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Reversible Gates in Quantum Computing, may explain the "Dead Reckoning" path return of Bees and other Social Insects RICHARD KRISKE, University of Minnesota — Reversible gates in Quantum Computing may yield a clue as to how insects, which have a fairly small Brain size, can not only find their way to food, but also return successfully and communicate that path to other Social Insects. As anyone who has studied the works of Aristotle, or George Boole knows, classical logic has a flaw in it, in that it is a many-to-one function, with the OR, NOR, AND, or NAND gate. This many-to-one cardinality means that the gates lose information as they compute, in that if you have an OR gate, 1 OR 1, 1 OR 0, 0 OR 1 (using George Boole's notation), all produce an output of 1. So if you start from the conclusion of 1, you have lost the information as to what the deduction was. Reversible gates using Reversible logic, keep the information as to the path of the Deduction. In that way Reversible Gates, don't necessarily need separate Data Stores, in that for small systems they can do the Deduction in Reverse. A Social Insect may have Reversible Gated Neurons, such that there need not be a separate Data Store, the Insect may simply run the Logic in Reverse to Return to its Hive, and it also has a complete record of its path (in its own language) store in those gates. This is a much better theory than the current "Dead Reckoning" theory.

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