

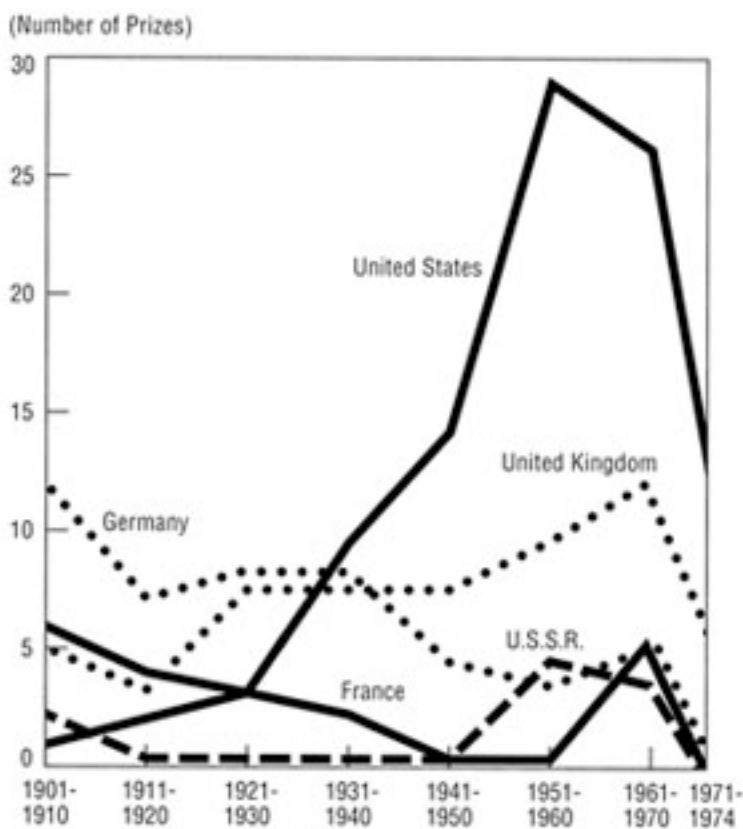
Design and Data Variation

Each part of a graphic generates visual expectations about its other parts and, in the economy of graphical perception, these expectations often determine what the eye sees. Deception results from the incorrect extrapolation of visual expectations generated at one place on the graphic to other places.

A scale moving in regular intervals, for example, is expected to continue its march to the very end in a consistent fashion, without the muddling or trickery of non-uniform changes. Here an irregular scale is used to concoct a pseudo-decline. The first seven increments on the horizontal scale are ten years long, masking the rightmost interval of four years. Consequently the conspicuous feature of the graphic is the apparent fall of curves at the right, particularly the decline in prizes won by people from the United States (the heavy, dark line) in the most recent period. This effect results solely from design variation. It is a big lie, since in reality (and even in extrapolation, scaling up each end-point by 2.5 to take the four years' worth of data up to a comparable decade), the U.S. curve turned sharply upward in the post-1970 interval. A correction, with the actual data for 1971-80, is at the right:

National Science Foundation, *Science Indicators*, 1974 (Washington, DC, 1976), 15.

Nobel Prizes Awarded in Science, for Selected Countries, 1901-1974



Nobel Prizes Awarded in Science, for Selected Countries, 1901-1980

