

# **A mixed Rasch model of dual-process conditional reasoning**

**JEAN-FRANÇOIS BONNEFON**

*LTC-CNRS, Toulouse*

**MICHAEL EID**

*University of Geneva*

**STÉPHANE VAUTIER AND SAÏD JMEL**

*University of Toulouse Le Mirail*

A fine-grained dual-process approach to conditional reasoning is advocated: Responses to conditional syllogisms are reached through the operation of either one of two systems, each of which can rely on two different mechanisms. System1 relies either on pragmatic implicatures or on the retrieval of information from semantic memory; System2 operates first through inhibition of System1, then (but not always) through activation of analytical processes. It follows that reasoners will fall into one of four groups of increasing reasoning ability, each group being uniquely characterized by (a) the modal pattern of individual answers to blocks of affirming the consequent, denying the antecedent, and modus tollens syllogisms featuring the same conditional; and (b) the average rate of determinate answers to AC, DA, and MT. This account receives indirect support from the extant literature, and direct support from a mixed Rasch model of responses given to 18 syllogisms by 486 adult reasoners.