

CoCoALib - Feature #50

Polynomial content

30 Nov 2011 17:38 - 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-0.9953	Spent time:	5.30 hours
Description New function(s) to compute content of a poly w.r.t. a given indet. In which ring does the result lie? <ul style="list-style-type: none">• if poly is univariate, result will be in coeff ring• if poly is multivariate, result may be in poly ring DECIDE!!! May want an extended version which computes content w.r.t to several indets?			
Related issues: Related to CoCoALib - Feature #51: polynomial coefficient extraction w.r.t. v... Closed Related to CoCoALib - Bug #154: GCD normalization (e.g. monic) In Progress 07 May 2012			

History

#1 - 20 Mar 2012 15:55 - John Abbott

- % Done changed from 0 to 60

Created two fns:

- **content** computes "content" of the coeffs, result is in CoeffRing
- **ContentWRT** computes "content" wrt given indets, result is in original poly ring.

Must still add doc, and tests.

#2 - 27 Apr 2012 15:00 - Anna Maria Bigatti

Tests and doc are already done for CoCoA-5.

Still missing in CoCoALib

#3 - 07 May 2012 12:47 - John Abbott

- % Done changed from 60 to 90

The function **ContentWRT** gives result with strange scale factors sometimes.

```
Use ZZ/(29641)[x,y];
f := (2*x+3)*(3*y+2);
ContentWRT(f,x);
-6*y -4
```

Perhaps make the result monic? **Note (2013-05-27) the monic answer is y+9881 do we really want that?**

Seems to be well behaved in $QQ[x,y]$.

#4 - 28 Nov 2012 11:38 - Anna Maria Bigatti

- Status changed from New to Feedback
- Target version set to CoCoALib-0.9953

#5 - 27 May 2013 18:16 - John Abbott

- Status changed from Feedback to Closed
- Assignee set to John Abbott
- % Done changed from 90 to 100

The main issue has been satisfactorily resolved for a year or so.

The question about "normalization" (in post 3) is really the same as issue [#154](#) about normalization of the result of GCD computations, so I shall ignore it here, and regard the issue as closed now.