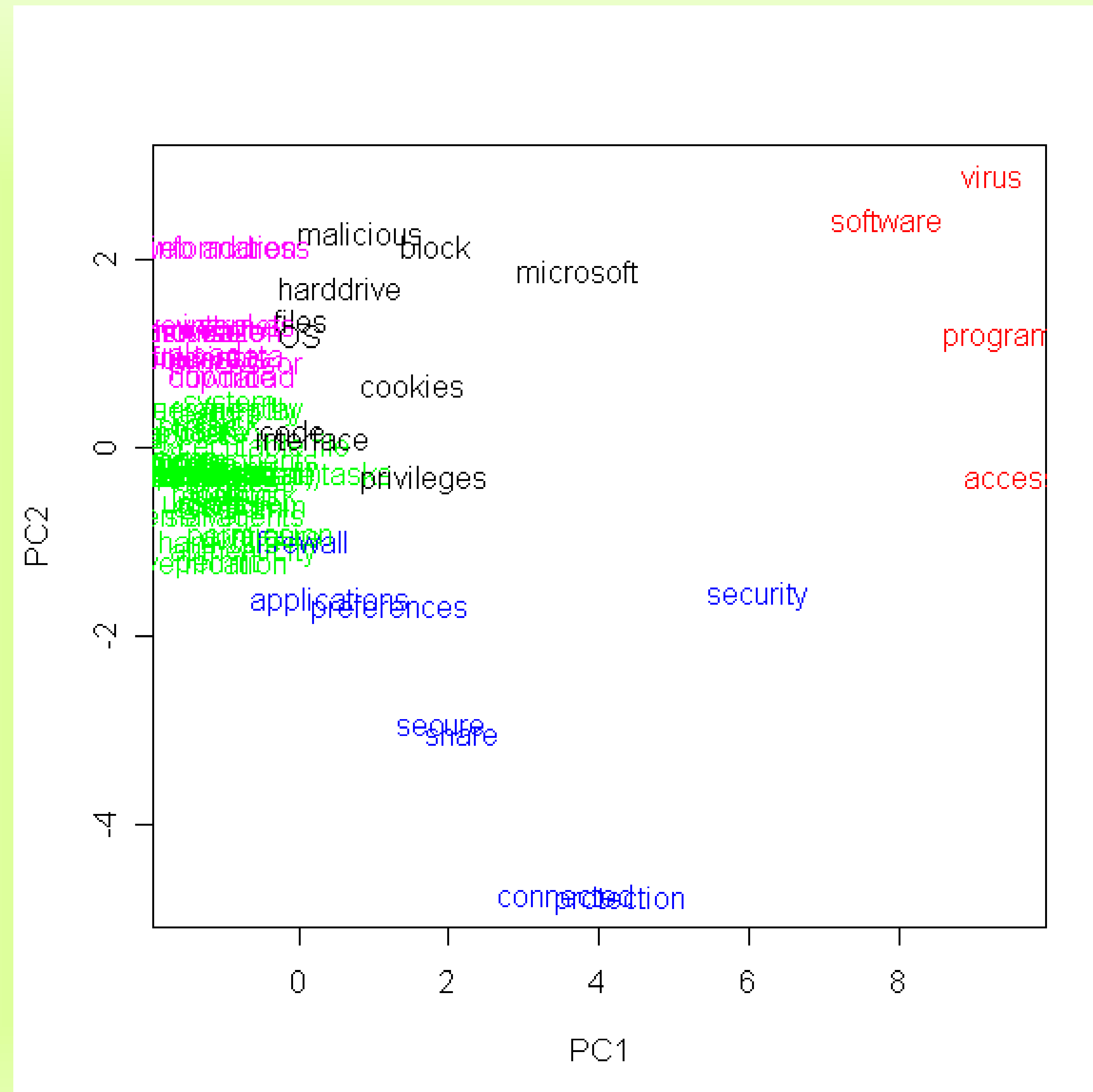
Joint-exploration* was used to elicit participant's thought process.

- Exit Interview consisted of questions related to general computer knowledge. e.g.
What is Firewall?
What is an Operating System?

Data

Any computer related technical words used by participants during the tasks and the interview, except the ones mentioned in the task instructions and in the interview questions, were included.

22 participants
83 unique words



Method

R Programming language

- Principal Component Analysis (PCA)- reduces multidimensional data to lower dimensions for analysis
- Hierarchical Cluster Analysis (HCA)- groups data that share some common traits

Results

The five most frequently used words are- software, program, access, virus and security.

For most users, the computer is all about software, program and access to different things (e.g. website, software).

For a few users, computers are all about data and internet.

Anything threatening to the computer is a virus.

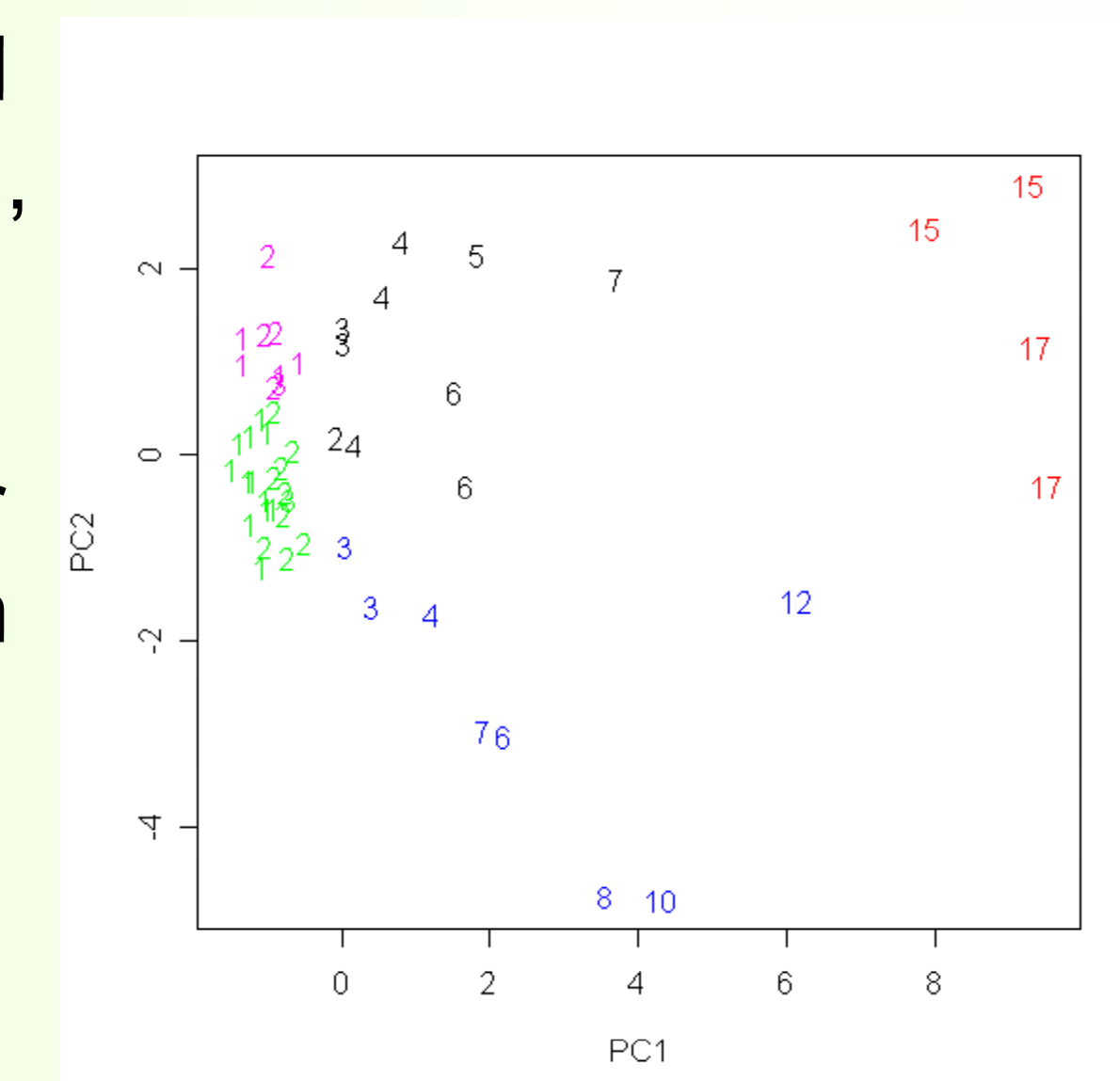
Conclusion

Computers are conceptualized in terms of software and access to different things.

The most interesting result was the existence of a user group that conceptualized the computer in terms of data with an Internet framework.

Computer-related technical terms should not be used without explaining their meaning in words that the user would understand.

Users should be made aware of the differences between a virus & other malware and their security implications.



Acknowledgement

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Further Information

Extended Abstract: <http://www.cs.indiana.edu/~amutsudd/research/myod.html>

*Project Paper: Mutsuddi, A., Jacob, B., Sun, Y., Connelly, K., and Gupta, M. 2007. *A Case Study in using Design Principles for Securing Home Machines*, Under Submission.

*Joint-exploration: Joint-exploration utilizes deception to have the participant complete tasks with another "participant", who is actually a researcher.