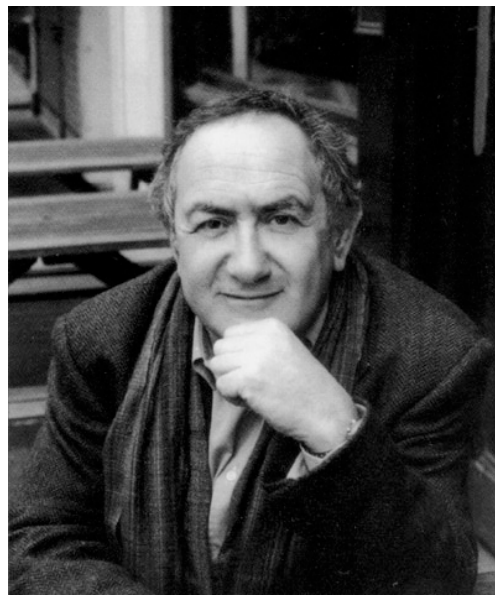


The Mathematical BRAIN

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He taught at Cambridge University for eight years and has held visiting appointments at MIT and the Max Planck Institute at Nijmegen. He is currently working on the neuroscience and the genetics of mathematical abilities and disabilities. He was elected Fellow of the British Academy in 2002.

His popular science book, *The Mathematical Brain*, was a best seller, and his latest book, co-edited with Denis Mareschal and Andrew Tolmie, *Educational Neuroscience*, was published by Wiley in December 2013.

Brian Butterworth

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Books Edited :

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**Language Production Volume 2:
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Mathematical Cognition: Volume 1.
Psychology Press, Hove.

Mareschal, D., Butterworth, B. & Tolmie, A. (2013) eds.
Educational Neuroscience (Introduction: PDF)
Wiley-Blackwell, Oxford.

Editorships :

Editor-in-Chief,

Linguistics.

1978 - 1983.

Co-founder and Joint Editor,

Language and Cognitive Processes.

1983 -

Member, Executive Committee,

Working Party on Cognitive Science ,

FAST Programme of the Commission of the
European Community.

1986.

Founder and Editor,

Mathematical Cognition.

1993 - 2000.

Editorial Board member,

Cognition.

1995 - 2000

Editorial Board member,

Cognitive Neuropsychology.

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Butterworth, B.

Mathematics and the brain: Where genes and culture collide.

Winton Capital Management Lecture.
London, April 2006

Butterworth, B.

Dyscalculia: a practical application of neuroscience to education

Hertfordshire CC Development Centre. May 2006

Butterworth, B.

Dyscalculia, numbers and the brain.

Department of Physiology, Oxford. October, 2006

Butterworth, B.

Neurocognitive basis of number.

Faculty of Education, Cambridge. October, 2006

Butterworth, B.

Neuroscience and mathematics education.

Ministry of Education, Havana, Cuba. November, 2006

Butterworth, B.

Language and number: Whorf or Locke?

Department of Anthropology,
London School of Economics. December, 2006

Butterworth, B.

Numbers in the brain.

Department of Psychology, Sussex University. December, 2006

Invited Talks : 4

Butterworth, B.

Numbers in the brain.

Lighthill Institute of Mathematical Sciences. December, 2006

Butterworth, B.

Numbers in the brain.

Department of Experimental Psychology,
Oxford. January 2007

Butterworth, B.

Four lectures on neuroscience and education.

Dalian University of Technology.
International Master's Series. Dalian, China. May, 2007

Butterworth, B.

**Numerical Cognition: Perspectives from Anthropology,
Development, Neuropsychology, and Neuroimaging.
Are counting words necessary for developing
the concept of exact number? Evidence
from Australian aborigines.**

Ghent, April, 2008.

Butterworth, B.

Understanding mathematics disabilities.

Education Bureau.
Hong Kong. June, 2009.

Butterworth, B.

Neurobiological basis of numbers and arithmetic.

Hong Kong University.
Hong Kong. June, 2009.

Butterworth, B.

Numbers in the Brain: Overview.

A Meeting in honour of Professor Brian Butterworth.
Queen Square, London. November 2010.

Butterworth, B.

**The mathematical brain: dyscalculia –
causes, identification and intervention**

Learning and Teaching Scotland 7th Adult Numeracy Seminar.
Stirling, Scotland February 2011.

Butterworth, B.

Numbers and space in the parietal lobes and elsewhere.

Melbourne University,
Melbourne, Australia, February, 2011.

Butterworth, B.

Numbers and space in the parietal lobes and elsewhere.

Queensland University,
Queensland, Australia, February, 2011.

Brian Butterworth

Invited Talks : 5

Butterworth, B.

The Learning Brain. Discussant.

Cambridge Science Festival:
Cambridge, England, March, 2011.

Butterworth, B.

Bad at numbers: what's the brain got to do with it?

Institute of Education. University of Reading.
22nd March 2011.

Butterworth, B.

Numbers, space and time.

Grenoble University.
Grenoble, France. February 2012.

Butterworth, B.

Neuroscience: implications for maths education.

Reading University.
Reading, England. February 2012.

Butterworth, B.

Number, space and time.

Glasgow University.
Glasgow, Scotland, February 2012.

Butterworth, B.

Dyscalculia: from brain to education.

University of Luxembourg.
Luxembourg, February 2012

Butterworth, B.

Dyscalculia: brains, genes and education.

Centre for Cognitive Developmental Neuroscience, UCL.
London, February 2012

Butterworth, B.

Dyscalculia: from brain to education.

Cornwall Dyslexia Association.
Wadebridge, Cornwall, UK, March 2012.

Butterworth, B.

Genetics and ontogenetics and of arithmetical abilities and disabilities.

University of Pedagogical Sciences.
Havana, Cuba, April 2012.

Butterworth, B.

Seven lectures on mathematical cognition.

Beijing Normal University.
Beijing, China, June, 2012.

Invited Talks : 6

Butterworth, B.
Ontogenetics and genetics of arithmetical abilities and disabilities.
Cambridge University.
Cambridge, England, September 2012.

Butterworth, B.
Arithmetic and the dyslexic student.
British Dyslexia Association.
Wellington School, Surrey, England, October 2012.

Butterworth, B.
Arithmetic and the dyslexic student.
Dyslexia Association of Singapore.
Singapore, November, 2012.

Butterworth, B.
Arithmetic and the learner.
National Cheng Chi University,
Taiwan. November 2012.

Butterworth, B.
Ontogenetics and genetics of arithmetical abilities and disabilities.
National Cheng Chi University,
Taiwan. November 2012.

Butterworth, B.
Arithmetic and the dyslexic student.
British Dyslexia Association.
London, February 2013.

Butterworth, B.
**Unravelling the mathematical brain and Dysclaculia:
From brain to education.**
Marie Curie-Sklodowska University.
Lublin, Poland, March 2013.

Butterworth, B.
**Fundamental processes in numerical representation:
reflections on some Piagetian themes.**
Piaget Archives, University of Geneva.
Geneva, Switzerland, April 2013.

Butterworth, B.
**Workshop on acalculia rehabilitation. The assessment and
rehabilitation of developmental and acquired acalculia.
Cross-fertilization between different domains**
Ospedale San Camillo,
Venice, Italy, July 2013.

Butterworth, B.
Science of dyscalculia and Identifying dyscalculic learners.
Bournemouth's Learning Support Service.
Bournemouth, UK, October 2013.

Brian Butterworth

Invited Talks : 7

Butterworth, B.

Can Fish Count?

Lunchtime Lecture, University College London,
London, January 2014.

Butterworth, B.

Biological basis of numerical abilities.

National Cheng Chi University,
Taiwan. February 2014.

Conference Papers : 1

- Butterworth, B. & Good, D.
Ambiguity : Psychological perspectives on a conversational phenomenon.
British Sociological Association. Multidisciplinary Conference on Interaction and Language Use.
Plymouth, England. July, 1984.
- Butterworth, B.
Developmental and acquired dyslexia.
TLH-Kursen Neurolingustik.
Goteberg, Sweden. August, 1984.
- Butterworth, B.
Syntactic and lexical processes in aphasia.
TLH-Kursen Neurolingustik.
Goteberg, Sweden. August, 1984.
- Butterworth, B., Shallice, T. & Watson, F.
Short-term retention of sentences without “short-term memory”.
Neuropsychological impairments of short-term memory.
Villa Olmo, Como, Italy. September, 1987.
- Butterworth, B.
Patterns of aphasic speech in different languages.
Australian Association of Speech and Hearing,
Melbourne. October 1988.
- Butterworth, B. & Howard, D.
Principles of rehabilitation in dysphasia (PDF)
Neurorehabilitation. European Neurology Society
Brighton, 1990.
- Butterworth, B.
Why does cross-cultural research matter in theory and practice?
London Dyslexia Association Conference. Institute of Neurology.
London, November, 1990.
- Butterworth, B.
How many lexicons? Static and dynamic approaches to an answer. (Invited opening address).
Belgian Psychological Society meeting,
The production and perception of spoken language.
Louvain-la-Neuve. March 1992.
- Butterworth, B.
Neural organisation and writing systems. (PDF)
European Science Foundation Second Workshop on
Written Language and Literacy.
Wassenaar, The Netherlands, October 1993.

Conference Papers : 2

Butterworth, B.

Disorders of sentence production.

Royal Society Discussion Meeting,
Language Acquisition and Dissolution.
London, April 1994.

Butterworth, B.

Trying to bridge the gap between phonological representations and phonetic realisation.

1st Annual Innsbruck Neuropsychology Conference on
Language and Language Disorders.
Innsbruck, Austria, January 21, 1995

Butterworth, B.

**Acquired dyslexia in Chinese speakers.
New Methods in Comparative Aphasiology.**

1995 Linguistic Institute.
Albuquerque, New Mexico. June, 1995.

Butterworth, B.

Language and numbers: Separate cognitive domains?

Language and Mathematical Thinking:
Current Issues in Developmental, Neuropsychological and
Educational Research.
London. September, 1995.

Girelli, L & Butterworth, B.

Finger counting in adulthood.

Language and Mathematical Thinking:
Current Issues in Developmental,
Neuropsychological and Educational Research.
London. September, 1995.

Butterworth, B.

Types of Numbers : A neuropsychological perspective.

Associazione Italiana per la Ricerca e Intervento nella
Psicopatologia dell'Apprendimento: I disturbi di
Ragionamento e di Appredimento Matematico.
Trieste, Italy, October 1995.

Wydell, T. N. & Butterworth, B.

A Japanese-English bilingual with monolingual dyslexia.

International Conference on Neurolinguistics
and Bilingualism.
(New Scientist, 20 January 1996, Number 2013: Page 14).
London. December, 1995.

Butterworth, B.

Gesture and speech: a new approach.

Workshop on Cognitive Neuropsychology.
Bressanone, Italy. January, 1998.

Brian Butterworth

Conference Papers : 3

Butterworth, B.

Our mathematical brains.

BPS Developmental Section.
Nottingham, September, 1999.

Butterworth, B.& Skuse, D.

**Mathematical development in individuals
with Turner's Syndrome. (Keynote).**

Language, reasoning and early mathematical development.
London, September, 1999.

Butterworth, B.

The origins of our mathematical intelligence.

International Meeting "La Mente".
Urbino, Italy, April, 2000.

Butterworth, B.

Is there a dyscalculia genotype?

British Dyslexia Association: Training for Trainers
Manchester, 20 May 2000.

Butterworth, B.

Deterioro de las funciones de cálculo.

Aportaciones de la neuropsicología al diagnóstico
diferencial de las demencias y a la atención de estos pacientes.
Universidad Complutense de Madrid. June 2000.

Butterworth, B.

Dyslexia and dyscalculia.

The 5th British Dyslexia Association International
Conference: Dyslexia: At the Dawn of the New Century.
York, May, 2001

Butterworth, B.

Number words and other words.

The Science of Aphasia: From theory to therapy.

Euresco Conference.
Giens, France. September. 2001

Butterworth, B.

The architecture of mathematical cognition:

Evidence from neurological patients.

Autumn School of Neuroscience, October, 2001

Butterworth, B.

Theories of Dyslexia and Dyscalculia:

**Tallskek og skrivevegring: Internasjonal konferanse
om lese-skrive-og matemaikkvansker for voksne (PDF).**

VOX Voksenopplæringsinstituttet,
Oslo. April, 2002

Conference Papers : 4

Butterworth, B.

Mathematics and the Brain:

Opening Address to the Mathematical Association (PDF).

Reading, April, 2002.

Butterworth, B.

Neural representations of cardinality, ordinality and quantity.

The Cognitive foundation of mathematics.

Rome, September 2002.

Butterworth, B.

Screening for dyscalculia: a new approach (PDF).

Mathematical Difficulties:

Psychology, Neuroscience and Interventions.

Oxford, September 2002.

Butterworth, B.

Dyscalculia - Introduction to specific learning difficulties with number concepts.

Special Needs London.

London, October 2002.

Butterworth, B.

Dyscalculia: diagnosis and intervention.

First International Symposium on Learning Therapy.

Kyoto, December 2002.

Bevan, A. & Butterworth, B.

The London Dyscalculia Study.

OECD Brain Research & Learning Sciences Workshop,

Boston, MA, January 2003

Butterworth, B.

Eight arguments for the innateness of a capacity for numerosity.

AHRB Conference Culture and the Innate Mind.

Sheffield, July 2003

Butterworth, B.

Dyscalculia: diagnosis and intervention.

OECD Educational Neuroscience Meeting,

Orsay, September 2003

Butterworth, B.

Brain systems of numerosity and the origins of dyscalculia.

Workshop on the Educational Neurosciences.

Utrecht, September 2003

Butterworth, B.

Brain systems of numerosity and the origins of dyscalculia.

RWTH

Aachen, September, 2003

Conference Papers : 5

Butterworth, B.

**The development of basic numeracy :
Evidence from a very large scale study.**

NTT-UCL Joint Workshop.
Kyoto, October, 2003

Butterworth, B.

**The development of basic numeracy :
Evidence from a very large scale study.**

British Association for the Advancement of Science.
Salford, October 2003

Butterworth, B.

Math in Motion.

TERC Conference: Interdisciplinary Seminar on
Perception, Body Motion, and Mathematics Learning.
Sturbridge, MA. October, 2003

Butterworth, B.

Where do numbers come from?

Leverhulme Centre for Human Evolutionary Studies,
Cambridge. November, 2003.

Butterworth, B.

Functional anatomy of mathematical processing.

Anatomy Society Annual Meeting,
Egham, January 2004

Butterworth, B.

Is dyscalculia due to a “defective number module”?

OECD-Ceri Second Literacy and Numeracy Network Meeting.
El Escorial, Spain. March 2004

Butterworth, B.

Architecture of mathematical cognition.

First Congress of the European Neuropsychological Societies,
Modena (Italy), April 2004

Butterworth, B.

Functional anatomy of numerical processing.

ASIC,
Italy, July 2004

Butterworth, B.

Biological origins of mathematical knowledge.

Mathematical Knowledge Conference,
Cambridge, July 2004

Butterworth, B.

Dyscalculia: an example of neuroscience applied to education.

BPS-Nuffield Foundation Psychology's input into maths education.
London. June 2005

Brian Butterworth

Conference Papers : 6

Butterworth, B.

The neuropsychological approach to numerical competences.

Numbra Summer School. Erice,
Italy, June 2005

Butterworth, B.

Dyscalculia as a cognitive endophenotype.

ICON 9,
Havana, Cuba. September 2005

Butterworth, B.

Dyscalculia: an example of neuroscience applied to education.

ESRC-TLRP Meeting on Neuroscience and Education.
Oxford. October 2005

Butterworth, B.

Dyscalculia: a practical application of neuroscience to education.

The Third Nordic Research Conference on Special
Needs Education in Mathematics.
Aalborg, Denmark, November 2005 (Keynote)

Butterworth, B.

Dyscalculia: Strategies for Success.

PATOSS (Professional Association of Teachers of Students
with Specific Learning Difficulties) Annual Conference.
London, March 2006 (Keynote)

Butterworth, B.

Numbers in the brain and maths education.

American Educational Research Association, Annual
Conference, Presidential Symposium.
San Francisco, USA. April 2006

Butterworth, B.

Se l'aritmetica è innata, perché insegnarla?

Le difficoltà di apprendimento in matematica.

Reggio Emilia, Italy, April 2006 (Keynote)

Butterworth, B.

Do numerical concepts depend on possession of language?

Workshop on Philosophical and Psychological
Perspectives on Number.
Vrije Universiteit Brussel. May 2006.

Butterworth, B.

**Arithmetic and the brain: Dyscalculia,
an unrecognised handicap.**

International Child Neurology Congress.
Montreal, Canada. June, 2006

Conference Papers : 7

Butterworth, B.

Neuroscience and education.

Japan Psychological Association.
Fukuoka, Japan, November, 2006 (Keynote)

Butterworth, B.

**Neuroimaging and cognitive development:
an important topic for the future.**

First British-Cuban Workshop on Neuroimaging:
Techniques and Applications.
Havana, Cuba, November, 2006 (Keynote)

Butterworth, B.

**Number vocabulary and the concept of number:
evidence from indigenous Australia.**

Language in Cognition - Cognition in Language.
Aarhus, Denmark, November 2007 (Keynote)

Butterworth, B.

**Bridging the Gap between Findings about Children's
Mathematical Development and their Application to
Educational Practice.**

Conference: Neuroscience ~ Instruction ~ Learning,
German Federal Ministry of Education & Research.
Berlin, November 2007 (Keynote)

Butterworth, B.

**Numeracy and the Brain. Understanding the Brain:
The birth of a learning science.**

Department for Children Schools and Families
(DCSF), the UK and Centre for Educational
Research and Innovation (CERI),
OECD. London, December 2007 (Keynote)

Butterworth, B.

Dyscalculia: Theory, diagnosis and intervention.

2008 Nordic Dyslexia Congress.
Stockholm, August 2008.

Butterworth, B.

Neurobiology of Dyslexia and Dyscalculia.

Berlin, September, 2008.

Butterworth, B.

Dyscalculia. Assessment of learning barriers in Mathematics.

Sørlandet Centre for Special Needs Support.
Kristiansand, Norway. November, 2008.

Butterworth, B.

Music, language and number.

International Neuropsychology Symposium.
Dubrovnik, Croatia, June, 2009.

Brian Butterworth

Conference Papers : 8

- Butterworth, B. & Laurillard, D.
Low numeracy and dyscalculia: Identification and intervention.
International Workshop on "Education, Cognition & Neuroscience: A cognitive science approach to knowledge acquisition and Schooling."
Rovereto, Italy, October, 2009.
- Butterworth, B.
Studies of enumeration and arithmetic in indigenous Australia,
Trieste, Italy, November, 2009.
- B. Butterworth & T. Iuculano.
Understanding the real value of fractions,
SEPEX joint conference,
- B. Butterworth & D. Laurillard.
A New Approach to Dyscalculia Intervention Using Adaptive Learning Technologies,
American Educational Research Association,
Denver, Colorado, April, 2010.
- B. Butterworth.
Developmental dyscalculia: causes, identification, recognition and intervention,
European Educational Research in Learning and Instruction,
Zurich, Switzerland. June, 2010 (Keynote).
- B. Butterworth.
Low numeracy and dyscalculia: cognitive theory, neuroscience, and intervention,
British Journal of Educational Psychology Current Trends Conference Series 2010: Educational Neuroscience,
London, June 2010 (Keynote).
- B. Butterworth.
Numerical development and dyscalculia,
Attention & Performance: Space, Time, and Number: Cerebral Foundations of Mathematical Intuitions,
Paris, France. July 2010 (Keynote).
- B. Butterworth.
(1) Neural and genetic basis of dyscalculia
(2) Dyscalculia: identification, intervention and educational policy
Symposium: Mathematics Education and the Brain,
Taipei, Taiwan. July 2010 (Keynote).
- B. Butterworth.
Number and space in the parietal lobes and elsewhere
ESF International Symposium on Parietal Lobe Functions,
Amsterdam, September 2010 (Keynote).

Conference Papers : 9

B. Butterworth.

Stability and Change in Basic Numerical Capacities and the Foundations of Arithmetic,

KogWis 2010,

Potsdam, Germany, October 2010 (Keynote).

Butterworth, B.

The mathematical brain.

Svenska Dyslexiföreningen: Specialpedagogiska skolmyndigheten.

Gothenburg, Sweden, January 2011 (Keynote).

Butterworth, B.

Dyscalculia: from brain to education.

British Dyslexia Association,

Harrogate, UK, June 2011 (Keynote).

Butterworth, B.

Dyscalculia: from brain to education.

International Congress The Quality of School Inclusion, Rimini, Italy, November 2011 (Lectio magistralis).

Butterworth, B.

The mathematical brain: dyscalculia – causes, identification, intervention.

Svenska Dyslexiföreningen och Specialpedagogiska skolmyndigheten inbjuder till utbildningskonferensen: Matematiksvårigheter och möjligheter.

Gothenburg, January 2011. (Keynote).

Butterworth, B. & Laurillard, D.

Educational neuroscience: what's in it for the neuroscientist.

European Workshop on Cognitive Neuropsychology.

Bressanone, Italy. January 2012.

Butterworth, B.

Dyscalculia: from brain to education.

Specialpedagogen & Lgr 11 – Matematik- och språkutveckling i den nya skolan

Stockholm, Sweden, January 2012.

Butterworth, B.

Dyscalculia: from brain to education.

XXIX Congresso Nazionale C.N.I.S. (Associazione per il Coordinamento Nazionale degli Insegnanti Specializzati e la ricerca sulle situazioni di handicap).

Vicenza, Italy, March 2012 (Keynote).

Conference Papers : 10

Butterworth, B.

Dyscalculia: from brain to education.

The First International Conference on Dyscalculia /
Maths Learning Disabilities.

London, April 2012 (Keynote).

Butterworth, B.

Brains, genes and dyscalculia.

TES (Times Educational Supplement) North.

Manchester, UK, April 2012.

Butterworth, B.

The ontogenetics and genetics of arithmetical ability.

2012 Beijing International Conference on the Neuroscience
of Mathematical Cognition and Learning.

Beijing, China, June 2012. (Keynote).

Butterworth, B.

The genetics and ontogenetics of dyscalculia.

Making Sense of Numbers.

Oxford University,

Oxford, England, July 2012.

Butterworth, B.

**The ontogenetics and the genetics of mathematical
disabilities and abilities.**

The First Cambridge Conference and Workshop on
Developmental Dyscalculia.

Cambridge, England. September 2012.

Butterworth, B.

The mathematical brain.

Svenska Dyslexiföreningen och Specialpedagogiska
skolmyndigheten inbjuder till utbildningskonferensen:
Matematiksvårigheter och möjligheter.

Stockholm, Sweden, September, 2012.

Butterworth, B.

Number and space: some reflections.

Interactions between Space, Time and Number:

20 Years of Research,

Paris, France, February 2013.

B. Butterworth.

Arithmetic and the dyslexic student.

AMBLE Reading, mathematics and the developing brain.

Gothenburg, Sweden, May 2013.

B. Butterworth.

The mathematical brain and numeracy.

MERGA (Mathematics Education Research Group of Australia),

Melbourne, Australia, July 2013. (Keynote).

Brian Butterworth

Conference Papers : 11

B. Butterworth.

The ontogenetics and the genetics of mathematical disabilities and abilities.

Associazione Italiana di Psicologia,
Rome, September 2013. (Keynote).

B. Butterworth.

Arithmetic and the dyslexic student.

European Dyslexia Association,
Växjö, Sweden, September 2013. (Keynote).

Butterworth, B.

Arithmetic and the dyslexic student.

Entwicklungsstörungen Schulischer. Fertigkeiten,
Munich, Germany, November 2013.

The Mathematical BRAIN



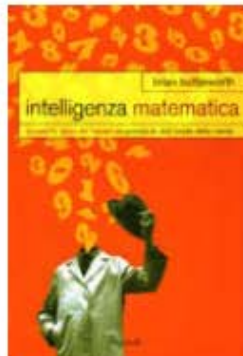
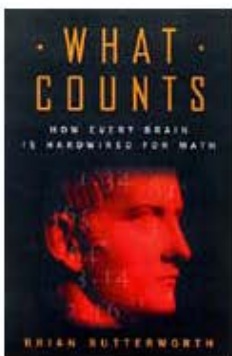
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Dyscalculia Quick Links

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