

ESTABLISHING A BASE LINE

To test the historical accuracy of citation analysis, we needed a base line—a recent scientific breakthrough whose history had been analyzed and documented by a recognized authority. We chose as our base line *The Genetic Code*, by Dr. Isaac Asimov (16), a clear, concise account of more than a century of complex research that led, eventually, to the development and validation of the DNA theory of genetic coding that controls protein synthesis.

The study strategy was simple: produce a network diagram of the events and relationships described by Asimov, produce a second diagram from the references in the papers that reported the Asimov events, compare the two to see how closely they match, and perform a thorough citation analysis of the papers to see whether they identify any important events or relationships missed by Asimov. How the strategy was implemented is shown in Figure 7.2.

The first task was to analyze Asimov's account of the development to identify the

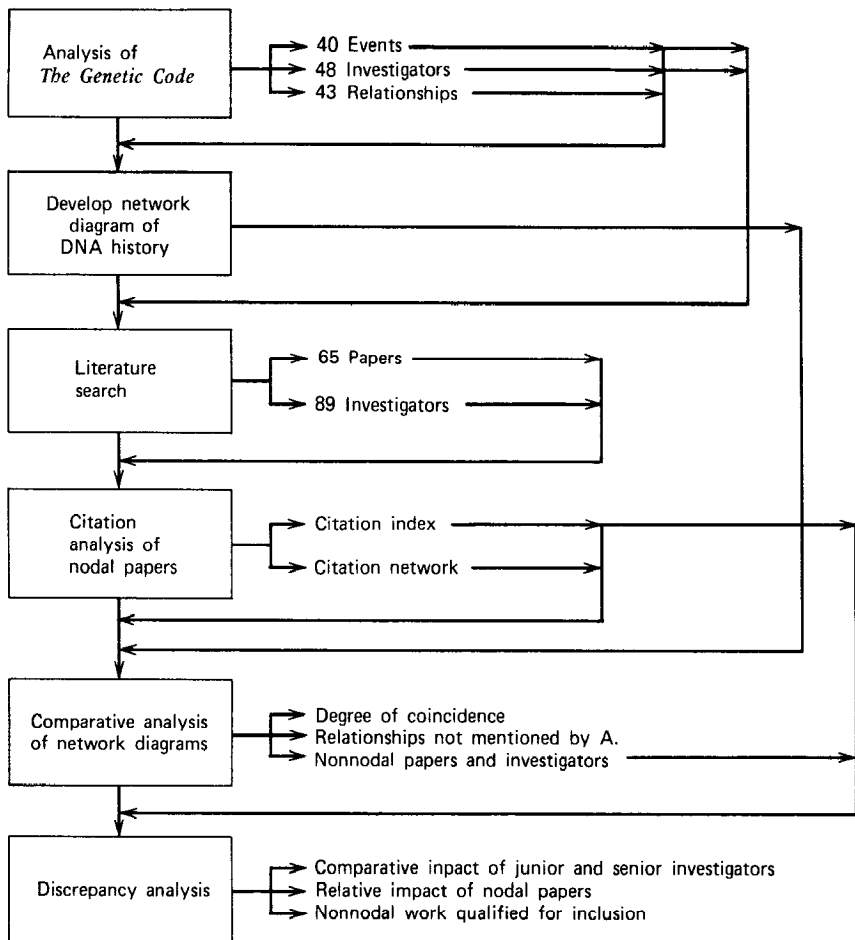


Figure 7.2 Flowchart of major tasks in study to validate use of citation analysis in defining the history of scientific development.