The similarity of the Democratic and Republican platforms in the U.S. presidential race might be "because a highly integrated political economy ensures that any policy will have mediocre outcomes," an idea based on a model that simulates complex systems with large numbers of conflicting interactions. Further discussion is presented about the National Marine Fisheries Service's plan for saving endangered salmon in the Columbia River. One source of the compound SF_5CF_3 that was recently identified and reported in *Science* as a potent greenhouse gas is described. And another explanation is offerred for results from an international survey that suggest marital satisfaction is associated with moderate husband dominance.

Presidential Politics: Constrained by Complexity?

During the U.S. presidential campaign, there has been considerable discussion about the degree of similarity between the platforms of the Democratic and Republican candidates (*1*). Mallaby sees the "irrelevant election" as a consequence of globalization, noting that "the next U.S. president will find his ideals on a wide range of foreign policy issues boxed in by new systemic constraints" (*2*).

This boxing in of the executive office is reminiscent of the complexity catastrophe described by Kauffman in his NK model of rugged fitness landscapes (*3*) used to simulate evolutionary patterns in biological systems. In this model, networks are constructed randomly to simulate the large number of conflicting interactions found in complicated systems. Each of the N components is randomly assigned an initial state, is randomly connected to K other components, and exerts at random favorable or unfavorable interactions on each of its K neighbors. Despite these random assignments, systems having moderate amounts of interconnectivity (lower values of K) can be readily configured to achieve primarily favorable interactions. However, in systems with higher amounts of interconnectivity (higher values of K), a nagging load of unfavorable interactions becomes unavoidable. In the limit of maximum interconnectedness ($K = N - 1$), configurations have, on average, as many favorable as unfavorable interactions, and a given configuration contains no information about neighboring configurations. Hence, overly connected, highly frustrated networks guarantee that (i) a search for better configurations can do no better than a random selection, and (ii) highly favorable configurations simply do not exist. The complexity of the interactions ensures a catastrophic loss of the potential to improve beyond mediocrity.

Despite their best efforts to distinguish themselves, perhaps Mr. Bush and Mr. Gore appear similar because large-scale communication, transportation, and economic networks have resulted in a globally integrated political economy, with many conflicting interactions. Globalization is equivalent to increasing the "K parameter" of economic networks, resulting in an uncorrelated landscape of mediocre compromises among political, environmental, and cultural systems. Differences in principle and means become irrelevant as each candidate faces the fact that acceptable solutions to large-scale political problems are, at best, hard to find, and, at worst, nonexistent. Although the platforms of Bush and Gore differ in detail, any policy decision concerning large domestic or foreign programs, such as urban housing (*4*) or free trade agreements (*5*), will necessarily result in as much harm or risk as benefit (*6*). Their platforms seem similar because a highly integrated political economy ensures that any policy will have mediocre outcomes. A Kauffmanian complexity catastrophe also implies that a random casting of votes would, paradoxically, do as well as costly lobbying and political analysis in directing national affairs.

SOURCE: ASSOCIATED PRESS

Is complexity in the form of globalization confounding distinctions between political platforms?

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Of Salmon and Dams

Charles Mann and Mark Plummer's News Focus article "Can science rescue salmon?" (4 Aug., p. 716) on the Snake River salmon is well informed but does not adequately characterize the Plan for Analyzing and Testing Hypotheses (PATH) or the plight of the endangered salmon stocks. As members of the Scientific Review Panel of PATH, we have reviewed thousands of pages of PATH reports. PATH was a network of fishery scientists, including North American experts in fish population dynamics. The core group of 25 scientists represented six federal entities, three state fishery agencies, one tribal organization, and two regional entities. PATH sought consensus by evaluating all plausible hypotheses (hydropower dams, harvesting, habitat degradation, hatchery misuse, and climate) for the decline of Snake River Chinook salmon. Historical data were essential because they allow comparisons to be made with conditions before the construction of the dams. For example, the survival rate of upriver spring-spawning Chinook remained high during the 1940s, even though this appears to have been a period of lower ocean productivity, similar to the ocean conditions since 1976 (*1*).

The life-cycle model PATH used to predict future population levels for spring/summer Chinook is described as a "super model" in the article, but this is a misnomer; it is an extension of the classic Ricker model in which the stage-specific survival terms are described in more detail to allow comparison of competing hypotheses. The price of this inclusiveness was that the life-cycle model be-