

CoCoALib - Feature #1150

New fn: transform ideal with ring hom

22 Jan 2018 18:30 - John Abbott

Status:	New	Start date:	22 Jan 2018
Priority:	Normal	Due date:	
Assignee:		% Done:	0%
Category:	New Function	Estimated time:	0.00 hour
Target version:	CoCoALib-1.0	Spent time:	0.20 hour
Description			
Do we want a new fun for transforming an ideal with a ringhom? TransformIdeal(const ideal& I, const RingHom& phi)			
[taken from a photo of the whiteboard]			

History

#1 - 22 Jun 2020 10:34 - John Abbott

- Description updated

What is this supposed to mean? Does it mean the ideal generated by  $\{\phi(f) \mid f \in I\}$ ? What else could it mean? When might it be useful?

Short example: let  $R = \mathbb{Q}[x]$  and let  $\phi$  send  $x \mapsto x^2$ , so  $\phi$  is not surjective. Let  $I$  be the ideal generated by  $x$ . Then  $\{\phi(f) \mid f \in I\}$  is not an ideal.

Let  $G$  be any set of generators of  $I$ . Then given the proposed definition in line 1 of this note, we have that  $\phi(G)$  is a set of generators of  $\phi(I)$ .

Given this defn, impl should be easy... but is it useful for anyone?