

README

Compiling

Unzip the file. Compile typing "make" in the directory with the makefile. The binaries executable will be stored in "./bin".

Executing the software

In directory "./bin" execute the command "./binary_name".

Description

List of algorithms with their input and output files:

1. **"algorithm_1_expansion_algorithm.cpp"** : it contains the source code of Algorithm 1 ("Expansion Algorithm"). Output file: E45.
2. **"matching_algorithm_2_C_E45_E45_E45.cpp"** : it contains the source code of Algorithm 2, matching E45xE45xE45. Input file: E45. Output file: C_E45_E45_E45.
3. **"matching_algorithm_3_C_OID_OID_E45.cpp"** : it contains the source code of Algorithm 3, matching OIDxOIDxE45. Input file: E45. Output file: C_OID_OID_E45.
4. **"matching_algorithm_4_C_ORED_E45_E45.cpp"** : it contains the source code of Algorithm 4, matching OREDxE45xE45. Input file: E45. Output file: C_ORED_E45_E45.
5. **"matching_algorithm_5_C_OID_E45_E45.cpp"** : it contains the source code of Algorithm 5, matching OIDxE45xE45. Input file: E45. Output file: C_OID_E45_E45.
6. **"algorithm_6_check_not_relevant.cpp"** : it contains the source code of Algorithm 6. It deletes not relevant points. Input files: C_E45_E45_E45, C_OID_OID_E45, C_ORED_E45_E45, C_OID_E45_E45. Output file: .
7. **"algorithm_7_check_finite_orbits.cpp"** : it contains the source code of Algorithm 7. It deletes points that not lead to finite orbits. Input file: . Output file: .
8. **"algorithm_8_quotient_wrt_P4.cpp"** : it contains the source code of Algorithm 8. It quotients the set w.r.t. the action of the group P4. Input file: . Output file: .

9. **“algorithm_9_quotient_wrt_signs_and_perms.cpp”** : it contains the source code of Algorithm 9. It quotients the set w.r.t. the action of the group $\langle \text{sign}_1, \dots, \text{sign}_4, (12)(34), (1234) \rangle$. Input file: . Output file: .
10. **“algorithm_10_gen_subsets_AN.cpp”** : it contains the source code of Algorithm 10. It generates subsets A_N s.t. each element in A_N has the same $(p_1, p_2, p_3, p_4, p_\infty)$ up to signs and permutations (we act with the group $\langle \text{sign}_1, \dots, \text{sign}_4, (12)(34), (1234) \rangle$ extended with $P_{1\infty}$). Input file: . Output file: print the points p on screen.
11. **“algorithm_11_quotient_wrt_P13P23P34.cpp”** : it contains the source code of Algorithm 11. It quotients each subset A_N w.r.t. the action of the group $\langle P_{13}, P_{23}, P_{34} \rangle$. Input file: . Output file: .

List of libraries:

1. **“pvi.h”** : contains the braid group B_3 , the pure braid group P_3 , the symmetry group G_{PVI} and the Jimbo-Fricke cubic.
2. **“g2.h”** : contains the braid group B_4 , the pure braid group P_4 , the symmetry group G and the family of polynomials constraints f_1, \dots, f_{15} .
3. **“custom_library.h”** : useful functions as print a point on screen or save a collection of points on a file.