Bertini_Real

User's Manual

need a sweet picture here

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1 Introduction

Welcome to Bertini_real, software for real algebraic geometry. This manual is intended to help the user operate this piece of numerical software, to obtain useful and high-quality results from decomposing real algebraic curves and surfaces.

Bertini_real is compiled software, links against a parallel version of Bertini 1 compiled as a library, and requires Matlab and the Symbolic Computation toolbox. It also requires several other libraries, including a few from Boost, and an installation of MPI. All libraries should be compiled using the same compilers.

1.1 Contact

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1.2 License

A Output Formats

A.1 .curve

(num_variables total) num_vertices num_edges
num_V0 num_V1 num_midpts num_newpts

    indices of V0
indices of V1
indices of midpoints
indices of added_points
    projection excluding the homogeneous 0 coordinate.

```
1  3  11  5
2  0  6  5  2
3
4  0
5  1
6  2
7  3
8  5
9  7
10
11 4
12 6
13 8
14 9
15 10
16
17 5
18 7
19
20 0.6849399286572089131660109620113463320734431792261263779411380542312014937725726821894520505
       e0
       0.0000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
       e0
21 -0.5180636090563104149200380189206093442112942963180616313500017110742085194250936155093173157
       e0
       0.0000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
       e0
22 -0.2006428619535369207897412449569942694817131331548329348346969539665139835659102771242005665
       e0
       0.0000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
       e0
```

File 1: Example C.curve file.

A.2 .edge

A.3 .vert