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Tom Archibald* (tarchi@sfu.ca), Dept of Mathematics, Simon Fraser University, Burnaby, BC V5A 1S6, Canada. *Formulas, concepts, and the “Jacobi limit”: observations on change in late-nineteenth-century mathematics*. Preliminary report.

Many historians have observed that the eighteenth century was a time when the recognition of patterns produced results directly from hand calculations. Around 1840 Jacobi remarked that the limitations of this calculational method as a source of discovery were becoming apparent. Reading with hindsight, his remarks seem prophetic, directly preceding a move to a more “modern”, conceptual viewpoint. This shift has been described by several writers in terms of a change from a formula-based to a concept-based mathematics. However, formulas have a variety of purposes: they may be used to classify objects or to represent generic objects. The distinction between the older and the newer views is thus difficult to summarize in terms of the distinction between formulas and concepts or structures.

In this paper, we consider the distinction between formulas and concepts against the background of differing views about the ontological status of mathematical objects. Some writers viewed mathematical objects as naturally occurring, so that their relations were objectively given, and not merely subject to the whim of the mathematician and the requirements of consistency. This viewpoint has several advantages for the historian, while still shedding light on the distinction in question. (Received August 20, 2007)