

Research Interaction on the *Gödel's Lost Letter* Weblog

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¹Includes joint work with Dr. Amlan Chakrabarti, Univ. of Calcutta

GLL Facts

- Started by Richard J. (Dick) Lipton in February 2009.
- Title references famous letter by Kurt Gödel in 1956 to John von Neumann dying in hospital, re-discovered in the mid-1980's.
- Included what we now know as the satisfiability problem (SAT), said significance of $O(n)$ or $O(n^2)$ -time algorithm would be immense.
- Thus we date the $P = NP?$ problem as being now 56 years old.
- Posts on a variety of Theoretical CS and Mathematics topics, and also wider—matters of personal interest to Dick.
- Averages just over 2 posts per week, 1,000–2,000 words each, usually. 425 posts since start.
- 3.2 million unique views (user \times page), typically 120 per hour.
- Approaching 11,000 total comments, avg. 25 per post but wide variance. Much more spam!
- Wordpress.com alas now blocked in China—Thomas informed me!

How did I become associated?

- Met Dick very briefly in 1986. Similar interest in logic, whether $P = NP$ can be independent from systems such as Peano Arithmetic.
- Met at STOC/FOCS conferences from 1989 onward.
- Really got to know him during STACS 1994. Two joint papers, one unfinished with his then-student Dan Boneh.
- I proved a graph-separator theorem in 1997, and he invited me to speak at Princeton.
- Dick is also a chess fan, even went to see 1990 Karpov-Kasparov match in NYC.
- 2008: symposium for his 60th birthday, Boneh invited me to speak. No hint of blog, though.

How I came on to the blog

- Spring 2009: I was on sabbatical in Montreal; Dick contacted me about some of our common topics.
- June-July 2009: A post featuring me and some joint work.
- Fall 2009 I was horribly busy, but did copy-editing of every 3rd post or so, along with his student Subruk Kalyanasundararam.
- August 2010: The [Vinay Deolalikar \$P \neq NP\$](#) claim...
- Regular writer by early 2011, full partner by midyear.
- Formal joint author name “Pip” unveiled on Charles Dickens’ 200th birthday in Feb. 2012.
- (Lunch or a bar: the story behind the story...?)

GLL “Invariants”

- Every post has title and subtitle.
- Every post begins with someone's name and has eir photo.
- Second paragraph is short and begins with “Today” (sometimes “Yesterday” when we are late).
- Rest of intro has an aspect of what the “featured person” did that is relevant to what we wish to talk about.
- Style: no “!” points, full person names, medium-sized sections...
- Every post ends with “Open Problems.”
- We try not to overlap other prominent blogs—for instance, we rarely do announcements.
- Structure helps avoid “Godwin’s Law”...

Aspects of Research

- ① The genesis of a paper, the “soul” of what it has.
- ② How ideas take form...or don’t.
- ③ Getting opinions on ideas.
- ④ Maybe try to popularize ideas, like “ey/em/eir/emself”? *Nyengelsk.* (actually called “Spivak Alternative”)
- ⑤ Give range to others’ ideas.
- ⑥ Associations between different topics. “Pattern Matching.”
- ⑦ Promoting human values...

Research Interaction and Collaboration

- ➊ Conversation in Comments (unmoderated, real-time sometimes).
- ➋ Real-time events, such as Omega.
- ➌ No Borders! (except in China).
- ➍ “Crowdsourcing”: reviewing, answers... but actual papers?
- ➎ What does StackExchange do better?
- ➏ My Kasparov-World 1999 experience.
- ➐ *PolyMath* projects.
- ➑ Associate with online courses?
- ➒ Condensation versus Variegation.

Example: Quantum Skepticism

- My own Grover-based skepticism.
- Gil Kalai and Aram Harrow: The \$100,000 Debate.
- Why it is hard to do research from a skeptical position.
- How to *ground* “crazy” ideas in realistic seedbeds.
 - Entanglement measures
 - Strassen’s lower bound via “geometric degree”
 - Connections to Kalai’s work.
 - Then really crazy stuff...
- Open Problems