

#20238 new taskOpened 11 months ago
Last modified 2 days ago**Move the Sage <-> PARI interface to a stand-alone package CyPari**

Reported by:	jdemeyer	Owned by:	
Priority:	major	Milestone:	sage-7.5
Component:	packages: standard	Keywords:	Pari
Cc:	defeo , slelievre , vdelecroix , mmarco	Merged in:	
Authors:		Reviewers:	
Report Upstream:	N/A	Work issues:	
Branch:		Commit:	
Dependencies:		Stopgaps:	

Description (last modified by [jdemeyer](#)) [Δ](#)

Needs cysignals:

- [#20002](#): Move interrupt.pyx to package cysignals
- [#20210](#): Move memory functions to cysignals

Cleanup of PARI interface:

- [#20205](#): Clean up factoring PARI interface
- [#20213](#): Replace `pari_catch_sig_on` by `sig_on`
- [#20216](#): Deprecate PARI `nth_prime`, `prime_list`, `primes_up_to_n`
- [#20217](#): Remove redundant functions from `pari_instance.pyx`
- [#20219](#): Remove redundant functions from `gen.pyx`
- [#20224](#): Auto-generated PARI functions sometimes return 0 instead of None
- [#20226](#): Implement conversion PARI <-> Python int/long without GMP/MPIR
- [#20241](#): Separate Sage-specific components from generic C-interface in `PariInstance`
- [#20257](#): Deprecate undocumented arguments to PARI functions
- [#20352](#): Initialize PARI constants in `PariInstance.__init__`
- [#20473](#): Remove global `pari_instance` variable
- [#20486](#): Remove deprecated PARI code
- [#21703](#): Interface PARI precision in bits
- [#21806](#): Allow multiple instances of the `PariInstance` object
- [#21807](#): Move `gentoobj` and rename it to `gentosage`
- [#21808](#): Change `gen.python()` to return Python objects
- [#21809](#): Pythonize deprecation warnings in PARI interface
- [#21810](#): Move calculation of PARI stack size out of `__init__`
- [#22183](#): Rename `PariInstance` -> `Pari`
- [#22185](#): Rename `gen` -> `Gen`
- [#22195](#): Allow compiling PARI interface without `anal.h`
- [#22165](#): Stop using deprecated PARI function `polred()`
- [#22210](#): Remove obsolete special case in PARI `Gen.eval()`
- [#22221](#): Fix dependency on PARI headers
- [#22222](#): Remove `pari_instance` global in `gen.pyx`
- [#22319](#): Implement `__index__` for PARI `Gen`
- [#22321](#): `Gen.__init__()` does not work as expected

PARI upgrades:

- [#20581](#): Upgrade PARI to latest master
- [#21005](#): Update PARI to version 2.8.0
- [#21756](#): Update PARI to version 2.9.1

Decouple CyPari from the Sage coercion model:

- [#20740](#): Drop return type from arithmetic methods in coercion model
- [#20761](#): Drop argument types from arithmetic methods in coercion model
- [#20757](#): Drop argument types from comparison methods in coercion model
- [#20686](#): Refactor `getattr_from_other_class()` for lookup of methods in categories
- [#20767](#): Move coercion to Element
- [#21163](#): In `richcmp`, fall back to reversed operation if coercion fails
- [#21158](#): Decouple PARI from coercion model

Move the PARI interface to a new package:

- [#21820](#): Split `src/sage/libs/pari`
- [#21821](#): Avoid Sage-specific variables in `autogen/pari`
- [#21874](#): Make `autogen/pari` Python 3 compatible
- [#22193](#): Move Sage doctests into standalone tests in `src/tests`
- [#22198](#): Make `cypari2` Python2 / Python3 compatible
- [#22239](#): Don't use `six` in `sage_setup/autogen/pari`
- [#22240](#): Use relative imports in `sage_setup/autogen/pari`
- [#22291](#): `ob_size` does not exist in Python 3

Attachments (0)

Change History (42)

Changed 11 months ago by [jdemeyer](#) comment:1

- **Summary** changed from *Make the Sage <-> PARI interface a stand-alone package* to *Move the Sage <-> PARI interface to a stand-alone package CyPari*

Changed 11 months ago by [defeo](#) comment:2

- **Description** modified ([diff](#))

Changed 11 months ago by [slelievre](#) comment:3

- **Cc** [slelievre](#) [vdelecroix](#) added
- **Keywords** *Pari* added

Changed 11 months ago by [jdemeyer](#) comment:4

- **Description** modified ([diff](#))

Changed 10 months ago by [jdemeyer](#) comment:5

- **Description** modified ([diff](#))

Changed 10 months ago by [jdemeyer](#) comment:6

- **Description** modified ([diff](#))

Changed 10 months ago by [slelievre](#) comment:7

- **Description** modified ([diff](#))

Changed 10 months ago by [defeo](#) comment:8

A comment by [kedlaya](#) on [#20241](#):

Regarding the utility functions: I think `primes` belongs in `sage.rings.fast_arith` along with `prime_range`, while `genus2red` should be in

`sage.schemes.hyperelliptic_curves.HyperellipticCurve_g2_rational_field` which is otherwise completely empty! The other functions don't provide any new functionality (factorials, Chebyshev polynomials, etc.).

Changed 10 months ago by jdemeyer comment:9

- **Description** modified ([diff](#))

Changed 10 months ago by jdemeyer comment:10

- **Description** modified ([diff](#))

Changed 9 months ago by jdemeyer comment:11

- **Description** modified ([diff](#))

Changed 9 months ago by jdemeyer comment:12

- **Description** modified ([diff](#))

Changed 9 months ago by nbruin comment:13

Just a question: presently we have efficient `sage.Integer <-> pari-gp` integer conversion, right? `CyPari` would probably not support this directly, because that would make `sage.Integer` a dependency of the package. Where would the efficient conversion fit? (we wouldn't want to go through Python integers if we don't have to)

Changed 8 months ago by jdemeyer comment:14

- **Description** modified ([diff](#))
- **Milestone** changed from *sage-7.2* to *sage-7.3*

Changed 8 months ago by jdemeyer comment:15

- **Description** modified ([diff](#))

Changed 6 months ago by jdemeyer comment:16

- **Description** modified ([diff](#))

Changed 6 months ago by jdemeyer comment:17

- **Description** modified ([diff](#))

Changed 6 months ago by jdemeyer comment:18

- **Description** modified ([diff](#))

Changed 6 months ago by defeo comment:19

- **Cc** *mmarco* added

Changed 4 months ago by defeo comment:20

So, what's left to be done? Are we ready to externalize the interface?

Changed 4 months ago by jdemeyer comment:21

- **Description** modified ([diff](#))

When the next beta with [#20241](#) is released, I will have a look.

Changed 3 months ago by jdemeyer comment:22

- **Description** modified ([diff](#))

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comment:39

- **Description** modified ([diff](#))

Changed 7 days ago by jdemeyer

comment:40

- **Description** modified ([diff](#))

Changed 2 days ago by jdemeyer

comment:41

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Changed 2 days ago by jdemeyer

comment:42

- **Description** modified ([diff](#))