

ABSTRACT

This thesis extends previous research on validating Lanchester's equations with real data. The quality of the available historical data for validation of attrition models is poor. Most accessible battle data contain only starting sizes and casualties, sometimes only for one side. A detailed database of the Battle of Kursk of World War II, the largest tank battle in history, has recently been developed. The data were collected from military archives in Germany and Russia by the Dupuy Institute (TDI) and were reformatted into a computerized data base, designated as the Kursk Data Base (KDB), and recently made available and documented in the KOSAVE (Kursk Operation Simulation and Validation Exercise of the US Army) study. The data are two-sided, time phased (daily), and highly detailed. They cover 15 days of the campaign. This thesis examines how the various derivatives of Lanchester's equations fit the newly compiled database on the Battle of Kursk. In addition, other functional forms are fit. These results are contrasted with earlier studies on the Ardennes campaign. It turns out that a wide variety of models fit the data about as well. Unfortunately, none of the basic Lanchester models fit the data, bringing into question their use in combat modeling.

