Strong Gröbner bases and cyclic codes over a finite-chain ring. Errata [2]

Graham H. Norton [a,1] Ana Sălăgean [b]

[a] *Algebraic Coding Research Group, Centre for Communications Research, University of Bristol, Bristol, U.K.* ghn@maths.uq.edu.au

[b] *Department of Mathematics, Nottingham Trent University, Nottingham, U.K.* Ana.Salagean@ntu.ac.uk

---

Proposition 3.2 Let R be a finite-chain ring, let $G \subset R[x_1, \ldots, x_n] \setminus \{0\}$ be a finite set and $f, h \in R[x_1, \ldots, x_n]$. Then f is strongly reducible wrt. G if and only if f is reducible wrt. G.

Page 5, middle:

Next we show that over a principal ideal ring, any two lcm's are associates. This enables us to define $\mathrm{Spol}(g_1, g_2)$, *the set of S-polynomials* of $g_1, g_2 \in R[x_1, \ldots, x_n] \setminus \{0\}$.

Page 5, line -6:

Any two gcd's over a principal ideal ring are likewise associates, so we can define $\mathrm{Gpol}(g_1, g_2)$, *the set of G-polynomials of* $g_1, g_2 \in R[x_1, \ldots, x_n] \setminus \{0\}$ by generalising [1, Definition 10.9].

6 Cyclic codes over a local principal ideal ring

We now consider (non-zero) cyclic codes of length n over a local principal ideal ring R.

References

[1] T. Becker and V. Weispfenning. *Gröbner Bases.* Springer, 1993.

---

[1] Current address: Department of Mathematics, University of Queensland, Brisbane 4072, Australia.

[2] Research supported by the U.K. Engineering and Physical Sciences Research Council under Grant L07680, while the authors were with the Algebraic Coding Research Group, Centre for Communications Research, University of Bristol, U.K.