

Jay Robert Halcomb

General interests: philosophy, logic, computer programming, teaching, writing, and the environment
Founder and partner, with Randall R. Schulz, of H&S Information Systems
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Overview

I am a logician, writer, teacher, environmentalist, and computer consultant specializing in web site construction, scientific programming, and logic programming -- a philosopher of language and logic concerned with the relations between predicate logic, philosophy of language, mathematics, and computer applications. In this regard, I am an active and unrepentant advocate of logical methodology in science and computer programming, and have worked for a number of years on tasks which, at a high level of sophistication, involve the study of such topics. These tasks have included the development of applications for automated theorem proving, natural language processing, and the construction of knowledge bases. I am (with Randall Schulz, H&S Information Systems) constructing an online theorem prover for educational applications: the Tau logic system, a FOL theorem prover (with HOL extensions) which treats relations, functions and identity.

I am active in contributing to research seminars in logic and computation. I am a member of the American Philosophical Association, the American Mathematical Society, the Association for Computing Machinery, and the Association for Symbolic Logic; I am a participant in the IEEE Standard Upper Ontology (SUO) Working Group (<http://suo.ieee.org>), the Common Logic project (<http://philebus.tamu.edu/cl/>) an international standards effort, and the Foundations of Mathematics list-serv (<http://www.cs.nyu.edu/mailman/listinfo/fom/>). I was also a member of the American Philosophical Association's [Committee on Philosophy and Computers](#).

I all but completed my dissertation for the Ph.D. in Philosophy at the University of Arizona. (In 1990, I passed the Preliminary Examinations for the Ph.D.) Other education includes: M.A., Philosophy, University of Arizona, 1987. B.A., Philosophy (w/ Distinction), Sonoma State University, 1978.

In Philosophy, my major areas of study are: mathematical logic, theoretical linguistics, philosophy of logic, philosophy of language, computer science (AI and cognitive science), the philosophy and foundations of mathematics, and epistemology. At Arizona my minor was Mathematics. (22 graduate units in Set Theory, Topology, Abstract Algebra, and Advanced Analysis).

I have 5 years of experience teaching logic at the University level, at the University of Arizona and at Sonoma State University. My teaching included the courses: Introduction to Logic, Advanced Logic, and Philosophy of Logic.

I am also actively involved in environmental politics and am a co-founder of Russian River Residents Against Unsafe Logging, a Sonoma County environmental group which advocates sustainable forestry.

Computer related employment

(as logician, programmer, analyst, technical writer/editor, website producer, and consultant)

I have over 20 years of cumulative experience in the writing, analyzing and testing of computer programs and systems. I have worked on machines from mainframes and minis to PCs, ranging from the IBM 360, Hewlett-Packard 3000 (MPE), DEC Vax and PDP-11's (Primos, Dec JCL), to IBM PCs and Macs, and

have worked within many OS environments including Unix, Cygwin, and Sun Solaris, Mac OS 9 and X, and Windows 2000 NT Pro and XP. I have programmed in languages including: (markup and web) HTML, DHTML, XML; (server- and client-side scripting), PHP, LAMP and WAMP, Javascript, MySQL, Ruby with Rails, CGI, Java, Perl, JSP, and Apache server; (scientific and data analysis) Basic, Fortran; (logic programming, AI and expert systems) Lisp, Prolog, KIF, DAML, and RDF; (database) Cobol, mySQL, and DBase; and (assembly) 68000/ 8080/ 8085/ 8086/ 6502/ Z80 assembly. I have done numerical analysis, scientific, and database programming, and document production and editing, including layout and graphic design (TeX, LaTeX).

Applications I have written included: web sites, communication satellite utilities, word-processing, operating system utilities and scripts (for a statistical system), database design and construction, graphics, educational, numerical analysis (including statistics), formal language design, expert systems and AI, and financial programming. I have both designed and authored the content of various web pages, by both hand-coding and using Dreamweaver and other HTML editors.

I am familiar with many of the usual application packages, including Dreamweaver, MSWord and MSOffice, PowerPoint, PhotoShop, Illustrator, Acrobat, Pagemaker, and OmniPage Pro. I have also been responsible for application and OS installation, and user-training, and CVS document control.

History

o 2002 - present. Partner, H&S Information Systems (<http://hsinfosystems.com>). Our projects:

o January, 2008 to present: Assisting Process Planning in the Manufacture of Boeing Aircraft using PSL and the Tau Logic Processor, a project contracted with the SJSU Foundation under Grant Award No.60NANB8D8995, [National Institute of Standards and Technology](#) ; Principal Investigator [Professor Michael Beeson](#), Computer Science Dept., San Jose State University .

*o The **Tau** Knowledge Base and Extensible Theorem Prover - our own project - <http://hsinfosystems.com/taujay/index.html>*

o An overview of Tau, paper for the CADE-20 Workshop on Empirically Successful Classical Automated Reasoning (ESCAR), held 22nd-23rd July, 2005 at the 20th International Conference on Automated Deduction (CADE) Tallinn, Estonia, 22nd July - 26th July, 2005 (Abstracts) (<http://www.hsinfosystems.com/Workshop.pdf>)

o Slides for ESCAR (Full version, PDF)

(http://www.hsinfosystems.com/ESCAR_MMA.pdf)

o Pictures from Estonia (<http://www.hsinfosystems.com/Estonia/index.html>)

o ESCoR-JAL 2007 program committee

o Sonoma & Mendocino Counties, American Red Cross (Website)

o Edison Innovations, LLC (Consulting: PHP, mySQL)

o Wood Pontiac, Cadillac, Mazda (Consulting, commercial website: PHP, mySQL)

o The FLoC'06 Workshop on Empirically Successful Computerized Reasoning (ESCoR), held 21st August 2006, as part of the The 3rd International Joint Conference on Automated Reasoning at The 2006 Federated Logic Conference, Seattle, USA, 10th - 22nd August, 2006

o Professor Stephen H. Schneider, Stanford University (Climatology)

o Professor Shripad Tuljapurkar, Stanford University (Population Studies)

o Professor Terry L. Root, Stanford University (Ecology)

o Professor Emeritus Robert A. Helliwell, Dept. of Electrical Engineering, Stanford University (Work in progress - LaTeX)

o Morrison Institute for Population and Resource Studies, Stanford University

o The CAR Project (Computer Assisted Reasoning - consulting)

o The National Center for Research on Evaluation, Standards, and Student Testing (UCSL - consulting)

o Russian River Residents Against Unsafe Logging (RRRAUL - environmental NGO)

o Russian River Watershed Protection Committee (RRWPC - environmental NGO)

- o [Prismatic Instant Sign Center](#) (commercial website: menu system, file uploader, Javascript, PERL, CGI)
- o Potala Rug House (commercial website)
- o [Sierra Club, Redwood Chapter](#) (*pro bono* assistance)

o 2000-2001: Senior Knowledge Engineer, Teknowledge Corporation, (<http://www.teknowledge.com>) 1810 Embarcadero Road, Palo Alto, CA 94303. Phone: 650-424-0500. Expert systems and AI applications, Prolog and CycL. Projects: FASIT (Fast Analyst Support Inference Tool), Sigma (a web-based environment for ontology development and knowledge engineering, which uses both first- and higher order logical reasoning). My employment at Teknowledge involved logic programming in Prolog (SWI and XSB). This including designing and implementing the Sigma Knowledge System, defining the KIF language used, axiomatization, designing the FOL inference engine, and composing test suites. I also worked on various DAML-S projects. While at Teknowledge I coded in HTML, Perl, Java, Prolog (SWI and XSB), RDF, and DAML, and used JDKEE, Cygwin, Linux, Windows 2000 NT Pro, and a variety of other systems and software.

o 1990-1999: Freelance computer consulting in the S.F. Bay area for: nonprofit organizations (webpages), businesses (database programming) and individuals software installation, maintenance, and training; web site design and word-processing). Clients included Russian River Jazz Festival (Guerneville: DBASE programming); Fife's Lodge (Guerneville: database and bookkeeping programming); Albion Distributors (Santa Rosa: database administration; data backup and recovery); Jamesco Electronics (Santa Rosa: mathematical consultation, tech. writing/editing), Coherent Power (Santa Rosa: grant-writing, web site design); Planning Commission, City of Santa Rosa (tech. writing/editing); Kaiser (Oakland: tech. writing/editing); Cutter Laboratories (Berkeley, tech. writing/editing). Authored webpages:

o Coherent Power, Ltd. (<http://www.coherentpower.com>)

o Potala Rug House (<http://halcomb:forestry@www.sonic.net/~halcomb/personal/potala>)

o 1987-1988: Interactive Concepts, 40 N. Swan, Suite 207, Tucson, AZ 85718. (A communications systems design firm). Programmer/mathematician. Tasks: CAD drafting, wrote and optimized I/O routines for the M68000, for use in a government communications satellite; wrote design specifications and proposals; did parts procurement; and did in-house mathematical research; C, 68000 assembler, Victor 286, MacIntosh.

o 1983-1985: Aridlands Watershed Management, U.S.D.A., 2000 E. Allen Rd., Tucson, AZ 85718. Programmer: statistical programming (e.g., wrote multivariate nonlinear least squares regression program); co-wrote user's manual and other documentation for technical and non-technical users of a (graphic) statistical analysis system; Fortran, PDP 11 and Vax.

o 1981-1982: Personal Computer Instruction, Tucson, AZ. As a contractor I instructed individuals, businesses in personal computer use, and wrote course and promotional materials.

o 1979: Computing Services, Santa Rosa Junior College, Santa Rosa, CA 91405. Programmer/analyst: financial and student records database; responsible for program documentation and the user's guide; Cobol, HP 3000.

o 1976-1978: Philosophy Dept., Sonoma State University, Rohnert Park, CA 91428. Programmer: developed various educational logic programs for Phil. Dept., under grant funding (authored grant); wrote course materials and a user's manual; Basic, PDP-8 & 10.

Writing and Editing

Types of published writing: academic, technical (user's guides, program documentation, magazine articles); fiction; poetry; essays; environmental journalism (newspaper articles, editorials, press releases, materials on Sierra Club and RRRRAUL web sites); course materials, promotional and advertising copy. Editing of academic and commercial websites.

Technical articles:

- o Michael Beeson, Jay Halcomb, Wolfgang Mayer, Inconsistencies in the Process Specification Language (PSL), CEUR Workshop Proceedings, Workshop on Automated

Theory Engineering (ATE 2011), 31 July 2011, Wroclaw, Poland.

- o Halcomb, J. & Schulz, R. (2005): "Tau: A Web-Deployed Hybrid Prover for First-Order Logic with Identity, with Optional Inductive Proof", *CADE-20 Workshop on Empirically Successful Classical Automated Reasoning (ESCAR), held 22nd-23rd July, 2005 at the 20th International Conference on Automated Deduction (CADE) Tallinn, Estonia.*[See also *Slides for ESCAR (Full version, PDF).*]
- o Halcomb, J. & Pease, A., (2001), "On Treating Negation within XSB" (and upon extending XSB programming with a form of logical negation, and its relations to existing varieties of logic programming), AAI Spring Symposium 2001 Workshop on Answer Set Programming, Stanford University. (<http://hsinfosystems.com/papers/halcomb/XSBneg.html>)
- o "The Automation of Human Reasoning" - book review, Dr. Dobbs Journal, February 1984. (<http://hsinfosystems.com/pictures/DrDobbsFeb84.pdf>)
- o "Twenty-nine Basics Compared" - language review, Computer Language, May 1985. (<http://hsinfosystems.com/pictures/CompLangMay85.pdf>)
- o "Model 100 DATA/SORT" - Tandy Model 100 database product review, PCM, August 1985. (<http://hsinfosystems.com/pictures/PCMAug85.pdf>)
- o "A SCHEDL enhancement" - Basic program for Tandy Model 100, PCM (Personal Computer Monthly, July 1985. (<http://hsinfosystems.com/pictures/PCMJul85.pdf>)
- o 1985-6: Technical referee, Computer Language Magazine, 4390 Bodega Ave., Petaluma, CA 94952.

Websites (construction, editing):

- o Professor Stephen H. Schneider, Stanford University (Climatology - <http://stephenschneider.stanford.edu>)
- o Professor Shripad Tuljapurkar, Stanford University (Population Studies - <http://popstudies.stanford.edu/>)
- o Professor Terry L. Root, Stanford University (Ecology - <http://www.stanford.edu/~troot>)
- o Morrison Institute for Population and Resource Studies, Stanford University
- o Russian River Residents Against Unsafe Logging (RRRAUL - environmental NGO - <http://www.rrraul.org>)
- o Russian River Watershed Protection Committee (RRWPC - environmental NGO - <http://envirocentersoco.org/rrwpc/index.html>)
- o Prismatic Instant Sign Center (commercial website: menu system, file uploader - <http://www.prismatic.us>)
- o Potala Rug House (commercial website - <http://halcomb:forestry@www.sonic.net/~halcomb/personal/potala/>)
- o Sierra Club, Redwood Chapter (*pro bono* assistance - <http://redwood.sierraclub.org>) Russian River Watershed Protection Committee (<http://envirocentersoco.org/rrwpc/index.html>)
- o Russian River Residents Against Unsafe Logging (RRRAUL) (<http://www.sonic.rrraul.org>)
- o Coherent Power, Ltd. (<http://www.coherentpower.com>)
- o Potala Rug House (<http://halcomb:forestry@www.sonic.net/~halcomb/personal/potala/>)

Teaching

- o Introduction to Logic, University of Arizona, F '80, F '81, F '82, F '83, S '84.
- o Introduction to Moral and Social Philosophy, U. of A., S '82.
- o Introduction to Philosophy, Arizona Department of Corrections, Wilmot Road Correctional Facility (Tucson, AZ) F '83.
- o Advanced Logic, Sonoma State University, F,S '77.
- o Philosophy of Logic, SSU, F,S '78.

Some sample syllabi:

- o Syllabus: Critical Thinking (<http://hsinfosystems.com/biographies/CriticalThinkingSyllabus.html>)
- o Syllabus: Introduction to Philosophy (<http://hsinfosystems.com/biographies/IntroductionToPhilosophySyllabus.html>)
- o Syllabus: Ethics and Value Theory (<http://hsinfosystems.com/biographies/EthicsAndValueTheorySyllabus.html>)
- o Syllabus: Introduction to Logic (<http://hsinfosystems.com/biographies/IntroductionToLogic.html>)

Also co-taught various other introductory Philosophy classes: University of Arizona, 1980-7, and Sonoma State University, 1978-9, and organized and supervised Computer Instructed Logic Course, SSU, 1977-8). Also, as a contractor I have for a number of years instructed individuals, businesses in personal computer use, and written course and promotional materials.

Education

- o All but dissertation completed for Ph.D. in Philosophy (Specialty: Logic, Minor: Mathematics), University of Arizona, (1990, passed Preliminary Examination).
- o M.A., Philosophy, University of Arizona, 1987. (79 sem. units; GPA 3.7)
- o B.A., Philosophy (w/ Distinction), Sonoma State University, 1978. (89 sem. units; GPA: 3.94)

Major areas of study: mathematical logic, theoretical linguistics, philosophy of logic, philosophy of language, computer science (AI and cognitive science), philosophy and foundations of mathematics, epistemology.

Minor: Mathematics. (22 graduate units in Topology, Abstract Algebra, Advanced Analysis, etc.)

Theses

- o Dissertation: Formal Semantics of Hypothetical Reasoning (Topological and Algebraic Interpretations of Subjunctive Conditionals), University of Arizona, 1990, unpublished, 120 pp.
- o Masters: Deontic Logic, University of Arizona, 1987, unpublished, 45 pp.
- o Honors: Montague Grammars, SSU, 1978, unpublished, 67 pp.

Conferences and Seminars

- o CEUR Workshop Proceedings, Workshop on Automated Theory Engineering (ATE 2011), 31 July 2011, Wroclaw, Poland.
- o Member, Program Committee, the [FLoC'06 Workshop on Empirically Successful Computerized Reasoning \(ESCoR\)](#), 21st August 2006, part of the 3rd International Joint Conference on Automated Reasoning, at Seattle, USA, 10th - 22nd August, 2006
- o Sierra Club, Chapter Leader Training, March 15-19 2006, Marconi Conference Center, Marshall CA
- o [Stanford Mathematical Logic Seminars: Axiomatizing Einstein's Mice; Slides](#) Nov. 8, 2005
- o Sierra Club's National Convention & Expo, September 8-11, 2005
The Moscone Center, San Francisco (<http://www.sierrasummit2005.org/>)
- o Empirically Successful Automated Reasoners (ESCAR), CADE-20, 20th International Conference on Automated Deduction, Tallinn, Estonia, 22 July - 27 July, 2005 (<http://www.cs.miami.edu/~geoff/Conferences/ESCAR/>)
- o Whole Earth Systems: Science, Technology and Policy Symposium, Stanford University, 2/10/2005 - 2/12/2005, (<http://cesp.stanford.edu/events/4040>)
- o Geographical Domain and Geographical Information Systems: EuroConference on the Ontology and Epistemology for Spatial Data Standards, La Londe les Maures, France, 22 - 27 September, 2000. (<http://www.geoinfo.tuwien.ac.at/events/Euresco2000/gdgis.htm>)
- o Answer Set Programming: Towards Efficient and Scalable Knowledge Representation and Reasoning: 2001 AAAI Spring Symposium, Stanford, CA, March 26-28, 2001. (<http://www.aaai.org/Press/Reports/Symposia/Spring/ss-01-01.html>)

o 1st North American Summer School in Logic, Language, and Information with the 11th Logic, Language, and Computation Colloquium - NASSLLI '02, Stanford, CA, June 24-30, 2002.
(<http://www.stanford.edu/group/nasslli/main.htm>)

Environmental Activities

In the early nineties a trip to India and Thailand directed my attention to the environment when I experienced the overcrowding of the slums of New Delhi and the smog of Bangkok. Since then I have been working in the regulatory and political arenas, including at the local, state and federal levels. I am currently Chair of the Redwood Chapter of the Sierra Club (<http://redwood.sierraclub.org>). I am also Chair of the Redwood Chapter Forest Protection from Conversions Committee, a member of the Sonoma Group Executive Committee, and a co-founder of Russian River Residents Against Unsafe Logging (<http://rrraul.org>). RRRAUL is a forestry watchdog group which monitors timber harvesting in Sonoma County, California.

In these connections my activities have included testifying on forestry practices before governmental agencies (California Board of Forestry, California Dept. of Forestry); testifying before the Professional Foresters Examining Committee; Board of Supervisors); making public comment on Timber Harvesting Plans; public speaking, radio and TV appearances; editing and publishing the RRRAUL newsletter; liaising with other environmental groups; conducting media interviews; writing editorials and articles; conducting litigation; web site publishing ; aerial photography and videography. Examples of some of this work can be found on the Redwood Chapter website and on the RRRAUL website.

I was also for a time on the Steering Committee of the Russian River Watershed Council. Also I was Chair of the RRWC Budget/MOU Committee; this committee formulated a 2-year, \$10M budget for the RRWC, and negotiated an MOU with the State Resource Agency (<http://www.spn.usace.army.mil/russian/mou112099.pdf> - subsequently signed). Other RRWC Committees of which I was a member: Education and Public Outreach, Watershed Information Assessment and Monitoring, Rules and Structure, and Salmon Restoration. (See Russian River Ecosystem Restoration web site: <http://www.spn.usace.army.mil/russian>).

I created these environmental web sites (and contributed to others, see above):

- o Russian River Watershed Protection Committee
(<http://envirocentersoco.org/rrwpc/index.html>)
- o Russian River Residents Against Unsafe Logging (RRRAUL)
(<http://www.rrraul.org>)
- o Professor Stephen H. Schneider, Climatologist, Stanford University
(<http://stephenschneider.stanford.edu>)
- o Professor Terry L. Root, Ecologist, Stanford University
(<http://terryroot.stanford.edu>)

Among my most recent activities: for the Sierra Club I have been extensively commenting on the current Sonoma County General Plan update and the County Timberland Ordinance, particularly w.r.t. forestry and riparian issues.

I am also Chair of the Media Committee of the Redwood Chapter, and in this connection I have been organizing and updating the Chapter's media relations, including coordinating this effort with the Sierra Club National Media Field Office. My work has included commentary: for AP, Reuters, CNN, Bloomberg News, radio (NPR, KRCB, KZYX); print (Press Democrat, S.F. Chronicle, Sacramento Bee, Washington Post), and TV (KFTY, KRON):. I have also testified at hearings of the Board of Supervisors and at various hearings of State agencies and committees and at the legislature; and in meetings with the County Supervisors and in testimony before the County Planning Commission, and in judicial proceedings.

Other

Community Activities

Russian River Residents Against Unsafe Logging, Russian River Watershed Council, Friends of the Guerneville Library, Sebastopol Baroque Septet, Tucson Flute Club, Tucson Children's Museum, Tucson Kaypro User's Group, Tucson Commodore User's Group, Santa Rosa Commodore User's Group, U. of A. Volunteer Tutoring Center, Van Nuys Chess Club, Van Nuys Astronomy Club, Los Angeles Recorder Society.

Memberships

Association for Automated Reasoning; American Philosophical Association; American Mathematical Society; Association for Computing Machinery; Association for Symbolic Logic; Redwood Chapter, Sierra Club; Russian River Residents Against Unsafe Logging (founder), IEEE Standard Upper Ontology (SUO) Working Group, Foundations of Mathematics list-serv, Ontolog community list-serv.

Honors, awards, grants, scholarships

Teaching assistantships, University of Arizona, 1980-7. Tuition and fees scholarships, U. of A., 1980-7. Danforth and Fulbright Nominee, Sonoma State University, 1977. Programming grant (logic instruction), SSU, 1977. Dean's Honor List, SSU, 1977-8. Graduation with Distinction, SSU, 1978.

Avocations

Astronomy and astrophotography; athletics (bicycling, tennis, swimming, kayaking); camping, backpacking, and hiking; cats and dogs; electronics (construction and repair, gadgetry, short-wave); games (chess, bridge, poker, pool, crosswords); literature, poetry and drama; music (flute, piano, guitar); photography and videography; prestidigitation; travel (England, India, Thailand, Canada, Mexico, France, Estonia; Poland).

Personal Website: <http://www.sonic.net/~halcomb>
