

CURRICULUM VITA

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1. **Name:** Russell M. Church
Position: Edgar J. Marston Professor of Psychology
Department: Department of Psychology

2. **Home Address:** 20 Abbotsford Ct., Providence, RI 02906

3. **Education**

BA	University of Michigan, 1952	Psychology and Sociology
MA	Harvard University, 1954	Social Psychology
Ph.D.	Harvard University, 1956	Social Psychology

Dissertation Topic: Factors affecting learning by imitation in the rat

4. **Professional appointments**

Edgar J. Marston Professor of Psychology, 1999-
Charles Pitts Robinson and John Palmer Barstow Professor, 1993-1999
Brown University Professor of Psychology, 1965-present
Brown University Associate Professor, 1960-65
Brown University Instructor-Assistant Professor, 1955-60

Brown University Chair, Department of Psychology, 1980-83
Brown University Professor of Cognitive and Linguistic Sciences, 1986-90
Brown University Affiliated Faculty, Graduate Program in Neural Science
Brown University Affiliated Faculty, Department of Cognitive and Linguistic Sciences
Brown University Affiliated Faculty, Brain Science Graduate Program

University of Pennsylvania, Visiting Scholar, 1963-64
University of Michigan, Visiting Research Scholar, 1970-71
Rockefeller University, Visiting Professor of Psychology, 1978-79
University of Cambridge, Senior Research Scholar, 1984-85, Member of Corpus Christi College
and Department of Experimental Psychology
University of Cambridge, Visiting Scientist, 1990-91, Member of King's College
and Department of Experimental Psychology
and Medical Research Council Applied Psychology Unit

5. Publications

a. Books/monographs

Boe, E. E., & Church, R. M. Eds. (1968). *Punishment: issues and experiments*. New York: Appleton-Century-Crofts.

Campbell, B. A., & Church, R. M., Eds. (1969). *Punishment and aversive behavior*. New York: Appleton-Century-Crofts.

Commons, M. L., Church, R. M., Stellar, J., & Wagner, A. R., Eds. (1988). *Quantitative analysis of behavior: Biological determinants of behavior (Vol 7) The biological basis of reinforcement*. Hillsdale, NJ: Erlbaum Associates.

Church, R. M. *Duration Discrimination* (under contract to Cambridge University Press)

b. Chapters in books

Church, R. M. (1968). Applications of behavior theory to social psychology: Imitation and competition. In E. C. Simmel, R. A. Hoppe, and G. A. Milton (Eds.), *Social facilitation and imitative behavior*. Boston: Allyn and Bacon

Church, R. M. (1969). Response suppression. In B. A. Campbell & R. M. Church, Eds. *Punishment and aversive behavior*. New York: Appleton-Century-Crofts, pp. 111-156.

Church, R. M. (1971). Aversive behavior. In L. A. Riggs & J. W. Kling (Eds), *Experimental psychology*. New York: Holt, pp. 703-741.

Church, R. M., & Church, K. W. (1977). Plans, goals, and search strategies for the selection of a move in chess. In P. Frey (Ed), *Chess skill in man and machine*. New York: Springer-Verlag, pp. 131-156.

Church, R. M. (1978). The internal clock. In S. Hulse, H. Fowler, W. K. Honig (Eds). *Cognitive processes in animal behavior*. Hillsdale, NJ: Erlbaum Associates, pp. 277-310.

Church, R. M. (1975). Punishment. In J. Eysenck, J. Arnold, & R. Meili (Eds.) *Encyclopedia of psychology*. New York: Herder & Herder Press.

Church, R. M., & Meck, W. H. (1983). Acquisition and cross-modal transfer of classification rules for temporal intervals. In M. L. Commons, A. R. Wagner, & R. Herrnstein (Eds.), *Quantitative analyses of behavior: Vol IV, Acquisition*, Ballinger, pp. 75-97.

Church, R. M. (1984). Properties of the internal clock. In J. Gibbon, L. G. Allan (Eds) *Annals of the New York Academy of Sciences: Timing and time perception*. New York: New York Academy of Sciences, pp. 566-582.

Church, R. M., & Meck, W. H. (1984). The numerical attribute of stimuli. In H. L. Roitblat, T. G. Bever, & H. S. Terrace (Eds.), *Animal cognition*, Hillsdale, N. J.: Erlbaum Associates, pp. 445-463.

Gibbon, J., Church, R. M., & Meck, W. H. (1984). Scalar timing in memory. In J. Gibbon, & L. G. Allan (Eds), *Annals of the New York Academy of Sciences: Timing and time perception*, New York: New York Academy of Sciences, pp. 52-77.

Gibbon, J., & Church, R. M. (1984). Sources of variance in information processing theories of timing. In W. L. Roitblat, T. G. Bever, & H. S. Terrace (Eds), *Animal cognition*, Hillsdale, N. J.: Erlbaum Associates, pp. 465-488.

Siegel, S. F., & Church, R. M. (1984). The decision rule in temporal bisection. In J. Gibbon, & L. G. Allan (Eds.), *Annals of the New York Academy of Sciences: Timing and time perception*, pp. 643-645.

- Church, R. M. (1985). Approaches to the study of behavioral pharmacology. In F. R. Brush, & J. B. Overmier (Eds.), *Affect, conditioning and cognition: essays on the determinants of behavior*. Hillsdale, N.J.: Erlbaum Associates, pp. 163-180.
- Church, R. M. & Broadbent, H. A. (1991). A connectionist model of timing. In M. L. Commons, S. Grossberg, and J. E. R. Staddon, *Quantitative models of behavior: Neural networks and conditioning*. Hillsdale, NJ: Erlbaum. Pp 225-240.
- Church, R. M., & Meck, W. H. (1988). Biological basis of the remembered time of reinforcement. In W. L. Commons, R. M. Church, J. Stellar, A. R. Wagner (Eds), *Quantitative analysis of behavior: Biological determinants of behavior (Vol 7) Biological basis of reinforcement*. Hillsdale, NJ: Erlbaum Associates, pp. 103-119.
- Church, R. M. (1991). Introduction to Special Issue on Animal Timing, *Learning and Motivation*, 22, 1-2.
- Church, R. M., Broadbent, H. A., & Gibbon, J. (1992). Biological and psychological description of an internal clock. In I. A. Gormezano and E. A. Wasserman (Eds.) *Learning and memory: The behavioral and biological substrates*. Hillsdale NJ: Erlbaum, Pp 105-127.
- Church, R. M. (1989). Theories of timing behavior. In S. B. Klein, & R. Mowrer (Eds) *Contemporary learning theory*. Hillsdale, NJ: Erlbaum, pp 41-69.
- Church, R. M. (1989). The yoked control design. In T. Archer & L. Nilsson (Eds), *Aversion, avoidance and anxiety: Perspectives on aversively motivated behavior*. Hillsdale, NJ: Erlbaum, pp 403-415.
- Broadbent, H. B., Rakitin, B., Meck, W., & Church, R. M. (1993). The quantitative relationship between timing and counting. In S. Boysen and J. Capaldi (Eds). *The development of numerical ability: Animal and human models*. Hillsdale NJ: Erlbaum Associates, pp. 171-187.
- Church, R. M. (1993). Uses of computers in psychological research. In G. Keren and C. Lewis (Eds.) *Methodological and quantitative issues in the analysis of psychological data*. Hillsdale NJ: Erlbaum Associates, pp. 459-491.
- Church, R. M. (1994) Internal-clock models. S. L. Macey (Ed.) *Encyclopedia of Time*. New York: Garland, pp. 314-315.
- Church, R. M.(1997). Timing and temporal search. In C. M. Bradshaw and E. Szabadi (Eds), *Time and behaviour: Psychological and neurobiological analysis*. Elsevier, pp. 41 – 78.
- Collyer, C. E., & Church, R. M. (1998). Interresponse intervals in continuation tapping. In D. A. Rosenbaum & C. E. Collyer (Eds.), *Timing of behavior: Neural, psychological, and computational perspectives*. Cambridge, MA: MIT Press, pp. 63 – 87.
- Church, R. M. (2000). Harold Schlosberg. In A. E. Kazdin (Ed.), *Encyclopedia of Psychology*. American Psychological Association and Oxford University Press.
- Church, R. M., & Kirkpatrick, K. (2001). Theories of conditioning and timing. In R. R. Mowrer & S. B. Klein (Eds.) *Contemporary learning: Theory and Applications* (p. 211 – 253). Hillsdale, NJ: Erlbaum.
- Church, R. M. (2001). Timing: Psychological and neural aspects. In N. J. Smelser & P. B. Baltes, *International Encyclopedia of Social and Behavioral Science* (Vol 4.3, Article 141). Elsevier.
- Church, R. M. (in press). Time perception. In *Encyclopedia of Cognitive Science*. Macmillan.
- Church, R. M. (2002). Temporal learning. In H. Pashler & R. Gallistel (Eds) *Stevens' Handbook of Experimental Psychology, Third Edition: Volume 3, Learning, Motivation, and Emotion* (pp. 365-393). New York, NY: Wiley.

- Church, R. M. (2003). Animal learning. In J. A. Schinka & W. Velicer (Eds.) Volume 2. (Research Methods). *Comprehensive Handbook of Psychology*, New York: Wiley. Pp. 271-287.
- Church, R. M. (2003). A concise guide to scalar timing theory. In W. H. Meck (Ed.) *Functional and neural mechanisms of interval timing* (pp. 3-22). Boca Raton, FL: CRC Press.
- Church, R. M., Guilhardi, P., Keen, R., MacInnis, M., & Kirkpatrick, K. (2003). Simultaneous temporal processing. In *Time and Mind II: Information Processing Perspectives*. Hogrefe & Huber.
- Church, R. M. (2005). Historia da Pesquisa sobre Punicao. In H. J. Guilhardi, & N. C. de Aguirre, *Sobre comportamento e cognicao*, pp. 251-271. Santo Andre, SP, Brazil: ESETec. (English title: *History of Research about Punishment*; Translated by P. Guilhardi.)
- Church, R. M. (2006). Behavioristic, cognitive, biological, and quantitative explanations of timing. In E. A. Wasserman and T. R. Zentall (Eds.) *Comparative cognition: Experimental explorations of animal intelligence* (pp. 3-19). Oxford: Oxford University Press.

c. Refereed journal articles

- Church, R. M. (1956). Effect of overtraining on subsequent learning of incidental cues. *Psychological Reports* , 2, 247-254.
- Church, R. M., Brush, F. R., & Solomon, R. L. (1956). Traumatic avoidance learning: The effects of CS-US interval with a delayed-conditioning procedure in a free-responding situation. *Journal of Comparative and Physiological Psychology* , 49, 301-308.
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- Church, R. M. (1957). Transmission of learned behavior between rats. *The Journal of Abnormal and Social Psychology* , 54, 163-165.
- Church, R. M. (1957). Two procedures for the establishment of "imitative behavior." *Journal of Comparative and Physiological Psychology* , 50, 315-318.
- Church, R. M. (1958). Individual learning curves. *Journal of the Experimental Analysis of Behavior* , 1, 380.
- Church, R. M., & Black, A. H. (1958). Latency of the conditioned heart rate as a function of the CS-US interval. *Journal of Comparative and Physiological Psychology* , 51, 478-482.
- Maccoby, E. E., Johnson, J. P., & Church, R. M. (1958). Community integration and the social control of juvenile delinquency. *Journal of Social Issues* , 14, 38-51.
- Church, R. M. (1959). Emotional reactions of rats to the pain of others. *Journal of Comparative and Physiological Psychology* , 52, 132-134.
- Church, R. M., & Pfaffmann, C. (1959). A respondent-conditioning apparatus for the student laboratory. *American Journal of Psychology* , 72, 267-270.
- Church, R. M. (1961). Effects of a competitive situation on the speed of response. *Journal of Comparative and Physiological Psychology* , 54, 162-166.
- Church, R. M. (1962). Effect of relative skill on the amount of competitive facilitation. *Psychological Reports* , 11, 603-614.

- Church, R. M. (1962). The effects of competition on reaction time and palmar skin conductance. *Journal of Abnormal and Social Psychology* , 65, 32-40.
- Church, R. M. (1963). The varied effects of punishment on behavior. *Psychological Review* , 70, 369-402.
- Church, R. M., & Carnathan, J. (1963). Differential reinforcement of short latency responses in the white rat. *Journal of Comparative and Physiological Psychology* , 56, 120-123.
- Church, R. M., Millward, R. B., & Miller, P. (1963). Prediction of success in a competitive reaction time situation. *Journal of Abnormal and Social Psychology* , 67, 234-240.
- Church, R. M. (1964). Systematic effect of random error in the yoked control design. *Psychological Bulletin* , 62, 122-131.
- Carnathan, J., & Church, R. M. (1964). The effect of competitive allocation of reinforcements to rats in the straight alley. *Journal of General Psychology* , 71, 137-144.
- Church, R. M., & Camp, D. S. (1965). Change in reaction time as a function of knowledge of results. *The American Journal of Psychology* , 78, 102-106.
- Johnson, J. L., & Church, R. M. (1965). Effects of shock intensity on nondiscriminative avoidance learning of rats in a shuttlebox. *Psychonomic Science* , 3, 497-498.
- Camp, D. S., Raymond, G. A., & Church, R. M. (1966). Response suppression as a function of the schedule of punishment. *Psychonomic Science* , 5, 23-24.
- Church, R. M., LoLordo, V., Overmier, J. B., Solomon, R. L., & Turner, L. H. (1966). Cardiac responses to shock in curarized dogs: Effects of shock intensity and duration, warning signal, and prior experience with shock. *Journal of Comparative and Physiological Psychology* , 62, 1-7.
- Boe, E. E., & Church, R. M. (1967). Permanent effects of punishment during extinction. *Journal of Comparative and Physiological Psychology* , 63, 486-492.
- Camp, D. S., Raymond, G. A., & Church, R. M. (1967). Temporal relationship between responses and punishment. *Journal of Experimental Psychology* , 74, 114-123.
- Church, R. M., & Raymond, G. A. (1967). Influence of the schedule of positive reinforcement on punished behavior. *Journal of Comparative and Physiological Psychology* , 63, 329-332.
- Church, R. M., Raymond, G. A., & Beauchamp, R. D. (1967). Response suppression as a function of intensity and duration of punishment. *Journal of Comparative and Physiological Psychology* , 63, 39-44.
- Dreyer, P. I., & Church, R. M. (1968). Shock-induced fighting as a function of the intensity and duration of the aversive stimulus. *Psychonomic Science* , 10, 271-272.
- Dreyer, P. I., & Church, R. M. (1970). Reinforcement of shock-induced fighting. *Psychonomic Science* , 18, 147-148.
- Church, R. M., Wooten, C. L., & Matthews, T. J. (1970). Contingency between a response and an aversive event in the rat. *Journal of Comparative and Physiological Psychology* , 72, 476-485.
- Church, R. M., Wooten, C. L., & Matthews, T. J. (1970). Discriminative punishment and the conditioned emotional response. *Learning and Motivation* , 1, 1-17.
- Matthews, T. J., Morin, L. P., & Church, R. M. (1971). Avoidance of thermal stimuli in the rat. *Psychonomic Science* , 22, 59-60.

- Church, R. M., & Getty, D. J. (1972). Some consequences of the reaction to an aversive event. *Psychological Bulletin*, 78, 21-27.
- Dyckman, J. L., & Church, R. M. (1972). The THICIE system for interactive control of independent experiments. *Computers in the Psychology Laboratory*, 2, 27-34.
- Church, R. M. (1973). Seven types of data from computer-controlled experiments. *Behavior Research Methods and Instrumentation*, 6, 122-124.
- Bryant, D., & Church, R. M. (1974). The determinants of random choice. *Animal Learning & Behavior*, 2, 245-248.
- LaBarbera, J. D., & Church, R. M. (1974). Magnitude of fear as a function of expected time to an aversive event. *Animal Learning & Behavior*, 2, 199-202.
- Libby, M. E., & Church, R. M. (1974). Timing of avoidance responses by rats. *Journal of the Experimental Analysis of Behavior*, 22, 513-517.
- Libby, M. E., & Church, R. M. (1975). Fear gradients as a function of the temporal interval between signal and aversive event in the rat. *Journal of Comparative and Physiological Psychology*, 88, 911-916.
- Church, R. M., Getty, D. J., & Lerner, M. D. (1976). Duration discrimination by rats. *Journal of Experimental Psychology: Animal Behavior Processes*, 2, 303-312.
- Church, R. M., & Lerner, M. D. (1976). Does the headless roach learn to avoid? *Physiological Psychology*, 4, 439-442.
- Gracely, R. H., & Church, R. M. (1976). Adjustment of speed on repeated shifts of a negative reinforcer. *Bulletin of the Psychonomic Society*, 7, 455-457.
- Church, R. M., & Deluty, M. Z. (1977). The bisection of temporal intervals. *Journal of Experimental Psychology: Animal Behavior Processes*, 3, 216-228.
- Deluty, M. Z., & Church, R. M. (1978). Time allocation matching between punishing situations. *Journal of the Experimental Analysis of Behavior*, 29, 191-198.
- Roberts, S., & Church, R. M. (1978). Control of an internal clock. *Journal of Experimental Psychology: Animal Behavior Processes*, 4, 318-337.
- Church, R. M. (1980). Short-term memory for time intervals. *Learning and Motivation*, 11, 208-219.
- Church, R. M. (1980). The Albert study: Illustration vs. evidence. *American Psychologist*, 35, 215-216.
- Thompson, C. R., & Church, R. M. (1980). An explanation of the language of a chimpanzee. *Science*, 208, 313-314.
- Gibbon, J., & Church, R. M. (1981). Time left: Linear versus logarithmic subjective time. *Journal of Experimental Psychology: Animal Behavior Processes*, 7, 87-108.
- Maricq, A. V., Roberts, S., & Church, R. M. (1981). Methamphetamine and time estimation. *Journal of Experimental Psychology: Animal Behavior Processes*, 7, 18-30.
- Church, R. M., & Gibbon, J. (1982). Temporal generalization. *Journal of Experimental Psychology: Animal Behavior Processes*, 8, 165-186.
- Fernandes, D. M., & Church, R. M. (1982). Discrimination of the number of sequential events by rats. *Animal Learning & Behavior*, 10, 171-176.

- Meck, W. H., & Church, R. M. (1982). Abstraction of temporal attributes. *Journal of Experimental Psychology: Animal Behavior Processes*, 8, 226-243.
- Meck, W. H., & Church, R. M. (1982). Discrimination of intertrial intervals in cross-modal transfer of duration. *Bulletin of the Psychonomic Society*, 19, 234-236.
- Church, R. M. (1983). The influence of computers on psychological research: A case study. *Behavior Research Methods & Instrumentation*, 15, 117-126.
- Maricq, A. V., & Church, R. M. (1983). The differential effects of haloperidol and methamphetamine on time estimation in the rat. *Psychopharmacology*, 79, 10-15.
- Meck, W. H., & Church, R. M. (1983). A mode control model of counting and timing processes. *Journal of Experimental Psychology: Animal Behavior Processes*, 9, 320-324.
- Meck, W. H., & Church, R. M. (1984). Simultaneous temporal processing. *Journal of Experimental Psychology: Animal Behavior Processes*, 10, 1-29.
- Meck, W. H., Church, R. M., & Olton, D. (1984). Hippocampus, time, and memory. *Behavioral Neuroscience*, 98, 3-22.
- Meck, W. H., Komeily-Zadeh, F., & Church, R. M. (1984). Two-step acquisition: Modification of an internal clock's criterion. *Journal of Experimental Psychology: Animal Behavior Processes*, 10, 297-306.
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- Olton, D. S., Meck, W. H., & Church, R. M. (1987). Separation of hippocampal and amygdaloid involvement in temporal dysfunctions. *Brain Research*, 404, 180-188.
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- Olton, D. S., Wenk, G. L., Church, R. M., & Meck, W. H. (1988). Attention and the frontal cortex as examined by simultaneous temporal processing. *Neuropsychologia*, 26, 307-318.
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- Church, R. M., & Broadbent, H. A. (1990). Alternative representations of time, number, and rate. *Cognition*, 37, 55-81.
- Gibbon, J., & Church, R. M. (1990). Representation of time. *Cognition*, 37, 23-54.

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- Church, R. M., Miller, K. D., Meck, W. H., & Gibbon, J. (1991). Symmetric and asymmetric sources of variance in temporal generalization. *Animal Learning and Behavior*, 19, 207-214.
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- Gibbon, J., & Church, R. M. (1992). Comparison of variance and covariance patterns in parallel and serial theories of timing. *Journal of the Experimental Analysis of Behavior*, 57, 393-406.
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- Church, R. M. (1993). Human models of animal behavior. *Psychological Science*, 4, 170-173.
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- Church, R. M. (2001). A Turing test for computational and associative theories of learning. *Current Directions in Psychological Science*, 10, 132-136.

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- Church, R. M. (2002). The effective use of secondary data. *Learning & Motivation*, 33, 32-45.
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- Guilhardi, P., & Church, R. M. (in press). Memory for interval duration and reinforcement rate after extensive extinction. *Learning & Behavior*.
- Guilhardi, P., Yi, L., & Church, R. M. (in press). Effects of repeated acquisitions and extinctions on response rate and pattern. *Journal of Experimental Psychology: Animal Behavior Processes*.

d. Non-refereed journal articles

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- Kyonka, E. G. E., & Church, R. M. (2005). Empirical tests of "Take-the-Best" with non-human subjects. *Behavioural Processes*, 69, 133-135.

e. Book Reviews

- Church, R. M. (1963). Sweet lemons. Review of D. H. Lawrence and L. Festinger (Eds), Deterrents and reinforcements: The psychology of insufficient reward. *Contemporary Psychology*, 8, 177-178.
- Church, R. M. (1971). Operant sociology. Review of R. L. Burgess, & D. Bushell, Jr. (Eds), Behavioral sociology: The experimental analysis of social process. *Contemporary Psychology*, 16, 340-342.
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- Church, R. M. (1981). A review of N. L. Commons, and J. A. Nevin (Eds) Quantitative analyses of behavior: Vol 1, Discriminative properties of reinforcement schedules. Cambridge, MA: Ballinger. In *American Journal of Psychology*
- Church, R. M. (1982). Review of M. D. Zeiler and P. Harzem (Eds), Advances in analysis of behaviour, Vol 1. Reinforcement and the organization of behaviour. Chichester: Wiley, 1979. In *American Journal of Psychology*
- Church, R. M. (1983). A review of M. L. Commons, R. J. Herrnstein, & H. Rachlin (Eds), Quantitative analyses of behavior: Matching and maximizing accounts. Vol 2 of Quantitative analyses of behavior. In *Contemporary Psychology*.
- Church, R. M. (1989). The animal mind, revisited. A review of J. Pearce, An introduction to animal cognition. In *Contemporary Psychology*, 163-164.
- Church, R. M. (1989). Review of S. Grossberg (Ed) Neural networks and natural intelligence. *The Quarterly Review of Biology*.
- Church, R. M. (1996). Review of N. J. Mackintosh (Ed.) Animal learning and cognition. *Contemporary Psychology*
- Church, R. M. (2000). Review of N. A. Schmajuk & P. C. Holland (Eds.) Occasion setting: Associative learning and cognition in animals. *The Quarterly Journal of Biology*, 75, 216.
- Church, R. M. (2003). Review of Gallistel, C. R., & Gibbon, J. The symbolic foundations of conditioned behavior. *American Journal of Psychology*, 116, 655-676

f. Abstracts

No record kept

g. Invited Lectures in 2005-2006

- Church, R. M. "Simulation of quantitative models of behavior" Invited preminent tutorial, Association of Behavior Analysis (ABA) Meeting, Chicago, May 28, 2005.
- Church, R. M. "Predictability of behavior" Invited Colloquium at Brown University, October 5, 2005
- Church, R. M. "Predictability of behavior" Invited Lecture at Conference on Comparative Cognition, Melbourne, FL. Marcy 24, 2006

h. Papers read in 2004-2005

- Church, R. M., & Guilhardi, P. "A Turing test of a timing theory," Paper presented at the International Conference on Comparative Cognition, Melbourne, FL, March 19, 2005.
- Keen, R., & Church, R. M. "Simultaneous timing: combination rules. Paper presented at the the International Conference on Comparative Cognition, Melbourne, FL, March 19, 2005.

6. Research Grants

a. Current grant:

1988-08 Temporal discrimination learning (NIMH MH-44234)

b. Completed grants:

Research grants (as PI)

1957-58 Experimental Studies of imitative behavior (NIMH M-1812)
 1959-64 Behavior in competitive situations (NIMH MH-02902)
 1964-71 Characteristics of a punishing stimulus (NIMH MH-08123)
 1968-69 Thermal reinforcement (MH-16710)
 1971-72 Purchase of a PDP-12 computer system (GB-20108)
 1971-74 Suppression of a specific response by punishment (NIMH-19794)
 1974-76 The role of contiguity in classical conditioning (NSF GB-43208)
 1976-79 Control processes in timing (NIGMS 23247)
 1977-78 Development of pattern perception in problem solving (NIMH MH-30404)
 1979-81 Properties of the internal clock (BNS-09834)
 1982-87 Pharmacological effects on timing behavior (NIMH MH-37049)
 1985-88 Temporal discrimination learning (NSF BNS-18293)
 1988-08 Temporal discrimination learning (NIMH MH-44234)
 1991-93 Categorical aspects of motor timing (NSF BNS-9110158)
 1995-99 Categorical timing (NSF SBR 94-14104)
 1999-02 Temporal pattern learning (NSF IBN-9816777)

Research grants (typically not as PI)

Participant in grants for VAX computer
 Participant in grants for Sloan Phase I and Phase II for Cognitive Science
 Participant in grant for Peptide synthesizer and peptide sequencer (NIH S10 RR03381-01)
 Participant in two Neuroscience Training Grants, current one is "Training Program in Systems & Behavioral Neuroscience", 1994-1999.
 Various NSF research participation grants
 Various equipment grants, including one for HP Computer system

7. Service

(i) to the University (1980-2003)

Chairman, Department of Psychology, February, 1980-June, 1983
 Member, University Library Committee, 1980-83
 Member of Executive Committee, Center for Cognitive Science, 1980-86
 Member of Study Group on Word Processing of Task Force on Computing, summer, 1980 Member of Task Force on Computing, 1982
 Chair of Working Group on the Effects of Workstations, 1983-84
 Faculty Policy Committee, 3 years
 Member of Executive Committee, Institute for Cognitive and Neural Research, 1981-84
 Member of Executive Committee, Child Study Center, 1982-84
 Member, Social Search Committee of Psychology Department, 1982
 Member, Physiological Search Committee of Psychology Department, 1982, 1986
 Member of Institutional Animal Care and Use Committee (IACUC), 1985-88
 Acting Director of the Primate Laboratory, Brown University, 1986-87
 Member of Faculty Committee on Educational Legislation, 1987-89 (Chair in 1989)
 Member, Animal Behavior Search Committee of Psychology Department, 1989
 Chair of Neurochemical Basis of Behavior Search Committee of Psychology Department, 1993
 Chair of tenure committee for a members of the Psychology Department, 1988 and 1989
 Chair of Computer Committee, Department of Psychology, 1991-95
 Director of Graduate Studies, Department of Psychology, 1992-95
 Member of a promotion committee for member of the Psychology Department, 1995
 Member of a tenure committee for member of the Psychology Department, 1996-97
 Member of Advisory Committee on University Planning (ACUP), 1992-94; Faculty Vice-Chair, 1993-94
 Member of Task Force on Disciplinary Procedures for Graduate Students, 1995-96
 Chair of Faculty Executive Committee, Grievance Mediation Subcommittee, 1994-95
 Vice-Chair of Faculty Executive Committee, 1994-95; Chair, 1995-96
 Chair of Space Committee, Department of Psychology, 1996-97
 Past Chair, Faculty Executive Committee, 1996-97
 Member of the Executive Committee of the Center for Statistical Science, 1996-97
 Member of Steering Committee, NCAA Certification and Self-Study, 1996-97
 Chair of a promotion committee of Psychology Department, 2001-2002
 Member of committee to recommend Schlosberg and Sher awards for Honors Students in Psychology
 Member of Space Committee, 2002-3
 Member of the Search Committee for a Faculty Member in Affective Neuroscience, 2002-3
 Member of Task Force on Faculty Governance, 2002-2003
 Member of Departmental Computer Committee, 2001-2006; Acting Chair in 2002
 Member of Library Committee, 2004 - 2006
 Member of Psychology Curriculum Committee, 2004-2005

(ii) to the profession

Elected positions

Member of the Board of Governors, Psychonomic Society (1998 – 2003)
 Chair of Publications Committee, Psychonomic Society, 2003; Member 2000-2003
 Member of the Executive Committee, Society of Experimental Psychologists (1997 – 2001)
 President, Eastern Psychological Association, 1991-92
 President, Division of Physiological and Comparative Psychology (American Psychological Association), 1991-92
 President, Division of Experimental Psychology (American Psychological Association), 1987-88
 President of Society for Computers in Psychology, 1981-82
 Member of Executive Committee of Division of Experimental Psychology, APA (one term)
 Member of Board of Directors, Eastern Psychological Association (1973-75; 1984-86; 1989-92)
 Member of Steering Committee, Society for Computers in Psychology (1976-79; 1984-90)

Member of the Nominating Committee, Section J (Psychology), American Association for the Advancement of Science, 1994-97

Editorial positions

Consulting Editor of *Learning & Behavior*, 1997 – 2006

Member, Board of Editors, *Journal of the Experimental Analysis of Behavior*, 1998 – 2002, 2004 - 2007

Member of Editorial Board, *Comparative Cognition & Behavior Reviews*, 2005-

Consulting Editor of *Behavior Research Methods, Instruments & Computers*, 1992-2003

Consulting Editor, *Journal of Experimental Psychology: Animal Behavior Processes*, 2000-2003

Consulting Editor, *Journal of Experimental Psychology: Human Perception and Performance*, 2000-2002

Member of the Editorial Board of the *Psychological Review*, 1996-99

Consulting Editor, *Journal of Comparative and Physiological Psychology*, 5 years

Associate Editor, *Learning & Motivation*, 5 years

Associate Editor, *The Behavioral and Brain Sciences*

Editor, *Animal Learning and Motivation*, 1985-88

Co-Editor (with Steven F. Maier) of Special Issue of *Learning and Motivation* on Animal Timing. Volume 22, Numbers 1/2, February/May, 1991. (252 pages).

Consulting Editor of *Journal of Experimental Psychology: Animal Behavior Processes*, 1992-96

Reviewer of many articles (over 25/year) in other journals on biological, cognitive, and behavioral aspects of animal and human timing, or of mathematical models of the timing process

Advisory positions

Member of Biobehavioral regulation, learning and ethology section (BRLE), NIH 2000-2004, Temporary member 2006.

Member of Interdisciplinary Behavioral Science Center for Mental Health (IBSC) proposals, NIMH, 2001-2003.

Psychobiology Panel, National Science Foundation, 3 years

Biological Sciences Training Panel, National Institute of Mental Health, 1974-79

Member, Biological and Neurosciences Subcommittee, Mental Health Small Grant Research Review Committee, National Institute of Mental Health, 1986-90.

Member of Psychobiology and Behavior Review Committee, National Institute of Mental Health, 1991-93

Member of Psychobiology, Behavior, and Neuroscience Initial Review Group, National Institute of Mental Health, 1993-95

Member of Reviewers Reserve, Alcohol, Drug Abuse, & Mental Health Administration, 1996

Member of Special Review Committee of Neuroscience Review Branch, National Institute of Mental Health, 1996

Co-chair, National Institute of Mental Health Workshop on "Data archiving for animal cognition research," 2001

Member of Advisory Committee on Data Archiving, Psychonomics Society

Member, Publication Committee of the International Society for Comparative Cognition, 2000 – 2002

Member of Search Committee for Editor of *Journal of Experimental Psychology: Animal Behavior Processes*, 1996, 2002

Co-chair, Committee to arrange Society of Mathematical Psychology Meeting held at Brown University on July 26-29, 2001

Chair of Search Committee for Editor of *Behavior Research Methods, Instruments, & Computers* (Psychonomic Society), 1998

Member of Advisory Board of the Society for Research on Biological Rhythms, 1986-1992

Advisor to the Natural Sciences and engineering Research Council of Canada (NSERC) regarding an "Allocation Report" prepared by the Canadian psychology community, 1995

Chair of the American Association for the Advancement of Science Section on Psychology (J) Electorate Nominating Committee, 1996-97

Organizations

American Association for the Advancement of Science

American Psychological Association

American Psychological Society
Eastern Psychological Association
Psychonomics Society
Society for Mathematical Psychology
Society for Neuroscience
Society for Comparative Cognition

8. Academic honors

Fellowships

Woodrow Wilson Fellowship, 1952
Special Research Fellowship, 1970-71 (NIMH)
National Research Science Award, 1978-79 (NIMH, MH-47064)
James McKeen Cattell Award, 1984-85

Honorary Societies

Fellow of Division of Experimental Psychology, APA, 1966
Fellow of American Association for the Advancement of Science, 1969
Fellow of Society of Experimental Psychologists, 1987
Fellow of Division of Physiological & Comparative Psychology, APA, 1989
Fellow of Division of Psychopharmacology and Substance Abuse, APA, 1992
Member of the Psychonomic Society
American Psychological Society (Charter Member)

9. Teaching (2004 - 2006)

PY0202 Quantitative Methods in Psychology: Mathematical models
PY0207 Graduate Core in Learning and Cognition
PY0216 Experimental Psychology: Sensation, Perception and Cognition
PY0232 Graduate Seminar in Learning: Conditioning and Timing

Major research advisor of three graduate students who are actively engaged in research and writing:

Mika MacInnis	Fifth-year graduate student	MS 2004; PhD expected in 2007
Linlin Yi	Fourth-year graduate student	MS 2005; PhD expected in 2008
Marcelo Caeatano	Third-year graduate student	MS 2006; PhD expected in 2009

10. Date of the preparation of the document: June 29, 2006