► JOHN CORCORAN AND ANTHONY RAMNAUTH, *Equality and identity.*
Philosophy, University at Buffalo, Buffalo, NY 14260-4150, USA
E-mail: corcoran@buffalo.edu

Two line halves are *equal* but not *identical* [one and the same]. Every line *equals* infinitely many other lines, but no line *is* [identical to] any other line—taking 'identical' strictly here and below.

Knowing that two lines *equaling* a third are equal is useful; the condition "two lines equaling a third" often holds. But could knowing that two lines *being* [identical to] a third are identical be useful? The antecedent condition "two things identical to a third" never holds, nor does the consequent condition "two things being identical".

The plural predicate 'are equal' as in 'All diameters of a given circle are equal' is useful and natural. 'Are identical' as in 'All centers of a given circle are identical' is awkward or worse.

Substituting equals for equals [replacing one of two equals by the other] makes sense. Substituting identicals for identicals is empty—a thing is identical only to itself; substituting one thing for itself leaves that thing alone, does nothing.

There are as many types of equality as magnitudes: angles, lines, planes, solids, times, etc. Each admits unit magnitudes. And each such *equality* analyzes as *identity* of magnitude: two lines are equal [in length] if the one's length is identical to the other's.

Tarski [1] hardly mentioned equality-identity distinctions (pp. 54-63). His discussion begins:

> Among the logical concepts […], the concept of IDENTITY or EQUALITY […] has the greatest importance.

Not until page 62 is there an equality-identity distinction. His only "notion of equality", if such it is, is geometrical congruence—having the same size and shape—an equivalence relation not admitting any unit.

This lecture treats the history and philosophy of equality-identity distinctions.

[1] ALFRED TARSKI, *Introduction to Logic*, Dover, New York, 1995.