1035-01-272 **William Dunham*** (`wdunham@muhlenberg.edu`), Dept. of Mathematics and Computer Science, Muhlenberg College, Allentown, PA 18104. *When Euler Met l'Hospital.*

In the late 17th century, Johann Bernoulli discovered, and the Marquis de l'Hospital published, a technique for evaluating indeterminate expressions via differentials. The result, known as l'Hospital's rule, occupied Chapter 15 of Leonhard Euler's textbook Institutiones Calculi Differentialis of 1755. Because Euler was such a masterful author, his treatment is worth a look. In this talk, we consider:

(a) Euler's use of infinitely small quantities to establish the general technique.

(b) A few of his examples, including one involving logarithmic differentiation that could easily find its way into a modern calculus course.

(c) His derivation of the summation formula for the first n positive integers that used l'Hospital's rule TWICE!

This examination of an original text should provide a glimpse of Euler at his symbol-manipulating best. (Received August 28, 2007)