Régularisation du calcul de bases de Gröbner pour des systèmes avec poids et déterminantiels, et application en imagerie médicale (erratum)

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1 Algebra and geometry

- **Def. 1.13:** the map $\bullet^h$ is not a morphism. For a counter-example, in $\mathbb{K}[X]$, consider $f = X^2 + X$, $g = -X^2 + X$, then $f^h = X^2 + XH$, $g^h = -X^2 + XH$, and $f^h + g^h = 2XH$. But $f + g = 2X$ is homogeneous, so $(f + g)^h = 2X$.

  What is always true is that $f^h + g^h = H^k(f + g)^h$ for some $k \in \mathbb{N}$, and that $(cf)^h = cf^h$ if $c \in \mathbb{K}$.

2 Gröbner bases

- **Proof of Prop. 2.16, item 3:** if $\mathsf{NF}(f) - \mathsf{NF}(g) = 0$, then $\mathsf{NF}(f) - \mathsf{NF}(g) \in I$ so $f - g \in I$.

3 Weighted homogeneous systems

4 Real roots classification for determinants – Application to contrast optimization

- **Proof of Prop. 4.2, 4 lines after Eq. 4.5:** a subideal of a radical ideal may not be radical, since any ideal is included in its radical. In order to prove that the ideal defined by the entries of M/A is radical, we need a stronger hypothesis $\mathcal{H}6$: *"for any $r_1, r_2 \in \{0, \dots, k-1\}$ such that $r_1 \leq r_2$, and for any submatrix A of M with size $r_1 \times r_1$, the ideal defined by the r_2-minors of M containing A is radical"*. This property is generic as well.