

Theoretical and practical application of measurement theory: Relating some of J.-Cl. Falmagne's contributions to challenges in contemporary psychology

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Abstract

Over several years, the perceived relative decline of Mathematical Psychology, has been intently discussed in writing, at meetings, in conversations. Advancements in the physical sciences appear coincident with formulation of variables, relationships between them, and followed by observable measures of resulting predictions. This approach demands appreciable facility with mathematics and formal methodologies, which is evident in the schooling of new scientists and present publications from these fields. These observations are in some contrast to contemporary psychology. One exploratory question is how may these diverging developments be affecting advances in scientific psychology, and notably, are they to its detriment? In three examples (scale properties, randomness, knowledge assessment), I will argue the answer is "yes". Common to the three is that Falmagne's work offers considerable improvements to the problems they present. Following from one example (scale properties) and with departure in Falmagne's *Elements of Psychophysical Theory* (1985), I will touch on recent advances in direct measurement of sensations, concluding with a current challenge of psychological measurement methodology along with an in-progress development of a solution.