

CURRICULUM VITAE: P.N. JOHNSON-LAIRD

BIOGRAPHICAL DETAILS

Full name: Philip Nicholas Johnson-Laird

Date & place of birth: October 12th 1936; Rothwell, near Leeds, England.

Citizenship: Dual nationality: US and UK.

Marital status: Married Maureen Sullivan 1959. 1 son 1966; 1 daughter 1971.

Present appointment: Stuart Professor of Psychology
 Department of Psychology
 Princeton University
 Princeton, NJ 08540, USA
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 webpage: [http:// www.princeton.edu/~psych/PsychSite/~phil.html](http://www.princeton.edu/~psych/PsychSite/~phil.html)
 laboratory: [http:// www.princeton.edu/~mentmod](http://www.princeton.edu/~mentmod)

Department &

University service: Director of Graduate Studies, Psychology: 1991-5; Spring 1998;
 Spring 2000.
 Institutional Review Panel: 1996-1999; Chair, 2001-3.
 Psychology: Cognitive Area co-ordinator: 2003.

Education: Culford School, Suffolk, England, 1948-1952.
 College of Estate Management, Kensington, London, 1954-1959.
 Intermediate examination, Royal Institution of Chartered Surveyors.
 University College London: BA(Hons) First Class, Psychology (1964)
 Ph.D. Psychology (1967)

Previous career and appointments:

Freelance musician and music critic, talks on BBC 3rd Programme, etc.,	1960-1961.
Department of Psychology, University College London:	
Assistant lecturer	1966-1967.
Lecturer	1967-1973.
Experimental Psychology, University of Sussex: Reader	1973-1978.
Professor	1978-1982.
Chair	1981-1982.
Medical Research Council, Applied Psychology Unit Cambridge:	
Special appointment	1982-1983.

Assistant director 1983-1989.

Visiting appointments:

Visiting Member, The Institute for Advanced Study, Princeton, NJ: 1971-1972.
 Visiting Fellow, Cognitive Science Program, Stanford University: Spring 1980.
 Visiting Professor, Psychology, Stanford University: Spring 1985.
 Visiting Professor, Psychology, Princeton University: Spring 1986, Spring 1987,
 Spring 1988.
 Distinguished Visitor, Cognitive Studies, Cornell University: Spring 1987.
 Visiting Professor, University of Trieste: June 1990.
 Visiting Professor, University of Florence: July 1990.
 Jan 1991.
 The Macheachran Lecturer, University of Alberta, Edmonton: Fall 1990.
 Visiting Professor, University College, London: Spring 1992.
 Visiting Professor, Centre for Cognitive Psychology (CREPCO),
 University of Aix-en-Provence, France: Spring 1996.
 Visiting Professor, Turin University: June 1999.
 Visiting Professor, Padua University, Turin University, and
 University of Bari: Summer-Fall 2000.
 Visiting Professor, The New School University: Spring 2005.

Awards, fellowships, and honorific societies:

Rosa Morison Memorial Medal, University College London, 1964.
 James Sully Scholarship, 1964-1966.
 Spearman Medal, British Psychological Society, 1974.
 Presidents' Award, British Psychological Society, 1985.
 Fellow of Darwin College, Cambridge, 1985-9.
 Fellow of the British Academy, 1986.
 M.A., Cambridge University, 1986.
 Medaglia d'Onore, University of Florence, 1989.
 Fellow of the Royal Society (of London), 1991.
 Fellow of University College, London, 1994.
 Fyssen International Prize, 2003.
 Mind and Brain Prize, Turin University, 2004.
 Member of the American Philosophical Society, 2006.
 Fellow of the Association for Psychological Science, 2007.
 Member of the National Academy of Sciences, 2007.

Honorary degrees

Doctorate, University of Gothenburg, Sweden, 1983.
 Laurea, University of Padua, Italy, 1997.
 D.Sc., Trinity College, University of Dublin, Ireland, 2000.
 Doctorate in Psychology, Universidad Nacional de Educación a Distancia,
 Madrid, Spain, 2000.
 Doctorate, University of Ghent, Belgium, 2002.
 Laurea, University of Palermo, Sicily, Italy, 2005.

D.Sc., Sussex University, England, 2007.
 Laurea, University of Ca' Foscari, Venice, Italy, 2008.

Grants:

Medical Research Council grant for scientific assistance for research into the effects of linguistic variables on cognitive performance, in conjunction with Dr. P. C. Wason, 1968-1971.

Social Science Research Council grant for scientific assistance for research into the representation of meaning in the mental lexicon, 1973-1976.

Social Science Research Council grant for research into the role of inference in comprehension and memory, in conjunction with K. Ehrlich, April 1977-1979.

Social Science Research Council grant for an experimental investigation into linguistic performance, 1977-1978.

Social Science Research Council: personal grant to free me from teaching for three years. An investigation into an integrated model of syntactic, semantic and inferential processing, October 1978-1981.

Science Research Council, Computing grant, with H.C. Longuet-Higgins and N.S. Sutherland, 1980-4.

Social Science Research Council grant for an investigation into working memory and inference with Jane Oakhill, 1982-1983.

Medical Research Council: my research was directly supported from 1982-9.

ARPA/SISTO/CAETI: Two year grant awarded to George A. Miller and P.N. Johnson-Laird: Educational Uses of WordNet, 1995-7.

National Science Foundation, Three year grant to study Strategies in Reasoning, May 2001-April 2003. Extension to April 2004.

Professional positions, research councils, etc.

Member of the Psychology Committee, Social Science Research Council (GB) 1975-1979.

Member of the Linguistics Committee, Social Science Research Council (GB) 1980-1982.

Member of Advisory Council of the International Association for the Study of Attention and Performance, 1984-7.

Chair, Education and Social Research Council, Committee to set up Interdisciplinary Research Centre on Language, 1988.

Board of Directors, NICI, Nijmegen, The Netherlands, 1990-2.

Consultant for NIMH panel on Interdisciplinary Units, 1994.

Member of Governing Board of Cognitive Science Society, 1990-1996.

Consultant for Educational Testing Service on reasoning, 2001-3.

Consultant for proposed graduate program in Cognitive Science, Rensselaer Polytechnic Institute, Summer, 2003.

Consultant for Law School Admissions Council on reasoning, 2004.

Membership of learned societies:

Student member, British Psychological Society, 1962.

Member, British Psychological Society, 1964.

Member, Linguistics Association, 1967.
 Member, Experimental Psychology Society, 1968.
 Founder Member, Cognitive Science Society, 1979.
 Member of Association for Computational Linguistics, 1981.
 International Pragmatics Association, 1988.
 International Society for Research on Emotion, 1989.
 Member of Society of Experimental Psychologists, 1989.
 Member of Eastern Psychological Association, 1991.
 Member of Psychonomics Society, 1991.
 Member of American Psychological Society, 1993 (fellow, 2007)

Editorial boards:

Previous:

Quarterly Journal of Experimental Psychology, 1970-2.
 Cognitive Science, 1977-87.
 Cognition & Brain Theory, 1980-5.
 Cognitive Development Abstracts, 1983-5.
 Cognitive Psychology, 1975-1991.
 Consciousness & Cognition, 1990-1.
 Journal of Experimental Psychology: General, 1985-9.
 Computer Speech and Language, 1985-1993.
 Foreign Advisor: British Journal of Psychology, 1989-94.
 Journal of Spatial Thinking, 1999-2007.

Current:

Cognition, 1975-
 Behavioral & Brain Sciences, 1976-
 Journal of Semantics, 1982-
 Language and Cognitive Processes, 1985-
 American Journal of Psychology, 1989-
 Rivista di Linguistica, 1989-
 Minds and Machines, 1990-
 Thinking and Reasoning, 1993-
 Current Psychology of Cognition, 1994-
 Trends in Cognitive Science, 1997-
 Cognitive Science Quarterly, 1999-
 Acción Psicológica, 2002-

Recent consulting

Categorization of logical reasoning problems in LSAT, Summer 2004.
 Listening Comprehension test in LSAT, Summer 2004.

REFEREES

1. Emeritus Professor George A. Miller,
 Department of Psychology,
 Princeton University,

Princeton, N.J. 08544,
 U.S.A.
 tel: (609) 258-5973
 email: geo@clarity.princeton.edu

2. Emeritus Professor Keith Oatley,
 113 Bernard Avenue
 Toronto M5R 1S4, Canada
 tel: (416) 961-7969
 email: koatley@oise.utoronto.ca

3. Professor Ruth M.J. Byrne,
 Department of Psychology
 Trinity College
 University of Dublin
 24-28 Westland Row
 Dublin 2, Ireland.
 tel: (1) 6082290
 email: rmbyrne@tcd.ie

TEACHING

Previous:

Undergraduate lecture courses in the past include the following:

Introduction to Psychology (a general course for first year students).

Introduction to Cognitive Science (a general course for first or second year students).

First year laboratory class (ranging from Psychophysics to Social Psychology).

Second year laboratory class and introduction to experimental design and analysis.

Language and thought (a general introductory course).

Psycholinguistics (an advanced course).

Thinking (as second year and as an advanced third year option).

Mental representations (a brief advanced course to Philosophy students).

Artificial Intelligence and Cognition (an advanced course)

Introduction to Cognitive Science

Current:

Introduction to Cognitive Psychology

Human-machine interaction

Rationality

Psychology of thinking (an advanced course)

Psychology of language (an advanced course)

Creative processes (an advanced course)

Psychology of music (an advanced course)

In addition to advising UG Junior and Senior theses in psychology, I advise students in Computer Science and in Philosophy.

Graduate courses:

Cognitive Psychology (a course to M.Sc. students of Speech Processing, in Engineering Department, Cambridge).

Cognitive Science

Thinking and reasoning

Psychology of deduction

Psychology of induction (co-taught with Eldar Shafir)

Reasoning and decision making (co-taught with Eldar Shafir)

Creative processes

Psychology of proof

Computer modeling of cognitive processes

Reasoning and the consistency of beliefs

Evening lectures to the general public:

Psychology (a course of 20 lectures at Morley College, London).

Postgraduate supervision:

Supervised twenty PhD students in the following general areas: Experimental Psycholinguistics, Language acquisition, Interpretation of discourse, Reasoning, Creativity, Diagnosis of faults, and Reverse engineering: David Green, 1973 (currently in Psychology, University College London, UK); David Warden, 1974 (Psychology, Stirling University, Scotland); Philip Barnard, 1974 (MRC Brain research unit, Cambridge, UK); Mary De Z. Cooke, 1975; Deborah Hodgkin, 1975; Kate Ehrlich, 1978 (IBM Watson Research Center, Cambridge, MA); Til Wykes, 1978 (MRC Unit, Maudsley Hospital, London, UK.); Alan Garnham, 1981 (Psychology, University of Sussex, UK.); Jane Oakhill, 1981 (Psychology, University of Sussex, UK.); Mic Power, 1981 (Psychiatry, Edinburgh University, Scotland); Patrizia Tabossi, 1983 (Psychology, University of Trieste); Alison Black, 1987 (Alison Black Research & Consulting, Reading, UK); Jung Min Lee, 1994; Victoria Shaw, 1994; Patricia Barres, 1998; Victoria Bell, 1998; Yevgeniya Goldvarg, 1999; Uri Hasson, 2004 (University of Chicago, USA); Geoffrey Goodwin, 2006 (Princeton University, USA); Louis Lee, 2007 (Chinese University of Hong Kong). Currently, supervising one Ph.D. student: Sangeet Khemlani.

RESEARCH

My early research was about the pragmatics of natural language, and it showed that the surface form of sentences had a considerable effect on their significance, contrary to the then prevailing views of transformational grammar [see e.g. my papers of 1967-8].

I then collaborated with Peter Wason on a study of the psychology of deductive reasoning. We discovered that people make systematic errors in reasoning, and that there is a large effect of the content of premises on the form of conclusions that they draw [see our joint publications 1969-1973 and our book, *Psychology of Reasoning*, 1972]. The effects of content are not readily compatible with the thesis, still urged by some psychologists, that there is a mental logic consisting of formal rules of inference. At the time, however, we were unable to formulate an alternative theory of how people reason.

From the 1970s, my research again concerned psycholinguistics. I worked on memory for meaning [see e.g. my letters to *Nature* of 1970, 1974, 1976 and 1977]; and I collaborated with George A. Miller on a theory of the mental representation of the meanings of words [see our book, *Language and Perception*, published in 1976]. This work led to the view that lexical meanings could be fruitfully treated as elements of procedures executed in the process of understanding discourse [see the paper, 'Procedural Semantics', of 1977]. Mark Steedman and I developed a computer program that modeled certain aspects of this theory, which in turn motivated some experimental tests of it [see the papers published with Bethell-Fox, and with Gibbs and de Mowbray, in 1978]. But, an essential question remained unanswered: what form did the mental representation of discourse take?

I returned to the study of deductive reasoning, and following an earlier idea [see my paper, 'Models of deduction', 1975] put forward the theory that ordinary individuals reason by imagining a situation in which the premises are true -- they construct a mental model of them. In the case of some premises, such as disjunctions, they may have to construct multiple models to capture the multiple possibilities. A conclusion is valid if it holds in all the models of the premises, it is probable if it holds in most of them, and it is possible if it holds in at least one of them. Steedman and I implemented the theory in a computer program that made deductions from singly-quantified assertions, and its predictions about the relative difficulty of such problems were strikingly confirmed: the greater the number of models that have to be constructed in order to draw the correct conclusion, the harder the task is [see our paper of 1978, 'The psychology of syllogisms', and the revised theory developed in collaboration with Bruno Bara, see our paper of 1984].

This mental-model theory of deductive inference could be generalized to other forms of deductive inference, and I implemented the theory in a computer program that reasoned about spatial relations; the experimental results were equally successful [see e.g. 'Mental models in cognitive science', 1980, and 'Thinking as a skill', 1982]. But the idea also suggested an answer to the earlier question of the form taken by the mental representation of discourse: comprehension is a process of constructing a mental model. This theory was also been modeled in computer programs [see 'Comprehension as the construction of mental models', 1981], and led to a number of experimental studies [see e.g. the papers co-authored with Garnham and Oakhill, 1982; with Ehrlich, 1982; with Mani, 1982; and with Black and Freeman, 1986].

The theory of mental models posits that comprehension depends on a grasp of how words relate to the world (their contribution to 'truth conditions') and that reasoning consists in the manipulation of models. It therefore is opposed both to traditional accounts of meaning that analyze it in terms of semantic networks, meaning postulates, or semantic features [see the paper co-authored with Herrmann, and Chaffin, in 1984]. These forms of representation merely translate natural language into another form of symbolism, which they fail to relate to the world. A similar overemphasis on syntax is made by psychological theories of deduction that suppose that it follows formal, or syntactic, rules of inference. In short, mental models integrate two hitherto different strands of research: the psychology of reasoning and the psychology of meaning [see my book, *Mental Models*, published in 1983].

This book was well received except on the part of those who believe in formal rules of inference. They pointed out that the evidence was not decisive and that theory had not been extended to propositional reasoning, i.e. reasoning that depends on such sentential connectives as 'if' and 'or'. In a three year collaboration, Ruth Byrne and I developed a model-based theory of propositional reasoning, which we also corroborated experimentally. Likewise, we modeled various aspects of the theory in computer programs; and we gathered further evidence that supported its applicability to the domains of spatial reasoning and reasoning with multiply-quantified assertions [see our publications of 1989 et seq, and our book *Deduction*, 1991]. I have also extended a model-based algorithm to solve a well-known problem in logic: the search for a maximally parsimonious circuit equivalent to a given circuit (made up from Boolean units). The algorithm, which I have implemented, is in principle guaranteed to find such a description for any given one; in practice, as is well-known, any such algorithm is intractable. The model theory predicts that any device that makes alternative possibilities more explicit should improve reasoning. Malcolm Bauer and I corroborated this prediction in a study of reasoning based on diagrams: those diagrams that make alternatives explicit vastly enhance reasoning in comparison with a verbal presentation of problems (see our joint papers of 1993).

Victoria Bell and I showed how the model theory applies to so-called 'modal' reasoning, e.g., reasoning about what is possible and what is necessary. Our main discovery was the corroboration of a key interaction predicted by the model theory: reasoners are faster and more accurate in inferring that an event is possible as opposed to necessary, but they are faster and more accurate in inferring that an event is not necessary as opposed to not possible. The model theory also predicts the existence of 'illusory' deductions, i.e. premises with compelling conclusions that nearly everyone draws, and yet that are totally wrong. They arise, according to the theory, from a failure to take into account information about what is false. We have shown that these illusions do occur, and we have developed various antidotes to them. This work has been carried out with various colleagues, including Fabien Savary (my former post-doctoral student), Mary Newsome (a former graduate student), Carlos Santamaria (of the University de La Laguna, Tenerife), Eugenia Goldvarg (a former graduate student) and Yingrui Yang (a former post-doctoral student). We have also applied the model theory to informal argumentation in everyday life. The empirical investigation concerns problems in the GRE, and was carried out with Yingrui Yang (Rensselaer Polytechnic) and Malcolm Bauer (ETS, Princeton).

Over the last twenty years, Keith Oatley (OISE, Toronto) and I have developed a theory of emotions (see, e.g., our papers of 1987 and 2000) and shown how it accounts for the semantics of emotional terms, and Oatley has corroborated some of the theory's predictions in empirical studies. More recently, it led to the development of a new hyper emotion theory of the origins of neurotic and other psychological illnesses. This research was carried out in collaboration with Francesco Mancini (a psychiatrist in Rome who is the director of the Institute of Cognitive Therapy there) and Amelia Gangemi (a clinical psychologist at the University of Cagliari). We have published the theory in *Psychological Review*, and we are continuing experiments in which we test individuals who suffer from psychological illnesses. Our theory predicts that they will reason better than normal individuals (pace Beck), but only on matters pertaining to their illness.

My work on creativity has largely concerned the development of 'creative' algorithms with particular reference to music (I have implemented programs that generate novel tonal chord sequences, bass lines, and melodies, see my paper of 2002). I have also explored the use of imagery in creative thinking in collaboration with a former Ph.D. student, Jung Min Lee.

My research on strategies in reasoning was carried out with the support of an NSF grant (2002-5), and it led to the publication of over 50 papers (see papers published from 2003 to the present). It showed that different individuals develop different strategies to reason.

My current research is concerned with several topics:

1. Reverse engineering and problem solving. Louis Lee's Ph.D. thesis was on this topic, and we plan to publish a joint paper based on this research.
2. Moral reasoning. Monica Bucciarelli (University of Turin), Sanjeet Khemlani (a current graduate student), and I, have developed a theory of how individuals reason about moral matters. We have corroborated some of its predictions experimentally, and continuing to carry out experiments on the topic.
3. The effects of knowledge and meaning on reasoning with conditionals. This project is a long-standing one carried out in collaboration with Ruth Byrne (Vice Provost, Trinity College, University of Dublin) and Cristina Quelhas (ISPRA, Lisbon, Portugal).
4. Preferred spatial models. Markus Knauff (University of Giessen), Georg Jahn (GS at Chemnitz University), and I, are studying the spatial models that individuals tend to construct from descriptions that are consistent with multiple possibilities.
5. Probabilities of conditionals. Professor Vittorio Girotto (University of Architecture, Venice), Nuria Carriedo (UNED, Madrid), and I, have a project in which we are testing the model theory of how individuals estimate the probabilities of various assertions, including conditionals.
6. Music and emotions. A long-standing investigation by way of computer-generated music of a mimetic theory of how music communicates emotions – the theory rests in part on a theory of emotions developed in collaboration with Keith Oatley (University of Toronto).
7. Intuitive inferences and guessing. Professor Juan García Madruga (UNED, Madrid) and I are in the planning stages of a project to study how individuals make rapid intuitive inferences.
8. Personality and reasoning. Carlos Santamaría and Ascensión Fumero (both of the University of La Laguna, Canary Islands) visited my laboratory for several months last year, and we have developed an account of how personality (the 'Big Five' constructs) is likely to affect the ways in which individuals reason. We have discovered that it affects performance in a reasoning task in which individuals can respond either with a deduction or else with an explanatory induction. As our theory predicts, those who are open to experience but not highly conscientious tend to make the explanatory induction whereas those with the mirror-image personalities tend to make the deduction.
9. Sangeet Khemlani (a current graduate student) and I are working together to carry out a series of experiments to investigate how people understand disjunctions.
10. Geoff Goodwin (a current post-doctoral student) and I are working on three separate projects. The first project concerns a theory of Boolean concepts – what makes them

difficult to learn and difficult to use. The second project concerns the simulation of events in reasoning from conditional premises. The third project concerns the distinction between basic emotions and complex emotions.

11. Caren Frosch (Reading University), Michelle Cowey (University of Oxford), and I are working on how individuals understand causation, with special emphasis on its relation to the law.

12. Clare Walsh (Plymouth University) and I are working on how individuals revise their beliefs in the face of contradictions to them.

MISCELLANEOUS

TV: What is truth? ITV, 1988.

The Mind Machine, BBC TV, 1988.

Organized a Conference to honor George A. Miller, Princeton University, October, 1991.

Recent invited papers, presentations at conferences, and colloquia:

Colloquium, University of North Carolina, Chapel Hill, January 21st 2004.

Two Colloquia, University of Michigan, Ann Arbor, March 24-25th, 2004.

Talk, Trinity College Dublin, April 30th, 2004.

Talk and two colloquia, Turin University, May 6-7th, 2004.

Talk at the International Meeting on Emotions and the Arts, University of Toronto, May 21st, 2004.

Talk JLI Inc, Portland, Oregon, July 16th, 2004.

Three joint talks (Walsh, J-L, and Sloman; Jahn, J-L, and Knauff; Goodwin and J-L) and one poster (Quelhas and J-L) at the Fifth International Conference on Thinking, Leuven, July 2004.

Joint paper with Louis Lee, Annual Conference of Cognitive Science Society, August 5th, 2004.

Talk, Law Schools Admission Council, August 11th, 2004.

Colloquium, New School University, September 29th, 2004.

Talk, 55Plus Group, Princeton, January 2005.

Talk at International Workshop on Psychological Illnesses, CNR, Rome, March 15th, 2005.

Four joint talks at the Annual Conference of the Cognitive Science Society, Stresa, Italy, with Geoffrey Goodwin, Uri Hasson and Clare Walsh, Georg Jahn and Markus Knauff, and Louis Lee, August 2005.

Colloquium, University of Palermo, Italy, November 2005.

Talk at International Conference on Mental Models, Trinity College, Dublin, March, 2006.

Joint talk with Monica Bucciarelli at International Conference on Mental Models, Trinity College, Dublin, March, 2006.

Joint talk with Clare Walsh, Ruth Byrne, Steve Sloman, and Guiliana Mazzoni, Experimental Psychological Society, Plymouth meeting, July, 2006.

Two joint talks at the Annual Conference of the Cognitive Science Society, Vancouver, Canada, with Louis Lee and Geoffrey Goodwin, and with Caren Frosch, August 2006.

Joint talk with Geoff Goodwin at the first Annual London Reasoning Workshop: Festschrift for David Over, London, UK, September 2006.

Joint talk with Amelia Gangemi and Francesco Mancini at the 13th Annual Conference of the Cognitive Section of the British Psychological Society, Lancaster, UK, September 2006.

Talk at DARPA meeting on Common-sense reasoning, New York city, October 19th, 2006.

Colloquium at the Institute for the Study of Child Development, Rutgers, March 2007.

Talk at Sussex University, July 2007.

Joint talk with Geoffrey Goodwin at the second Annual London Reasoning Workshop, London, UK, August 2007.

Joint talk with A. Cristina Quelhas and Csongor Juhos at the second Annual London Reasoning Workshop, London, UK, August 2007.

Joint talk with Caren Frosch and Michelle Cowley, at the Annual Conference of the Cognitive Science Society, Nashville, Tennessee, August 2007.

Joint talk with Geoffrey Goodwin at Psychonomics meeting, Long Beach, CA, November 2007.

Joint talk on the psychology of moral reasoning with Monica Bucciarelli and Sangeet Khemlani at Meeting on Understanding Moral Emotions, at Istituto di Scienze e Tecnologie della Cognizione, CNR, Roma, May 2008.

PUBLICATIONS

Books:

1. *Thinking and Reasoning*. (P.C. Wason and Johnson-Laird, P.N., Eds.) Harmondsworth: Penguin, 1968.
2. *Psychology of Reasoning*. (P.C. Wason and Johnson-Laird, P.N.) London: Batsford. Cambridge, Mass.: Harvard University Press, 1972.
Italian translation: Psicologia del Ragionamento, Martello-Giunti, 1977.
Spanish translation: Psicologia del Razonamiento, Editorial Debate, Madrid, 1980.
3. *Language and Perception*. (George A. Miller and Johnson-Laird, P.N.) Cambridge: Cambridge University Press. Cambridge, Mass.: Harvard University Press, 1976.
4. *Thinking*. (Johnson-Laird, P.N. and P.C. Wason, Eds.) Cambridge: Cambridge University Press, 1977.
5. *Mental Models*. Cambridge: Cambridge University Press. Cambridge, Mass.: Harvard University Press, 1983.
Italian translation by Alberto Mazzocco, Il Mulino, 1988.
Japanese translation, Japan UNI Agency, 1989.
6. *The Computer and the Mind: An Introduction to Cognitive Science*. Cambridge, MA: Harvard University Press. London: Fontana, 1988. Second edition, 1993.
Japanese translation, 1989.
El ordenador y la mente. (1990) Ediciones Paidós. [Spanish translation]
La Mente e il Computer. (1990) Il Mulino. [Italian translation]
Korean translation, Seoul: Minsuma, 1991. [Including a new preface.]

L'Ordinateur et L'Esprit. (1994) Paris: Editions Odile Jacob. [French translation of second edition.]

Der Computer im Kopf. (1996) München: Deutscher Taschenbuch Verlag. [German translation of second edition.]

Polish translation, 1998.

7. *The Blackwell Dictionary of Cognitive Psychology.* (Eysenck, M.W., Ellis, A.W., Hunt, E.B., and Johnson-Laird, P.N., Eds.) Oxford: Blackwell, 1990.

8. *Deduction.* (Johnson-Laird, P.N., and Byrne, R.M.J.) Hillsdale, NJ: Lawrence Erlbaum Associates, 1991.

9. *Human and Machine Thinking.* Hillsdale, NJ: Lawrence Erlbaum Associates, 1993.

Deduzione, Induzione, Creativita. (1994) Bologna, Italy: Il Mulino.

10. *Reasoning and Decision Making.* (Johnson-Laird, P.N., and Shafir, E., Eds.) Oxford: Blackwell, 1994.

11. *Models of Visuospatial Cognition.* (De Vega, M., Intons-Peterson, M., Johnson-Laird, P.N., Denis, M., and Marschark, M.) Oxford: Oxford University Press. 1996.

12. *Johnson-Laird: La vita, il percorso intellettuale, i temi, le opere.* (1998) Ed. by Tabossi, P. Milan, Italy: FrancoAngeli.

13. *The Shape of Reason: Essays in Honour of Paolo Legrenzi.* (Giroto, V., and Johnson-Laird, P.N., Eds.) New York: Psychology Press, 2005.

14. *How We Reason.* Oxford: Oxford University Press, 2006.

Pamphlets and popular works:

Philosophy: An Introductory Book-list, Hendon Public Libraries, 1964.

Can a computer be conscious? *Boston Review*, June 1982.

Cari signori non ho nessun asso. ['Ladies and Gentleman, I don't have an ace' -- an article on illusory inferences, translated by M. Piattelli-Palmarini] *La Repubblica*, August 9th, 1995.

Many book reviews in *Times Literary Supplement*, *London Review of Books*, etc., and scientific journals.

Scientific papers:

1967

Katz on analyticity. *Journal of Linguistics*, 3, 82.

1968

The interpretation of the passive voice. *Quarterly Journal of Experimental Psychology*, 20, 69-73.

The choice of the passive voice in a communicative task. *British Journal of Psychology*, 59, 7-15.

1969

On understanding logically complex sentences. *Quarterly Journal of Experimental Psychology*, 21, 1-13.

Reasoning with ambiguous sentences. *British Journal of Psychology*, 60, 17-23.

Wason, P.C., and Johnson-Laird, P.N. (1969) Proving a disjunctive rule. *Quarterly Journal of Experimental Psychology*, 21, 14-20.

Johnson-Laird, P.N., and Tagart, J. How implication is understood. *American Journal of Psychology*, 82, 367-373.

'&', *Journal of Linguistics*, 6, 111-114.

1970

Johnson-Laird, P.N., and Wason, P.C. (1970) Insight into a logical relation. *Quarterly Journal of Experimental Psychology*, 22, 49-61.

Johnson-Laird, P.N., and Stevenson, R. Memory for syntax. (1970) *Nature*, 227, 412.

Johnson-Laird, P.N., and P.C. Wason (1970) A theoretical analysis of insight into a reasoning task. *Cognitive Psychology*, 1, 134-148.

Wason, P.C., and Johnson-Laird, P.N. (1970) A conflict between selecting and evaluating information in an inferential task. *British Journal of Psychology*, 61, 509-515.

The perception and memory of sentences. (1970) In Lyons, J. (Ed.) *New Horizons in Linguistics*. Pp. 261-270. Penguin Books, Harmondsworth.

The interpretation of quantified sentences. In *Advances in Psycholinguistics*. Edited by W.J.M. Levelt and G.B. Flores d'Arcais. North Holland, Amsterdam. Pp. 347-372.

Linguistic complexity and insight into a deductive problem. In *Advances in Psycholinguistics*, Ibid, Pp. 334-343.

1972

Johnson-Laird, P.N., and Tridgell, J.M., When negation is easier than affirmation. *Quarterly Journal of Experimental Psychology*, 24, 87-91.

Johnson-Laird, Legrenzi, P., and Sonino Legrenzi, M., Reasoning and a sense of reality. *British Journal of Psychology*, 63, 395-400.

The three-term series problem. *Cognition*, 1, 57-82.

1973

Johnson-Laird, P.N., and Wason, P.C. (1973) Un'analisi teorica dell'insight in un compito ragionativo. In *Psicologia del Pensiero*. Legrenzi, P., and Mazzocco, A. (Eds.) Milan: Martello. Pp. 411-427.

Wason, P.C., and Johnson-Laird, P.N. (1973) Patologia del ragionamento. In *Psicologia del Pensiero*, Ibid. Pp. 444-455.

1974

Experimental Psycholinguistics. *Annual Review of Psychology*, 25, 135-160.

Johnson-Laird, P.N., Robins, C., and Velicogna, L. (1974) Memory for words. *Nature*, 251, 704-705.

Ornstein, P., Trabasso, T., and Johnson-Laird, P.N. To organise is to remember: the effects of instructions to organise and to recall. *Journal of Experimental Psychology*, 103, 1014-1018.

1975

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