Impatiemment Attendu

Robert Sedgewick
Princeton University
Data Movement in Odd-Even Merging
by Robert Sedgewick

Wednesday, August 17

Session V: A. Borodin, Chairman

A New Complexity Measure for Languages
by Luc Beosson, Bruno Courcelle and Maurice Nivat

Complexity of Grammatical Similarity Relations
by H.B. Hunt, III and D.J. Rosenkrantz

Fast Algorithms for Composition and Reversion of Multivariate Power Series
by R.P. Brent and H.T. Kung

Average Lower Bounds for Open-Addressing Hash Coding
by Christian H. Papadimitriou

Data Movement in Odd-Even Merging
by Robert Sedgewick

A Fast Selection Algorithm and the Problem of Optimum Distribution of Effort
by Zvi Galil and Nimrod Megiddo

Session VI: S. Greibach, Chairman

Orthogonal Information Structures
by Armin Cremers and Thomas N. Hibbard

Verification Decidability of Presburger Array Programs
by Norihisa Suzuki and David Jefferson

Demi-Groupes de Matrices Localement Testables Caracterisation et Decidabilite
by C. Jacob

Straight-Line Programs to Compute Finite Languages
by Glenn B. Goodrich, Richard E. Ladner and Michael J. Fischer

A Graphical Proof Procedure for First-Order Logic
by Philip T. Cox

Session VII: P.C. Fischer, Chairman

Automata with Data Storage
by Jonathan Goldstine

Codes Asynchrones
by Dominique Perrin

Toward a Theory of Data Encoding
by Arnold L. Rosenberg and Lawrence Snyder

Aspects of the Database Security Problem
by David Dobkin, Richard J. Lipton and Steven P. Reiss

Some Computational Problems Related to Database Concurrency Control
by Christos H. Papadimitriou, Philip A. Bernstein and James B. Rothnie

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constant if \( N \) is a power of two, with \( \zeta(2) = \frac{\pi^2}{6} \), and \( \zeta(2) = \frac{\pi^2}{6} \).

\[ a = \frac{\ln N}{\sqrt{N}} \frac{1}{2} \sqrt{N} - \frac{1}{2} \frac{1}{\sqrt{N}} \frac{1}{2} \frac{1}{\sqrt{N}} \]

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\[ b = \frac{\ln N}{\sqrt{N}} \frac{1}{2} \sqrt{N} - \frac{1}{2} \frac{1}{\sqrt{N}} \frac{1}{2} \frac{1}{\sqrt{N}} \]

\[ c = \frac{\ln N}{\sqrt{N}} \frac{1}{2} \sqrt{N} - \frac{1}{2} \frac{1}{\sqrt{N}} \frac{1}{2} \frac{1}{\sqrt{N}} \]

\[ d = \frac{\ln N}{\sqrt{N}} \frac{1}{2} \sqrt{N} - \frac{1}{2} \frac{1}{\sqrt{N}} \frac{1}{2} \frac{1}{\sqrt{N}} \]

\[ e = \frac{\ln N}{\sqrt{N}} \frac{1}{2} \sqrt{N} - \frac{1}{2} \frac{1}{\sqrt{N}} \frac{1}{2} \frac{1}{\sqrt{N}} \]

\[ f = \frac{\ln N}{\sqrt{N}} \frac{1}{2} \sqrt{N} - \frac{1}{2} \frac{1}{\sqrt{N}} \frac{1}{2} \frac{1}{\sqrt{N}} \]

\[ \zeta(2) = \frac{\pi^2}{6} \]

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Table 3. Values of constants
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On the Average Number of Registers Required for Evaluating Arithmetic Expressions
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We write \[ n_n = n_{n-1} + \frac{1}{\log \log n} \log n \]
with
\[ n_1 = \int^\infty_1 \frac{\log x}{x} \, dx. \]

Using Selberg's formula (20),
\[ V(\gamma) = \int^\infty_1 \frac{\log x}{x} \, dx + \int^\infty_1 \frac{\log x}{x-\gamma} \, dx, \]
we compute \[ n_n \] by parts:
\[ n_n = n_{n-1} + \frac{1}{\log \log n} \log n. \]

The first term vanishes to zero for at least two reasons, and:
\[ n_n = n_{n-1} + \frac{1}{\log \log n} \log n. \]

Splitting in two:
\[ n_n = n_{n-1} + \frac{1}{\log \log n} \log n - \frac{1}{\log \log n} \log n. \]

Each integral is computed in turn:
\[ n_n = \int^\infty_1 \log x \, dx - \frac{1}{\log \log n} \log n. \]

We have thus proved:

\[ \int^\infty_1 \frac{\log x}{x} \, dx = \log \log n. \]

Riordan (22) having the periodic function defined by (23).

Apart from the periodic term, the one in principle, leading an asymptotic expansion as far as needed. Selberg's formula (20) has also computed the Fourier series of (2):

\[ F(\gamma) = \int^\infty_1 \frac{\log x}{x} \, dx. \]

We find:
\[ n_n = \frac{1}{\log \log n} \log n. \]

\[ F(\gamma) = \frac{1}{\log \log n} \log n. \]

where \( F \) and \( \zeta \) are the classical gamma and Xiama's zeta functions.

The values of \( n_n \) have been studied computed for a range from 2 to 100 by means of formula (23). The results are plotted in figure 3, where the horizontal axis represents values of \( n \) in a logarithmic scale and the vertical axis represents values of \( n_n - \log n \).

\[ 2k\pi - \log^2 \frac{\kappa}{\log 2} \quad \zeta \left( \frac{2k\pi}{\log 2} \right) \]

\[ \frac{\kappa}{\log 2} \]

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\[ \zeta \left( \frac{2k\pi}{\log 2} \right) \]

\[ \log 2 \]
Genesis of “Analytic Combinatorics”

Late 1970s / early 1980s: optimism and opportunity

Knuth volumes 1-3

Search for generality

Algorithms for the masses

Teaching and research in AofA
When will the book be available?
An alert: “best-seller impatiemment attendu”

From: Google Alerts <googlealerts-noreply@google.com>
Subject: Google Alert - sedgewick
Date: September 26, 2008 12:26:13 AM EDT
To: Bob Sedgewick

Google Blogs Alert for: sedgewick

Best-seller impatiemment attendu
By Michael Lugo (Michael Lugo)
I’ve seen citations to Flajolet and Sedgewick’s book Analytic Combinatorics in things written as long ago as 1998 or so; Amazon.com says the book will be out on December 31, 2008, and the publisher, Cambridge University Press says ...

God Plays Dice - http://godplaysdice.blogspot.com/
An alert: “best-seller impatientment attendu”

In their impatiently awaited best-seller, P. Flajolet and R. Sedgewick offer a detailed development of the symbolic method in combinatorial analysis, to which one will be able to refer.
“Impatiently awaited” on the web

Prince of Persia

plasma display

iPod

Berkeley Unix 4.4

Analytic Combinatorics

student visa

Heroes episode

Dan Brown novel

Princes of Persia

plasmas display

iPod

Berkeley Unix 4.4

Analytic Combinatorics

student visa

Dan Brown novel
“Impatiently awaited” in literature

Prince Andrew listened to the account of the opening of the Council of State, which he had so impatiently awaited and to which he had attached such importance.

Leo Tolstoy, War and Peace

Custer and his cavalry contingent impatiently awaited marching orders.

Kingsley Bray, Crazy Horse: A Lakota Life

This done, he impatiently awaited the return of his companions.

Alexandre Dumas, The Count of Monte Cristo

A handsome young fellow like you does not obtain long leaves of absence from his mistress, and we were impatiently awaited at Paris, were we not?

Alexandre Dumas, The Three Musketeers

He impatiently awaited her husband’s departure.

Guy de Maupassant, Bel Ami
Digression: Separated at birth??
Last Sunday I sent the message that follows, then a reminder mid-week, but haven't received an ACK. Did you get it? Was it properly addressed?

Is there a pilot in the plane?

At full speed on the highway ... but in reverse gear?

Where are we????????

Did some e-mail message get lost? Please at least ACK having received the message below, first sent OCT 28, 2008.
Dear Philippe,

Apologies for not acknowledging, but I have been working around the clock to get this book to press which it did this morning. All of your corrections have been incorporated and we are on schedule for a stock date of 28th November.

Best Wishes,

[ CUP staff member ]

From: david.tranah@gmail.com
Subject: Re: Is there a pilot in the plane?
Date: November 28, 2008 1:12:56 PM EST
To: Philippe.Flajolet@inria.fr
Cc: rs@CS.Princeton.EDU, dtranah@cambridge.org

Dear Philippe and Bob

Just a quick note to say that I am looking forward to meeting you both again next week at the 60th birthday colloquium, and that we are on schedule to have books on display for SODA in NYC in January and at the annual meeting of the American Mathematical Society in Washington, also in January.

best wishes

david
As a technology, the book is like a hammer. That is to say, it is perfect: a tool ideally suited to its task. Hammers can be tweaked and varied but will never go obsolete. Even when builders pound nails by the thousand with pneumatic nail guns, every household needs a hammer.

....Now even modest titles have been granted a gift of unlimited longevity.

What should an old-fashioned book publisher do with this gift? Forget about cost-cutting and the mass market. Don’t aim for instant blockbuster successes. You won’t win on quick distribution, and you won’t win on price. Cyberspace has that covered.

Go back to an old-fashioned idea: that a book, printed in ink on durable paper, acid-free for longevity, is a thing of beauty. Make it as well as you can. People want to cherish it.