Symbolic Differentiation of Complex Expressions

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Abstract

TODO

1 Introduction

- Why is analyticity important?
- Differentiation as a small application of analyticity.
- Why is finding analyticity hard?
- Ways to find where a function is analytic.
- Computer algebra systems for finding analyticity.
- Our contributions.

2 Expressions

- What are our expressions?
- Where are various expressions analytic?
- Pose question: how can we find analyticity of compositions?

3 Analyticity of Compositions

- Singularities -> Rootfinding
- Branch Points -> Rootfinding + Singularities
- Cluster Points -> Evaluation + Singularities + Branch Points

4 Symbolic Root Finding

5 Implementation

6 Future Work