ETVO

2.0

Generated by Doxygen 1.8.14

Contents

Chapter 1

[ETVO (Event|Time-Variant Operators)]

This library is a set of classes to make computations on formal series used in the field of Discrete Event Systems. More specifically, these series lie on elementary opertors used to describe Timed Event Graphs (TEGs), Weighted Timed Event Graphs (WTEGs) and some Timed EVent Graphs with time-variant sojourn times.

Chapter 2

Namespace Index

2.1 Namespace List

Here is a list of all documented namespaces with brief descriptions:

Chapter 3

Hierarchical Index

3.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 4

Class Index

4.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 5

File Index

5.1 File List

Here is a list of all documented files with brief descriptions:

Chapter 6

Namespace Documentation

6.1 etvoll Namespace Reference

Classes

- class dDd

  terms like d^ tl TM_m d^ tc TB_b d^ tr
- class E_op
- class Ed
- class etvoException
- class Factory
- class FactoryFper
- class FactoryPoly
- class FactoryPolyEd
- class FactoryPolyTg
- class FactorySeries
- class FactorySeriesEd
- class Fmaxp
- class Fminp
- class Fper

  Base class for pseudo - periodic functions Z->Z where f(x + dP) = codP + f(x)
- class gd
- class gNg

  terms like g^ nl M_m g^ nc B_b g^ nr
- class ISterm
- class matrix
- class parser
- class poly
- class polyEd
- class polyTg
- class randGen
- class series
- class seriesEd
- class T_op
- class Tg
- class Tools

Functions

- std::ostream & **operator**<< (std::ostream &f, const dDd &m)
- std::ostream & **operator**<< (std::ostream &f, const E_op &op)
- std::ostream & **operator**<< (std::ostream &f, const gNg &m)
- std::ostream & **operator**<< (std::ostream &f, const T_op &op)
- std::normal_distribution **norm_dist** (50, 20)
- std::uniform_int_distribution **uni_dist** (1, 1000)
- gNg **rand_gNg1** ()
- gNg **rand_gNg2** ()
- gNg **rand_gNg3** ()
- dDd **rand_dDd1** ()
- dDd **rand_dDd2** ()
- dDd **rand_dDd3** ()
- E_op **Rand_Eop_fixedG1** (unsigned Me, unsigned Be, int g0)
- E_op **Rand_Eop_fixedG2** (unsigned Me, unsigned Be, int g0)
- std::ostream & operator<< (std::ostream &f, const Fper &)

  operator to print Fper elements into the standard ostream
- std::ostream & **operator**<< (std::ostream &st, const Ed &m)
- std::ostream & **operator**<< (std::ostream &st, const polyEd &p)
- bool **compD** (Ed m1, Ed m2)
- seriesEd **eg** (int n)
- seriesEd **ed** (int t)
- seriesEd **em** (unsigned w)
- seriesEd **eb** (unsigned w)
- seriesEd **en** (unsigned n)
- seriesEd **em** (const std::vector< unsigned > &w)
- seriesEd **eb** (const std::vector< unsigned > &w)
- seriesEd **star** (const seriesEd &s)
- seriesEd **oplus** (const seriesEd &s1, const seriesEd &s2)
- seriesEd **inf** (const seriesEd &s1, const seriesEd &s2)
- seriesEd **otimes** (const seriesEd &s1, const seriesEd &s2)
- seriesEd **lfrac** (const seriesEd &s1, const seriesEd &s2)
- seriesEd **rfrac** (const seriesEd &s1, const seriesEd &s2)
- std::ostream & **operator**<< (std::ostream &f, const seriesEd &s)
- std::ostream & **operator**<< (std::ostream &st, const polyTg &p)
- bool **compG** (Tg m1, Tg m2)
- std::ostream & **operator**<< (std::ostream &st, const Tg &m)
- std::ostream & **operator**<< (std::ostream &f, const gd &m)
- template<class T >
  std::ostream & **operator**<< (std::ostream &flot, const matrix< T > &m)
- template<class T >
  matrix< T > **oplusGlobal** (const matrix< T > &m1, const matrix< T > &m2)
- template<class T >
  matrix< T > **infGlobal** (const matrix< T > &m1, const matrix< T > &m2)
- template<class T >
  matrix< T > **otimesGlobal** (const matrix< T > &m1, const matrix< T > &m2)
- template<class T >
  matrix< T > **starGlobal** (const matrix< T > &ak_1)
- template<class T >
  matrix< T > **lfracGlobal** (const matrix< T > &m1, const matrix< T > &m2)
- template<class T >
  matrix< T > **rfracGlobal** (const matrix< T > &m1, const matrix< T > &m2)
- poly **oplus** (const poly &p1, const poly &p2)
- poly **otimes** (const poly &p1, const poly &p2)

- poly **inf** (const poly &p1, const poly &p2)
- poly **lfrac** (const poly &p1, const poly &p2)
- poly **rfrac** (const poly &p1, const poly &p2)
- std::ostream & **operator**<< (std::ostream &f, const poly &p)
- series **star** (const series &s)
- series **oplus** (const series &s1, const series &s2)
- series **inf** (const series &s1, const series &s2)
- series **otimes** (const series &s1, const series &s2)
- series **lfrac** (const series &s1, const series &s2)
- series **rfrac** (const series &s1, const series &s2)
- std::ostream & **operator**<< (std::ostream &flot, const series &s)

Variables

- std::default_random_engine **gen** { static_cast<long unsigned int>(time(0)) }

6.1.1 Detailed Description

namespace for ETVO classes

6.1.2 Function Documentation

6.1.2.1 operator<<()

```
std::ostream & etvoII::operator<< (
            std::ostream & f,
            const Fper &  )
```

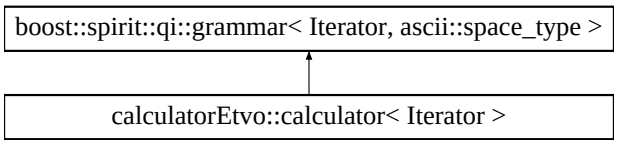
operator to print Fper elements into the standard ostream

Chapter 7

Class Documentation

7.1 calculatorEtvo::calculator< Iterator > Struct Template Reference

Inheritance diagram for calculatorEtvo::calculator< Iterator >:



Public Attributes

- qi::rule< Iterator, ascii::space_type > **statement**
- qi::rule< Iterator, ascii::space_type > **ev**
- qi::rule< Iterator, ascii::space_type > **expressionEd**
- qi::rule< Iterator, ascii::space_type > **infEd**
- qi::rule< Iterator, ascii::space_type > **lfracEd**
- qi::rule< Iterator, ascii::space_type > **rfracEd**
- qi::rule< Iterator, ascii::space_type > **prcausEd**
- qi::rule< Iterator, ascii::space_type > **rightEd**
- qi::rule< Iterator, ascii::space_type > **leftEd**
- qi::rule< Iterator, ascii::space_type > **MMToEd**
- qi::rule< Iterator, ascii::space_type > **asMuVar**
- qi::rule< Iterator, ascii::space_type > **factorEd**
- qi::rule< Iterator, ascii::space_type > **groupEd**
- qi::rule< Iterator, ascii::space_type > **termEd**
- qi::rule< Iterator, ascii::space_type > **polyEd**
- qi::rule< Iterator, ascii::space_type > **nablaEd**
- qi::rule< Iterator, ascii::space_type > **gammaEd**
- qi::rule< Iterator, ascii::space_type > **seqEd**
- qi::rule< Iterator, ascii::space_type > **muVarEd**
- qi::rule< Iterator, ascii::space_type > **betaVarEd**
- qi::rule< Iterator, ascii::space_type > **equalEd**
- qi::rule< Iterator, ascii::space_type > **asCoreEd**
- qi::rule< Iterator, ascii::space_type > **deltaEd**
- qi::rule< Iterator, ascii::space_type > **muEd**

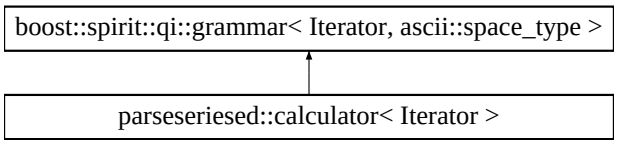
- qi::rule< Iterator, ascii::space_type > **betaEd**
- qi::rule< Iterator, ascii::space_type > **epsEd**
- qi::rule< Iterator, ascii::space_type > **kleeneEd**
- qi::rule< Iterator, ascii::space_type > **identEd**
- qi::rule< Iterator, ascii::space_type > **assignEd**
- qi::rule< Iterator, ascii::space_type > **expressionMM**
- qi::rule< Iterator, ascii::space_type > **mm**
- qi::rule< Iterator, ascii::space_type > **gammaMM**
- qi::rule< Iterator, ascii::space_type > **deltaMM**
- qi::rule< Iterator, ascii::space_type > **infMM**
- qi::rule< Iterator, ascii::space_type > **fracMM**
- qi::rule< Iterator, ascii::space_type > **prcausMM**
- qi::rule< Iterator, ascii::space_type > **EdToMM**
- qi::rule< Iterator, ascii::space_type > **TgToMM**
- qi::rule< Iterator, ascii::space_type > **equalMM**
- qi::rule< Iterator, ascii::space_type > **factorMM**
- qi::rule< Iterator, ascii::space_type > **groupMM**
- qi::rule< Iterator, ascii::space_type > **termMM**
- qi::rule< Iterator, ascii::space_type > **polyMM**
- qi::rule< Iterator, ascii::space_type > **epsMM**
- qi::rule< Iterator, ascii::space_type > **kleeneMM**
- qi::rule< Iterator, ascii::space_type > **identMM**
- qi::rule< Iterator, ascii::space_type > **assignMM**
- qi::rule< Iterator, ascii::space_type > **expressionTg**
- qi::rule< Iterator, ascii::space_type > **tv**
- qi::rule< Iterator, ascii::space_type > **infTg**
- qi::rule< Iterator, ascii::space_type > **lfracTg**
- qi::rule< Iterator, ascii::space_type > **rfracTg**
- qi::rule< Iterator, ascii::space_type > **prcausTg**
- qi::rule< Iterator, ascii::space_type > **rightTg**
- qi::rule< Iterator, ascii::space_type > **leftTg**
- qi::rule< Iterator, ascii::space_type > **gammaTg**
- qi::rule< Iterator, ascii::space_type > **deltaTg**
- qi::rule< Iterator, ascii::space_type > **DeltaTg**
- qi::rule< Iterator, ascii::space_type > **MMToTg**
- qi::rule< Iterator, ascii::space_type > **factorTg**
- qi::rule< Iterator, ascii::space_type > **groupTg**
- qi::rule< Iterator, ascii::space_type > **termTg**
- qi::rule< Iterator, ascii::space_type > **polyTg**
- qi::rule< Iterator, ascii::space_type > **epsTg**
- qi::rule< Iterator, ascii::space_type > **kleeneTg**
- qi::rule< Iterator, ascii::space_type > **identTg**
- qi::rule< Iterator, ascii::space_type > **assignTg**
- qi::rule< Iterator, ascii::space_type > **deltaVarTg**
- qi::rule< Iterator, ascii::space_type > **seqTg**
- qi::rule< Iterator, ascii::space_type > **equalTg**
- qi::rule< Iterator, ascii::space_type > **asDeltaVar**
- qi::rule< Iterator, ascii::space_type > **asCoreTg**

The documentation for this struct was generated from the following file:

- etvo/parsers/calculator.cpp

7.2 parseseriesed::calculator< Iterator > Struct Template Reference

Inheritance diagram for parseseriesed::calculator< Iterator >:



Public Attributes

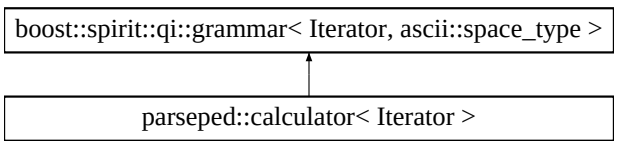
- qi::rule< Iterator, ascii::space_type > **statement**
- qi::rule< Iterator, ascii::space_type > **expression**
- qi::rule< Iterator, ascii::space_type > **factor**
- qi::rule< Iterator, ascii::space_type > **group**
- qi::rule< Iterator, ascii::space_type > **term**
- qi::rule< Iterator, ascii::space_type > **poly**
- qi::rule< Iterator, ascii::space_type > **nabla**
- qi::rule< Iterator, ascii::space_type > **gamma**
- qi::rule< Iterator, ascii::space_type > **delta**
- qi::rule< Iterator, ascii::space_type > **mu**
- qi::rule< Iterator, ascii::space_type > **beta**
- qi::rule< Iterator, ascii::space_type > **kleene**

The documentation for this struct was generated from the following file:

- etvo/parsers/parserSeriesEd.cpp

7.3 parseped::calculator< Iterator > Struct Template Reference

Inheritance diagram for parseped::calculator< Iterator >:



Public Attributes

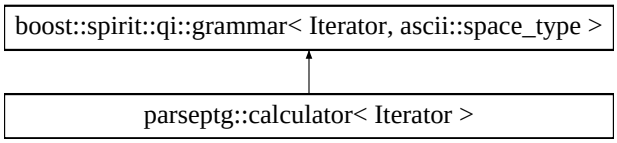
- qi::rule< Iterator, ascii::space_type > **statement**
- qi::rule< Iterator, ascii::space_type > **expression**
- qi::rule< Iterator, ascii::space_type > **factor**
- qi::rule< Iterator, ascii::space_type > **group**
- qi::rule< Iterator, ascii::space_type > **term**
- qi::rule< Iterator, ascii::space_type > **poly**
- qi::rule< Iterator, ascii::space_type > **nabla**
- qi::rule< Iterator, ascii::space_type > **gamma**
- qi::rule< Iterator, ascii::space_type > **delta**
- qi::rule< Iterator, ascii::space_type > **mu**
- qi::rule< Iterator, ascii::space_type > **beta**

The documentation for this struct was generated from the following file:

- etvo/parsers/parser.cpp

7.4 parseptg::calculator< Iterator > Struct Template Reference

Inheritance diagram for parseptg::calculator< Iterator >:



Public Attributes

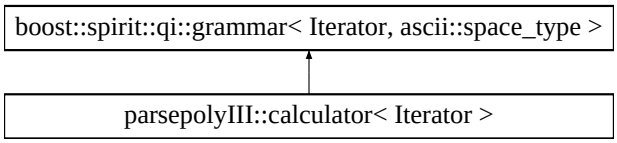
- qi::rule< Iterator, ascii::space_type > **statement**
- qi::rule< Iterator, ascii::space_type > **expression**
- qi::rule< Iterator, ascii::space_type > **factor**
- qi::rule< Iterator, ascii::space_type > **group**
- qi::rule< Iterator, ascii::space_type > **term**
- qi::rule< Iterator, ascii::space_type > **poly**
- qi::rule< Iterator, ascii::space_type > **DELTA**
- qi::rule< Iterator, ascii::space_type > **gamma**
- qi::rule< Iterator, ascii::space_type > **delta**

The documentation for this struct was generated from the following file:

- etvo/parsers/parser.cpp

7.5 parsepolyIII::calculator< Iterator > Struct Template Reference

Inheritance diagram for parsepolyIII::calculator< Iterator >:



Public Attributes

- qi::rule< Iterator, ascii::space_type > **statement**
- qi::rule< Iterator, ascii::space_type > **expression**
- qi::rule< Iterator, ascii::space_type > **factor**
- qi::rule< Iterator, ascii::space_type > **group**
- qi::rule< Iterator, ascii::space_type > **term**
- qi::rule< Iterator, ascii::space_type > **poly**
- qi::rule< Iterator, ascii::space_type > **gamma**
- qi::rule< Iterator, ascii::space_type > **delta**

The documentation for this struct was generated from the following file:

- etvo/parsers/parser.cpp

7.6 PovRay::PovRay2::Color Class Reference

Public Member Functions

- **Color** (float R=1, float G=0, float B=0)
- std::string **ToString** ()

Public Attributes

- float **r**
- float **g**
- float **b**

The documentation for this class was generated from the following file:

- etvo/grafic/PovRay2.h

7.7 etvoll::dDd Class Reference

terms like d^tl TM_m d^tc TB_b d^tr

`#include <dDd.h>`

Public Member Functions

- dDd (int tl, unsigned int tmb, int tc, int tr)
  Create term d^tl TM_tmb d^tc TB_tmb d^tr.
- dDd (int tl, unsigned int tmb, int tr)
  Create term d^tl TM_tmb d^0 TB_tmb d^tr.
- dDd (int tc)
  d^0 M_1 d^tc B_1 d^0 = d^tc
- int getTl () const
  getters tl, tm, tb, br of term d^tl M_m B_b d^tr
- unsigned int **getTmb** () const
- int **getTc** () const
- int **getTr** () const
- int **invariant** () const
- bool operator<= (const dDd &m) const
  comparison of terms (with the same Periodicity)
- bool **operator>=** (const dDd &m) const
- bool **operator==** (const dDd &m) const
- void canon ()
  gives canonical form (depends on the choice made by setCanonForm)
- void canonL ()
  set Left form [-tmb<tr<=0 and tc=0]
- void canonC ()
  set Central
- void canonR ()

set Right form [-tmb<tl<=0 and tc=0]

- int Rw (int ki) const

  value of Release function Rw(ti) = ceil(((tr+ti)/mb)+tc)∗mb+tl

- Fmaxp getRw () const

  returns function Rw

- std::pair< unsigned, unsigned > getPeriodicity () const

  Indicator of how high is the term = (nr+0)/b)∗m+nl as a rational.

- std::string toString (unsigned nVer=0) const

  gain rational(m/b)

Static Public Member Functions

- static void **setCanonForm** (unsigned val=0)

Protected Attributes

- int _tl

  tl, tm, tc, tb,tr

- unsigned int **_tmb**
- int **_tc**
- int **_tr**

Static Protected Attributes

- static unsigned _canon =0

  set canonical form of gNg (default left form)

7.7.1 Detailed Description

terms like d^tl TM_m d^tc TB_b d^tr

7.7.2 Member Function Documentation

7.7.2.1 getPeriodicity()

```
std::pair< unsigned, unsigned > etvoII::dDd::getPeriodicity ( ) const
```

Indicator of how high is the term = (nr+0)/b)∗m+nl as a rational.

Extension of g^nl M_m B_b g^nr -> SUM_i g^(nl+i∗ M_(mul∗m) B_(mul∗_b) g^(mul-1) .... periodicity as a pair <_b,_m>

7.7.3 Member Data Documentation

7.7.3.1 _canon

```
unsigned etvoII::dDd::_canon =0  [static], [protected]
```

set canonical form of gNg (default left form)

set the default form as Central Form

The documentation for this class was generated from the following files:

- etvo/etop/dDd.h
- etvo/etop/dDd.cpp

7.8 etvoII::E_op Class Reference

Public Member Functions

- E_op ()
  E.
- **E_op** (const gNg &term)
- void **add** (const gNg &term)
- void **add** (const E_op &op)
- std::pair< unsigned, unsigned > **getPeriodicity** () const
- std::vector< gNg > **getTerms** () const
- unsigned **getM** () const
- unsigned **getB** () const
- E_op **extendBy** (unsigned mul) const
- void **reduce** ()
- std::string **toString** () const
- std::string **toStringAsMuVar** () const
- int **Fw** (int ki) const
- Fminp **getFw** () const
- void **setFromFw** (const Fminp &)
- E_op **operator+** (const E_op &f) const
- E_op **oplus** (const E_op &f) const
- E_op **inf** (const E_op &f) const
- E_op **operator*** (const E_op &f) const
- E_op **otimes** (const E_op &f) const
- E_op **lfrac** (const E_op &f) const
- E_op **rfrac** (const E_op &f) const
- bool **operator==** (const E_op &w) const
- bool **operator!=** (const E_op &w) const
- bool **operator<=** (const E_op &w) const
- bool **operator>=** (const E_op &w) const
- bool **operator>** (const E_op &w) const
- bool **operator<** (const E_op &w) const

Static Public Member Functions

- static E_op E ()
  neutral E_op
- static E_op **Mu** (unsigned m)
- static E_op **Beta** (unsigned b)
- static E_op **Nabla** (unsigned m, unsigned b)
- static E_op **Nabla** (unsigned mb)
- static E_op **MuVar** (const std::vector< unsigned > &weights)
- static E_op **BetaVar** (const std::vector< unsigned > &weights)
- static E_op **Gamma** (int n)

Protected Attributes

- Fminp **_fper**

The documentation for this class was generated from the following files:

- etvo/etop/E_op.h
- etvo/etop/E_op.cpp

7.9 etvoll::Ed Class Reference

Public Member Functions

- Ed ()
  init as neutral element
- **Ed** (const E_op &w, int d)
- E_op **getE_op** () const
- void **setE_op** (const E_op &)
- int **getD** () const
- void **setD** (int d)
- void **getGain** (unsigned int &mu, unsigned int &beta) const
- Ed **operator*** (const Ed &) const
- Ed **otimes** (const Ed &) const
- polyEd **operator*** (const polyEd &) const
- polyEd **otimes** (const polyEd &) const
- seriesEd **operator*** (const seriesEd &) const
- seriesEd **otimes** (const seriesEd &) const
- polyEd **oplus** (const Ed &m) const
- polyEd **operator+** (const Ed &m) const
- polyEd **oplus** (const polyEd &p) const
- polyEd **operator+** (const polyEd &p) const
- Ed **inf** (const Ed &) const
- Ed **lfrac** (const Ed &) const
- Ed **rfrac** (const Ed &) const
- std::string **toString** () const
- std::string **toStringAsMuVar** () const
- void **canon** ()
- bool **operator==** (const Ed &) const
- bool **operator!=** (const Ed &) const
- bool **operator<=** (const Ed &) const
- bool **operator>=** (const Ed &) const
- void **toPov** (PovRay::PovRay2 &pov, PovRay::PovRay2::Color c, Ed *prec, Ed *next)

Static Public Member Functions

- static Ed g (int n)
- static Ed **m** (unsigned m)
- static Ed **N** (unsigned m, unsigned b)
- static Ed **N** (unsigned mb)
- static Ed **b** (unsigned b)
- static Ed **d** (int d)
- static Ed E ()

  neutral operator

7.9.1 Member Function Documentation

7.9.1.1 g()

```
Ed etvoII::Ed::g (
             int n )  [static]
```

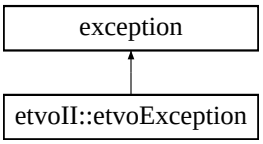
basic opertors as Ed elements : Ed::g(n) Ed::d(t), Ed::m(mul), Ed::b(batch),Ed::N(nabla),Ed::N(mu,be)

The documentation for this class was generated from the following files:

- etvo/seriesEd/Ed.h
- etvo/seriesEd/Ed.cpp

7.10 etvoII::etvoException Class Reference

Inheritance diagram for etvoII::etvoException:



Public Member Functions

- **etvoException** (unsigned num, const std::string &msg)
- unsigned **Num** () const
- std::string **Message** () const

The documentation for this class was generated from the following files:

- etvo/common/etvoException.h
- etvo/common/etvoException.cpp

7.11 etvoII::Factory< T > Class Template Reference

Public Member Functions

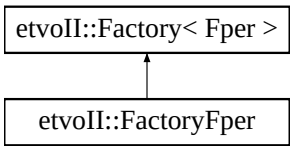
- virtual T **create** () const =0
- virtual std::vector< T > **createN** (unsigned int n) const

The documentation for this class was generated from the following file:

- etvo/factory/factoryT.h

7.12 etvoII::FactoryFper Class Reference

Inheritance diagram for etvoII::FactoryFper:



Public Member Functions

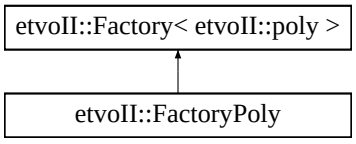
- **FactoryFper** (int d, int cod, int Y0, int rangeY0, bool fixedG=true, bool fixedY0=true)
- virtual Fper **create** () const

The documentation for this class was generated from the following files:

- etvo/factory/FactoryFper.h
- etvo/factory/FactoryFper.cpp

7.13 etvoII::FactoryPoly Class Reference

Inheritance diagram for etvoII::FactoryPoly:



Public Member Functions

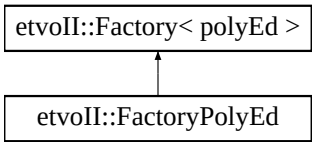
- **FactoryPoly** (unsigned int nbTerms, int gap=5, bool fixedOff=true, const etvoII::gd &off=gd(0, 0), int range=0)
- virtual etvoII::poly **create** () const

The documentation for this class was generated from the following files:

- etvo/factory/FactoryPoly.h
- etvo/factory/FactoryPoly.cpp

7.14 etvoII::FactoryPolyEd Class Reference

Inheritance diagram for etvoII::FactoryPolyEd:



Public Member Functions

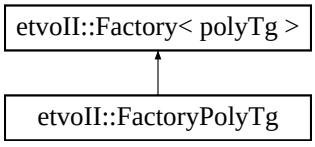
- **FactoryPolyEd** (unsigned int nbTerms, unsigned int M, unsigned int B, int gap=5, bool fixedGain=true, bool fixedOff=true, const etvoII::gd &off=gd(0, 0), int range=0)
- virtual etvoII::polyEd **create** () const

The documentation for this class was generated from the following files:

- etvo/factory/FactoryPolyEd.h
- etvo/factory/FactoryPolyEd.cpp

7.15 etvoII::FactoryPolyTg Class Reference

Inheritance diagram for etvoII::FactoryPolyTg:



Public Member Functions

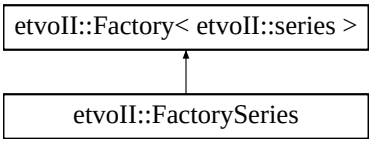
- **FactoryPolyTg** (unsigned int nbTerms, unsigned int MB, int gap=5, bool fixedGain=true, bool fixedOff=true, const etvoII::gd &off=gd(0, 0), int range=0)
- virtual etvoII::polyTg **create** () const

The documentation for this class was generated from the following files:

- etvo/factory/FactoryPolyTg.h
- etvo/factory/FactoryPolyTg.cpp

7.16 etvoII::FactorySeries Class Reference

Inheritance diagram for etvoII::FactorySeries:



Public Member Functions

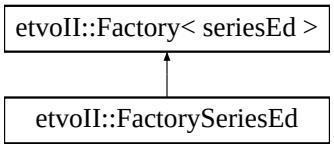
- **FactorySeries** (unsigned int nbTerms, const etvoII::gd &slopeR, bool fixedSlope=true, int gap=5, bool fixed↩ Off=true, const etvoII::gd &off=gd(0, 0), int range=0)
- virtual etvoII::series **create** () const

The documentation for this class was generated from the following files:

- etvo/factory/FactorySeries.h
- etvo/factory/FactorySeries.cpp

7.17 etvoII::FactorySeriesEd Class Reference

Inheritance diagram for etvoII::FactorySeriesEd:



Public Member Functions

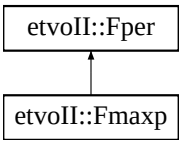
- **FactorySeriesEd** (unsigned int nbTerms, unsigned int M, unsigned int B, const etvoII::gd &slopeR, bool fixedSlope=true, bool fixedGain=true, bool fixedOff=true, const etvoII::gd &off=gd(0, 0), int range=0)
- virtual etvoII::seriesEd **create** () const

The documentation for this class was generated from the following files:

- etvo/factory/FactorySeriesEd.h
- etvo/factory/FactorySeriesEd.cpp

7.18 etvoII::Fmaxp Class Reference

Inheritance diagram for etvoII::Fmaxp:



Public Member Functions

- **Fmaxp** (int dP, int codP, const std::vector< int > &seq)
- **Fmaxp** (const Fper &)
- Fmaxp **min** (const Fmaxp &) const
- Fmaxp **max** (const Fmaxp &) const
- Fmaxp **operator+** (const Fmaxp &f) const
- Fmaxp **operator*** (const Fmaxp &f) const
- bool **operator==** (const Fmaxp &) const
- bool **operator!=** (const Fmaxp &) const
- bool **operator<=** (const Fmaxp &) const
- bool **operator>=** (const Fmaxp &) const
- bool **operator<** (const Fmaxp &) const
- bool **operator>** (const Fmaxp &) const
- Fmaxp **inf** (const Fmaxp &f) const
- Fmaxp lfrac (const Fmaxp &a) const
- Fmaxp rfrac (const Fmaxp &a) const
- virtual std::string toString () const

Static Public Member Functions

- static Fmaxp **E** ()

Additional Inherited Members

7.18.1 Member Function Documentation

7.18.1.1 lfrac()

```
Fmaxp etvoII::Fmaxp::lfrac (
            const Fmaxp & a ) const
```

a= Max {x | a(x)<= b} forall t, x(t)=max{ tmax | f(tmax)<=g(t)} returns a(b=∗this)

result periodicity

INIT

7.18.1.2 rfrac()

```
Fmaxp etvoII::Fmaxp::rfrac (
            const Fmaxp & a ) const
```

in construction ... returns b/a (b=∗this)

result periodicity

find the least tinit s.t. a(tinit)>=resDom

a(tinit)>=resDom

Fill the begining if not complete

7.18.1.3 toString()

```
std::string etvoII::Fmaxp::toString ( ) const  [virtual]
```

Returns a string description of a pseudo-periodic function Ex: "[-7 -7 -3 -3](4,5)" for a (4,5) pseudo-periodic function f(0)=-7,f(1)=-7,f(2)=-3 ...

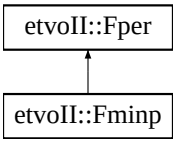
Reimplemented from etvoII::Fper.

The documentation for this class was generated from the following files:

- etvo/Fper/Fmaxp.h
- etvo/Fper/Fmaxp.cpp

7.19 etvoII::Fminp Class Reference

Inheritance diagram for etvoII::Fminp:



Public Member Functions

- **Fminp** (int dP, int codP, const std::vector< int > &seq)
- **Fminp** (const Fper &)
- Fminp **min** (const Fminp &) const
- Fminp **max** (const Fminp &) const
- Fminp **operator+** (const Fminp &f) const
- Fminp **operator*** (const Fminp &f) const
- Fminp **inf** (const Fminp &f) const
- Fminp lfrac (const Fminp &a) const
- Fminp rfrac (const Fminp &a) const
- bool **operator==** (const Fminp &f) const
- bool **operator!=** (const Fminp &f) const
- bool **operator<=** (const Fminp &f) const
- bool **operator>=** (const Fminp &f) const
- bool **operator<** (const Fminp &f) const
- bool **operator>** (const Fminp &f) const
- virtual std::string toString () const

Static Public Member Functions

- static Fminp **E** ()

Additional Inherited Members

7.19.1 Member Function Documentation

7.19.1.1 lfrac()

```
Fminp etvoII::Fminp::lfrac (
            const Fminp & a ) const
```

a= Min {x | a(x)>= b} forall k, x(k)=min{ kmin | f(kmin)>=g(k)}

returns a(b=*this)

result periodicity

INIT find min kmin | a(kmin)>=b(0)

7.19.1.2 rfrac()

```
Fminp etvoII::Fminp::rfrac (
            const Fminp & a ) const
```

returns b/a (b=*this)

result periodicity

a(0)<=0

7.19.1.3 toString()

```
std::string etvoII::Fminp::toString ( ) const  [virtual]
```

Returns a string description of a pseudo-periodic function Ex: "[-7 -7 -3 -3](4,5)" for a (4,5) pseudo-periodic function f(0)=-7,f(1)=-7,f(2)=-3 ...

Reimplemented from etvoII::Fper.

The documentation for this class was generated from the following files:

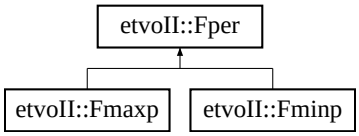
- etvo/Fper/Fminp.h
- etvo/Fper/Fminp.cpp

7.20 etvoII::Fper Class Reference

Base class for pseudo - periodic functions Z->Z where f(x + dP) = codP + f(x)

```
#include <Fper.h>
```

Inheritance diagram for etvoII::Fper:



Public Member Functions

- Fper ()
  Default constructor : set as Id function Z->Z,x->x.
- Fper (int dP, int codP, const std::vector< int > &seq)
  Constructor : full definition.
- void setSeq (const std::vector< int > &seq)
  Set values of f(0),f(1), ... over one period.
- void setPeriodicity (int dP, int codP)
  Set dP/codP.
- int getValue (int arg) const
  Value of f(x)
- int operator() (int arg) const
  Value of f(x)
- bool **operator==** (const Fper &f) const
- bool **operator!=** (const Fper &f) const
- bool **operator<=** (const Fper &f) const
- bool **operator>=** (const Fper &f) const
- std::pair< int, int > getPeriodicity () const
  returns the pair (dP,codP)
- int getDomPer () const
- int getCodomPer () const

- Fper extendBy (unsigned mul) const

  Produces a non-canonical extension of a (dP,codP) pseudo-periodic function The result is the equivalent (mulxdP,mulxcodP) pseudo-periodc function.
- Fper composeWith (const Fper &f) const

  Computes the composition of ∗this with f.
- void reduce ()

  Reduces a non-canonical pseudo-periodic function to the canonical form which has the least period (dP,codP)
- double getyMax0 () const
- double getyMin0 () const
- virtual std::string toString () const

Static Public Member Functions

- static void setAutoReduction (bool on)

  Class method (called by Fper::setAutoReductionState(b)) to set the autoreduction state (ON/OFF)
- static bool getAutoReductionState ()

  Class method (called by Fper::getAutoReductionState()) to obtain the autoreduction state (ON/OFF)

Protected Member Functions

- bool **reduceBy** (unsigned div)
- void **updateYMinMax** ()
- bool **isNodecreasing** (const std::vector< int > &v)

Protected Attributes

- int _domP

  domain period
- int _codomP

  codomain period
- std::vector< int > _seq

  periodic sequence
- double **_yMax0**
- double **_yMin0**

Static Protected Attributes

- static bool _autoreduction =true

  class variable to set ON/OFF the autoreduction

7.20.1 Detailed Description

Base class for pseudo - periodic functions Z->Z where f(x + dP) = codP + f(x)

Author

BC LARIS

Version

2.0

7.20.2 Constructor & Destructor Documentation

7.20.2.1 Fper()

```
etvoII::Fper::Fper (
            int dP,
            int codP,
            const std::vector< int > & seq )
```

Constructor : full definition.

Parameters

dP	domain period
codP	codomain period
seq	: values of f(0),f(1), ... over one period

7.20.3 Member Function Documentation

7.20.3.1 composeWith()

```
Fper etvoII::Fper::composeWith (
            const Fper & f ) const
```

Computes the composition of ∗this with f.

Parameters

f	an Fper object

Returns

an Fper object

7.20.3.2 getCodomPer()

```
int etvoII::Fper::getCodomPer ( ) const
```

returns the codomain period codP

7.20.3.3 getDomPer()

```
int etvoII::Fper::getDomPer ( ) const
```

returns the domain period dP

7.20.3.4 getValue()

```
int etvoII::Fper::getValue (
            int arg ) const
```

Value of f(x)

Parameters

arg	x

Returns

f(x)

7.20.3.5 getyMax0()

```
double etvoII::Fper::getyMax0 ( ) const
```

gives the maximum of f(x) projected on y axis [x=0] parallel to (dP,codP) line This value is important for improving max,min computation between functions

7.20.3.6 getyMin0()

```
double etvoII::Fper::getyMin0 ( ) const
```

gives the minimum of f(x) projected on y axis [x=0] parallel to (dP,codP) line This value is important for improving max,min computation between functions

7.20.3.7 operator()()

```
int etvoII::Fper::operator() (
            int arg ) const
```

Value of f(x)

Parameters

arg	x

Returns

f(x)

7.20.3.8 setPeriodicity()

```
void etvoII::Fper::setPeriodicity (
            int dP,
            int codP )
```

Set dP/codP.

Parameters

dP	domain period
codP	codomain period

7.20.3.9 setSeq()

```
void etvoII::Fper::setSeq (
            const std::vector< int > & seq )
```

Set values of f(0),f(1), ... over one period.

Parameters

seq	: values of f(0),f(1),

7.20.3.10 toString()

```
std::string etvoII::Fper::toString ( ) const  [virtual]
```

Returns a string description of a pseudo-periodic function Ex: "[-7 -7 -3 -3](4,5)" for a (4,5) pseudo-periodic function f(0)=-7,f(1)=-7,f(2)=-3 ...

Reimplemented in etvoII::Fmaxp, and etvoII::Fminp.

7.20.4 Member Data Documentation

7.20.4.1 _autoreduction

```
bool etvoII::Fper::_autoreduction =true  [static], [protected]
```

class variable to set ON/OFF the autoreduction

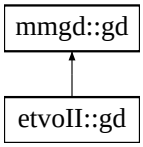
autoreduction mode default = ON

The documentation for this class was generated from the following files:

- etvo/Fper/Fper.h
- etvo/Fper/Fper.cpp

7.21 mmgd::gd Class Reference

Inheritance diagram for mmgd::gd:



Public Member Functions

- **gd** (const gd &)
- **gd** (long, long)
- gd & **operator=** (const gd &)
- int **operator!=** (const gd &)
- int **operator==** (const gd &)
- int **operator>=** (const gd &)
- int **operator<=** (const gd &)
- bool **operator<** (const gd &) const
- gd & **init** (long, long)
- gd & **operator()** (long, long)
- long **getg** (void)
- long **getd** (void)

Static Public Attributes

- static gd **Top**
- static gd **epsilon**
- static gd **e**

Protected Member Functions

- void **affecte** (long, long)

Protected Attributes

- long **g**
- long **d**

Friends

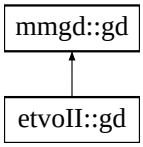
- std::ostream & **operator**<< (std::ostream &, gd &)
- std::fstream & **operator**<< (std::fstream &, gd &)
- gd **inf** (const gd &gd1, const gd &gd2)
- gd **otimes** (const gd &gd1, const gd &gd2)
- gd **frac** (const gd &gd1, const gd &gd2)
- gd **Dualfrac** (const gd &gd1, const gd &gd2)
- gd **odot** (const gd &gd1, const gd &gd2)
- gd **fracodotsharp** (const gd &gd1, const gd &gd2)
- gd **fracodotflat** (const gd &gd1, const gd &gd2)

The documentation for this class was generated from the following files:

- etvo/minmaxgd/gd.h
- etvo/minmaxgd/gd.cpp

7.22 etvoII::gd Class Reference

Inheritance diagram for etvoII::gd:



Public Member Functions

- **gd** (long g, long d)
- **gd** (const gd &m)
- **gd** (const mmgd::gd &m)
- gd & **operator=** (const gd &m)
- gd **operator**∗ (const gd &m) const
- long **getg** () const
- long **getd** () const
- bool **isE** () const
- bool **operator!=** (const gd &m) const
- bool **operator==** (const gd &) const
- bool **operator**>**=** (const gd &) const
- bool **operator**<**=** (const gd &) const
- poly **operator+** (const gd &m) const
- poly **operator+** (const poly &p) const
- gd **inf** (const gd &m) const
- gd **frac** (const gd &m) const
- std::string **ToString** () const

Static Public Member Functions

- static gd **E** ()

Additional Inherited Members

The documentation for this class was generated from the following files:

- etvo/wrapperMMGD/gdWrapper.h
- etvo/wrapperMMGD/gdWrapper.cpp

7.23 global Class Reference

Static Public Attributes

- static int **LIMIT_TRANS_DELTA** = 8000
- static unsigned **NB_ITER** = 20
- static unsigned short **TST_IS** = 1
- static unsigned short **TST_XIS** =2
- static unsigned short **TST_RESIDUEQ** =4
- static unsigned short **TST_RESIDUINEQ** =8
- static unsigned short **TST_ALL** =15

The documentation for this class was generated from the following files:

- etvo/common/global.h
- etvo/common/global.cpp

7.24 etvoll::gNg Class Reference

terms like g^nl M_m g^nc B_b g^nr

```
#include <gNg.h>
```

Public Member Functions

- gNg (int nl, unsigned int m, int nc, unsigned int b, int nr)
  Create term g^nl M_m g^nc B_b g^nr.
- gNg (int nl, unsigned int m, unsigned int b, int nr)
  Create term g^nl M_m g^0 B_b g^nr.
- gNg (int nl, unsigned int mb, int nr)
  Create term g^nl M_mb g^0 B_mb g^nr.
- gNg (int nc)
  g^0 M_1 g^nc B_1 g^0 = g^nc
- int getNl () const
  getters nl, m, b, br of term g^nl M_m B_b g^nr
- unsigned int **getM** () const
- int **getNc** () const
- unsigned int **getB** () const
- int **getNr** () const
- bool operator<= (const gNg &m) const
  comparison of terms (with the same Periodicity)
- bool **operator>=** (const gNg &m) const
- bool **operator==** (const gNg &m) const
- void canon ()
  gives canonical form (depends on setCanonForm choice)
- void canonL ()
  set Left form [0<=nr<=b-1 and nc=0]
- void canonC ()
  set Central [0<=nl<=m-1 and 0<=nr<=b-1]
- void canonR ()
  set Right form [0<=nl<=m-1 and nc=0]
- int Fw (int ki) const
  value of C/C function Fw(ki) = floor(((nr+ki)/b)+nc)∗m+nl
- Fminp getFw () const
  returns function Fw
- E_op extendBy (unsigned mul) const
  Extension of g^nl M_m B_b g^nr -> SUM_i g^(nl+i∗ M_(mul∗m) B_(mul∗_b) g^(mul-1) ....
- std::pair< unsigned, unsigned > getPeriodicity () const
  periodicity as a pair <_b,_m>
- std::string toString (unsigned nVer=0) const
  gain rational(m/b)

Static Public Member Functions

- static void **setCanonForm** (unsigned val=0)

Protected Attributes

- int _nl
  nl,m,b,nr
- unsigned int **_m**
- int **_nc**
- unsigned int **_b**
- int **_nr**

Static Protected Attributes

- static unsigned _canon =0

  set canonical form of gNg (default left form)

7.24.1 Detailed Description

terms like g^nl M_m g^nc B_b g^nr

7.24.2 Member Data Documentation

7.24.2.1 _canon

```
unsigned etvoII::gNg::_canon =0  [static], [protected]
```

set canonical form of gNg (default left form)

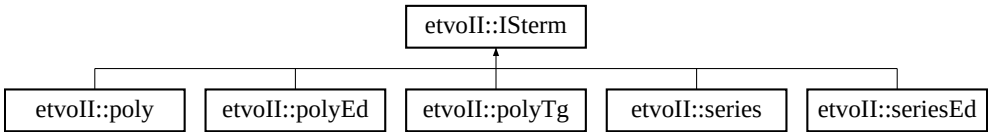
set the default form as Central Form

The documentation for this class was generated from the following files:

- etvo/etop/gNg.h
- etvo/etop/gNg.cpp

7.25 etvoII::ISterm Class Reference

Inheritance diagram for etvoII::ISterm:



Public Member Functions

- **ISterm** (bool isEps=false)
- **ISterm** (int epsNTop)
- bool **isEpsilon** () const
- bool **isTop** () const
- bool **isExtreme** () const
- void **setEpsilon** ()
- void **setTop** ()
- bool **operator==** (const ISterm &) const

Protected Attributes

- char **_epsNTop**

The documentation for this class was generated from the following files:

- etvo/common/ISterm.h
- etvo/common/ISterm.cpp

7.26 etvoll::matrix< T > Class Template Reference

Public Member Functions

- **operator T** ()
- **matrix** (unsigned li=1, unsigned co=1)
- T & **operator()** (unsigned li, unsigned co)
- T **operator()** (unsigned li, unsigned co) const
- matrix< T > **operator+** (const matrix< T > &mat) const
- matrix< T > **operator*** (const matrix< T > &mat) const
- matrix< T > **lfrac** (const matrix< T > &mat) const
- matrix< T > **rfrac** (const matrix< T > &mat) const
- matrix< T > **inf** (const matrix< T > &mat) const
- matrix< T > **star** () const
- unsigned int **GetRow** () const
- unsigned int **GetColumn** () const
- bool **operator==** (const matrix< T > &m) const

The documentation for this class was generated from the following file:

- etvo/wrapperMMGD/matrixWrapper.h

7.27 mmgd::mem_limite Class Reference

Public Member Functions

- **mem_limite** (int i)

Public Attributes

- int **memoire**

The documentation for this class was generated from the following file:

- etvo/minmaxgd/gd.h

7.28 etvoII::parser Class Reference

Static Public Member Functions

- static polyEd **parsePolyEd** (const std::string &s)
- static seriesEd **parseSeriesEd** (const std::string &s)
- static polyTg **parsePolyTg** (const std::string &s)
- static poly **parsePoly** (const std::string &str)
- static void **runCalculatorEtvo** ()

The documentation for this class was generated from the following files:

- etvo/parsers/parser.h
- etvo/parsers/calculator.cpp
- etvo/parsers/parser.cpp
- etvo/parsers/parserSeriesEd.cpp

7.29 PovRay::PovRay2::Point Class Reference

Public Member Functions

- **Point** (float X=0, float Y=0, float Z=0)
- std::string **ToString** ()

Public Attributes

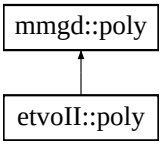
- float **x**
- float **y**
- float **z**

The documentation for this class was generated from the following file:

- etvo/grafic/PovRay2.h

7.30 mmgd::poly Class Reference

Inheritance diagram for mmgd::poly:



Public Member Functions

- **poly** (const poly &)
- **poly** (const gd &)
- **poly** (long g, long d)
- **poly** (unsigned int, gd ∗)
- poly & **operator=** (const poly &)
- poly & **operator()** (long g, long d)
- void **init** (unsigned int, gd ∗, int)
- poly & **operator=** (const gd &gd1)
- poly & **init** (long g, long d)
- void **affecte** (unsigned int, const gd ∗, unsigned int propre)
- gd & **getpol** (int i) const
- unsigned int **getn** () const
- void **setsimple** ()
- gd ∗ **getdata** ()
- void **popj** (unsigned int j)
- void **pop** ()
- void **add** (const gd &m1)
- void **simpli** ()
- void **onlysimpli** ()
- void **swapgd** (gd &a, gd &b)
- int **partitionner** (gd ∗tab, int debut, int dernier, int pivot, int comp(const void ∗, const void ∗))
- int **operator==** (const poly &)

Static Public Attributes

- static int **forcage** =0

Friends

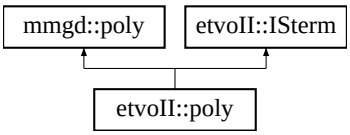
- int **compgd** (const void ∗p1, const void ∗p2)
- void **qsort_gd** (gd ∗adtab, int premier, int dernier, int comp(const void ∗, const void ∗))
- poly **oplus** (poly &, poly &)
- poly **oplus** (gd &, gd &)
- poly **oplus** (poly &, gd &)
- poly **oplus** (gd &, poly &)
- poly **oplus** (poly &, poly &, poly &)
- poly **oplus** (poly &, poly &, poly &, poly &)
- poly **otimes** (poly &poly1, poly &poly2)
- poly **otimes** (poly &poly1, gd &gd2)
- poly **otimes** (gd &gd1, poly &poly2)
- poly **inf** (poly &poly1, poly &poly2)
- poly **inf** (poly &poly1, gd &gd2)
- poly **inf** (gd &gd1, poly &poly2)
- poly **frac** (poly &poly1, gd &gd2)
- poly **frac** (poly &poly1, poly &poly2)
- poly **frac** (gd &gd1, poly &poly2)
- poly **prcaus** (poly &)
- std::ostream & **operator**<< (std::ostream &, poly &)
- std::fstream & **operator**<< (std::fstream &, poly &)
- poly **odot** (const poly &poly1, const poly &poly2)
- poly **fracodotsharp** (poly &poly1, poly &poly2)
- poly **fracodotflat** (poly &poly1, poly &poly2)

The documentation for this class was generated from the following files:

- etvo/minmaxgd/poly.h
- etvo/minmaxgd/poly.cpp

7.31 etvoII::poly Class Reference

Inheritance diagram for etvoII::poly:



Public Member Functions

- bool **isEpsilon** () const
- **poly** (bool TopNotE)
- **poly** (const poly &)
- **poly** (const gd &)
- **poly** (const mmgd::poly &p)
- **poly** (long g, long d)
- **poly** (const std::vector< mmgd::gd > &v)
- poly (const std::vector< gd > &v)
- void **add** (const gd &m)
- gd **operator[ ]** (unsigned i) const
- poly & **operator=** (const poly &p)
- poly & **operator=** (const gd &m)
- bool **operator==** (const poly &p) const
- bool **operator<=** (const poly &p) const
- bool **operator>=** (const poly &p) const
- poly **operator+** (const poly &p) const
- poly **operator+** (const gd &m) const
- poly **operator*** (const poly &p) const
- poly **operator*** (const gd &m) const
- poly **inf** (const poly &p) const
- poly **inf** (const gd &m) const
- poly **lfrac** (const poly &p) const
- poly **rfrac** (const poly &p) const
- poly **frac** (const poly &p) const
- poly **frac** (const gd &m) const
- series **star** () const
- poly **prcaus** () const
- std::string **ToString** () const

Static Public Member Functions

- static poly **Epsilon** ()
- static poly **E** ()
- static poly **Top** ()

Additional Inherited Members

7.31.1 Constructor & Destructor Documentation

7.31.1.1 poly()

```
etvoII::poly::poly (
            const std::vector< gd > & v )
```

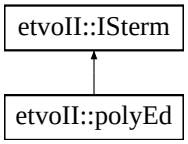
create a poly with the previous constr.

The documentation for this class was generated from the following files:

- etvo/wrapperMMGD/polyWrapper.h
- etvo/wrapperMMGD/polyWrapper.cpp

7.32 etvoII::polyEd Class Reference

Inheritance diagram for etvoII::polyEd:



Public Member Functions

- **polyEd** (bool TopNotE)
- **polyEd** (const Ed &m)
- **polyEd** (const std::vector< Ed > &)
- poly **toPoly** () const
- polyEd **operator+** (const polyEd &p) const
- polyEd **oplus** (const polyEd &p) const
- polyEd **oplusCD** (const polyEd &p) const
- polyEd **operator+** (const Ed &m) const
- void **add** (const Ed &m)
- polyEd **operator*** (const polyEd &p) const
- polyEd **operator*** (const Ed &m) const
- polyEd **otimes** (const polyEd &p) const
- polyEd **otimesCD** (const polyEd &p) const
- polyEd **inf** (const polyEd &) const
- polyEd **infCD** (const polyEd &) const
- seriesEd **star** () const
- polyEd **lfrac** (const polyEd &) const
- polyEd **lfracCD** (const polyEd &) const
- polyEd **lfrac** (const Ed &m) const
- polyEd **rfrac** (const polyEd &) const
- polyEd **rfracCD** (const polyEd &) const
- polyEd **rfrac** (const Ed &m) const
- bool **operator==** (const polyEd &) const
- bool **operator!=** (const polyEd &) const
- bool **operator<=** (const polyEd &) const
- bool **operator>=** (const polyEd &) const
- Ed **getFirstDif** (const polyEd &p) const

- polyEd **transientStar** (int Tmax) const
- bool **isCanon** () const
- void **canon** ()
- void **getMaxGain** (unsigned int &mu, unsigned int &beta) const
- void **getLcmGain** (unsigned int &mu, unsigned int &beta) const
- std::pair< unsigned int, unsigned int > **getPeriodicity** () const
- std::vector< Ed > **getTerms** () const
- void **removeTerm** (unsigned idx)
- Ed **operator[ ]** (unsigned idx) const
- unsigned int **size** () const
- std::string **toString** () const
- std::string **toStringAsMuVar** () const
- bool **isE** () const
- matrix< poly > **getCore** (unsigned ratio=1) const
- matrix< poly > **getCoreMax** (unsigned ratio=1) const
- void **toPov** (PovRay::PovRay2 &pov, PovRay::PovRay2::Color c)

Static Public Member Functions

- static polyEd Epsilon ()

  Epsilon, E and Top elements.
- static polyEd **Top** ()
- static polyEd **E** ()
- static polyEd **toPolyEd** (const poly &p)
- static polyEd **toCausal** (const polyEd &p)
- static polyEd **otimes** (const Ed &m, const polyEd &p)
- static polyEd **coreToPolyEd** (const matrix< poly > &core)
- static etvoII::matrix< poly > **getMatN** (unsigned size)

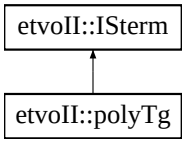
Additional Inherited Members

The documentation for this class was generated from the following files:

- etvo/seriesEd/polyEd.h
- etvo/seriesEd/polyEd.cpp

7.33 etvoII::polyTg Class Reference

Inheritance diagram for etvoII::polyTg:



Public Member Functions

- **polyTg** (const Tg &m)
- **polyTg** (bool TopNotE)
- **polyTg** (const std::vector< Tg > &v)
- poly **toPoly** () const
- polyTg **operator+** (const polyTg &p) const
- polyTg **oplus** (const polyTg &p) const
- polyTg **oplusCD** (const polyTg &p) const
- polyTg **operator+** (const Tg &m) const
- void **add** (const Tg &m)
- polyTg **operator*** (const polyTg &p) const
- polyTg **operator*** (const Tg &m) const
- polyTg **otimes** (const polyTg &p) const
- polyTg **otimesCD** (const polyTg &p) const
- polyTg **inf** (const polyTg &p) const
- polyTg **infCD** (const polyTg &p) const
- polyTg **lfrac** (const polyTg &p) const
- polyTg **lfracCD** (const polyTg &p) const
- polyTg **lfrac** (const Tg &m) const
- polyTg **rfrac** (const polyTg &p) const
- polyTg **rfracCD** (const polyTg &p) const
- polyTg **rfrac** (const Tg &m) const
- bool **operator==** (const polyTg &) const
- bool **operator!=** (const polyTg &) const
- bool **operator<=** (const polyTg &) const
- bool **operator>=** (const polyTg &) const
- polyTg **transientStar** (int Tmax) const
- Tg **getFirstDif** (const polyTg &p) const
- void **canon** ()
- bool **isCanon** () const
- Tg **operator[ ]** (unsigned idx) const
- unsigned int **size** () const
- std::string **toString** () const
- std::string **toStringAsDeltaVar** () const
- bool **isE** () const
- void **getMaxGain** (unsigned int &mb) const
- void **getLcmGain** (unsigned int &mb) const
- unsigned int **getMaxGain** () const
- unsigned int **getLcmGain** () const
- unsigned **getPeriodicity** () const
- std::vector< Tg > **getTerms** () const
- void **removeTerm** (unsigned idx)
- matrix< poly > **getCore** (unsigned ratio=1) const
- matrix< poly > **getCoreMax** (unsigned ratio=1) const

Static Public Member Functions

- static polyTg Epsilon ()

  Epsilon, E and Top elements.
- static polyTg **Top** ()
- static polyTg **E** ()
- static polyTg **toPolyTg** (const poly &p)
- static polyTg **otimes** (const Tg &m, const polyTg &p)
- static etvoII::matrix< poly > **getMatN** (unsigned size)
- static polyTg **coreToPolyTg** (const matrix< poly > &core)

Additional Inherited Members

The documentation for this class was generated from the following files:

- etvo/seriesTg/polyTg.h
- etvo/seriesTg/polyTg.cpp

7.34 PovRay::PovRay2 Class Reference

Classes

- class Color
- class Point

Public Member Functions

- **PovRay2** (const std::string &str)
- void **Repere** ()
- void **FichierPov_Debut** ()
- void **FichierPov_Fin** ()
- void **SaveToFile** ()
- void **Box** (Point pA, Point pB, Color c)
- void **Sphere** (Point centre, float rayon, Color c)
- void **Cylindre** (Point pA, Point pB, float rayon, Color c)
- void **FaceXY** (Point pA, Point pB)
- void **FaceZ** (Point pA, Point pB)

Public Attributes

- Point **PositionCamera**
- Point **CameraLookAt**
- Color **CSurface**
- int **xmin**
- int **ymax**
- int **zmin**
- int **xmax**
- int **zmax**
- int **ymin**
- std::string **nomFichierDfx**
- std::strstream **ss**

The documentation for this class was generated from the following files:

- etvo/grafic/PovRay2.h
- etvo/grafic/PovRay2.cpp

7.35 etvoll::randGen Class Reference

Static Public Member Functions

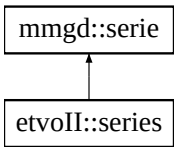
- static int **uni_int** (int mini, int maxi)
- static int **norm_int** (int mini, int maxi)
- static etvoll::poly **Rand_poly** (unsigned nbTerms, const etvoll::gd &offset, int maxGap=5)
- static etvoll::poly **Rand_poly** (unsigned nbTerms)
- static etvoll::series **Rand_series** (unsigned nTerms, const etvoll::gd &slopeR=gd(5, 6), const etvoll::gd &offset=etvoll::gd(0, 0), int maxGap=5)
- static etvoll::gNg **Rand_gNg** ()
- static etvoll::dDd **Rand_dDd** ()
- static etvoll::Fper **Rand_Fper_fixedPer** (int rangeY0, int dP, int codP)
- static etvoll::Fper **Rand_Fper_fixedPer_and_Y0** (int Y0, int dP, int codP)
- static etvoll::Fminp **Rand_Fminp_fixedPer** (int rangeY0, int dP, int codP)
- static etvoll::Fminp **Rand_Fminp_fixedPer_and_Y0** (int Y0, int dP, int codP)
- static etvoll::Fmaxp **Rand_Fmaxp_fixedPer** (int rangeY0, int dP, int codP)
- static etvoll::Fmaxp **Rand_Fmaxp_fixedPer_and_Y0** (int Y0, int dP, int codP)
- static etvoll::E_op **Rand_Eop_fixedG** (unsigned Me, unsigned Be)
- static etvoll::E_op **Rand_Eop_fixedG** (unsigned Me, unsigned Be, int g0)
- static etvoll::E_op **Rand_Eop** (unsigned Me, unsigned Be)
- static etvoll::T_op **Rand_Top_fixedG** (unsigned MBe)
- static etvoll::T_op **Rand_Top_fixedG** (unsigned MBe, int t0)
- static etvoll::T_op **Rand_Top** (unsigned MBe)
- static etvoll::Ed **Rand_Ed** (unsigned Me, unsigned Be)
- static etvoll::Ed **Rand_Ed** (unsigned Me, unsigned Be, int g, int d)
- static etvoll::Ed **Rand_Ed_fixedG** (unsigned Me, unsigned Be)
- static etvoll::Ed **Rand_Ed_fixedG** (unsigned Me, unsigned Be, int g, int d)
- static etvoll::Tg **Rand_Tg** (unsigned MBe)
- static etvoll::Tg **Rand_Tg** (unsigned MBe, int g, int d)
- static etvoll::Tg **Rand_Tg_fixedG** (unsigned MBe)
- static etvoll::Tg **Rand_Tg_fixedG** (unsigned MBe, int g, int d)
- static etvoll::polyEd **Rand_polyEd_fixedG** (unsigned Me, unsigned Be, unsigned nbTerms, int maxGap=5)
- static etvoll::polyEd **Rand_polyEd_fixedG** (const etvoll::gd &offset, unsigned Me, unsigned Be, unsigned nbTerms, int maxGap=5)
- static etvoll::polyEd **Rand_polyEd** (unsigned M, unsigned B, unsigned nbTerms, int maxGap=5)
- static etvoll::seriesEd **Rand_seriesEd_fixedG** (unsigned Me, unsigned Be, unsigned nbTerms, const etvoll::gd &off=etvoll::gd(0, 0))
- static etvoll::seriesEd **Rand_seriesEd_fixedG_fixedSlope** (unsigned Me, unsigned Be, const etvoll::gd &rSlope, unsigned nbTerms, const etvoll::gd &off=etvoll::gd(0, 0))
- static etvoll::seriesEd **Rand_seriesEd** (unsigned Me, unsigned Be, unsigned nbTerms, const etvoll::gd &off=etvoll::gd(0, 0))
- static etvoll::polyTg **Rand_polyTg_fixedG** (unsigned MBe, unsigned nbTerms, int maxGap=5)
- static etvoll::polyTg **Rand_polyTg** (unsigned MB, unsigned nbTerms, int maxGap=5)
- static etvoll::polyTg **Rand_polyTg_fixedG** (const etvoll::gd &offset, unsigned MB, unsigned nbTerms, int maxGap=5)

The documentation for this class was generated from the following files:

- etvo/factory/randGen.h
- etvo/factory/randGen.cpp

7.36 mmgd::serie Class Reference

Inheritance diagram for mmgd::serie:



Public Member Functions

- **serie** (const serie &)
- **serie** (const poly &p1, const poly &q1, gd &r1)
- **serie** (poly &p)
- **serie** (gd &gd1)
- **serie** (unsigned int np1, unsigned int nq1, gd *p1, gd *q1, gd &r1)
- poly & **getp** (void)
- poly & **getq** (void)
- gd & **getr** (void)
- serie & **operator=** (const serie &serie1)
- serie & **operator=** (const gd &gd1)
- serie & **operator=** (const poly &p1)
- void **init** (poly &p1, poly &q1, gd &r1)
- void **init** (unsigned int, unsigned int, gd *, gd *, gd &)
- void **init** (gd &pgd1, gd &qgd1, gd &r1)
- void **init** (poly &p1, gd &qgd1, gd &r1)
- void **init** (gd &pgd1, poly &q1, gd &r1)
- void **canon** ()
- int **operator==** (serie &)

Static Public Attributes

- static serie **eps**

Friends

- std::ostream & **operator**<< (std::ostream &flot, serie &serie1)
- std::fstream & **operator**<< (std::fstream &flot, serie &serie1)
- serie **oplus** (serie &, serie &)
- serie **oplus** (poly &, serie &)
- serie **oplus** (serie &, poly &)
- serie **oplus** (gd &, serie &)
- serie **oplus** (serie &, gd &)
- serie **otimes** (serie &, serie &)
- serie **otimes** (poly &pol1, serie &s2)
- serie **otimes** (serie &s2, poly &pol1)
- serie **otimes** (gd &gd1, serie &s2)
- serie **otimes** (serie &s2, gd &gd1)
- serie **star** (poly poly1)
- serie **star** (gd &r1)

- serie **star** (serie &s1)
- serie **inf** (serie &s1, serie &s2)
- serie inf (serie &s1, poly &p2)
- serie **inf** (poly &p1, serie &s2)
- serie **inf** (gd &, serie &)
- serie **inf** (serie &, gd &)
- serie **frac** (serie &s1, serie &s2)
- serie **frac** (serie &s1, gd &gd2)
- serie **frac** (serie &s1, poly &poly1)
- serie **odot** (serie &, serie &)
- serie **odot** (serie &s1, poly &p2)
- serie **odot** (poly &p1, serie &s2)
- serie **fracodotsharp** (serie &, serie &)
- serie **fracodotflat** (serie &, serie &)
- serie **Dualfrac** (serie &s1, gd &gd2)
- serie **prcaus** (serie &)

7.36.1 Friends And Related Function Documentation

7.36.1.1 inf

```
serie inf (
              serie & s1,
              poly & p2 )  [friend]
```

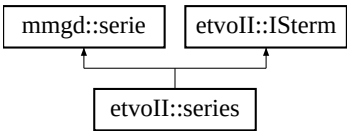
inf d'une sie et d'un polyne

The documentation for this class was generated from the following files:

- etvo/minmaxgd/serie.h
- etvo/minmaxgd/serie.cpp

7.37 etvoII::series Class Reference

Inheritance diagram for etvoII::series:



Public Member Functions

- bool **isPoly** () const
- bool **isDegenerate** () const
- **series** (const poly &p, const poly &q, const gd &r)
- **series** (const mmgd::serie &s)
- **series** (const gd &)
- **series** (const poly &)
- **series** (const series &)
- bool **operator==** (const series &s) const
- bool **operator<=** (const series &s) const
- bool **operator>=** (const series &s) const
- series **operator+** (const series &s) const
- series **operator*** (const series &s) const
- series **inf** (const series &s) const
- series **star** () const
- series **lfrac** (const series &s) const
- series **rfrac** (const series &s) const
- series **frac** (const series &s) const
- series **frac** (const gd &m) const
- series **frac** (const poly &p) const
- series **prcaus** () const
- std::string **ToString** () const

Static Public Member Functions

- static series **Epsilon** ()
- static series **E** ()
- static series **Top** ()

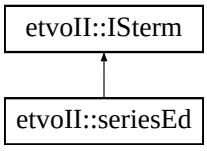
Additional Inherited Members

The documentation for this class was generated from the following files:

- etvo/wrapperMMGD/seriesWrapper.h
- etvo/wrapperMMGD/seriesWrapper.cpp

7.38 etvoII::seriesEd Class Reference

Inheritance diagram for etvoII::seriesEd:



Public Member Functions

- seriesEd ()

  epsilon seriesEd
- seriesEd (bool TopNotE)

  Top (true) OR E(false) seriesEd.
- seriesEd (const polyEd &p, const polyEd &q, long gR, long d, bool right=1)

  seriesEd from periodic p,q,r (right/left) form
- **seriesEd** (const polyEd &p, const polyEd &q, const gd &r, bool right=1)
- seriesEd (const polyEd &q)

  seriesEd from polyEd
- seriesEd (const Ed &m)

  seriesEd from Ed term
- bool isRightForm () const

  check if in Right/Left form
- bool **isLeftForm** () const
- bool isPolynomial () const

  check if it is only a polynomial
- bool isProper () const

  check if it is in proper form
- bool isE () const

  check if neutral seriesEd
- void canon ()

  leads to canonical form (simplest proper form)
- void toRight ()

  to Right form
- void toLeft ()

  to Left form
- polyEd getP () const

  getters returning p,q,r
- polyEd **getQ** () const
- gd **getR** () const
- std::vector< series > toImpulseResponse () const

  returns the response to I,g1.I,g2.I ...
- void **getLcmGain** (unsigned int &mu, unsigned int &beta) const
- void **getMaxGain** (unsigned int &mu, unsigned int &beta) const
- std::pair< unsigned int, unsigned int > **getMaxGain** () const
- std::string **toString** () const
- std::string **toStringAsMuVar** () const
- bool **operator==** (const seriesEd &s) const
- bool **operator!=** (const seriesEd &) const
- bool **operator<=** (const seriesEd &) const
- bool **operator>=** (const seriesEd &) const
- seriesEd **oplus** (const seriesEd &s) const
- seriesEd **oplus** (const polyEd &p) const
- seriesEd **otimes** (const seriesEd &s) const
- seriesEd **otimes** (const Ed &m) const
- seriesEd **otimes** (const polyEd &p) const
- seriesEd **operator+** (const seriesEd &s) const
- seriesEd **operator*** (const seriesEd &s) const
- seriesEd **operator*** (const Ed &m) const
- seriesEd **operator*** (const polyEd &p) const

- seriesEd **star** () const
- seriesEd **starAlternate** () const
- seriesEd **starCD** () const
- seriesEd **starPolyBased** () const
- seriesEd **otimesCD** (const seriesEd &s) const
- seriesEd **oplusCD** (const seriesEd &s) const
- seriesEd **infCD** (const seriesEd &s) const
- seriesEd **inf** (const seriesEd &s) const
- seriesEd **lfracCD** (const seriesEd &s) const
- seriesEd **rfracCD** (const seriesEd &s) const
- seriesEd **lfrac** (const seriesEd &s) const
- seriesEd **rfrac** (const seriesEd &s) const
- polyEd **getPolyUpTo** (int deltaT) const
- series toSeries () const

  projection seriesEd->series (zero slice)
- etvoII::matrix< series > **getCore** (unsigned ratio=1) const
- etvoII::matrix< series > **getCoreMax** (unsigned ratio=1) const

Static Public Member Functions

- static seriesEd Epsilon ()

  eps,E,Top
- static seriesEd **Top** ()
- static seriesEd **E** ()
- static seriesEd **oplus** (const polyEd &p, const seriesEd &s)
- static seriesEd **otimes** (const Ed &m, const seriesEd &s)
- static seriesEd **otimes** (const polyEd &m, const seriesEd &s)
- static polyEd **getPolyUpTo** (int deltaT, const polyEd &p, const polyEd &q, const gd &r, bool droite=true)
- static seriesEd **toCausal** (const seriesEd &s)
- static seriesEd toSeriesEd (const series &s)

  injection series(mmgd)->seriesEd
- static seriesEd coreToSeriesEd (const matrix< series > &C)

  conversion CORE decomposition -> seriesEd
- static etvoII::matrix< series > **getMatN** (unsigned size)

Additional Inherited Members

The documentation for this class was generated from the following files:

- etvo/seriesEd/seriesEd.h
- etvo/seriesEd/seriesEd.cpp

7.39 etvoll::T_op Class Reference

Public Member Functions

- T_op ()
  E op.
- **T_op** (const dDd &term)
- void **add** (const dDd &term)
- void **add** (const T_op &op)
- std::pair< unsigned, unsigned > **getPeriodicity** () const
- std::vector< dDd > **getTerms** () const
- unsigned **getMB** () const
- T_op **extendBy** (unsigned mul) const
- void **reduce** ()
- std::string **toString** () const
- std::string **toStringAsDeltaVar** () const
- int **Rw** (int ki) const
- Fmaxp **getRw** () const
- void **setFromRw** (const Fmaxp &)
- T_op **operator+** (const T_op &f) const
- T_op **oplus** (const T_op &f) const
- T_op **inf** (const T_op &f) const
- T_op **operator*** (const T_op &f) const
- T_op **otimes** (const T_op &f) const
- T_op **lfrac** (const T_op &f) const
- T_op **rfrac** (const T_op &f) const
- bool **operator==** (const T_op &w) const
- bool **operator<=** (const T_op &w) const
- bool **operator>=** (const T_op &w) const
- bool **operator>** (const T_op &w) const
- bool **operator<** (const T_op &w) const

Static Public Member Functions

- static T_op E ()
  neutral T_op
- static T_op Delta (unsigned mb)
  Delta_mb.
- static T_op delta (int t)
  delta^t
- static T_op deltaVar (const std::vector< int > &delays)
  delta^<t1,t2..>

Protected Attributes

- Fmaxp **_fper**

The documentation for this class was generated from the following files:

- etvo/etop/T_op.h
- etvo/etop/T_op.cpp

7.40 mmgd::taille_incorrecte Class Reference

Public Member Functions

- **taille_incorrecte** (int i)

Public Attributes

- int **erreur**

The documentation for this class was generated from the following file:

- etvo/minmaxgd/gd.h

7.41 test::Test Class Reference

Classes

- class TestPolyEd
- class TestSeriesEd

Static Public Member Functions

- static bool **Regular_Fminp** (unsigned)
- static bool **Regular_Fmaxp** (unsigned)
- static void **TestRegression** ()
- static void **TestRegular** ()
- static void **TestPov** ()
- static void **TestRandGen** (unsigned nIter)
- static void **TestBugs** ()
- static void **TestBasicPoly** ()
- static void **TestBasicSeriesEd** ()
- static void **TestCanonSeriesEd** (unsigned nIter)
- static void **TestCoreSeriesEd** (unsigned nIter)
- static void **TestAll** ()
- static bool **Regular_polyWrapper** (unsigned nbIter, unsigned char TST=0x0F)
- static bool **Regular_serieWrapper** (unsigned nbIter, unsigned char TST=0x0F)
- static bool **Specific_gNg** (unsigned nbIter)
- static bool **Specific_dDd** (unsigned nbIter)
- static bool **Specific_polyEd** (unsigned nbIter)
- static bool **Regular_polyEd** (unsigned, unsigned short TST=0x0F)
- static bool **Regular_seriesEd** (unsigned nbIter, unsigned short TST)
- static bool **Specific_polyTg** (unsigned nbIter)
- static bool **Regular_polyTg** (unsigned, unsigned short TST=0x0F)

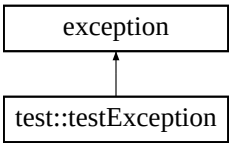
The documentation for this class was generated from the following files:

- etvo/test/Test.h

- etvo/test/Test.cpp
- etvo/test/TestCommon/TestBugs.cpp
- etvo/test/TestCommon/TestPov.cpp
- etvo/test/TestCommon/TestRandGen.cpp
- etvo/test/TestETVOP/TestSpecificgNgdDd.cpp
- etvo/test/TestFper/TestFperFmaxFmin.cpp
- etvo/test/TestMMGD/TestWrapperMMGD.cpp
- etvo/test/TestRegression.cpp
- etvo/test/TestRegular.cpp
- etvo/test/TestSeriesEd/TestBasicPoly.cpp
- etvo/test/TestSeriesEd/TestBasicSeriesEd.cpp
- etvo/test/TestSeriesEd/TestCanonSeriesEd.cpp
- etvo/test/TestSeriesEd/TestCoreSeriesEd.cpp
- etvo/test/TestSeriesEd/TestSeriesEd.cpp
- etvo/test/TestSeriesTg/TestSeriesTg.cpp

7.42 test::testException Class Reference

Inheritance diagram for test::testException:



Public Member Functions

- **testException** (unsigned num, const std::string &msg)
- unsigned **Num** () const
- std::string **Message** () const

The documentation for this class was generated from the following files:

- etvo/test/testException.h
- etvo/test/testException.cpp

7.43 test::TestIS< T > Class Template Reference

Static Public Member Functions

- static bool **TestAll** (const T &a, const T &b, const T &c)
- static void **print** (const T &a, const T &b)
- static void **print** (const T &a, const T &b, const T &c)
- static void **Test3** (const T &a, const T &b)
- static void **Test2** (const T &a, const T &b, const T &c)
- static void **Test1** (const T &a, const T &b)

The documentation for this class was generated from the following file:

- etvo/test/TestTemplate/TestIS.h

7.44 test::TestKleene< T > Class Template Reference

Static Public Member Functions

- static bool TestAll (const T &a, const T &b)

  a Gain 1, b Gain free
- static void **print** (const T &a)
- static void **Test1** (const T &a)
- static void **Test2** (const T &a)

The documentation for this class was generated from the following file:

- etvo/test/TestTemplate/TestKleene.h

7.45 test::Test::TestPolyEd Class Reference

Static Public Member Functions

- static void **TestOplus** (unsigned nIter)
- static void **TestOtimes** (unsigned nIter)
- static void **TestOplusPP** (unsigned nIter)
- static void **TestCompFrac** (unsigned int nIter)
- static void **TestCompInf** (unsigned int nIter)
- static void **TestOtimesPP** (unsigned nIter)

The documentation for this class was generated from the following files:

- etvo/test/Test.h
- etvo/test/TestSeriesEd/TestPolyEdUnit1.cpp

7.46 test::TestResiduation< T > Class Template Reference

Static Public Member Functions

- static bool TestAll (const T &a, const T &b, const T &c, const T &d)

  a,b same Gain
- static void **print** (const T &a, const T &b)
- static void **print** (const T &a, const T &b, const T &c)
- static void **Test1** (const T &a, const T &b, const T &c)
- static void **Test1b** (const T &a, const T &b, const T &c)
- static void **Test2346** (const T &a, const T &c, const T &d)

The documentation for this class was generated from the following file:

- etvo/test/TestTemplate/TestResiduation.h

7.47 test::TestResiduationIneq< T > Class Template Reference

Static Public Member Functions

- static bool **TestAll** (const T &a, const T &b, const T &c, const T &d)
- static void **print** (const T &a, const T &b)
- static void **print** (const T &a, const T &b, const T &c)
- static void **Test1** (const T &a, const T &b)
- static void **Test23** (const T &a, const T &b, const T &c)
- static void **Test45** (const T &a, const T &b, const T &c, const T &d)

The documentation for this class was generated from the following file:

- etvo/test/TestTemplate/testresiduationineq.h

7.48 test::Test::TestSeriesEd Class Reference

Static Public Member Functions

- static void **TestSeries** ()
- static void **TestStar** (unsigned nIter, unsigned nTerms)
- static void **TestDistributivity** (unsigned nIter, unsigned nTerms)
- static void **TestLeftRight** (unsigned nIter)
- static void **TestOtimesSS** (unsigned nIter)
- static void **TestOtimesCD** (unsigned nIter)
- static void **TestOtimes** (unsigned nIter)
- static void **TestOplusSS** (unsigned nIter)
- static void **TestOplus** (unsigned nIter)
- static void **TestOplusCD** (unsigned nIter)
- static void **TestCanon** (unsigned nIter)
- static void **Special** ()
- static void TestKleeneCD (unsigned nIter)

7.48.1 Member Function Documentation

7.48.1.1 TestKleeneCD()

```
void test::Test::TestSeriesEd::TestKleeneCD (
            unsigned nIter )  [static]
```

Exemple WODES 2014

Exemple IEEE TAC 2014
Exemple IEEE TAC 2014

The documentation for this class was generated from the following files:

- etvo/test/Test.h
- etvo/test/TestSeriesEd/TestSeriesEdUnit1.cpp
- etvo/test/TestSeriesEd/TestSeriesEdUnit2.cpp

7.49 test::TestXIS< T > Class Template Reference

Static Public Member Functions

- static bool **TestAll** (const T &a)
- static void **print** (const T &a)
- static void **Test0** ()
- static void **Test1** (const T &a)

The documentation for this class was generated from the following file:

- etvo/test/TestTemplate/TestXIS.h

7.50 etvoll::Tg Class Reference

Public Member Functions

- **Tg** (const T_op &w, int g)
- T_op **getT_op** () const
- void **setT_op** (const T_op &)
- int **getG** () const
- void **setG** (int g)
- Tg **operator*** (const Tg &) const
- Tg **otimes** (const Tg &) const
- polyTg **operator*** (const polyTg &) const
- polyTg **otimes** (const polyTg &) const
- polyTg **operator+** (const Tg &) const
- polyTg **oplus** (const Tg &) const
- polyTg **operator+** (const polyTg &) const
- polyTg **oplus** (const polyTg &) const
- Tg **inf** (const Tg &) const
- Tg **lfrac** (const Tg &) const
- Tg **rfrac** (const Tg &) const
- std::string **toString** () const
- std::string **toStringAsDeltaVar** () const
- void **canon** ()
- bool **operator==** (const Tg &) const
- bool **operator!=** (const Tg &) const
- bool **operator<=** (const Tg &) const
- bool **operator>=** (const Tg &) const

Static Public Member Functions

- static Tg **E** ()
- static Tg **g** (int n)
- static Tg **D** (unsigned mb)
- static Tg **d** (int t)

The documentation for this class was generated from the following files:

- etvo/seriesTg/Tg.h
- etvo/seriesTg/Tg.cpp

7.51 etvoll::Tools Class Reference

Static Public Member Functions

- static int **lcm** (int, int)
- static int **gcd** (int, int)
- static unsigned int **lcm** (unsigned int, unsigned int)
- static unsigned int **gcd** (unsigned int, unsigned int)
- static long **lcm** (long, long)
- static long **gcd** (long, long)
- static int **Min** (int, int)
- static int **Max** (int, int)
- static long **Min** (long, long)
- static long **Max** (long, long)
- static int **MaxInfinity** ()
- static int **MinInfinity** ()

The documentation for this class was generated from the following files:

- etvo/common/Tools.h
- etvo/common/Tools.cpp

Chapter 8

File Documentation

8.1 etvo/Fper/Fper.cpp File Reference

```
#include "Fper.h"
#include <sstream>
#include <cmath>
#include <iostream>
#include <algorithm>
#include "..\common\Tools.h"
```

Namespaces

- etvoII

Functions

- std::ostream & etvoII::operator<< (std::ostream &f, const Fper &)

  operator to print Fper elements into the standard ostream

8.1.1 Detailed Description

Author

BC LARIS

Version

2.0

8.2 etvo/Fper/Fper.h File Reference

```
#include <utility>
#include <vector>
#include <string>
```

Classes

- class etvoII::Fper

  Base class for pseudo - periodic functions Z->Z where f(x + dP) = codP + f(x)

Namespaces

- etvoII

Functions

- std::ostream & etvoII::operator<< (std::ostream &f, const Fper &)

  operator to print Fper elements into the standard ostream