Logical truth is a phrase used in three senses, rendering it almost useless. 

2. The conformity of a thought to the laws of logic; in particular, in a concept, consistency; in an inference, validity; in a proposition, agreement with assumptions. This would better be called mathematical truth, since mathematics is the only science which aims at nothing more. (Kant, Krit. d. reinen Vernunft, 1st ed., 294.)