

CURRICULUM VITAE

David H. Krantz

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Date of Birth

December 30, 1938 (Buffalo, NY)

Contact Information

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Education

1960 B.A., mathematics, Yale University (summa cum laude)
1964 Ph.D., mathematical psychology, University of Pennsylvania
Dissertation: *The scaling of small and large color differences.*
(Leo M. Hurvich and Dorothea Jameson, advisors)

Fellowships

1960-63 NSF predoctoral fellow, University of Pennsylvania
1968 USPHS special postdoctoral fellow, Hebrew University
1970-71 Guggenheim Fellow
1970-71 Center for Advanced Study in the Behavioral Sciences Fellow

Positions held

1963-64 University of Pennsylvania, Instructor of Psychology
1964-68 University of Michigan, Assistant Professor of Psychology
1968-71 University of Michigan, Associate Professor of Psychology
1971-85 University of Michigan, Professor of Psychology
1980-85 Bell Laboratories, Member of Technical Staff
1983-85 Bell Laboratories, Research Head
1985-90 Columbia University, Professor of Psychology
1990- Columbia University, Professor of Psychology and Statistics

Teaching Interests

Undergraduate: decision processes, problem-solving, perception, statistics

Graduate: human reasoning, decision processes, statistics, psychophysics, color vision, measurement theory, models of perception

Research Interests**Decision Making:**

multiple goals, social goals, emergent processes in group decision, environmental and protective decisions, risky and intertemporal choices, microeconomics, use of evidence in individual and social decisions.

Reasoning:

use of formal models (especially statistical) in everyday reasoning, scientific reasoning, theory of belief, deductive reasoning.

Measurement:

vector models for measurement;
applications of measurement to decision making, belief and color vision.

Other:

general psychophysics, signal detection theory, numerical judgments (including probability), mathematical models in perception.

Research Grants

NIMH, MH 11504 (Measurement theory)
 NSF, GB 4947 (Measurement theory)
 NSF, GB 8181 (Measurement and psychophysics)
 NSF, GB 36642x (Measurement and perceptual attributes)
 NSF, BNS 11573 (Measurement of evidence strength)
 NSF, SES 98-18849 (Evidence and uncertainty in human reasoning)
 NSF, SES 01-36872 (Understanding & improving protective decision making)
 NSF, SES 03-45840 (Individual and group decision making under climate uncertainty)
 NSF, SES 07-49569 (Individual and group decision making under climate uncertainty)
 NSF, SES 08-20496 (Temporal discounting of social goals)
 NSF, SES 09-10490 (Individual and group decision making under climate uncertainty)
 NSF, SES 09-51516 (*Pending*: Understanding and improving environmental decisions)

Major Service Roles

1974-1977 Head, Experimental Psychology Area, Univ. of Michigan
 1975-1978 Advisory Committee on Psychobiology, National Science Foundation
 1982-1984 Acting Head, Human Information-Processing Research Dept., Bell Labs
 1986-1990 Director of Graduate Studies in Psychology, Columbia Univ.
 1990-1992 Chair, Department of Statistics, Columbia Univ.
 1996-1999 Electorate Nominating Committee, AAAS
 1997-1999 Interim Academic Committee, Columbia Earth Institute
 1999-2001 Co-Chair, Earth Systems Leadership Search Committee, Columbia Univ.
 2001-2003 Academic Committee, Earth Institute at Columbia
 Committee on Science Instruction, Columbia College
 Task Force on Environmental Education, Columbia Univ.
 Professor-in-Charge of Education, Earth Institute at Columbia
 2004-2009 Co-Director, Center for Research on Environmental Decisions
 2010-current Director, Center for Research on Environmental Decisions

Doctoral Students Supervised

Isaac, Paul D. (1969)
 Dissimilarity judgments and multidimensional scaling configurations as indices of perceptual structure: A study of intra-individual consistencies.

Baron, Jonathan M. (1970)
 The threshold for successiveness.

Doehrman, Steve R. (1971)
 Visual orientation processing in a simultaneous detection/recognition task.

Loomis, Jack M. (1971)
 Studies of chromatic adaptation using afterimage matching.

Cicerone, Carol M. (1974)
 Theory of luminance detection and measurement of the impulse responses of the color mechanisms of the eye.

- O'Neill, Barry (1976)
Variable-threat bargaining: A test of the Raiffa-Nash theory.
- Moeller, James R. (1976)
Measuring the red/green quality of lights: A study relating to Jameson and Hurvich red/green cancellation valence to direct magnitude estimation of greenness.
- Van Winterfeldt, Detlof. (1976)
Experimental tests of independence assumptions for risky multiattribute preferences.
- Shevell, Steven K. (1977)
The dual effect of backgrounds on color perception.
- Donnell, Michael L. (1977)
Individual red/green and yellow/blue opponent-isocancellation functions: Their measurement and prediction.
- Lewis, Clayton, H. (1978)
Production system models of practice effects.
- Miyamoto, John (1985)
The utility of survival duration and health quality: A conjoint measurement analysis.
- Agnoli, Franca (1985)
Judgments of probability: Natural heuristics versus training in extensional thought.
- Ganzach, Yoav (1988)
The psychology of moderate prediction.
- Caspar, Chava R. (1989)
Asymmetric hearing and response bias render dichotic listening inappropriate for assessing hemispheric specialization in older men.
- Mark, Gloria (1991)
Analogical transfer and group reasoning in induction.
- Briggs, Laura K. (1991)
Causal analysis and the induction of unobserved states and processes.
- Burhans, Karen K. (1994)
Trading off time-structured goals: An alternative to discounted value theories.
- Shen, Yung-Cheng (1997)
Goals and attribute integration in choice.
- Li, Yue-Lin (1998)
Subjective estimation of numerical quantities with a computer-interactive interface.
- Dodhia, Rahul M. (2000)
Judgments of likelihood evidence.

Kalmanson, Julia (2002)
Dilution and diagnosticity

Buturovic-Bradaic, Zeljka (2009)
Action-hesitancy model: Theoretical proposal and preliminary evidence.

Arora, Poonam (2009)
A minimal status effect: The impact of competition on subsequent coordination

Books

Krantz, D.H., Luce, R.D., Suppes, P. & Tversky, A. (1971).
Foundations of measurement. Vol. I. Additive and polynomial representations. New York: Academic Press.

Atkinson, R.C., Krantz, D.H., Luce, R.D. & Suppes, P. (eds.) (1974).
Contemporary developments in mathematical psychology. Vol. I. Learning, memory, and thinking. San Francisco: Freeman.

Atkinson, R.C., Krantz, D.H., Luce, R.D. & Suppes, P. (eds.) (1974).
Contemporary developments in mathematical psychology. Vol. II. Measurement, psychophysics, and neural information processing. San Francisco: Freeman.

Suppes, P., Krantz, D.H., Luce, R.D. & Tversky, A. (1989).
Foundations of measurement. Vol. II. Geometrical, threshold and probabilistic representations. New York: Academic Press.

Luce, R.D., Krantz, D.H., Suppes, P. & Tversky, A. (1990).
Foundations of measurement. Vol. III. Representation, axiomatization, and invariance. New York: Academic Press.

Articles

Krantz, D.H. (1964).
Conjoint measurement: The Luce-Tukey axiomatization and some extensions. *Journal of Mathematical Psychology*, **1**, 248-277.

Hurvich, L.M., Jameson, D. & Krantz, D.H. (1965).
Theoretical treatments of selected visual problems. Chap. 16 in R. D. Luce, R. R. Bush, and E. Galanter (eds.), *Handbook of mathematical psychology, Vol. 3.* New York: Wiley.

Krantz, D.H. & Tversky, A. (1965).
A critique of the applicability of cardinal utility theory. Michigan Mathematical Psychology Program Technical Reports, MMPP 65-4.

Krantz, D.H. (1967).
Rational distance functions for multidimensional scaling. *Journal of Mathematical Psychology*, **4**, 226-245.

- Krantz, D.H. (1967).
Small-step and large-step color differences for monochromatic stimuli of constant brightness. *Journal of the Optical Society of America*, **57**, 1304-1316.
- Krantz, D.H. (1967).
Extensive measurement in semiorders. *Philosophy of Science*, **34**, 348-362.
- Krantz, D.H. (1967).
Review of Principles of Color Technology by F.W. Billmeyer and M. Saltzman for Inter-Society Color Council News Letter.
- Beals, R. & Krantz, D.H. (1967).
Metrics and geodesics induced by order relations. *Mathematische Zeitschrift*, **101**, 285-298.
- Krantz, D.H. (1968).
A theory of context effects based on cross-context matching. *Journal of Mathematical Psychology*, **5**, 1-48.
- Krantz, D.H. (1968).
A survey of measurement theory. In G. B. Dantzig & A. F. Veinott, Jr. (eds.), *Mathematics of the Decision Sciences, Part 2*. Vol. 12 in Lectures in applied mathematics. Providence, R.I.: American Mathematical Society, pp. 314-350.
- Krantz, D.H. (1968). Review of Signal Detection Theory and Psychophysics by D. M. Green and J. A. Swets. *The American Scientist*, **56**, 51a-52a.
- Weintraub, D.J. & Krantz, D.H. (1968).
Worthington repeated: Non-differential rates of dark adaptation to "taboo" and neutral stimuli. *Psychological Record*, **18**, 63-69.
- Beals, R., Krantz, D.H. & Tversky, A. (1968).
Foundations of multidimensional scaling. *Psychological Review*, **75**, 127-142.
- Krantz, D.H. (1969).
Threshold theories of signal detection. *Psychological Review*, **76**, 308-324.
- Tversky, A. & Krantz, D.H. (1969).
Similarity of schematic faces: A test of interdimensional additivity. *Perception & Psychophysics*, **5**, 124-128.
- Krantz, D. H. (1970).
Review of The Measurement and Prediction of Judgment and Choice by R. D. Bock and L. V. Jones, *American Journal of Psychology*, **83**, 289-291.
- Tversky, A. & Krantz, D.H. (1970).
The dimensional representation and the metric structure of similarity data. *Journal of Mathematical Psychology*, **7**, 572-596.

- Krantz, D.H. (1971).
Integration of just-noticeable differences. *Journal of Mathematical Psychology*, **8**, 591-599.
- Krantz, D.H. & Tversky, A. (1971).
Conjoint-measurement analysis of composition rules in psychology. *Psychological Review*, **78**, 151-169.
- Krantz, D.H. & Weintraub, D.J. (1971).
The Poggendorff illusion: Amputations, rotations, and other perturbations. *Perception & Psychophysics*, **10**, 257-264.
- Luce, R.D. & Krantz, D.H. (1971).
Conditional expected utility. *Econometrica*, **39**, 253-271.
- Krantz, D.H. (1972).
Measurement structures and psychological laws. *Science*, **175**, 1427-1435.
- Krantz, D.H. (1972).
A theory of magnitude estimation and cross-modality matching, *Journal of Mathematical Psychology*, **9**, 168-199.
- Krantz, D.H. (1972).
Visual scaling. In L. M. Hurvich and D. Jameson (Eds.), *Visual Psychophysics*. Vol. VII/4 of *Handbook of Sensory Physiology*. Berlin: Springer-Verlag.
- Krantz, D.H. (1973).
Measurement-free tests of linearity on biological systems. *IEEE Transactions on Systems, Man, & Cybernetics*, **SMC-3**, 266-271.
- Krantz, D.H. (1973).
Fundamental measurement of force and Newton's first and second laws of motion. *Philosophy of Science*, **40**, 481-495.
- Krantz, D.H. & Weintraub, D.J. (1973).
Factors affecting perceived orientation of the Poggendorff transversal. *Perception & Psychophysics*, **4**, 511-517.
- Krantz, D.H. (1974).
Measurement theory and qualitative laws in psychophysics. In D. H. Krantz, R. C. Atkinson, R. D. Luce, & P. Suppes (eds.), *Contemporary developments in mathematical psychology*, Vol. I. San Francisco: Freeman.
- Larimer, J., Krantz, D.H. & Cicerone, C.M. (1974).
Opponent process additivity - I. Red/green equilibria. *Vision Research*, **14** 1127-1140.
- Luce, R.D. & Krantz, D.H. (1974).
The interpretation of conditional expected-utility theories In M.S. Balch, D.L. McFadden and S.Y. Wu (eds.), *Essays on Economic Behavior Under Uncertainty*. New York: North Holland Publishing Co.

- Krantz, D.H. (1975).
Color measurement and color theory: I. Representation theorem for Grassmann structures. *Journal of Mathematical Psychology*, **12**, 283-303.
- Krantz, D.H. (1975).
Color measurement and color theory: II. Opponent-colors theory. *Journal of Mathematical Psychology*, **12**, 304-327.
- Larimer, J., Krantz, D.H. & Cicerone, C.M. (1975).
Opponent-process additivity - II: Yellow-blue equilibria and nonlinear models. *Vision Research*, **15**, 723-731
- Cicerone, C.M., Krantz, D.H. & Larimer, J. (1975).
Opponent process additivity - III: Effect of moderate chromatic adaptation. *Vision Research*, **15**, 1125-1135.
- Krantz, D.H. & Tversky, A. (1975).
Similarity of rectangles: Analysis of subjective dimensions. *Journal of Mathematical Psychology*, **12**, 4-34.
- Goodman, B., Saltzman, M., Edwards, W. & Krantz, D.H. (1979).
Prediction of bids for two-outcome gambles in a casino setting. *Organizational Behavior and Human Performance*, **24**, 382-399.
- Weintraub, D.J. & Krantz, D.H. (1980).
The Poggendorff illusion: Consider all the angles. *Journal of Experimental Psychology: Human Perception and Performance*, **6**, 718-725.
- Krantz, D.H. (1981).
Improvements in human reasoning and an error in L. J. Cohen's. *The Behavioral & Brain Sciences*, **4**, 340-341.
- Alpern, M. & Krantz, D.H. (1981).
Visual pigment kinetics in abnormalities of uvea-sensory epithelium interface in man. *Investigative Ophthalmology & Visual Science*, **20**, 183-203.
- Krantz, D.H. (1982).
Comment on G. Shafer's "Belief function and parametric models." *Journal of the Royal Statistical Society*, **44**, 347-348.
- Krantz, D.H. (1982)
Color science for the intellectually ambitious nonspecialist. (Review of R. M. Boynton's Human Color Vision.) *Contemporary Psychology*, **27**, 88-91.
- Alpern, M., Kitahara, K. & Krantz, D.H. (1982).
Classical tritanopia. *Journal of Physiology*, **335**, 665-681.
- Alpern, M., Kitahara, K. & Krantz, D.H. (1982).
Perception of color in unilateral tritanopia. *Journal of Physiology*, **335**, 683-697.

- Nisbett, R. E., Krantz, D. H., Jepson, C. & Fong, G. T. (1982). Improving inductive inference. In D. Kahneman, P. Slovic & A. Tversky (Eds.), *Judgment under uncertainty: Heuristics and biases*, Cambridge: Cambridge University Press, pp.445-459.
- Shinn, M. & Krantz, D.H. (1982). Consistency in coping. *Journal of Health & Social Behavior*, **22**, 456-457.
- Krantz, D.H. & Miyamoto, J. (1983). Priors and likelihood ratios as evidence. *Journal of the American Statistical Association*, **78**, 418-423.
- Jepson, C., Krantz, D. H. & Nisbett, R. E. (1983). Inductive reasoning: Competence or skill? *The Behavioral and Brain Sciences*, **6**, 494-501.
- Nisbett, R. E., Krantz, D. H., Jepson, C., & Kunda, Z. (1983). The use of statistical heuristics in everyday inductive reasoning. *Psychological Review*, **90**, 339-363.
- Fong, G.T., Krantz, D.H. & Nisbett, R.E. (1986). The effects of statistical training on thinking about everyday problems. *Cognitive Psychology*, **18**, 253-292.
- Hochberg, J. & Krantz, D.H. (1986). Perceptual properties of statistical graphs. Proceedings of the American Statistical Association, Section on Statistical Graphs, 29-35.
- Agnoli, F. & Krantz, D.H. (1989). Suppressing natural heuristics by formal instruction: The case of the conjunction fallacy. *Cognitive Psychology*, **21**, 515-550.
- Ganzach, Y. & Krantz, D. H. (1990). The psychology of moderate prediction: I. Experience with multiple determination. *Organizational Behavior and Human Decision Processes*, **47**, 177-204.
- Ganzach, Y. & Krantz, D. H. (1991). The psychology of moderate prediction: II. Leniency and uncertainty. *Organizational Behavior and Human Decision Processes*, **48**, 169-192.
- Krantz, D. H. (1991). From indices to mappings: The representational approach to measurement. In D.R. Brown & J.E.K. Smith (eds.), *Frontiers of Mathematical Psychology: Essays in Honor of Clyde Coombs*. New York: Springer-Verlag.
- Braine, L. G., Pomerantz, E., Lorber, D. & Krantz, D. H. (1991). Conflicts with authority: Children's feelings, actions, and justifications. *Developmental Psychology*, **27**, 829-840.

- Briggs, L. K. & Krantz, D. H. (1992). Judging the strength of designated evidence. *Journal of Behavioral Decision Making*, **5**, 77-106.
- Chipman, S., Krantz, D. H. & Silver, R. (1992). Mathematics anxiety and science careers among able college women. *Psychological Science*, **3**, 292-295.
- Beals, R. & Krantz, D. H. (1993). The foundations of ordinal factor analysis: Affine and spherical geometries induced by a collection of weak orders. *Journal of Mathematical Psychology*, **37**, 157-199.
- Alpern, M., Sack, G. H., Krantz, D. H., Jenness, J., Zhang, H. & Moser, H. W. (1993). A chromosomal rearrangement segregating with adrenoleukodystrophy / adrenomyeloneuropathy. B. Associated changes in color vision. *Proceedings of the National Academy of Sciences*, **90**, 9494-9498.
- Levin, B. W., Krantz, D. H., Driscoll, J. M., Jr. & Fleischman, A. R. (1995). HIV and decision-making about treatment of non-HIV related conditions: A survey of neonatologists. *American Journal of Public Health*, **85**, 1507-1513.
- Ray, B. K. & Krantz, D. H. (1996). Foundations of the theory of evidence: Resolving conflicts among schemata. *Theory and Decision*, **40**, 215-234.
- Osherson, D., Shafir, E., Krantz, D. H., & Smith, E. E. (1997). Probability bootstrapping: Improving prediction by fitting extensional models to knowledgeable but incoherent probability judgments. *Organizational Behavior and Human Decision Processes*, **69**, 1-8.
- Shinn, M., Weitzman, B.C., Stojanovic, D., Knickman, J.R., Jimenez, L., Duchon, L., James, S. & Krantz, D.H. (1998) Predictors of homelessness among families in New York City: From shelter request to housing stability. *American Journal of Public Health*, **88**, 1651-1657.
- Krantz, D. H. (1998) Dorothea Jameson: A memoir. *Color Research & Application*, **23**, 358-361.
- Macchi, L., Osherson, D. & Krantz, D. H. (1999) A note on superadditive probability judgment. *Psychological Review*, **106**, 210-214.
- Lin, C.Y., Gelman, A., Price, P.N., & Krantz, D.H. (1999) Cost-benefit analysis of local decisions, with application to home radon measurement and remediation. *Statistical Science*, **14**, 305-337.
- Krantz, D. H. (1999) The null hypothesis testing controversy in psychology. *Journal of the American Statistical Association*, **94**, 1372-1381.

- Idson, L. C., Krantz, D. H., Osherson, D., and Bonini, N. (2001)
The relation between probability and evidence judgment: An extension of support theory. *Journal of Risk and Uncertainty*, **22**, 227-249.
- Kunreuther, H., Meyer, R., Zeckhauser, R., Slovic, P., Schwartz, B., Schade, C., Luce, M.F., Lippman, S., Krantz, D.H., Kahn, B., & Hogarth, R. (2002).
High-stakes decision making: Normative, descriptive and prescriptive considerations. *Marketing Letters*, **13**, 259-268.
- Hochberg, J. & Krantz, D. H. (2004)
Brunswik and Bayes. *Contemporary Psychology*, **49**, 785-787.
- Li, Y. & Krantz, D. H. (2005)
Experimental tests of subjective Bayesian methods. *Psychological Record*, **55**, 251-277.
- Marx, S. M., Weber, E. U., Orlove, B. S., Leiserowitz, A., Krantz, D. H., Roncoli, C. & Phillips, J. (2007).
Communication and mental processes: Experiential and analytic processing of uncertain climate information. *Global Environmental Change*, **17**, 47-58.
- Krantz, D. H. & Kunreuther, H. C. (2007).
Goals and plans in decision making. *Judgment and Decision Making*, **2**, 137-168.
- Krantz, D. H., Peterson, N. D., Arora, P., Milch, K., & Orlove, B. S. (2008).
Individual values and social goals in environmental decision making. In T. Kugler, J.C. Smith, T. Connelly & Y.-J. Son (Eds.), *Decision Modeling and Behavior in Uncertain and Complex Environments*. New York, Springer
- Carlson, K.A., Janiszewski, C., Keeney, R.L., Krantz, D.H., Kunreuther, H.C., Luce, M.F., Russo, J.E., van Osselaer, S.M.J., & Winterfeldt, D.v. (2008).
A theoretical framework for goal-based choice and for prescriptive analysis. *Marketing Letters*, **19**, 241-254.
- Krantz, D.H. (2010). Constructed preference and the quest for rationality. Pp. 65-71 in E. Michel-Kerjan & P. Slovic (Eds.), *The irrational economist: Making decisions in a dangerous world*. USA, Public Affairs Books.
- Shevell, S.K. & Krantz, D.H. (2010). Leo M. Hurvich (1910 – 2009). *American Psychologist*, **65**, 292.
- Pogrebná, G., Krantz, D.H., Schade, C. & Keser, C. (2011) Words versus actions as a means to influence cooperation in social dilemma situations. *Theory and Decision*, **71**, 473-502.
- Arora, P., Peterson, N.D., Krantz, D.H., Hardisty, D.J. & Reddy, K.S. (2012). To cooperate or not to cooperate: Using new methodologies and frameworks to understand how affiliation influences cooperation in the present and future. *Journal of Economic Psychology*, **33**, 842-853.

Hardisty, D. J., Orlove, B., Krantz, D. H., Small, A., Milch, K., & Osgood, D. E. (2012). About time: An integrative approach to effective environmental policy. *Global Environmental Change: Human and Policy Dimensions*, **22**, 684-694

Thompson, K.F., Hardisty, D.J., Krantz, D.H., & Weber, E.U. (2013). How to measure discount rates: an experimental comparison of three methods. *Judgment and Decision Making*, **8**, 236-249.

Attari, S.Z., Krantz, D.H., and Weber, E.U. (2014). Reasons for cooperation and defection in real-world social dilemmas. *Judgment and Decision Making*, **9**, 316-334.

Gong, M., Heal, G., Krantz, D.H., Kunreuther, H., and Weber, E.U. (2014). The role of subsidies in coordination games with interconnected risk. *Journal of Behavioral Decision Making*, **27** (in press).