



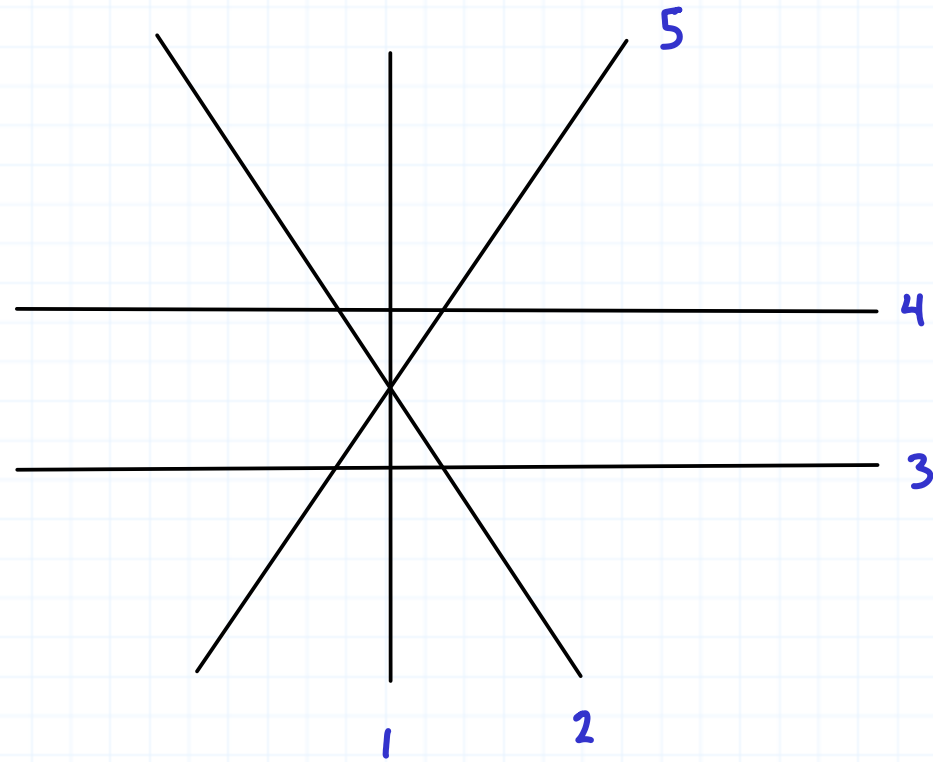
Sage Edu 5

David Perkinson

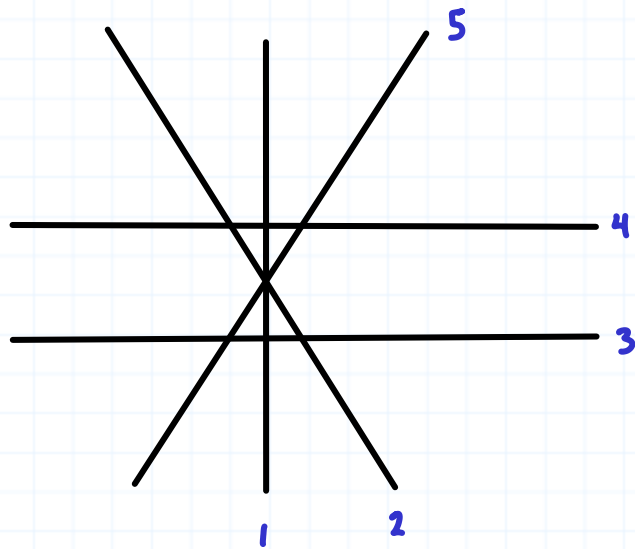
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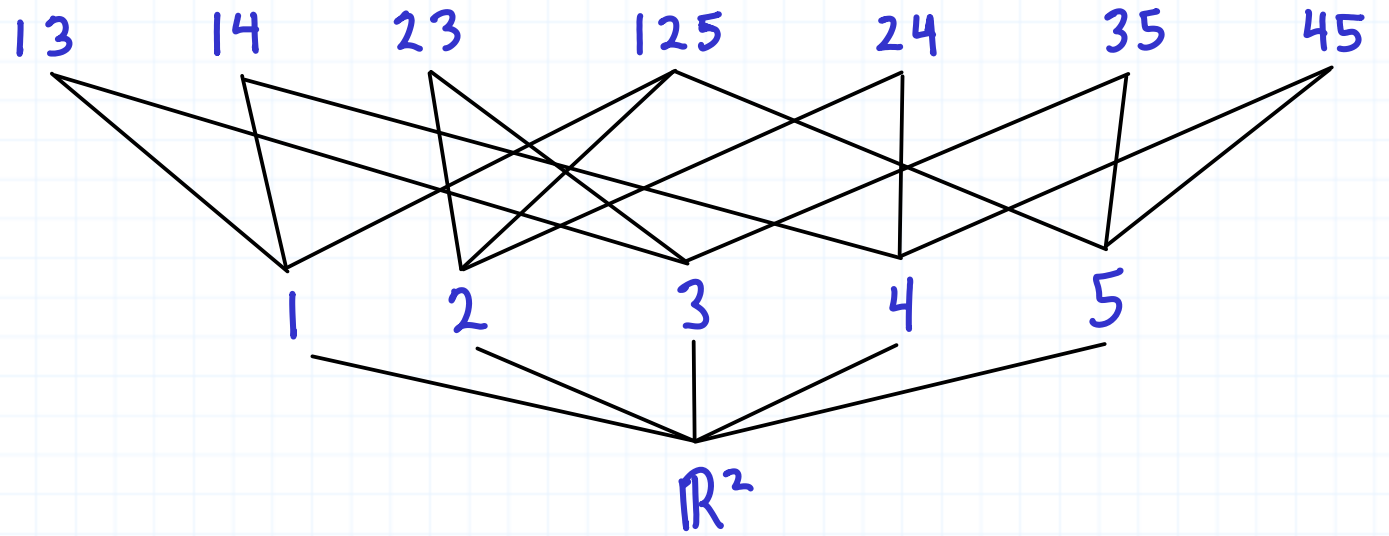
- Math 211-212 : Multivariable Calculus
- Math 341 : Geometry



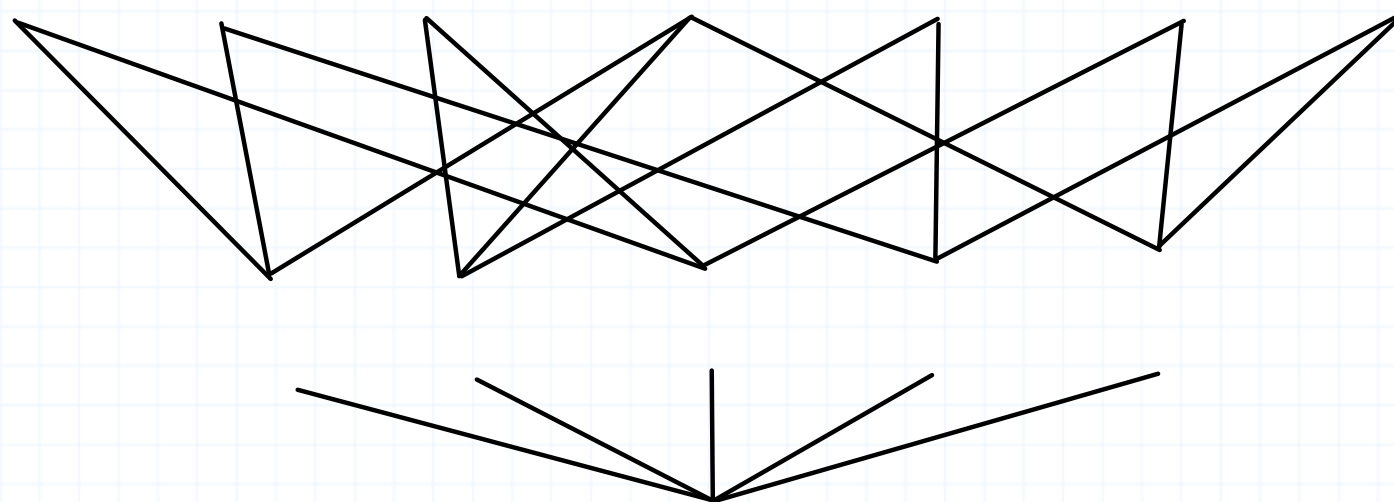
$\mathcal{A}$  : hyperplane arrangement



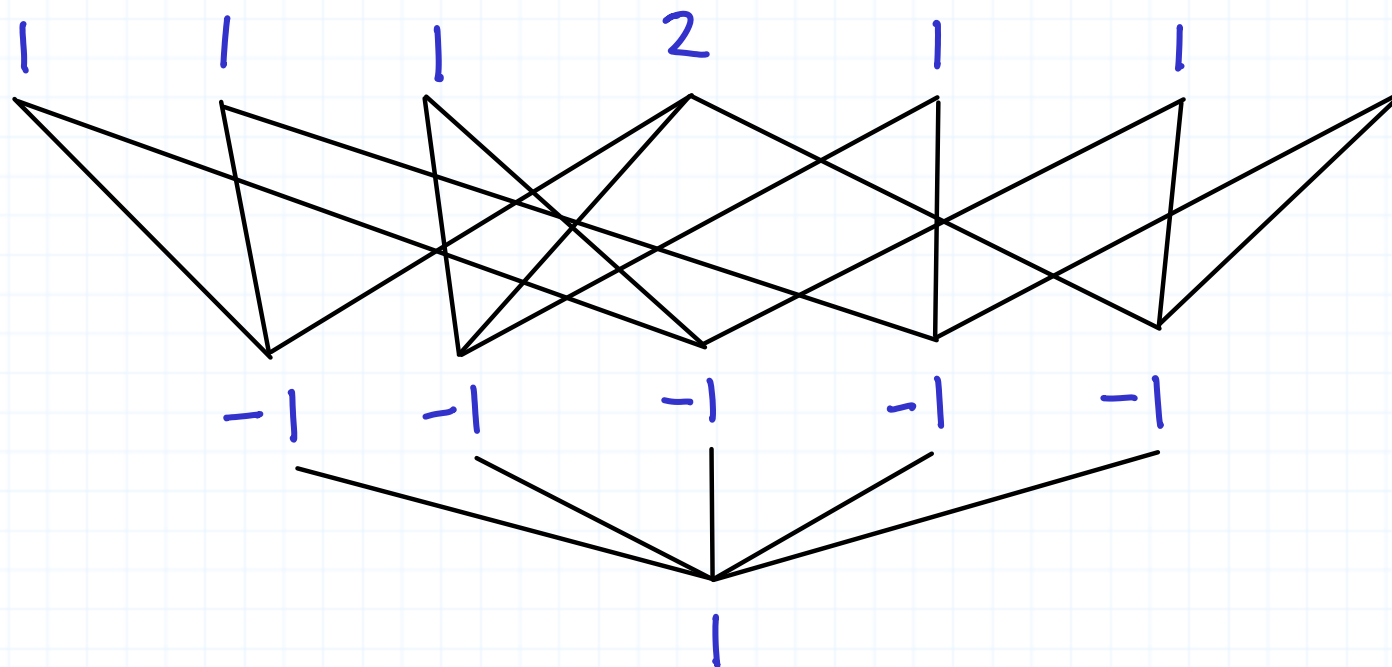
$\mathcal{A}$



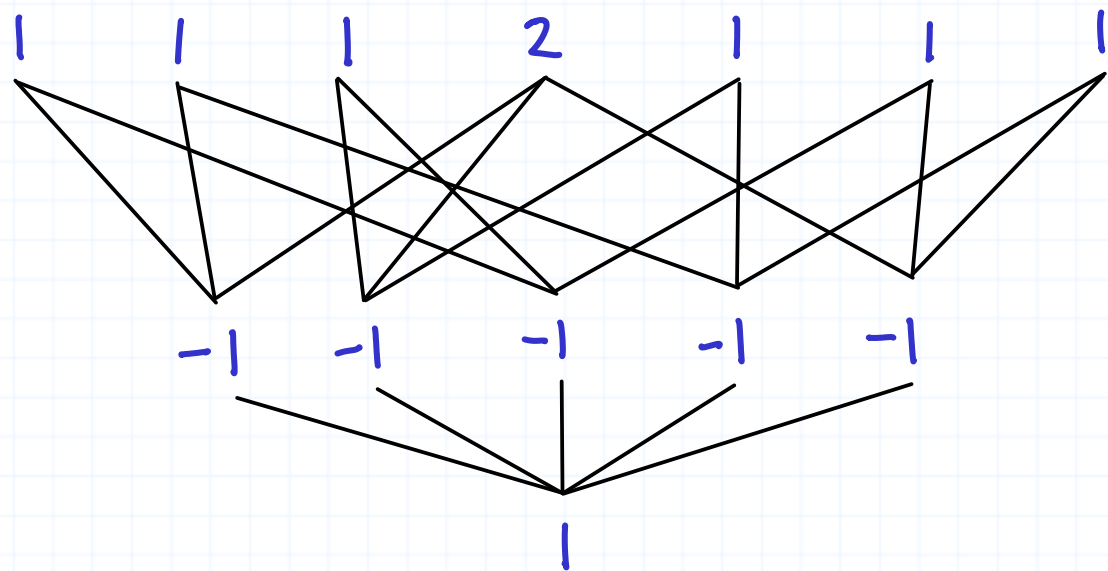
$L(\mathcal{A})$  : Intersection poset



$\mu$ : Möbius function for  $L(A)$



$\mu$ : Möbius function for  $L(A)$



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Sum

8

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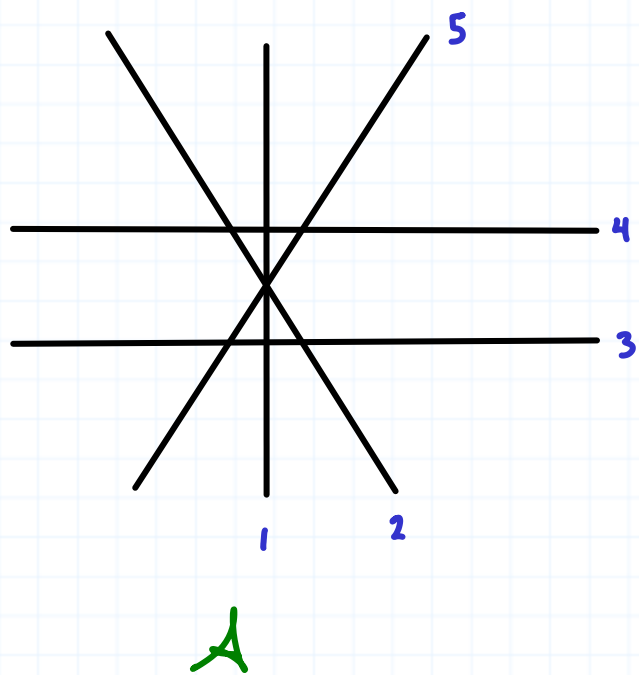
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→

1

$$\chi_A(t) = \sum_{x \in L(A)} \mu(x) t^{\dim x} = 1 \cdot t^2 - 5 \cdot t + 8$$

characteristic polynomial



Theorem. (Zaslavsky, 1975)

$$\# \text{ regions} = |\chi_A(-1)|$$

$$\# \text{ bounded regions} = |\chi_A(1)|$$

$$\chi_A(t) = t^2 - 5t + 8, \quad \chi_A(-1) = 14$$

$$\chi_A(1) = 4$$



G-Shi conjecture (Duval, Klivans, Martin)