# CoCoALib - Feature #47

Feature # 39 (Closed): Squarefree factorization

Feature # 43 (Closed): Squarefree factorization - for polynomials

## Squarefree factorization - multivariate polynomials

30 Nov 2011 17:28 - John Abbott

| | | | |
|---|---|---|---|
| **Status:** | Closed | **Start date:** | 30 Nov 2011 |
| **Priority:** | Normal | **Due date:** | |
| **Assignee:** | John Abbott | **% Done:** | 100% |
| **Category:** | New Function | **Estimated time:** | 0.00 hour |
| **Target version:** | CoCoALib-0.99532 | **Spent time:** | 4.45 hours |

**Description**

A bit tricker than univariate.  Seems to need content-free factorization.

**Subtasks:**

| | |
|---|---|
| Feature # 48: Squarefree factorization - multivariate polynomials, char 0 | **Closed** |
| Feature # 49: Squarefree factorization - multivariate polynomials, char p > 0 | **Closed** |

**Related issues:**

| | | |
|---|---|---|
| Related to CoCoALib - Feature #40: Squarefree factorization - Alessio d'Ali` | **Closed** | **30 Nov 2011** |
| Related to CoCoALib - Feature #515: Fn to "flatten" muliple polynomial extns | **New** | **02 Apr 2014** |
| Related to CoCoALib - Feature #796: CoCoALib function for radical (or SqFree)... | **Closed** | **05 Nov 2015** |
| Precedes CoCoALib - Feature #516: Make squarefreefactor work in multiple poly... | **New** | **02 Apr 2014** |

### History

#### #1 - 20 Oct 2013 14:49 - John Abbott

*- Status changed from New to In Progress*

*- Assignee set to John Abbott*

JAA is translating Alessio D'Ali's impl (in CoCoA5) into C++.

Most of the translation is complete, but it does not yet compile (even less pass the tests).

#### #2 - 23 Oct 2013 15:32 - John Abbott

Translation of d'Ali's impl is now complete.
Code has been checked in; incl doc and tests.

Some minor points remain outstanding (regarding execution speed and/or working in unusual rings); I've decided to ignore them for the time being.

Here are some "unusual" rings we should eventually handle:

- QQ[x][y,z]
- QQ(x)[y,z]  -- this should already work (if GCD works)
- ZZ/(p)[x][y,z]
- FrF(ZZ/(p)[x])[y,z]  -- this already works, I believe

#### #3 - 29 Oct 2013 13:06 - Anna Maria Bigatti

*- Target version set to CoCoALib-0.99532*

**#4 - 02 Apr 2014 18:57 - John Abbott**

*- Status changed from In Progress to Closed*

For many practical purposes this issue is complete.
True completion now depends on #515, so I shall close this, and add a new issue (to complete sqfr once 515 has been done).