

tion by gender. Discrimination against women and girls would be permitted if "reasonably necessary to the normal operation of public employment, public education or public contracting." Such discrimination is currently legal only if related to some compelling public purpose, which is a much more stringent criterion. Math programs aimed at girls and counseling, outreach, and support programs aimed at college women, not to mention recruitment and support in the workplace, could all disappear.

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Streetcar Theory and Long-Term Evolution

In his Research News article (8 Mar., p. 1365), Nigel Williams discusses a new theory that I have called "the streetcar theory of evolution." The development of this theory was initiated by Eshel and Feldman (1) and Lessard (2), who demonstrated mathematically that genetic constraints can be overcome in phenotypic evolution if a rich variety of new mutant alleles is taken

into consideration. Their ingenious papers influenced Matessi, Liberman, Weissing, and others to elaborate on the new idea. Eshel (3) realized the main conclusion from this body of work, namely, that the theory of long-term evolution supports the concept of phenotypic optimization. He also stated that this theory supports the concept of an evolutionarily stable strategy (ESS).

When I wrote a survey on evolutionary game theory together with Selten in 1994 (4), we were deeply impressed with Eshel's thoughts and intended to cite his work without any addition as a cornerstone of ESS theory. However, we found some mathematical and conceptual problems with the interface between his theory of long-term evolution and the theory of ESSs. This caused us to think about the adjustments needed to close the remaining gap. In my 1996 paper (5), I describe the outcome of this theoretical investigation, which shows that the original idea by Eshel, Feldman, and Lessard does indeed apply to evolutionary game theory. I also make an attempt to express with great clarity the essence and biological relevance of the mathematical theory under discussion. This led me to introduce the streetcar metaphor and to describe two central results of this theory as the characterization of a "final stop of the streetcar."

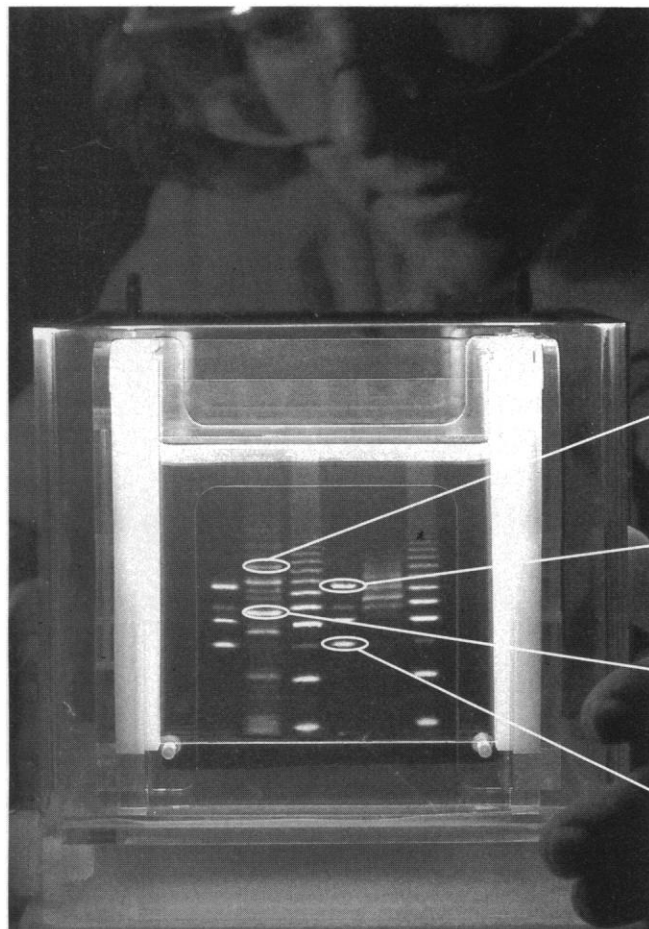
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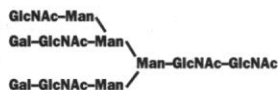
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