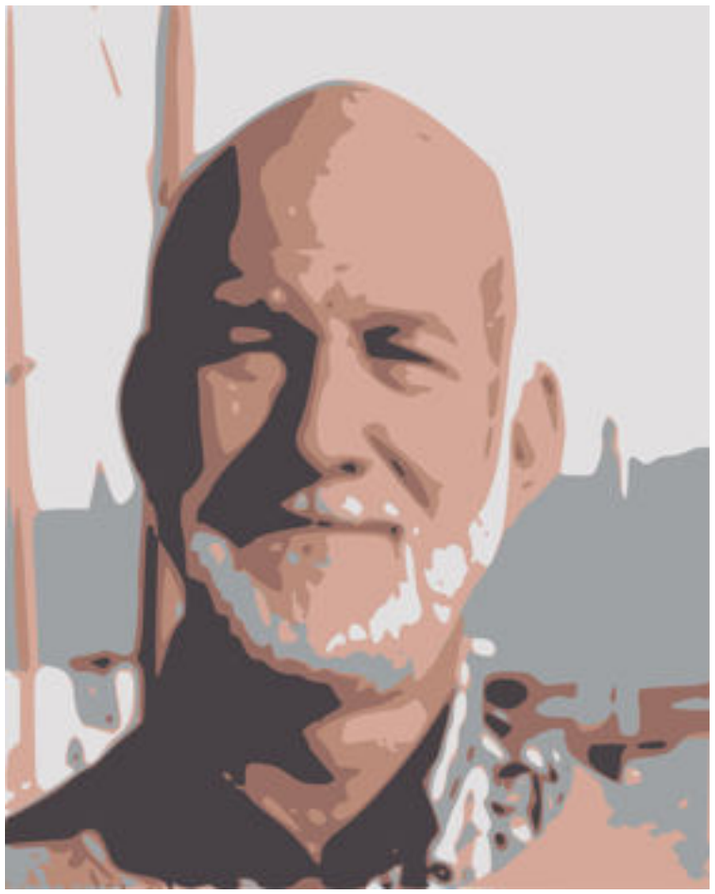
Some aptitudes of Krzysztof



pictured by Jan Willem Klop,
4 year pensioner,
November 28 2014,
CW&I Amsterdam

Aptitude 1: formed by the strong mathematical and logical tradition of the famous polish school (whose results were often obtained in the pub)

Kawiarnia Szkocka
Scottish Café, Lwów 1935

Aptitude 2: academic traveler: have pen, will travel

Affiliation history

- Erasmus University Rotterdam
- Universite Paris 7- Denis Diderot
- Universite Paris 13
- Center for Mathematics and Computer Science - Amsterdam
- University of Texas at Austin
- University of Amsterdam
- National University of Singapore

Aptitude 2a: Krzysztof weaves a global cooperation network

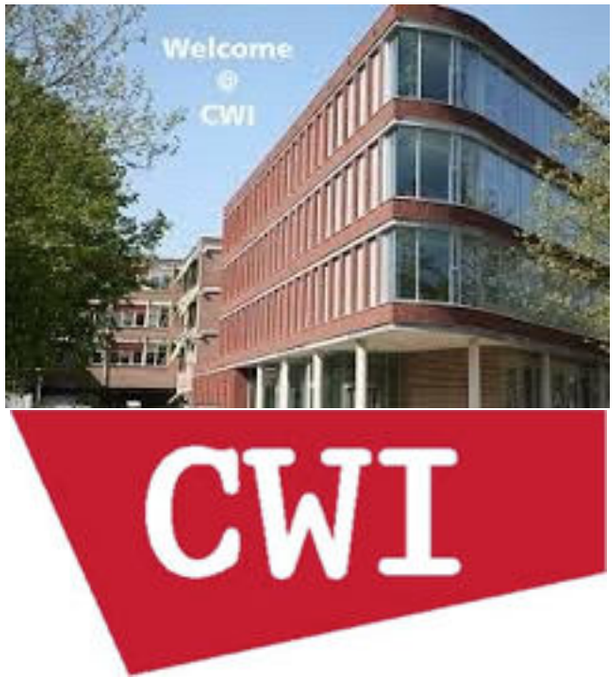
Collaborative Colleagues:

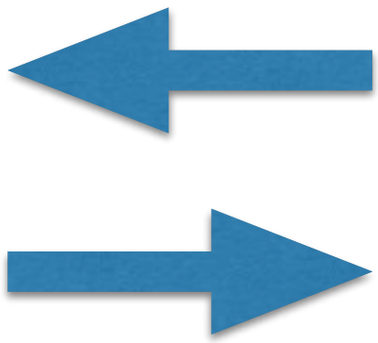
Martín Abadi
Bowen Lewis Alpern
Rachel Ben-Eliyahu
Marc A Bezem
Howard Arden Blair
Frank S Boer
Roland N Bol
L Bouge
Sebastian Brand
Jacob J Brunekreef
Ph Clermont
Vincent Conitzer
Jaco W De Bakker
Frank S De Boer
Stijn De Gouw
Willem Paul De De Roever
Carole Delporte-Gallet
Peter Emde Boas
Arantza Estévez-Fernández
Sandro Etalle
Nissim Francez
Maurizio Gabbrielli
Mingyu Guo
Masami Hagiya
Antonis C Kakas
Shmuel M Katz
Claude Kirchner
Jan Willem Klop
Dexter Campbell Kozen
Leslie Lamport
Ingrid Luitjes
Victor Wiktor Marek
Evangelos Markakis
John C Mitchell
Eric B G Monfroy
Ernst Rüdiger Olderog
Ernst Rdiger Olderog
Vincent Partington
Dino Pedreschi
Alessandro Pellegrini
Gordon D Plotkin
Jean M Pugin
Jean Luc Richier
Francesca Rossi
J K M M Rutten
Fariba Sadri
Andrea Schaerf
Fred Barry Schneider
Floor Sietsma
Michel Sintzoff
Frank J M Teusink
Mirosław Truszczyński
Mirek Truszczynski
Franco Turini
Peter Van Emde Van Emde Boas
Maarten H Van Emden
Kristen Brent Venable
C F M Vermeulen
Adrian Walker
Mark G Wallace
David Scott Warren
Angelo Welling
Andreas Witzel
Peter Zoeteweij
Jonathan A Zvesper

Aptitude 3: on the barricades for justice and freedom, around 1975

Aptitude 4: transcendental meditator, around 1988; how many chakra's were awakened?

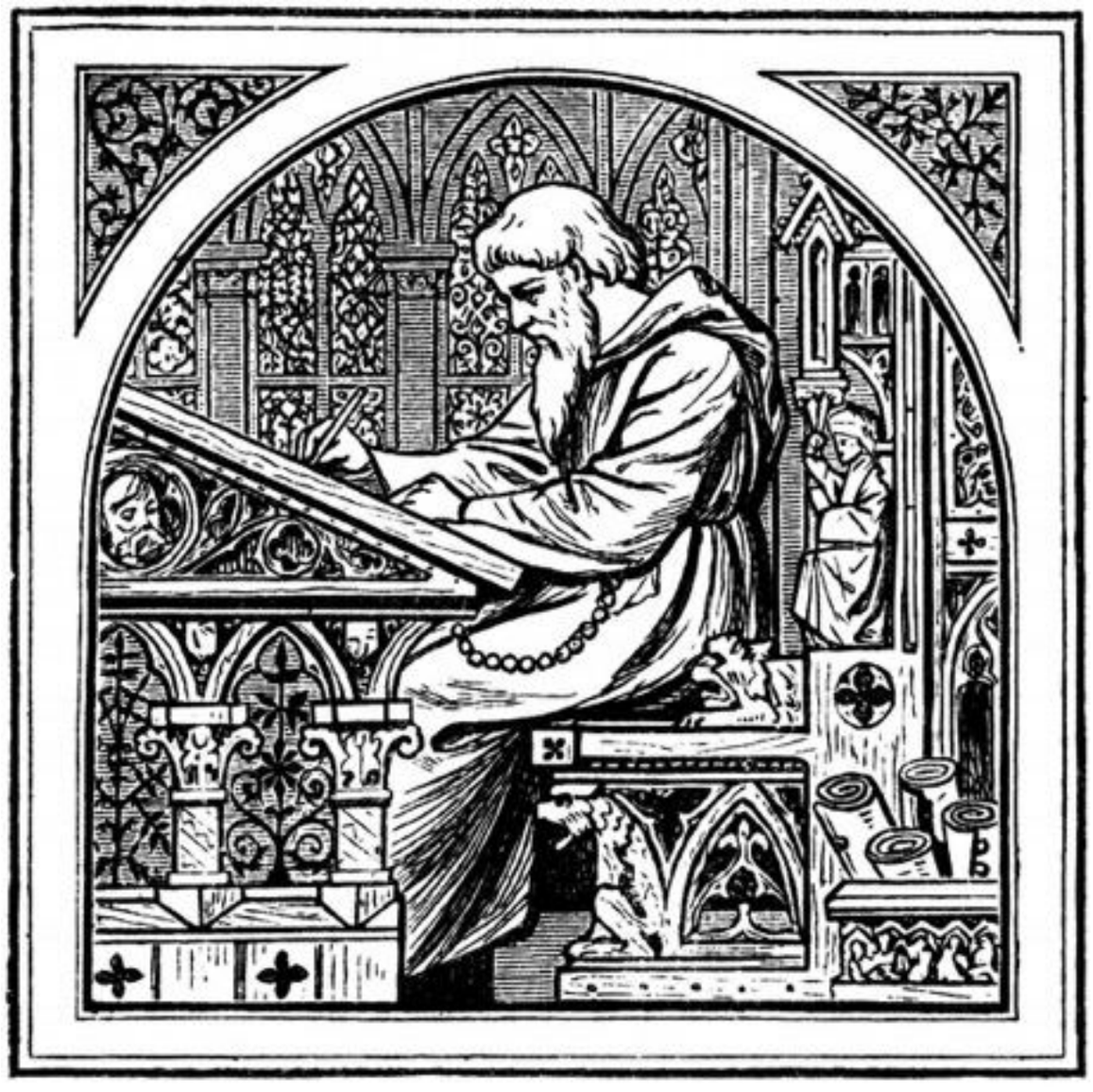
Aptitude 5: creator of the italian connection at CW&I





Corso Italia 40

Aptitude 6: writing papers books and writing them well



Aptitude 6a: this landmark paper introduced a whole generation to logic programming

Ten Years of Hoare's Logic: A Survey—Part I

1981

KRZYSZTOF R. APT

Erasmus University

A survey of various results concerning Hoare's approach to proving partial and total correctness of programs is presented. Emphasis is placed on the soundness and completeness issues. Various proof systems for **while** programs, recursive procedures, local variable declarations, and procedures with parameters, together with the corresponding soundness, completeness, and incompleteness results, are discussed.

Ten Years of Hoare's Logic: A Survey—Part I

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Key Words and Phrases: Hoare's logic, partial correctness, total correctness, soundness, completeness in the sense of Cook, expressiveness, arithmetical interpretation, **while** programs, recursive procedures, variable declarations, subscripted variables, call-by-name, call-by-value, call-by-variable, static scope, dynamic scope, procedures as parameters
CR Category: 5.24

1. INTRODUCTION

In 1969 Hoare [27] introduced an axiomatic method of proving programs correct. This approach was partially based on the so-called intermediate assertion method of Floyd [18]. Hoare's approach has received a great deal of attention during the last decade, and it has had a significant impact upon the methods of both designing and verifying programs. It has also been used as a way of specifying semantics of programming languages (see [17, 28, 40]).

The purpose of this paper is to present the most relevant issues pertaining to

evoking fond memories… youth sentiment

Hoare's logic is a system of formal reasoning about the asserted programs. Its axioms and proof rules are the following.

AXIOM 1: ASSIGNMENT AXIOM

$$\{p[t/x]\}\ x := t\ \{p\}.$$

RULE 2: COMPOSITION RULE

$$\frac{\{p\}\ S_1\ \{r\},\ \{r\}\ S_2\ \{q\}}{\{p\}\ S_1; S_2\ \{q\}}.$$

RULE 3: **if-then-else** RULE

$$\frac{\{p \wedge e\}\ S_1\ \{q\},\ \{p \wedge \neg e\}\ S_2\ \{q\}}{\{p\}\ \textbf{if}\ e\ \textbf{then}\ S_1\ \textbf{else}\ S_2\ \textbf{fi}\ \{q\}}.$$

RULE 4: **while** RULE

$$\frac{\{p \wedge e\}\ S\ \{p\}}{\{p\}\ \textbf{while}\ e\ \textbf{do}\ S\ \textbf{od}\ \{p \wedge \neg e\}}.$$

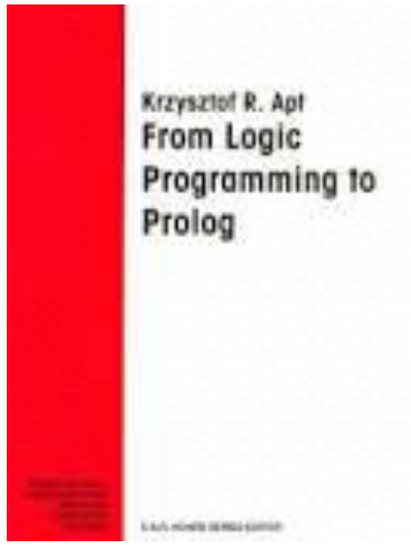
As usual, $p[t/x]$ stands for the result of substituting t for the free occurrences of x in p.

the more advanced stuff

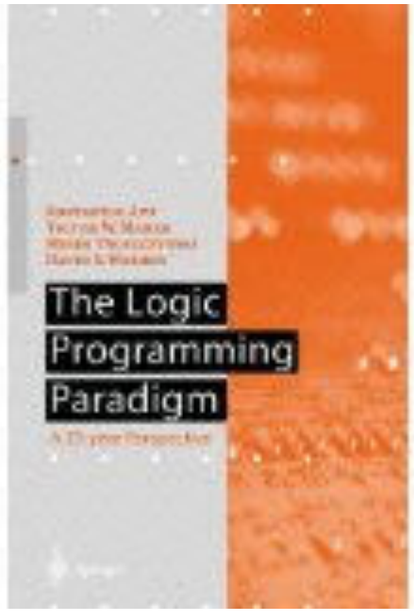
TEN YEARS OF HOARE'S LOGIC: A SURVEY—PART II: NONDETERMINISM

Krzysztof R. APT

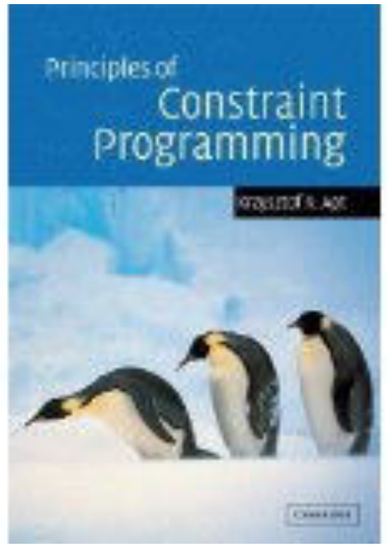
L.I.T.P., Université Paris 7, 2, Place Jussieu, 75251 Paris, France


Krzysztof R. Apt
From Logic Programming to Prolog

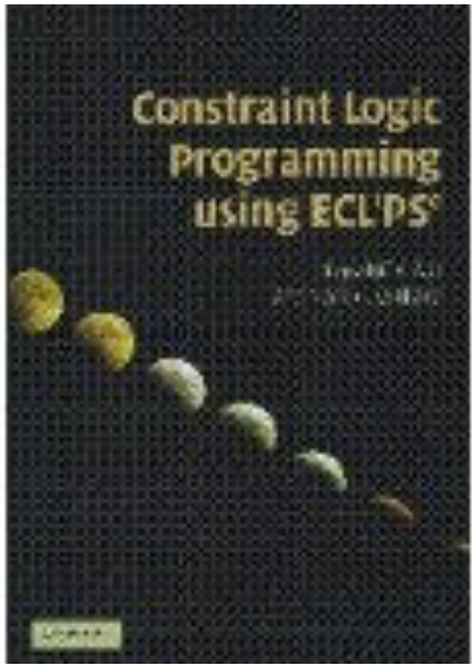

Apt · Olderog
Programm-verifikation
Sequentielle, parallele und verteilte Programme
Springer-Lehrbuch

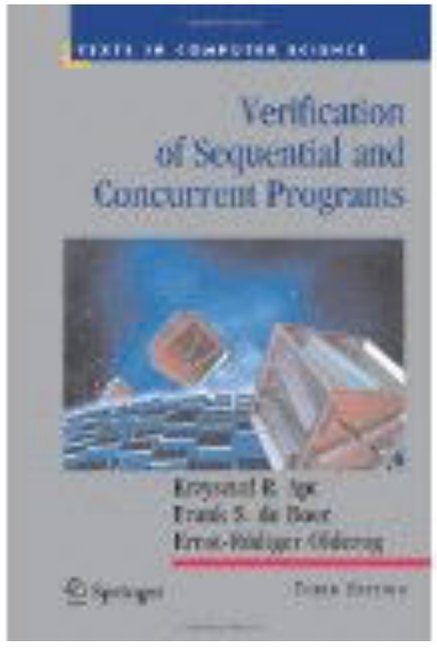

The Logic Programming Paradigm


Lecture Notes in Artificial Intelligence
New Trends in Constraints


Principles of Constraint Programming
Krzysztof R. Apt


Recent Advances in Constraints


Constraint Logic Programming using ECL'PS^e


TEXTS IN COMPUTER SCIENCE
Verification of Sequential and Concurrent Programs
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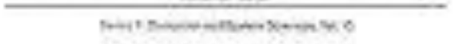
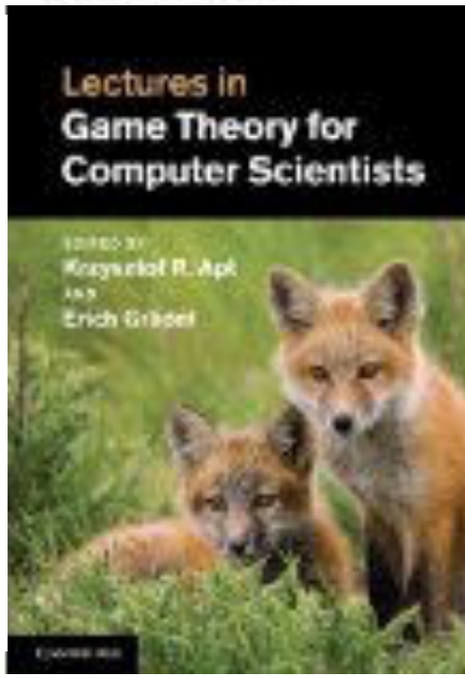
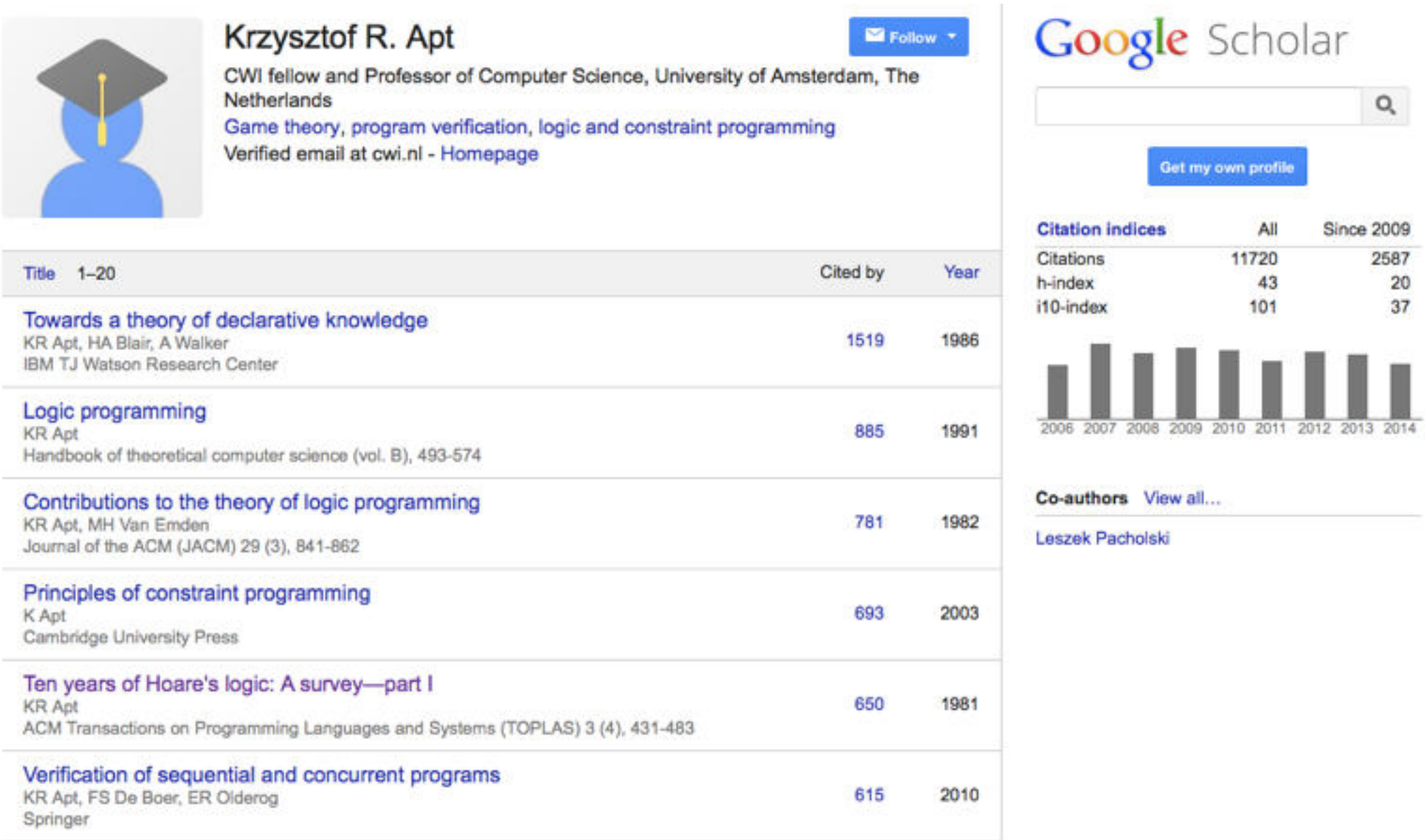

Logics and Models of Concurrent Systems


New Perspectives on Games and Interaction


Lectures in Game Theory for Computer Scientists
Krzysztof R. Apt
Erich Grädel

Aptitude 7: juggler, at CWI training ground around 1990; how many balls were mastered?

Aptitude 8: highly cited; listed as national citation champion in tcs



Krzysztof R. Apt

Follow

CWI fellow and Professor of Computer Science, University of Amsterdam, The Netherlands

Game theory, program verification, logic and constraint programming

Verified email at cwi.nl - Homepage

Title 1–20	Cited by	Year
Towards a theory of declarative knowledge KR Apt, HA Blair, A Walker IBM TJ Watson Research Center	1519	1986
Logic programming KR Apt Handbook of theoretical computer science (vol. B), 493-574	885	1991
Contributions to the theory of logic programming KR Apt, MH Van Emden Journal of the ACM (JACM) 29 (3), 841-862	781	1982
Principles of constraint programming K Apt Cambridge University Press	693	2003
Ten years of Hoare's logic: A survey—part I KR Apt ACM Transactions on Programming Languages and Systems (TOPLAS) 3 (4), 431-483	650	1981
Verification of sequential and concurrent programs KR Apt, FS De Boer, ER Olderog Springer	615	2010

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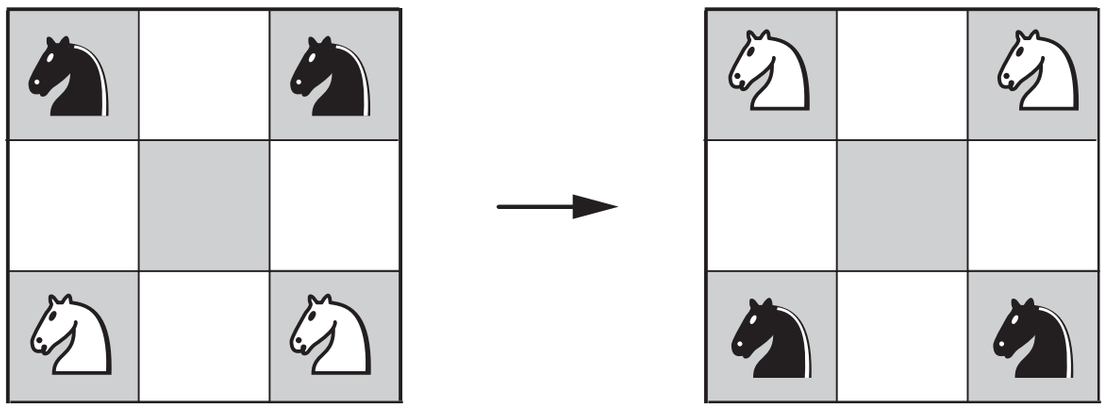
Co-authors View all...

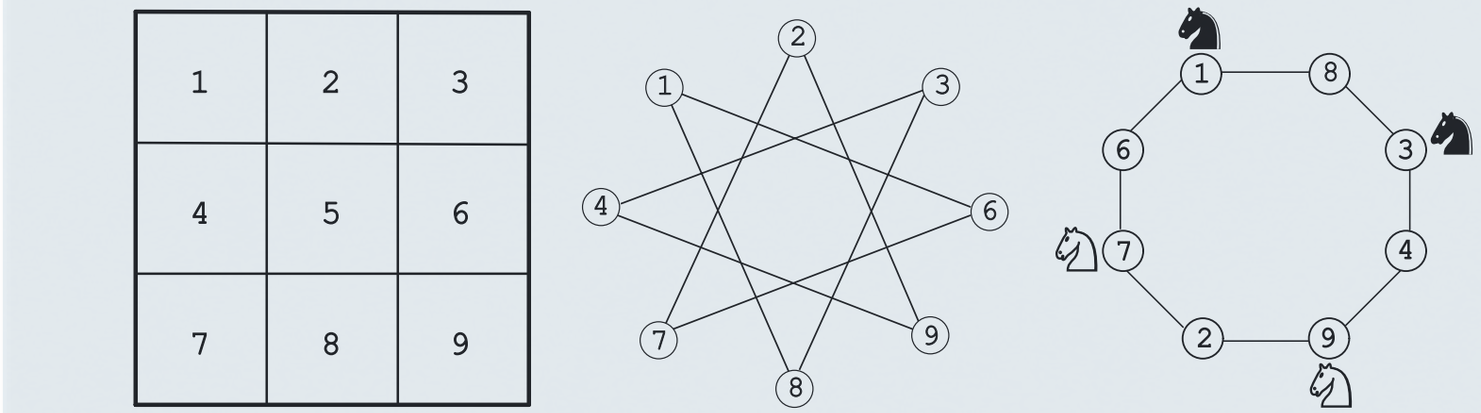
Leszek Pacholski

Aptitude 9: on the barricades for open source and cost of knowledge; Springer conceded last week

Aptitude 10: lover of puzzles and elegant solutions, of recreational mathematics



Guarini 1512



Aptitude 10a: Some favourite things of Krzysztof

Pigeon hole principle, König's Lemma,
Newman's Lemma, Multiset termination,
Ramsey's Theorem, Misra's lemma and Geser's lemma,
These are a few of my favorite things

let's have a bit more content….

Pigeon Hole Principle

Put infinitely many pigeons in finitely many pigeon holes. Then, at least one pigeon hole contains infinitely many pigeons. Provided the pigeons stay alive.

Consider a relation which is terminating and weakly confluent. Then that relation is confluent

Newman's Lemma

An infinite tree which is finitely branching, has an infinite branch.

König's Lemma

Multiset Termination

Also called Smullyan's Game. Take a bag of natural numbers. A move consists of replacing one number by arbitrarily many lesser numbers. This game must terminate

Misra's Lemma

Take streams over some alphabet, and partition the finite words over the alphabet in good ones (blue) and bad ones, red. Then each stream has a tail, after removing some finite prefix, consisting of a concatenation of only blue words; or of only red words.

Consider two well-founded relations, whose union is transitive. Then the union is well-founded too.

Geser's Lemma

Ramsey Theorem

An infinite graph in which each pair of nodes is connected by a blue or a red line, contains an infinite color homogeneous subset.

Pigeon Hole Principle

extensions in directions
at the cutting edge of research

Newman's Lemma

König's Lemma

Multiset Termination

set theoretic trees;
Aronszajn trees;
(why not appearing in tcs?)

Partition theorems in
set theory,
Erdös notation

Misra's Lemma

Geser's Lemma

Ramsey Theorem

Various 'bus puzzles', red and blue buses,
Doornbos-von Karger; Dershowitz;
van Oostrom

Aptitude 10b: Krzysztof likes to make contact with other areas; here with term rewriting systems, i.p. abstract reduction systems = labeled transition systems

Uniform Proofs of Order Independence for Various Strategy Elimination Procedures

Krzysztof R. Apt
School of Computing, National University of Singapore
3 Science Drive 2, Republic of Singapore 117543 *

July 22, 2013

promotor of Turing

Abstract

We provide elementary and uniform proofs of order independence for various strategy elimination procedures for finite strategic games, both for dominance by pure and by mixed strategies. The proofs follow the same pattern and focus on the structural properties of the dominance relations. They rely on Newman's Lemma (see Newman [1942]) and related results on the abstract reduction systems.

Final aptitude: *a friend*

A final wish: may Krysztof's life and work continue to blossom