Some highlights on OpenDreamKit

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ODK's interviews

https://opendreamkit.org/

ODK's use cases

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

Aims

Aim 1 Improve the productivity of researchers in pure mathematics and applications by further promoting collaborations on **Data**, **Knowledge**, and **Software**

Aim 2 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

Aim 3 Support the entire life-cycle of computational work in mathematical research, from **initial exploration** to **publication**, **teaching**, and **outreach**

Aim 4 Maximise sustainability and impact in mathematics, neighbouring fields, and scientific computing.

Challenge: a rich variety of objects

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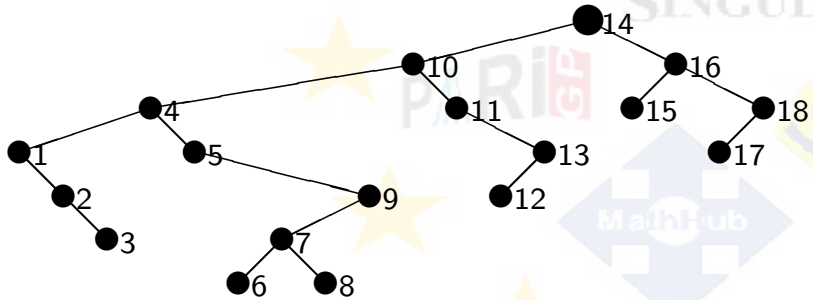
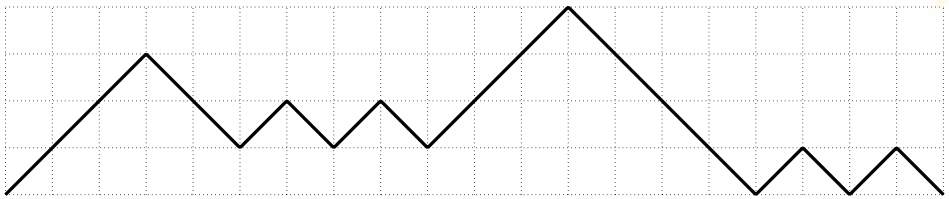
Finite fields, algebraic extensions, elliptic curves, ...

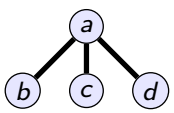
Combinatorial objects

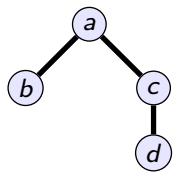
1	3	4	7
2	5	6	
8			

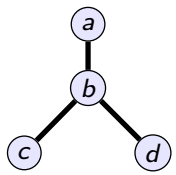




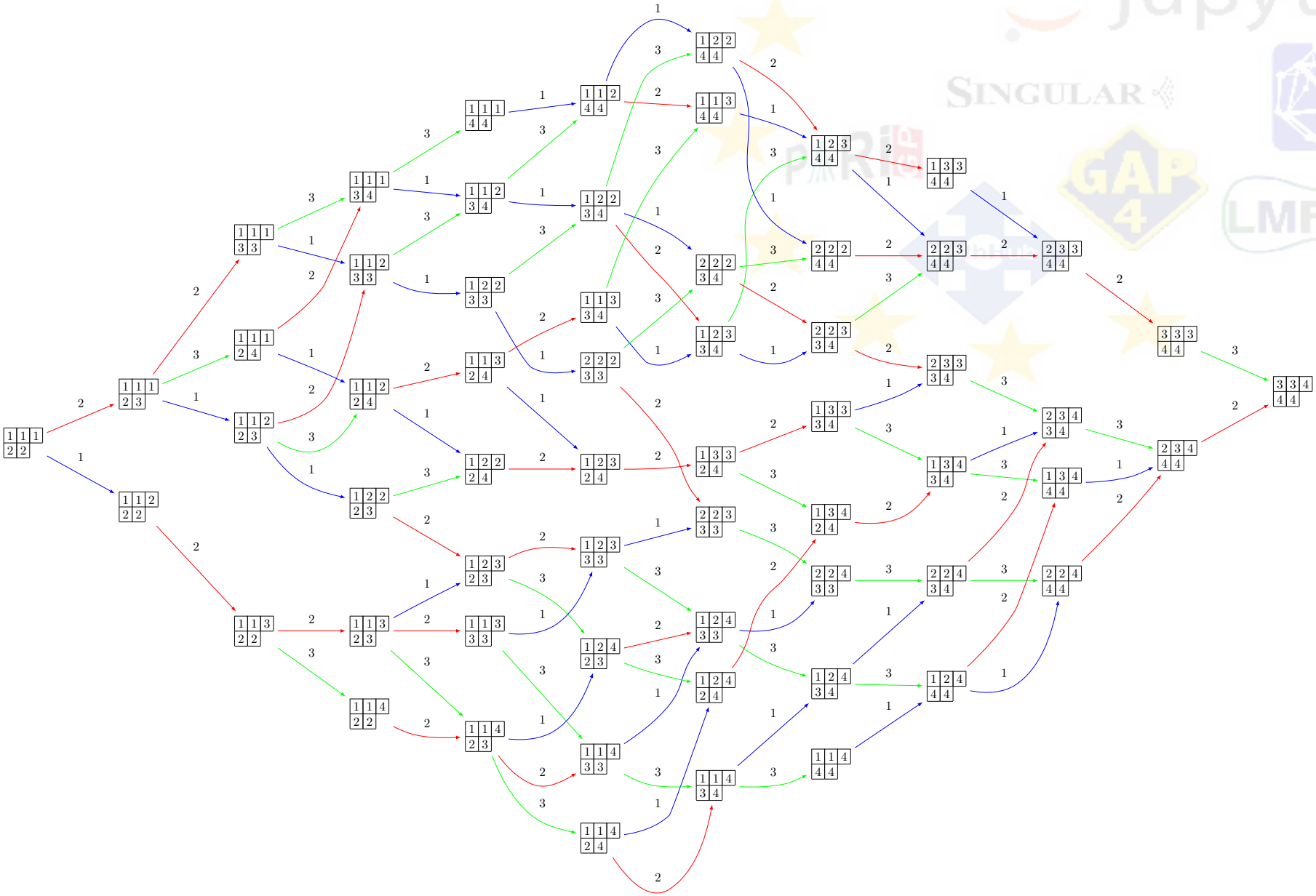
$$0100101001001010010100100101001001010010\cdots$$

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

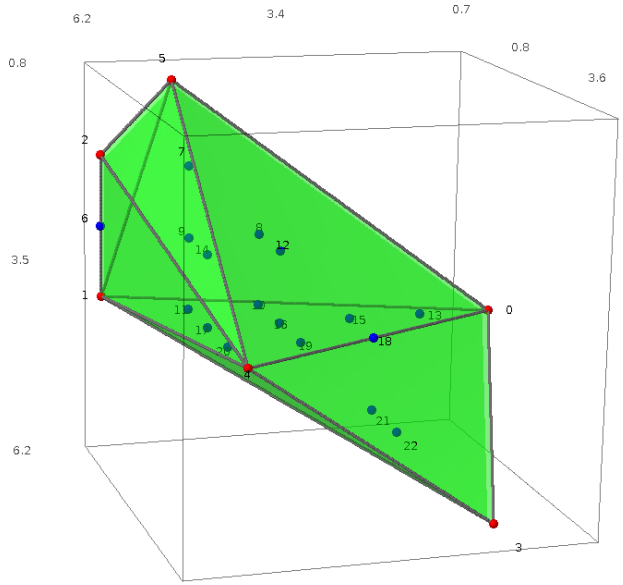
$$+\frac{q^2}{q^5+2q^4+3q^3+3q^2+2q+1}$$ 

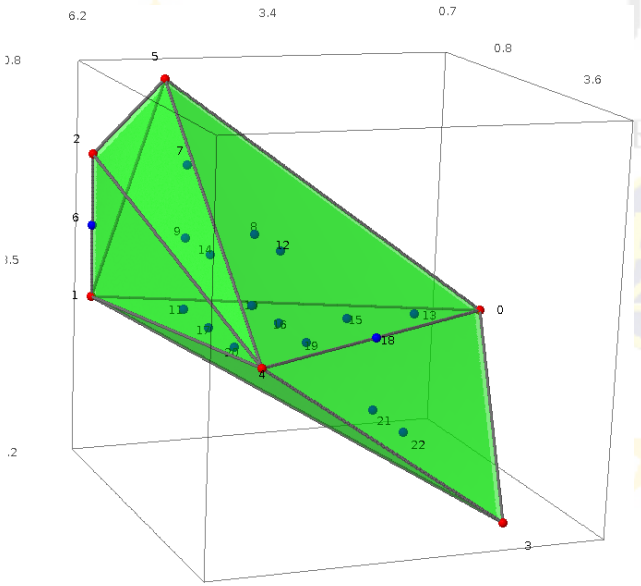
$$+\frac{\frac{1}{2}q}{q^4+q^3+2q^2+q+1}$$ 

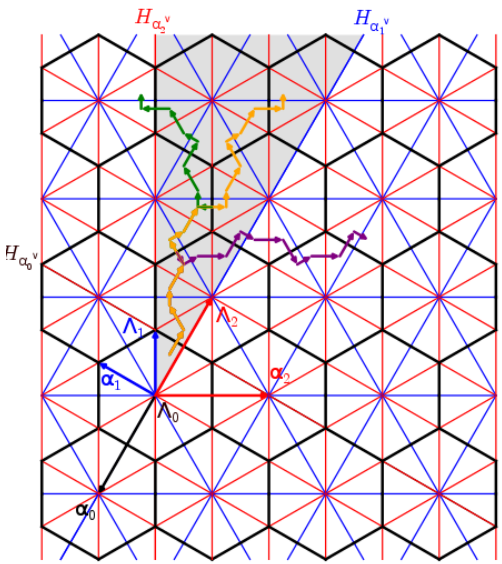
Graphs

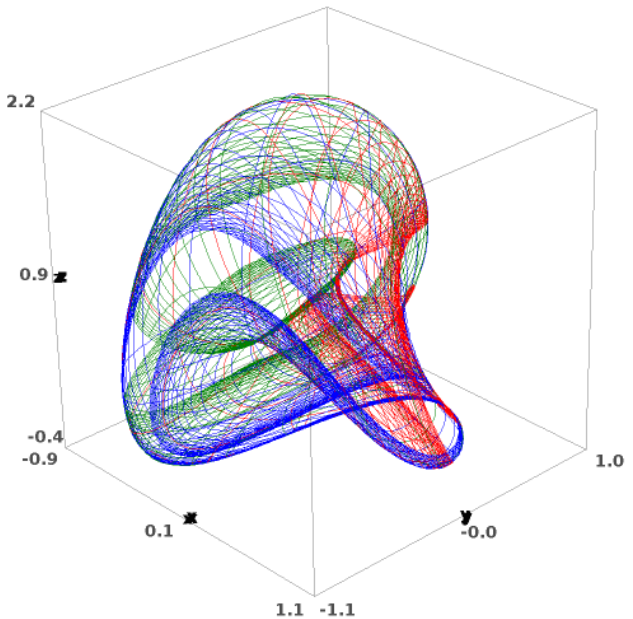


Geometric objects

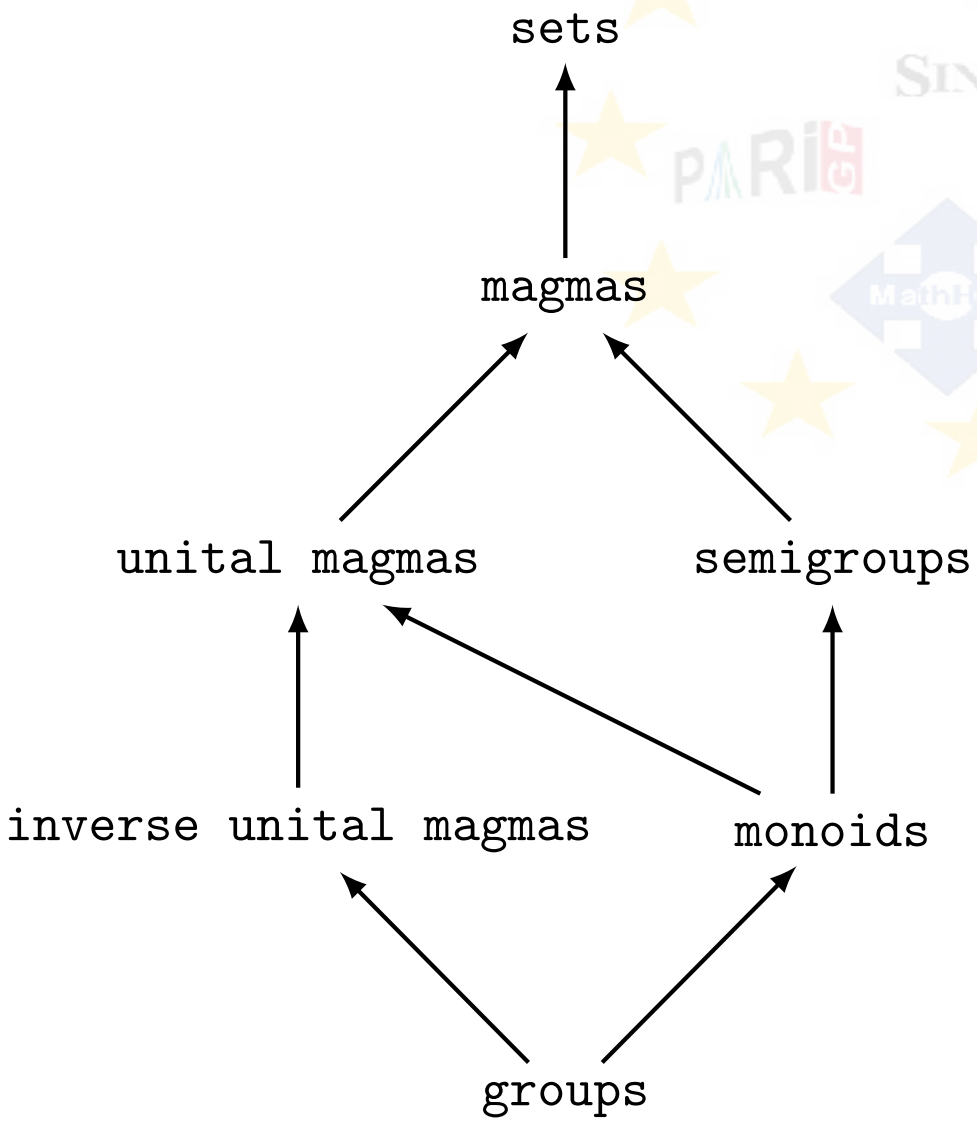








Challenge: a rich hierarchy of concepts



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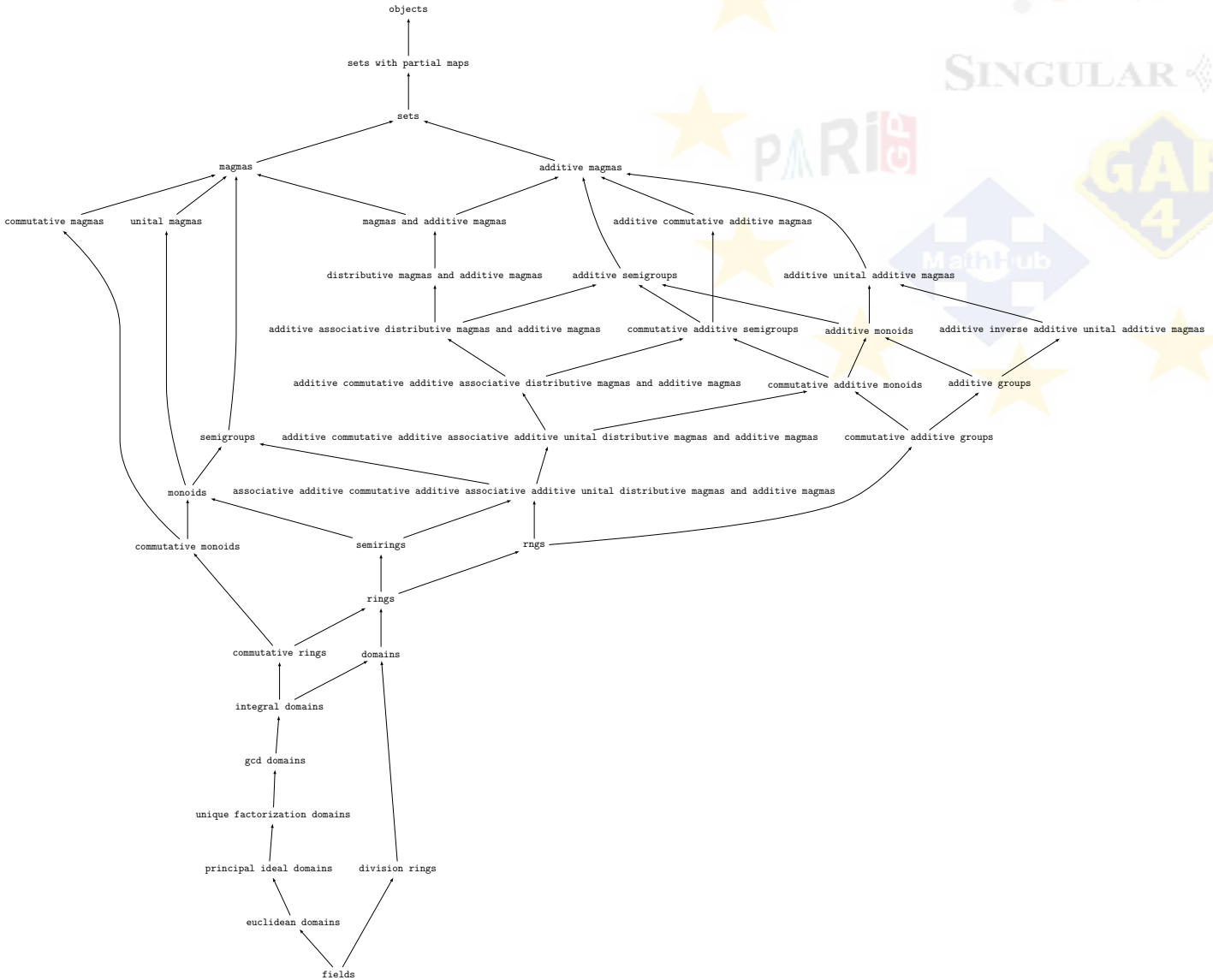

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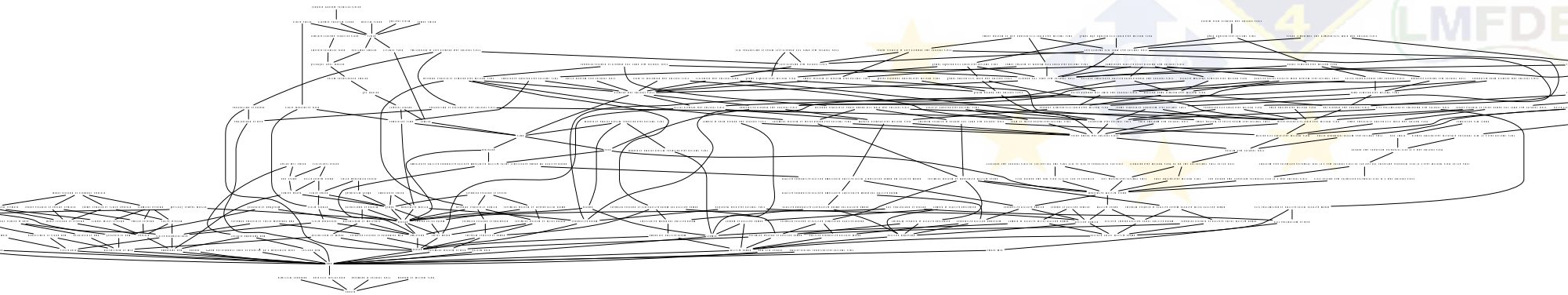

Challenge: a large variety of use cases

No one-size-fits-all VRE

OpenDreamKit's proposal

Deliver a **VRE Toolkit for Mathematics**...

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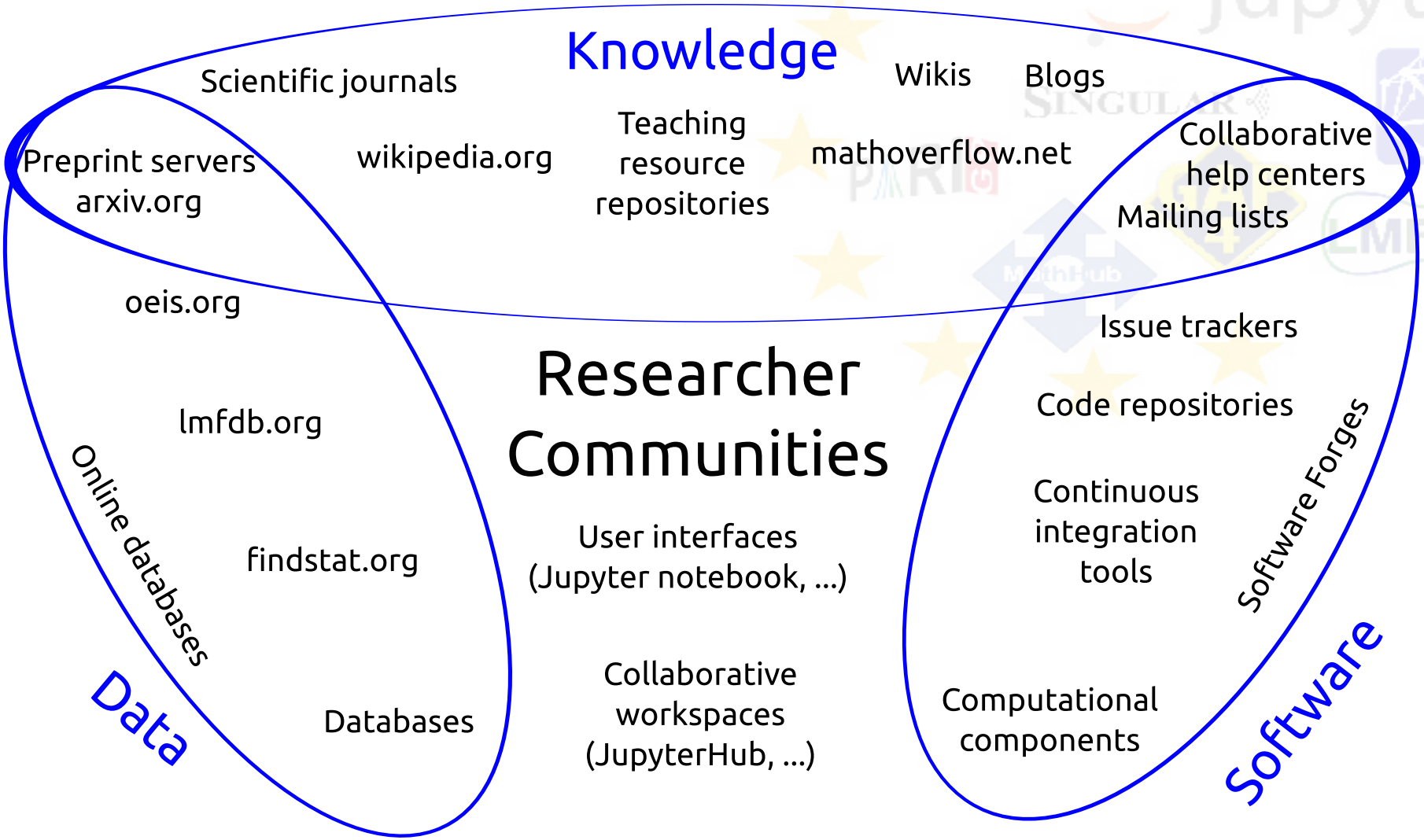

Storage resources (local, shared folder, cloud)	Computational resources (local, super computer, cloud)

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Risks mitigation!

- Lack of predictability for tasks that are pursued jointly with the community
- Recruitment of high profile staff (competition from industry!)
  Project admin situation