

A Toast for Moshe

Yoram Moses

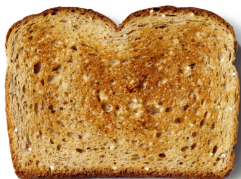
Technion



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Technion



Outline

- Moshe's 853 (dblp: 737?) publications:
 - ▶ Moshe the logician
 - ▶ Moshe the probabilist
 - ▶ Moshe the database theorist
 - ▶ Moshe the epistemologist
 - ▶ Moshe and automata
 - ▶ Impact on industry
- Prizes and honors
- Moshe the teacher, orator and supervisor
- Moshe the editor
- Moshe the organizer
- Moshe the social & scientific visionary
- ...

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Moshe  Moses

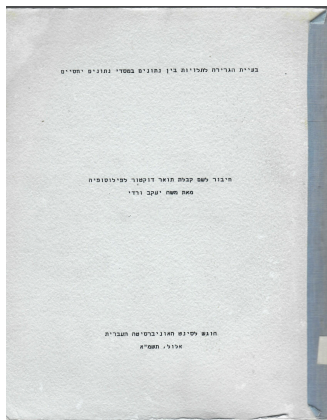
1977 —



Moshe 🤝 Moses

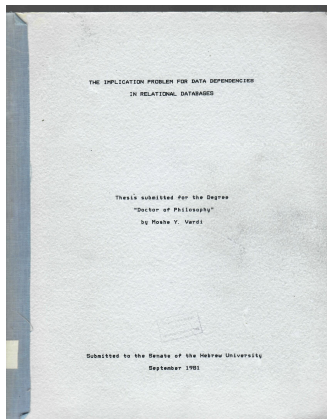
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1979–1981: Moshe's PhD studies at HUJI

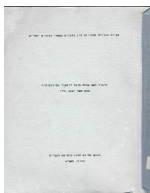


The Implication Problem for Data Dependencies in Relational Databases, September 1981 **Catriel Beer, Supervisor**

1979–1981: Moshe's PhD studies at HUJI



The Implication Problem for Data Dependencies in Relational Databases, September 1981 Catriel Beeri, Supervisor



- 173 pages, in Hebrew
- Typeset using a locally-brewed system
(developed by **Danny Braniss** & **Avi Barel**)
- Including results never published in English
- Quotes from **Beyond the Looking-Glass**, **Lewis Carroll**

Moshe the Linguist

- Translated relational DB terminology to Hebrew
- Invented terms and acronyms never used in Hebrew (neither before **nor** after)
 - ▶ **Equality producing dependencies** - a major innovation of the thesis - had the Hebrew acronym תישן that reads **Go To Sleep (G2Slp)**
 - ▶ **Theorem 3.3.3.6:**
Testing whether one **G2Slp** implies another **G2Slp** is NP-complete.
- Linguistic innovation never ceases: “**Safraless** Decision Procedures” **Kupferman** & Vardi 2005

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Moshe's Archery Technique

NP completeness was a hot topic in the 1970's

Typical strategy:

Decision problem \Rightarrow investigation \Rightarrow complexity proof \Rightarrow NPC result

Moshe's strategy

Known NPC problem (by Karp) \Rightarrow decipher in DD terms \Rightarrow New result

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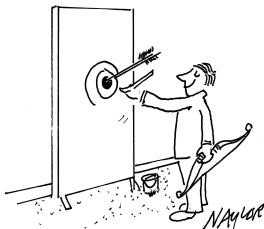
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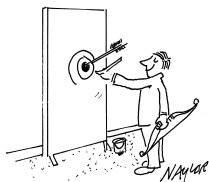
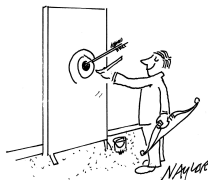
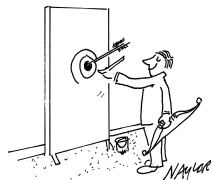
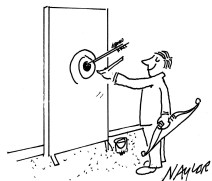
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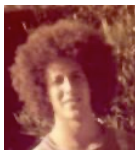
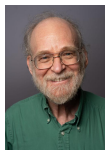
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Chapter 3: Implication Problems are NP-Complete

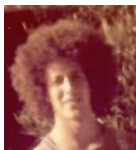
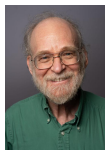


Moshe and the Gang of Four



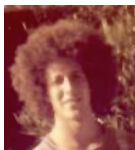
- Writing “Reasoning about Knowledge” by Fagin, Halpern, M. and Vardi (MIT Press) began at IBM Almaden in 1986
- 4 opinionated authors moved to 4 different locations
- Writing became a complex distributed task
- Synchronization and ensuring Liveness were issues. . .
- Termination was eventually achieved in 1995 😊.

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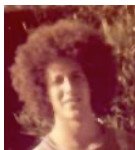
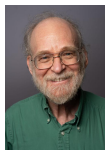
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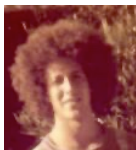
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A big **Thanks**, Moshe

for your insights, inspiration, leadership and friendship

during many years past, and for many years to come!