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# DISTANCE COMPARISON FOR CURVE SHORTENING FLOW WITH A PRESCRIBED BOUNDARY

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**Abstract.**    In this paper, we derive the extrinsic and intrinsic distance comparison for the non-closed embedded curves evolving by curve shortening flow when the two endpoints are prescribed by adjusting a method proposed by B. Andrews and P. Bryan (2011). An assumption of boundaries is considered to avoid the evolution curve hitting the boundaries. As a simple application, we establish a curvature bound and prove that the solution converges to a straight line as the time tends to the infinity provided that it does not hit the boundary. We also give a sufficient condition for initial data so that the solution does not hit the boundary.