Questions on singularities of convolutions of polynomial maps (12B4X24N)

A Data Management Plan created using DMPonline.be

Creator: Yotam Hendel

Affiliation: KU Leuven (KUL)

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Template: FWO DMP (Flemish Standard DMP)

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Project abstract:

We propose to study several questions on the behavior of singularities of polynomial maps under an algebraic convolution operation.

Given a polynomial map f to an algebraic group, we consider a convolution operation which produces a new polynomial map f*f into the same group. Similarly to the usual convolution operation in analysis, outcomes f*f of the algebraic convolution operation have improved singularity properties. In this project we study this phenomenon and its connections and implications in algebraic geometry, group theory, number theory, and analysis.

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1. Research Data Summary

List and describe all datasets or research materials that you plan to generate/collect or reuse during your research project. For each dataset or data type (observational, experimental etc.), provide a short name & description (sufficient for yourself to know what data it is about), indicate whether the data are newly generated/collected or reused, digital or physical, also indicate the type of the data (the kind of content), its technical format (file extension), and an estimate of the upper limit of the volume of the data.

The funded project does not involve datasets. As part of the project, research outcomes (theorems, proofs) will be generated. These will be incorporated in future papers, and will be available and kept online (arXiv, Lirias, journal publications) for the research community to use.

				Only for digital data	Only for digital data	Only for digital data	Only for physical data
Dataset Name	Description	New or reused	Digital or Physical	Digital Data Type	Digital Data format	Digital data volume (MB/GB/TB)	Physical volume
		Please choose from the following options: • Generate new data • Reuse existing data	*Please choose from the following options:* • Digital • Physical	*Please choose from the following options:* • Observational • Experimental • Compiled/aggregated data • Simulation data • Software • Other • NA	*Please choose from the following options:* • .por, .xml, .tab, .csv,.pdf, .txt, .rtf, .dwg, .gml, … • NA	*Please choose from the following options:* • <100MB • <1GB • <100GB • <1TB • <5TB • <10TB • <50TB • >50TB • NA	

If you reuse existing data, please specify the source, preferably by using a persistent identifier (e.g. DOI, Handle, URL etc.) per dataset or data type:

Not applicable.

Are there any ethical issues concerning the creation and/or use of the data (e.g. experiments on humans or animals, dual use)? Describe these issues in the comment section. Please refer to specific datasets or data types when appropriate.

- No

Not applicable.

Will you process personal data? If so, briefly describe the kind of personal data you will use in the comment section. Please refer to specific datasets or data types when appropriate.

- No

Not applicable.

Does your work have potential for commercial valorization (e.g. tech transfer, for example spin-offs, commercial exploitation, …)? If so, please comment per dataset or data type where appropriate.

- No

Not applicable.

Do existing 3rd party agreements restrict exploitation or dissemination of the data you (re)use (e.g. Material/Data transfer agreements/ research collaboration agreements)? If so, please explain in the comment section to what data they relate and what restrictions are in place.

- No

Not applicable.

Are there any other legal issues, such as intellectual property rights and ownership, to be managed related to the data you (re)use? If so, please explain in the comment section to what data they relate and which restrictions will be asserted.

- No

Not applicable.

2. Documentation and Metadata

Clearly describe what approach will be followed to capture the accompanying information necessary to keep data understandable and usable, for yourself and others, now and in the future (e.g., in terms of documentation levels and types required, procedures used, Electronic Lab Notebooks, README.txt files, Codebook.tsv etc. where this information is recorded).

The proofs of the results contain all necessary documentation to keep the results understandable and usable. All outcomes will be incorporated in future papers, and will be available and kept online (arXiv, Lirias, journal publications) for the research community to use.

Will a metadata standard be used to make it easier to find and reuse the data? If so, please specify (where appropriate per dataset or data type) which metadata standard will be used. If not, please specify (where appropriate per dataset or data type) which metadata will be created to make the data easier to find and reuse.

- Yes

The Mathematics Subject Classification (MSC), the standard metadata in mathematics research will be used.

3. Data storage & back-up during the research project

Where will the data be stored?

All outcomes will be incorporated in future papers, and will be available and kept online (arXiv, Lirias, journal publications) for the research community to use.

How will the data be backed up?

As outcomes will be available and kept online in several places (arXiv, Lirias, journal publications), they will be backed up. In addition, research material will be stored online on Dropbox to provide and extra back-up measure.

Is there currently sufficient storage & backup capacity during the project? If yes, specify concisely.
If no or insufficient storage or backup capacities are available, then explain how this will be taken care of.

- Yes

The research outcomes don't require much storage space (manuscripts).

How will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?

In pure mathematics this is not a risk, as the research materials are proofs, etc.

What are the expected costs for data storage and backup during the research project? How will these costs be covered?

Storage on arXiv, Lirias, and journal website doesn't cost money. In addition research materials don't take much space.

4. Data preservation after the end of the research project

Which data will be retained for at least five years (or longer, in agreement with other retention policies that are applicable) after the end of the project? In case some data cannot be preserved, clearly state the reasons for this (e.g. legal or contractual restrictions, storage/budget issues, institutional policies...).

Research outcomes (theorems, proofs) will be kept on arXiv, Lirias and the journal website for many years to come and for future researchers to use.

Where will these data be archived (stored and curated for the long-term)?

On the arXiv, Lirias, and in the journals where the papers will be published.

What are the expected costs for data preservation during the expected retention period? How will these costs be covered?

Storage on arXiv, Lirias, and journal website doesn't cost money. In addition research materials don't take much space.

5. Data sharing and reuse

Will the data (or part of the data) be made available for reuse after/during the project? In the comment section please explain per dataset or data type which data will be made available.

- Yes, in an Open Access repository

Yes, research outcomes will be available on arXiv, Lirias, and the journal website. After a manuscript is accepted for publication, the peer reviewed up-to-date version will also be reuploaded to the arXiv.

If access is restricted, please specify who will be able to access the data and under what conditions.

Not applicable as access is not restricted.

Are there any factors that restrict or prevent the sharing of (some of) the data (e.g. as defined in an agreement with a 3rd party, legal restrictions)? Please explain in the comment section per dataset or data type where appropriate.

- No

There aren't such factors.

Where will the data be made available? If already known, please provide a repository per dataset or data type.

As mentioned before, on arXiv, Lirias and on the journal where each paper is published.

When will the data be made available?

Research outcomes will be made available after manuscript publication.

Which data usage licenses are you going to provide? If none, please explain why.

A Creative Commons license will be provided. See more here: https://creativecommons.org/licenses/by/4.0/.

Do you intend to add a PID/DOI/accession number to your dataset(s)? If already available, you have the option to provide it in the comment section.

- Yes

Published manuscripts will be assigned a DOI, as is standard in publications in mathematics.

What are the expected costs for data sharing? How will these costs be covered?

There are no expected costs.

6. Responsibilities

Who will manage data documentation and metadata during the research project?

For as far as relevant, Yotam Hendel

Who will manage data storage and backup during the research project?

For as far as relevant, Yotam Hendel

Who will manage data preservation and sharing?

For as far as relevant, Yotam Hendel

Who will update and implement this DMP?

For as far as relevant, Yotam Hendel