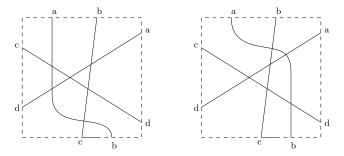## Comprehension questions

PROBLEM 18.1. *Take two immersed loops with simple selfintersections, which differ only in the parts drawn below (the letters indicate which parts of the loop are connected to which, in the outside portion that we have not drawn):*
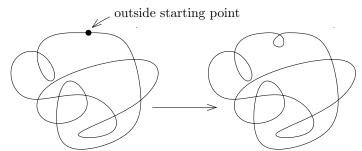

How are the St invariants of those loops related?

PROBLEM 18.2. *In the situation of Problem 17.3, compute the St invariant.*

PROBLEM 18.3. *In the situation of Problem 17.6, compute the St invariant.*

PROBLEM 18.4. *Take an immersed loop with simple selfintersections, and an outside starting point (reminder: this means that if we consider the tangent line at that point, the entire loop lies in one of the two halves of the plane bounded by that line). At that starting point, add a little curl "inwards", meaning that it still lies in the same half-plane, like this:*

How does the St invariant change, and why? (Note the drawing above is just an example, I'm looking for a general statement.)

18.900 Geometry and Topology in the Plane
Spring 2023