1058-92-93 Isabel K. Darcy* (isabel-darcy@uiowa.edu), Department of Mathematics, 14 MacLean Hall, Iowa City, IA 52242-1419. Tangle analysis of protein-DNA complexes. Preliminary report.
Some proteins will cut DNA and change the DNA configuration before resealing the DNA. Thus, if the DNA is circular, the DNA can become knotted. When modeling protein-DNA reactions, one would like to know how to draw the DNA. For example, are there any crossings trapped by the protein complex? How do the DNA strands exit the complex? Is there significant bending? Topological analysis cannot determine the exact geometry of the protein-bound DNA, but it can determine the overall entanglement of this DNA, after which other techniques may be used to more precisely determine the geometry. (Received February 06, 2010)