Word of welcome

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October 29, 2018

ODK's interviews

https://opendreamkit.org/

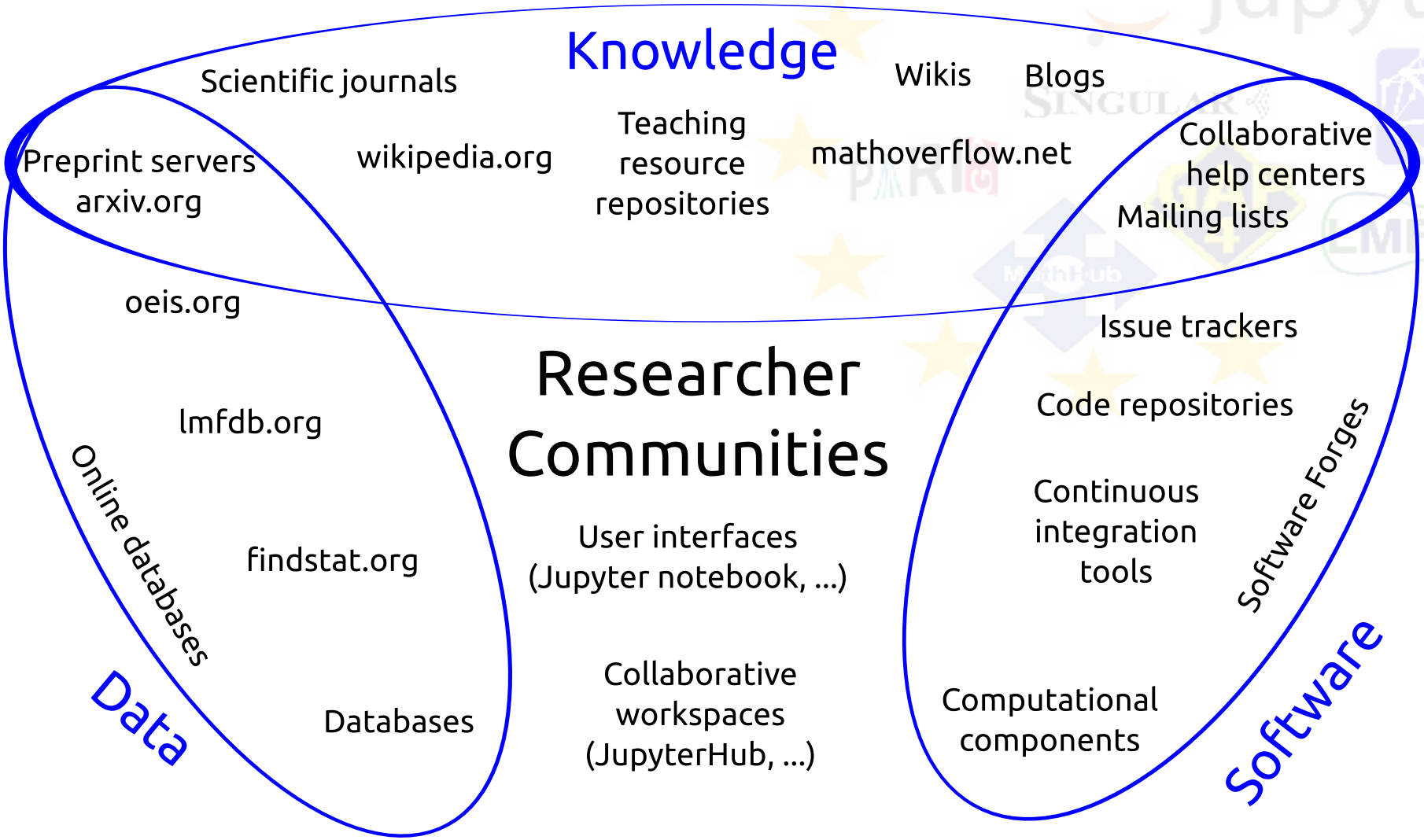
ODK's use cases

https://opendreamkit.org/tag/use-case

Aims

- Improve the productivity of researchers in pure mathematics and applications by further promoting collaborations on **Data**, **Knowledge**, and **Software**
- Make it easy for teams of researchers of any size to set up custom, collaborative **Virtual Research Environments** tailored to their specific needs, resources and workflows
- Support the entire life-cycle of computational work in mathematical research, from **initial exploration** to **publication**, **teaching**, and **outreach**

OpenDreamKit's proposal



Storage resources (local, shared folder, cloud)	Computational resources (local, super computer, cloud)

OpenDreamKit's proposal

- Deliver a **VRE Toolkit for Mathematics**
- From the ecosystem of open source software for mathematics
- And the Jupyter interactive computing environment

Specific challenges of pure Maths: the diversity of objects

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Matrices: $\begin{pmatrix} 4 & -1 & 1 & -1 \\ -1 & 2 & -1 & -1 \\ 0 & 5 & 1 & 3 \end{pmatrix}, \begin{pmatrix} 1.000 & 0.500 & 0.333 \\ 0.500 & 0.333 & 0.250 \\ 0.333 & 0.250 & 0.200 \end{pmatrix}$

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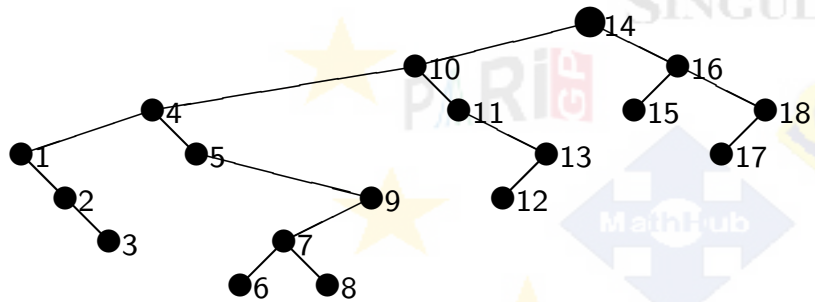
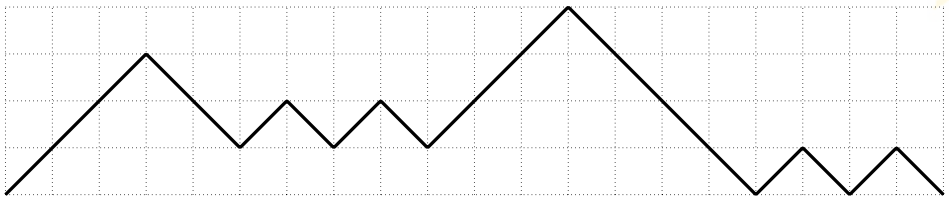
Finite fields, algebraic extensions, elliptic curves, ...

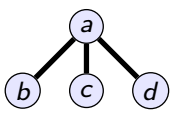
Combinatorial objects

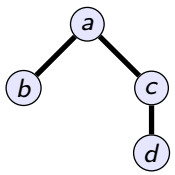
1	3	4	7
2	5	6	
8			

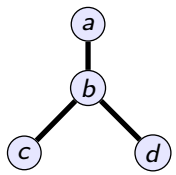




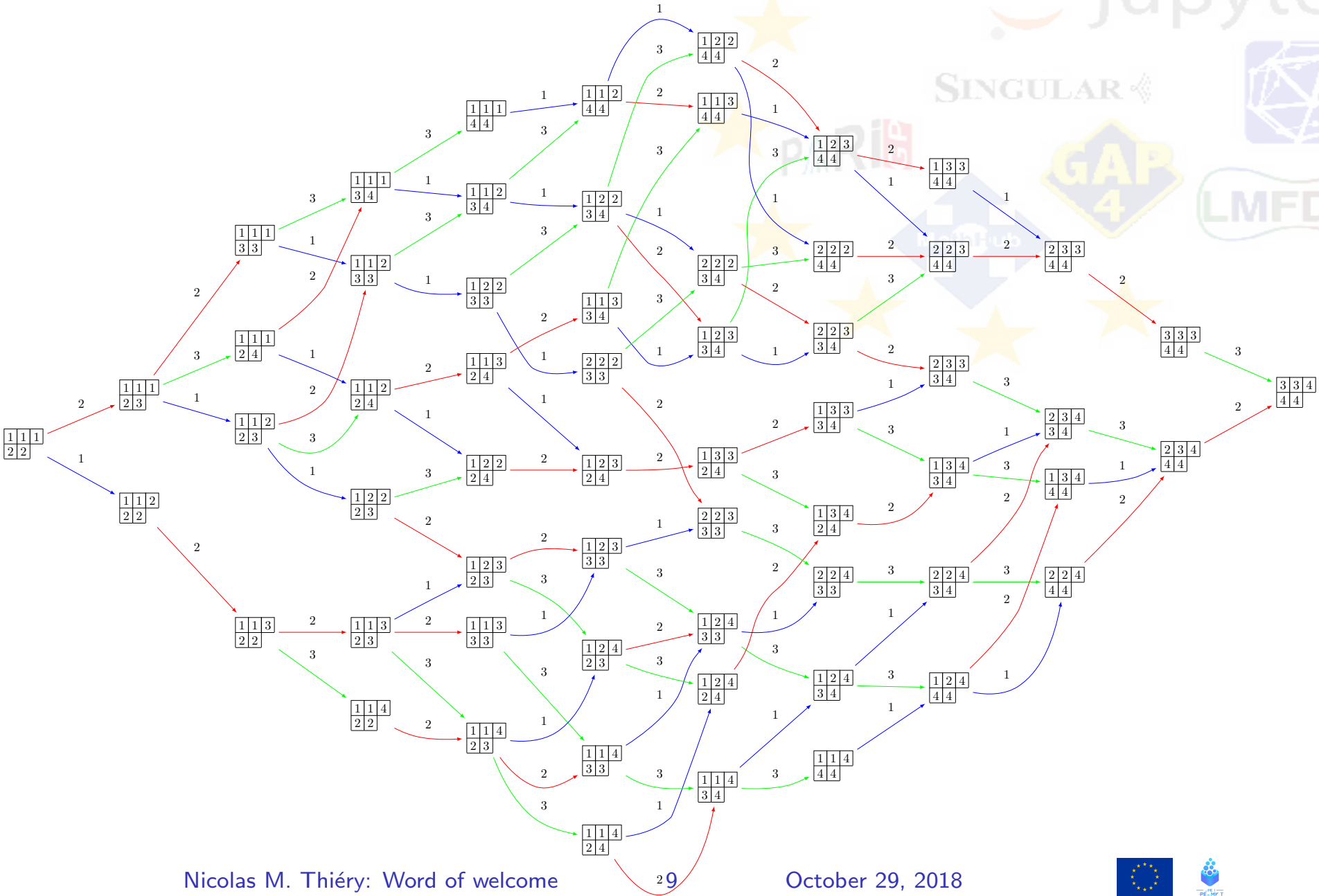
$$0100101001001010010100100101001001010010\cdots$$

$$\frac{\frac{1}{6}q^2-\frac{1}{6}q}{q^5+2q^4+3q^3+3q^2+2q+1}$$ 

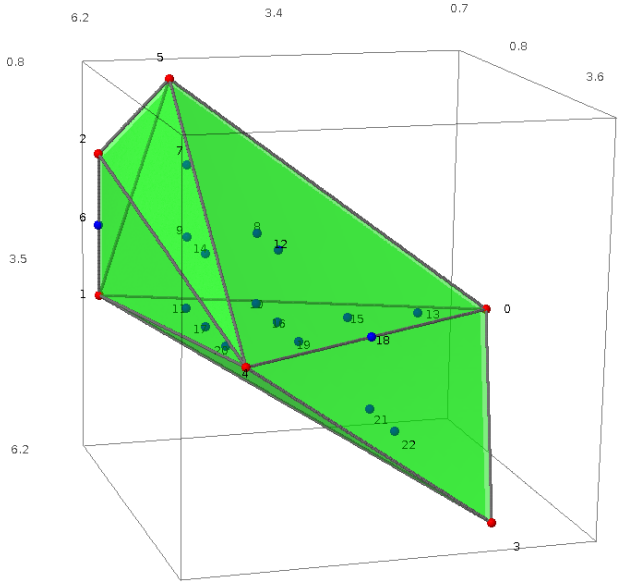
$$+\frac{q^2}{q^5+2q^4+3q^3+3q^2+2q+1}$$ 

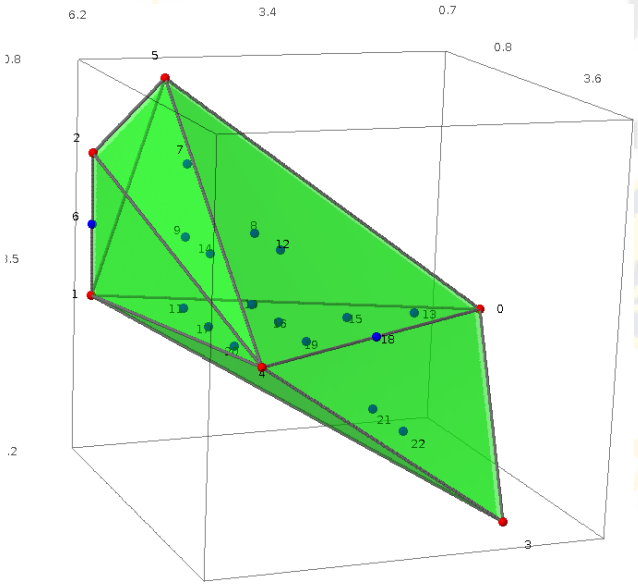
$$+\frac{\frac{1}{2}q}{q^4+q^3+2q^2+q+1}$$ 

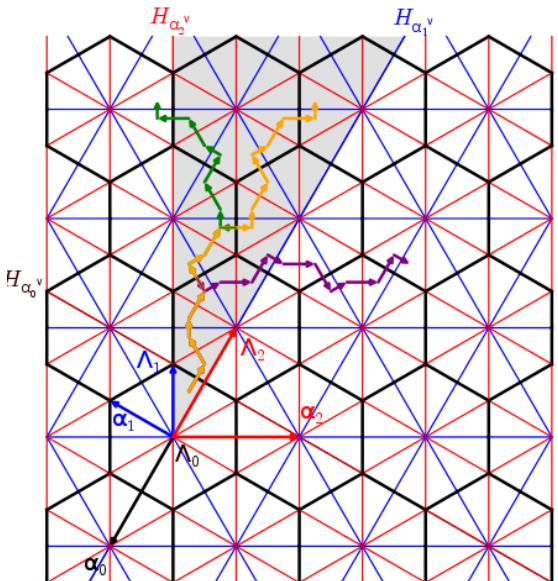
Graphs

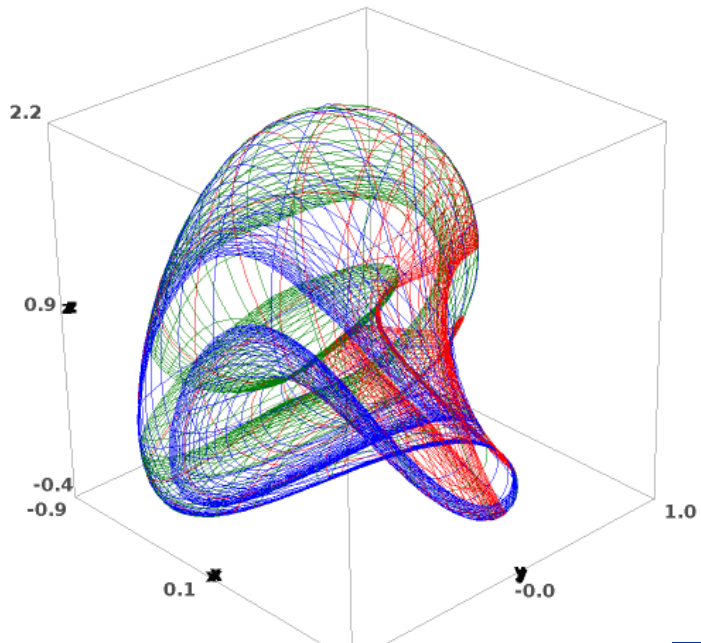


Geometric objects

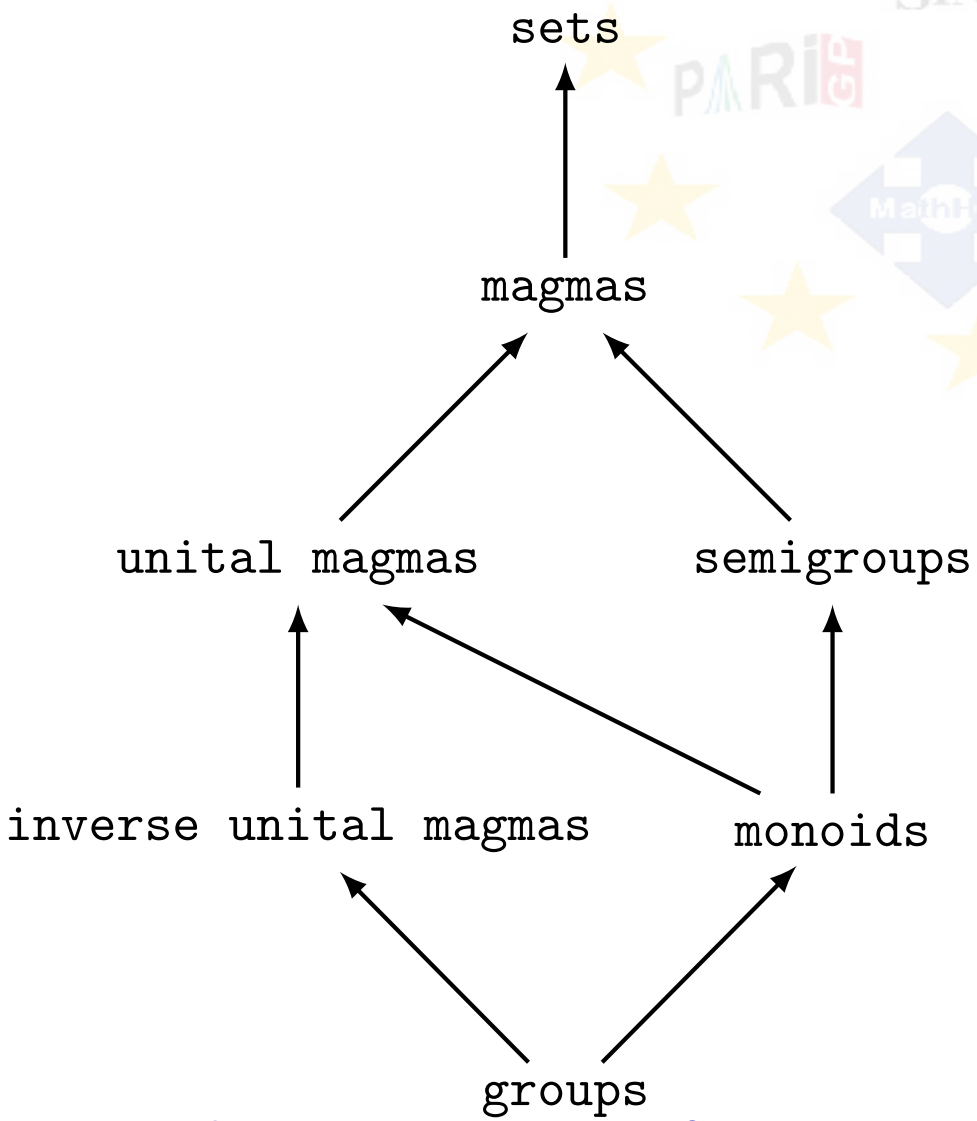








Specific challenges in Pure Math: a rich hierarchy of concepts



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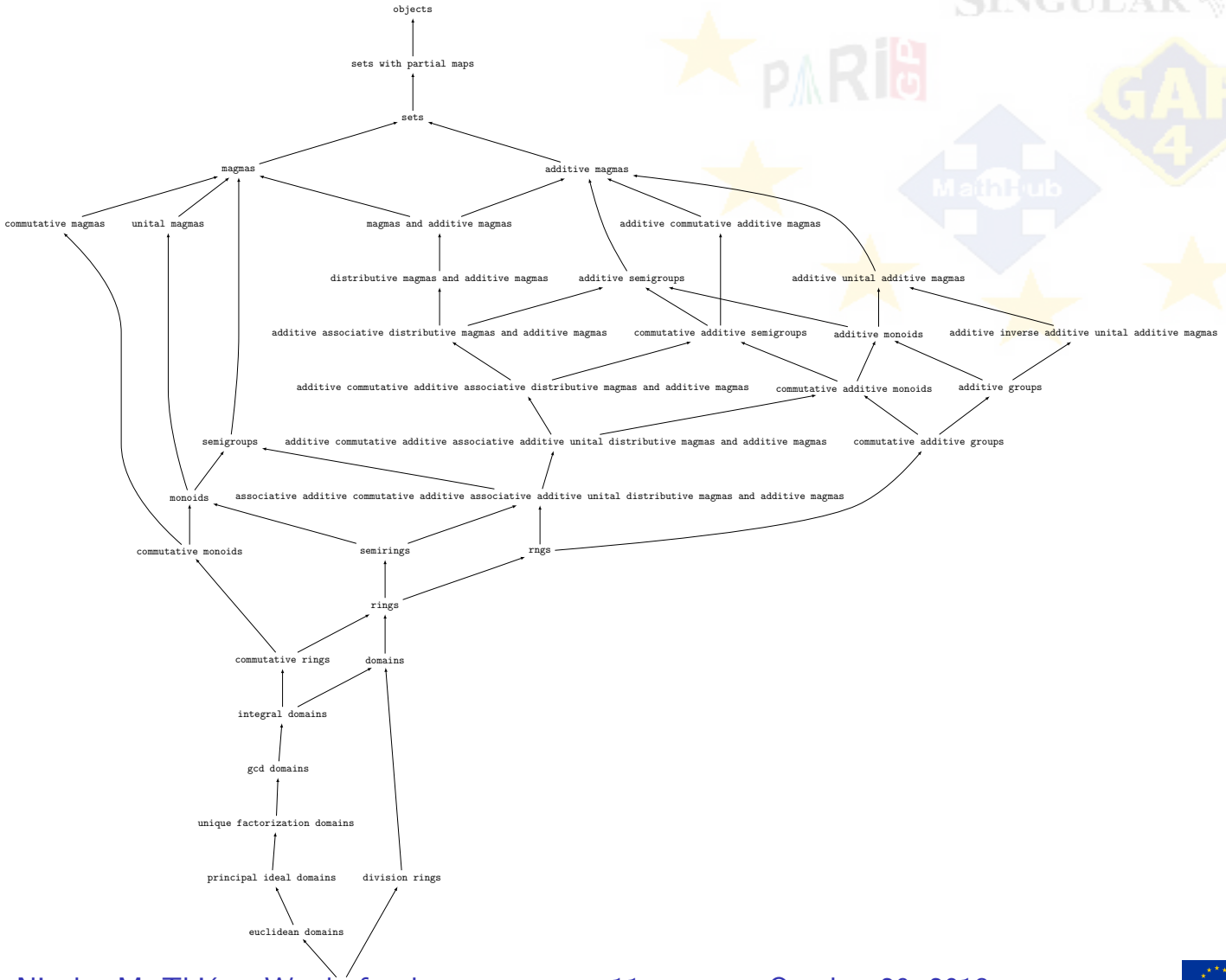

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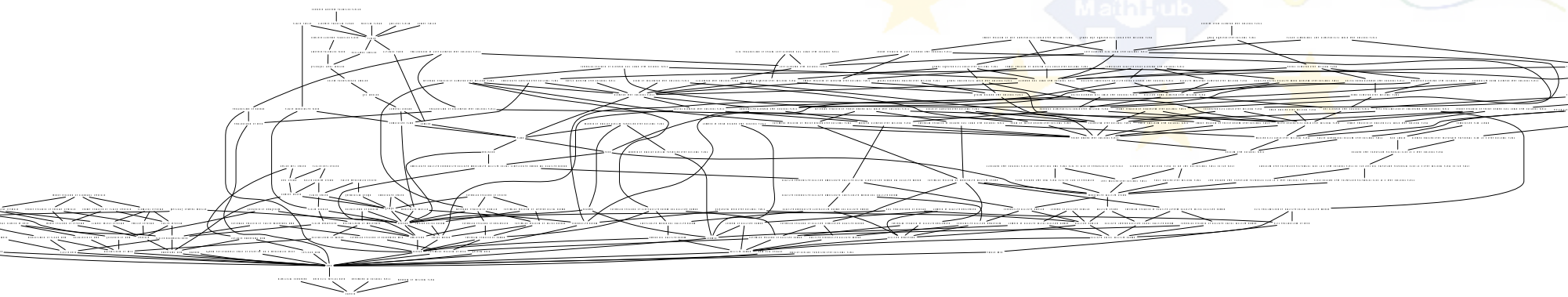

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  Exceptions:
  -
  - Project admin