



Episciences overlay journals

A bridge between scientific publications,
open repositories, data and software
repositories

2023-11-08

The 18th Munin Conference on Scholarly Publishing

Tromsø, Norway

Raphaël Tournoy, CNRS/CCSD





HAL is the multidisciplinary open archive chosen by the entire French scientific and academic community for the dissemination of knowledge

hal.science



Diamond open access journal platform: a complete solution for editing and publishing overlay journals

www.episciences.org



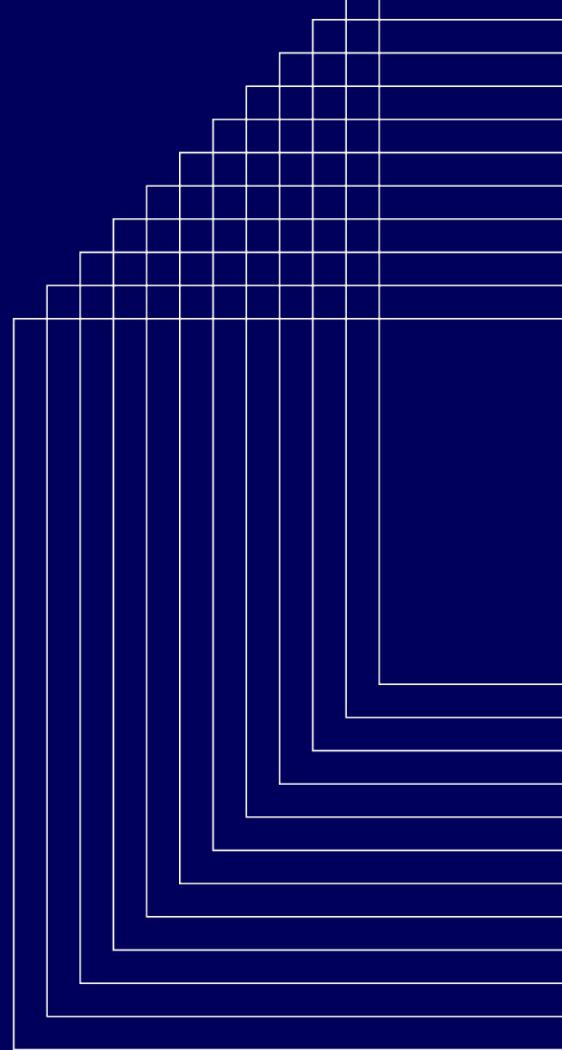
Platform dedicated to organisers of conferences, workshops or scientific meetings

www.sciencesconf.org

CCSD
Centre pour la Communication
Scientifique Directe

An overview of Episciences

Principles - governance -
organisation



Episciences

Quick overview

- A publishing platform for open access scientific journals
- *Diamond* open access (No APC, free to both authors and readers)
- Journals from any disciplines, any country, any language
- Welcome new or existing/flipping journals
- Not a publisher, journals are usually their own publisher
- All the components are free software

30 [journals](#)

- > 12 000 submissions
- > 6 100 published articles
- > 12 000 users
- > 6 700 peer-review reports



Episciences

Governance & organisation

- Academic-led and owned, initiated by researchers
- Steering committee (review general platform orientations)
- Discipline specific scientific committees (review journal applications)

– Informatics and applied mathematics



Inria

– Mathematics



– SSH

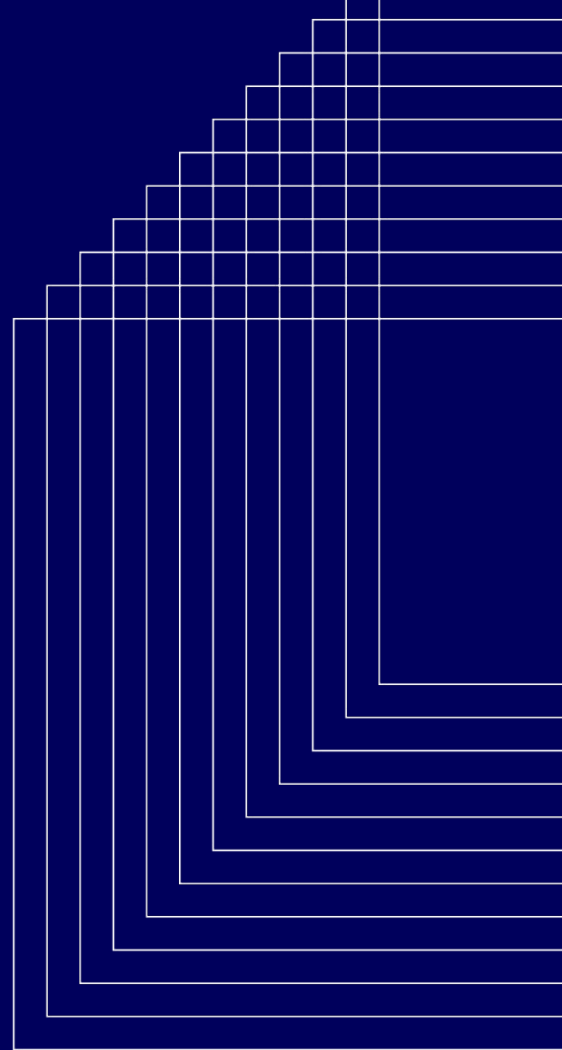


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– ...

Overlay model

Model - workflow



An overlay model

On top of open infrastructures

- Publishing workflow on top of Green Open Access
- The journals articles are actually hosted by open repositories: arXiv, HAL, Zenodo, ...
- Episciences proposes all the tools to publish based on repositories



English [edit]

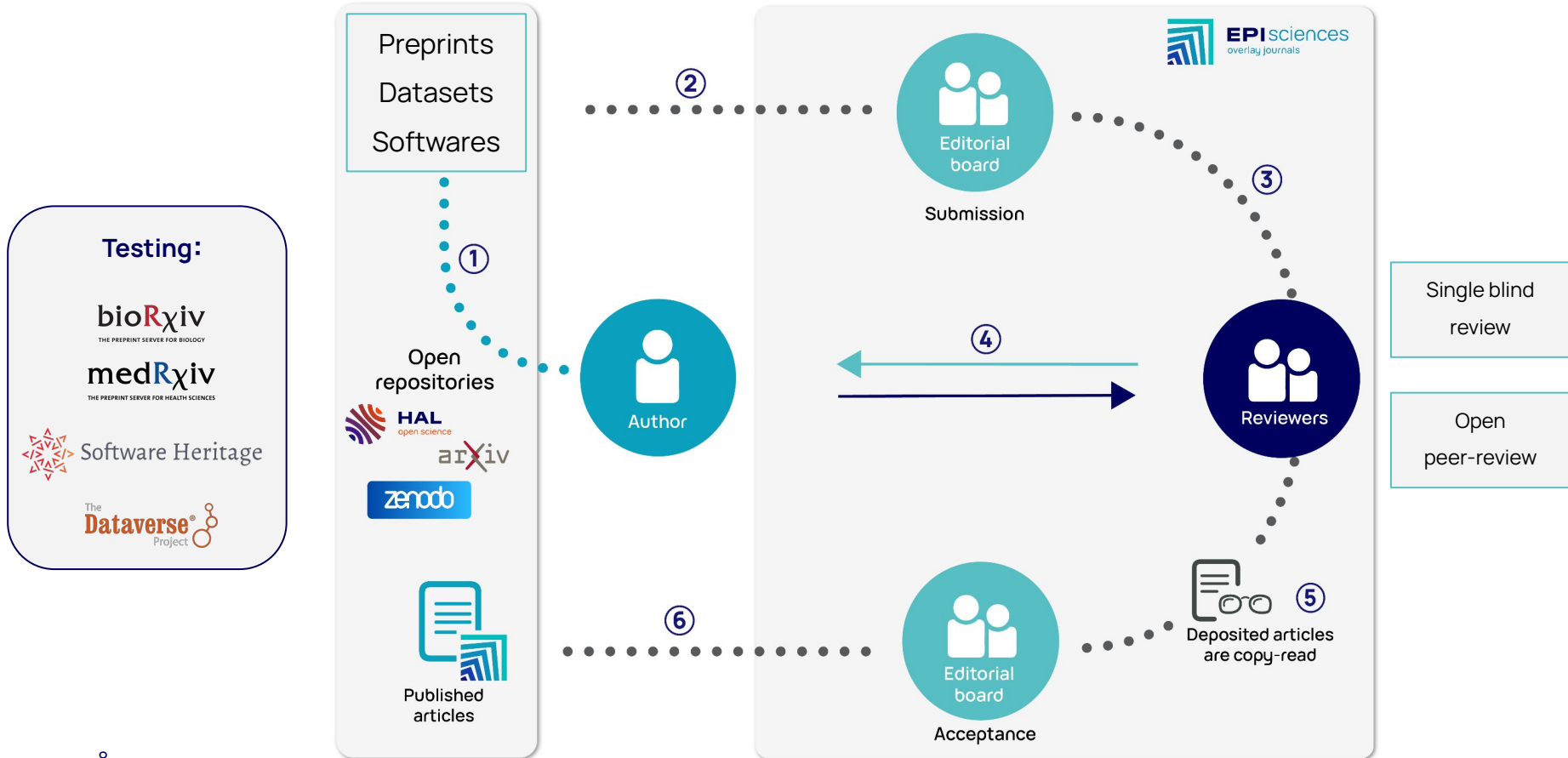
Etymology [edit]

From [Ancient Greek](#) ἐπί (*epí*, “on top of”).

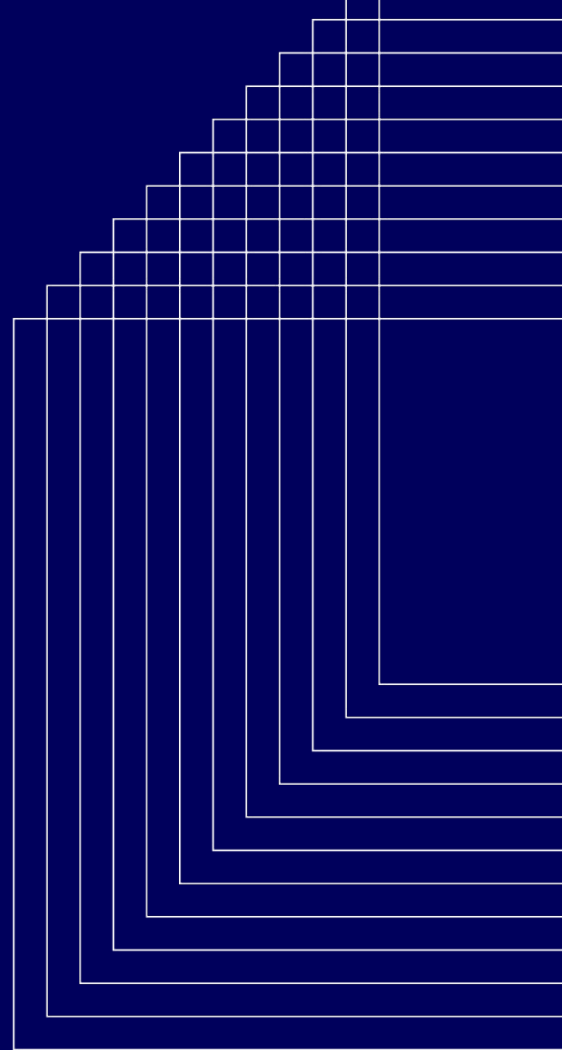
Prefix [edit]

epi-

1. Above, over, on, in addition to
2. (*chemistry*) Denotes an [epimeric](#) form



Why publishing on top of open preprint servers?

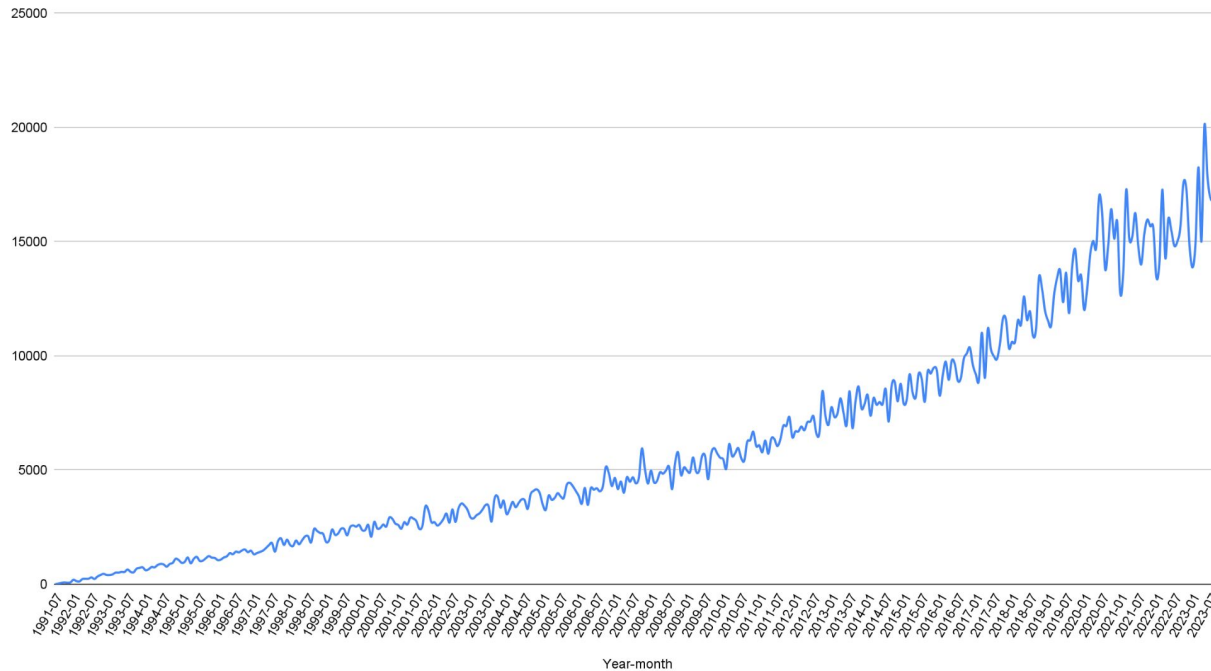


An overlay model

Preprints are an abundant resource



arXiv submissions

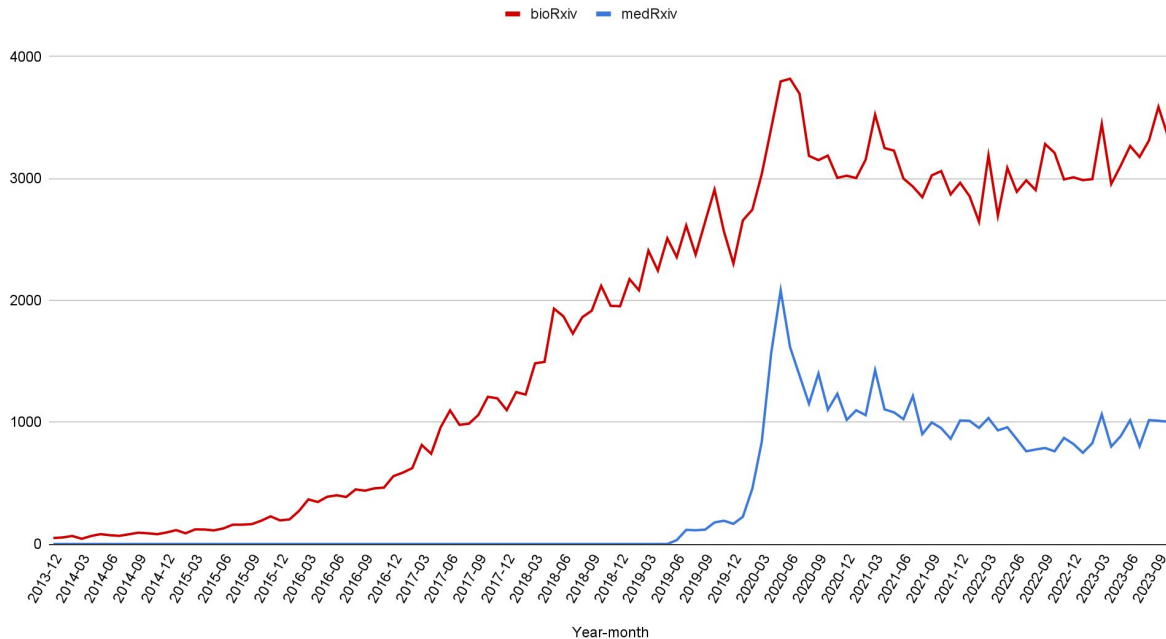


An overlay model

https://api.medrxiv.org/reports/publication_summary
https://api.biorxiv.org/reports/publication_summary

Preprints are an abundant resource

bioRxiv and medRxiv submissions



bioRxiv
THE PREPRINT SERVER FOR BIOLOGY

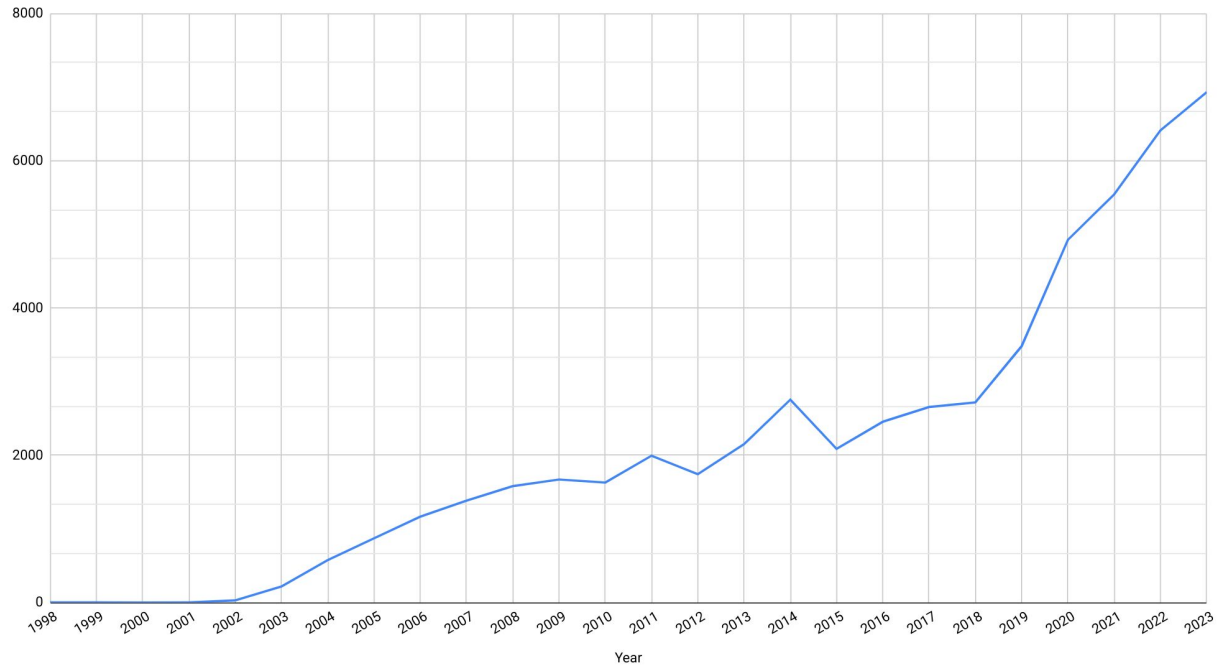
medRxiv
THE PREPRINT SERVER FOR HEALTH SCIENCES

An overlay model

Preprints are an abundant resource



HAL preprint submissions



And there are many more preprint servers

>90 on the Directory of Open Access Preprint Repositories

Directory of Open Access Preprint Repositories

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It is becoming an increasingly common practice for researchers to share their preprints because it allows them to disseminate their research results quickly and openly with the rest of the world. As a result, there is a growing number of preprint-specific and generalist repositories that support the sharing of preprints.

This directory provides a list of preprint repositories that are available to the research community. It helps researchers find the most appropriate platform for them, enabling them to browse through existing repositories by discipline, location, language, functionalities, and other facets.

The directory is jointly managed by [Centre pour la Communication Scientifique Directe \(CCSD\)](#) and [Confederation of Open Access Repositories \(COAR\)](#). The data in this directory was originally compiled through the GPPdP (Groupe Projet Plateformes de Prepublications) project, with financial support from the French [Ministry of Research's Open Science Committee \(CoSQ\)](#).

To suggest a new repository, or provide feedback on a repository already included in this directory, please see the [feedback page](#).



A short list of the advantages of preprints

Rapid Dissemination

You don't have to wait for peer review and copy-editing to access the content. A nice advantage for instance in case of pandemics.

Open Access

Free to access and free to read and free to submit

Establishing Priority

Posting a preprint establishes a public record of a researcher's work

Increased Visibility

Preprints are indexed by search engines such as Google Scholar and help enhance the visibility of a researcher's work

Preprints usually come with standard disclaimers:



What is a preprint

In the field of scholarly publication, a preprint – or prepublication – is the version of an article that the author submits to the editorial board of a scientific journal. If the article meets the criteria of the journal, it is then reviewed by researchers whose profile corresponds to the themes and techniques discussed in the article. They evaluate the content of the article (methodology, presentation of results) and may ask the author for additions or clarifications. This stage is called peer review.

The final decision to publish rests with the editorial board of the journal.



This article is a preprint and has not been certified by peer review [what does this mean?].



Caution: Preprints are preliminary reports of work that have not been certified by peer review. They should not be relied on to guide clinical practice or health-related behavior and should not be reported in news media as established information.



arXiv is a free distribution service and an open-access archive for 2,357,785 scholarly articles in the fields of physics, mathematics, computer science, quantitative biology, quantitative finance, statistics, electrical engineering and systems science, and economics. [Materials on this site are not peer-reviewed by arXiv.](#)

Addressing preprints shortcomings with Episciences

Overlay services on top of repositories

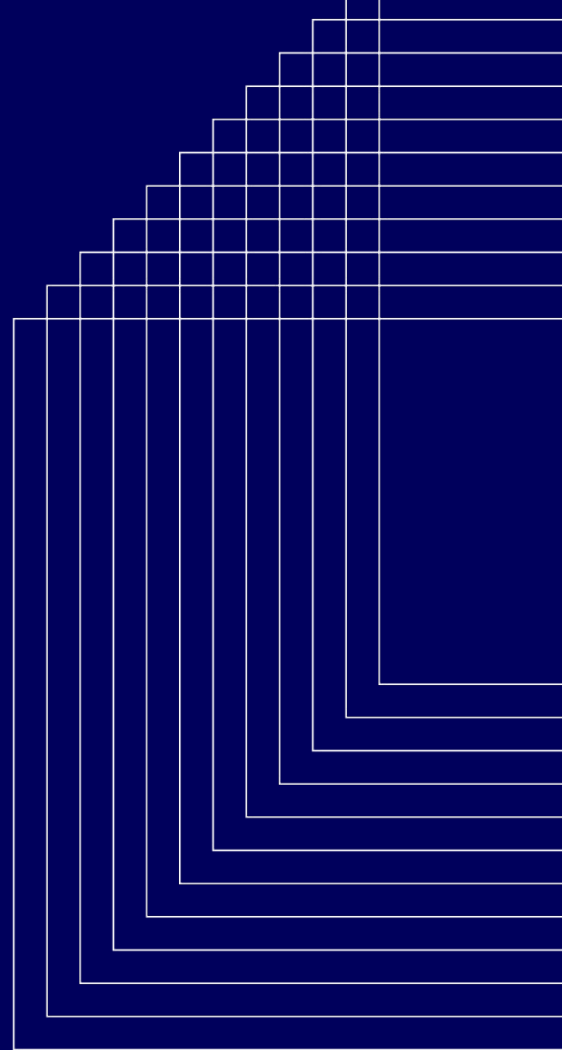
Technical Offer

- A dedicated website
- Submission system / open infrastructure
- Peer review tools
 - Handling invitations
 - Automatic reminders
 - Reviewing grids
- Customisable workflows
- Statistics about the journal
- APIs / OAI-PMH Endpoint
- Automatic extraction/processing of bibliographical references
- Several exports formats (i.e. DOAJ, OpenAIRE, ZbMath, etc)
- Handling DOI / Crossref
- Automatic enrichment of metadata with new PIDs
- Integration with OpenAIRE services

Services offering

- Help with website customisation and setup
 - Web design
 - Content (publishing policies, ethical charters,...)
- Advice for best practices, choice of licence, Open access publishing requirements, ...
- Indexing in databases, DOAJ, ...
- Copyright assignment contract
- Advice and assistance in applying for institutional support and funding
- Sourcing and contacts with service providers for copy-editing
- Help with journal migration on our platform
- Technical support
- Training
- Feature and bug request opened on Github

Advantages of the model



Advantages of the model with Episciences

Cost efficient

- Publish at a reasonable cost (shared infrastructure, hosting and preservation by repositories)
- No subscriptions, no APC
- Free hosting and free support

Time efficient

- Preprints are immediately available
- Stay online, even if refused

Quality added to preprints

- Validation/certification of preprints

Traceability

- Track the evolution of document versions, even after publication
- Consider publications as a conversation flow, beyond a simple published version of record

Advantages of the model with Episciences

Open by design

- Compliant with open access mandates

Long term access

- Maintain control over access to publications / evaluations
- Maintain access to content even if the journal ceased publication

FAIR & Bibliodiversity

- Meets FAIR principles
- More bibliodiversity

Advantages of the model with Episciences

Compliant with RRS / Allow authors to retain their rights

- CC licences, non-exclusive distribution rights to journals

Academic owned

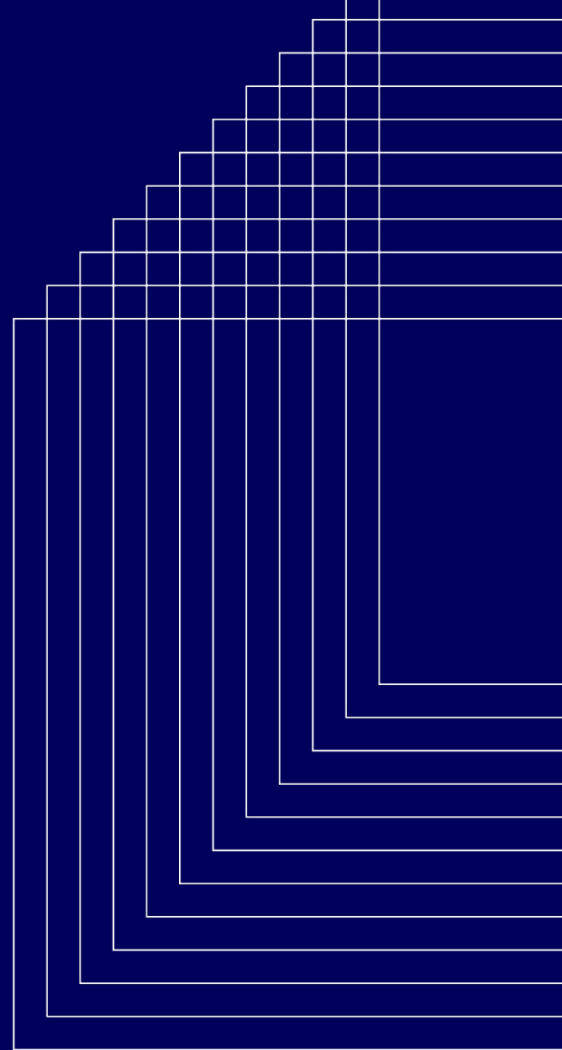
- Allow scientific communities to own their journals and the data created by their activity
- To have a scientific publication policy independent of publisher opportunities

Open science as a common good

- Public money (Human resources time/effort) is invested in a public service for the production of global common good

How it works

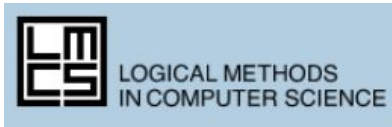
An example



How to use Episciences

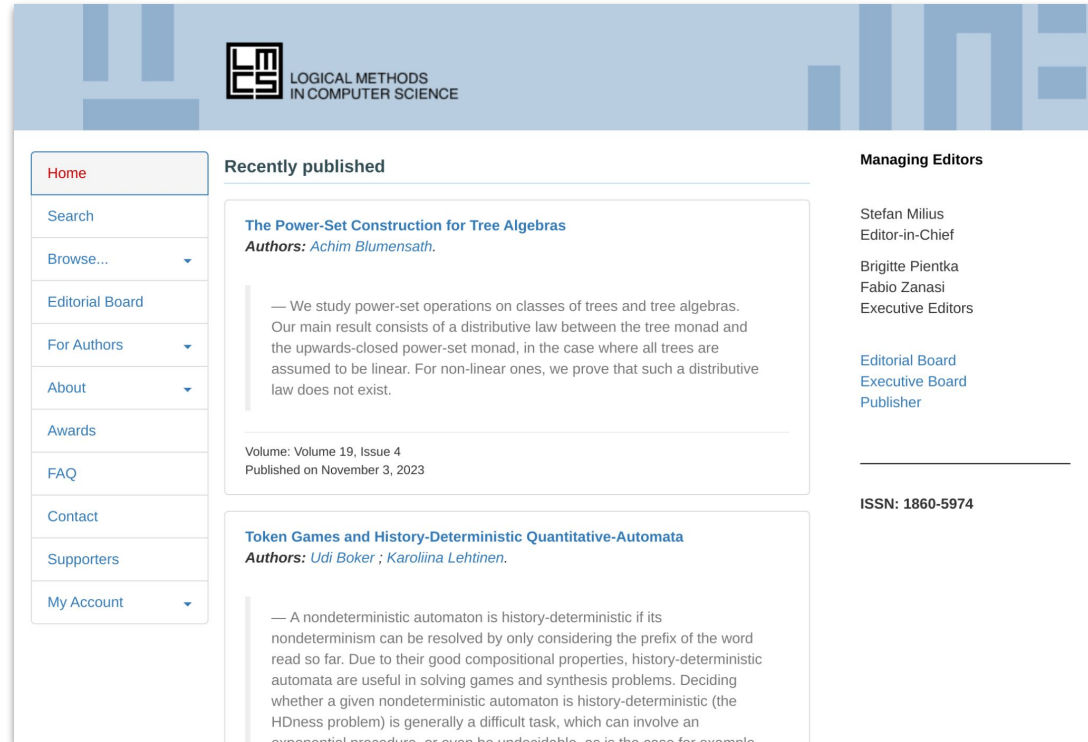
Each journals has its own domain name

Example with:



Hosted on:

lmcs.episciences.org



LMCS LOGICAL METHODS
IN COMPUTER SCIENCE

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- For Authors ▾
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Recently published

The Power-Set Construction for Tree Algebras
Authors: Achim Blumensath.

— We study power-set operations on classes of trees and tree algebras. Our main result consists of a distributive law between the tree monad and the upwards-closed power-set monad, in the case where all trees are assumed to be linear. For non-linear ones, we prove that such a distributive law does not exist.

Volume: Volume 19, Issue 4
Published on November 3, 2023

Token Games and History-Deterministic Quantitative-Automata
Authors: Udi Boker ; Karoliina Lehtinen.

— A nondeterministic automaton is history-deterministic if its nondeterminism can be resolved by only considering the prefix of the word read so far. Due to their good compositional properties, history-deterministic automata are useful in solving games and synthesis problems. Deciding whether a given nondeterministic automaton is history-deterministic (the HDness problem) is generally a difficult task, which can involve an exponential procedure, or even be undecidable, as is the case for example

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1. Submit your preprint

On a repository, e.g. arXiv:

<https://arxiv.org/abs/1802.05734v1>

Search...
Help | Advan

arXiv > math > arXiv:1802.05734v1

Mathematics > Logic

[Submitted on 15 Feb 2018 (this version), latest version 23 Apr 2020 (v10)]

Writability and reachability for alpha-tape infinite time Turing machines

[Merlin Carl](#), [Benjamin Rin](#), [Philipp Schlicht](#)

Infinite time Turing machines with tape length α (denoted T_α) were introduced by Rin to strengthen the ω -tape machines of Hamkins and Kidder. It is known that for some countable ordinals α , these machines' properties are quite different from those of the ω -tape case. We answer a question of Rin about the size of the least ordinal δ such that not all cells are halting positions of T_δ by giving various characterizations of δ . For instance, it is the least ordinal with any of the properties (a) there is a T_α -writable real that is not T_δ -writable for some $\alpha < \delta$, (b) δ is uncountable in L_{λ_δ} , or (c) δ is a regular cardinal in L_{λ_δ} , where λ_δ denotes the supremum of ordinals with a T_δ -writable code of length δ . We further use these characterizations together with an analogue to Welch's submodel characterization of the ordinals λ , ζ and Σ , to show that δ is closed under the function $\alpha \mapsto \Sigma_\alpha$, where Σ_α denotes the supremum of the ordinals with a T_α -accidentally writable code of length α .

Subjects: **Logic (math.LO)**; Logic in Computer Science (cs.LO)

2. Import your preprint on a journal

with your preprint ID:

[1802.05734v1](#)

On a journal, eg [LMCS](#) for this example

Submit an article

Guidelines

You are about to submit a paper. Please check:

- that your paper is deposited on an open access repository (arXiv)
- that you have its identifier at hand

The paper's identifier, its version and the repository it is located on are information that need to be entered in the form below. Metadata will automatically be retrieved and you will see a summary of your paper before confirming the submission - please check that this is the manuscript you wish to submit to the journal.

* Required fields

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Document identifier *

Enter the document identifier.

1802.05734

Version *

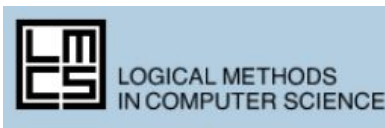
Enter the document version (number only).

1

Search

Metadata retrieved with arXiv's APIs

API



Merlin Carl ; Benjamin Rin ; Philipp Schlicht - Reachability for infinite time Turing machines with long tapes

Reachability for infinite time Turing machines with long tapes

Authors: *Merlin Carl ; Benjamin Rin ; Philipp Schlicht*

Infinite time Turing machine models with tape length α , denoted T_α , strengthen the machines of Hamkins and Kidder [HL00] with tape length ω . A new phenomenon is that for some countable ordinals α , some cells cannot be halting positions of T_α given trivial input. The main open question in [Rin14] asks about the size of the least such ordinal δ . We answer this by providing various characterizations. For instance, δ is the least ordinal with any of the following properties: (a) For some $\xi < \alpha$, there is a T_ξ -writable but not T_α -writable subset of ω . (b) There is a gap in the T_α -writable ordinals. (c) α is uncountable in L_{λ_α} . Here λ_α denotes the supremum of T_α -writable ordinals, i.e. those with a T_α -writable code of length α . We further use the above characterizations, and an analogue to Welch's submodel characterization of the ordinals λ , ζ and Σ , to show that δ is large in the sense that it is a closure point of the function $\alpha \mapsto \Sigma_\alpha$, where Σ_α denotes the supremum of the T_α -accidentally writable ordinals.

Keywords: Mathematics - Logic, Computer Science - Logic in Computer Science



Mathematics > Logic

[Submitted on 15 Feb 2018 (v1), last revised 23 Apr 2020 (this version, v10)]

Reachability for infinite time Turing machines with long tapes

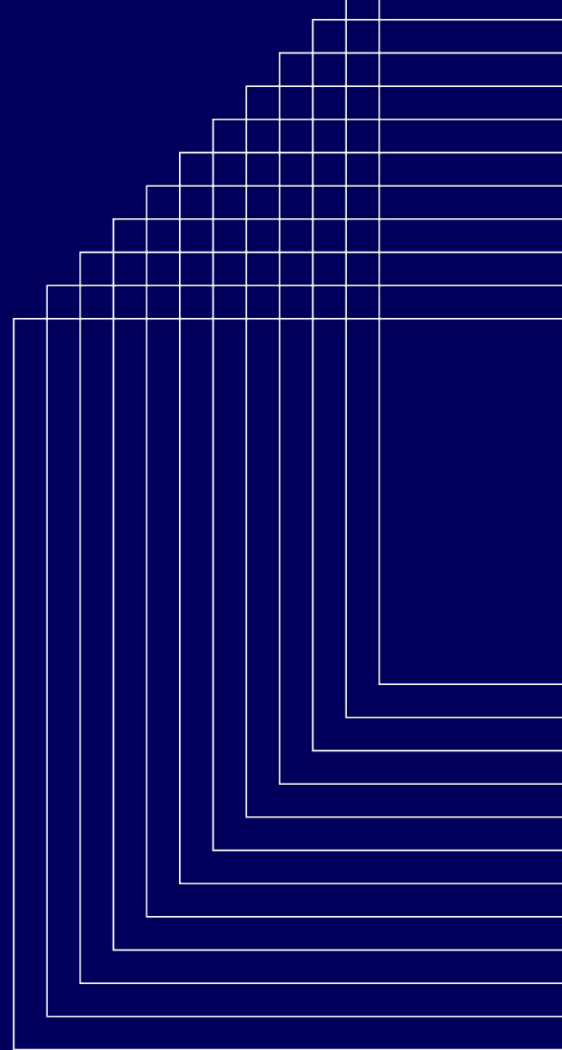
Merlin Carl, Benjamin Rin, Philipp Schlicht

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Adding publications - softwares - datasets

Creating new links for reproducibility





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Source: [arXiv.org:1802.05734](https://arxiv.org/abs/1802.05734)

Submitted on: November 4, 2023

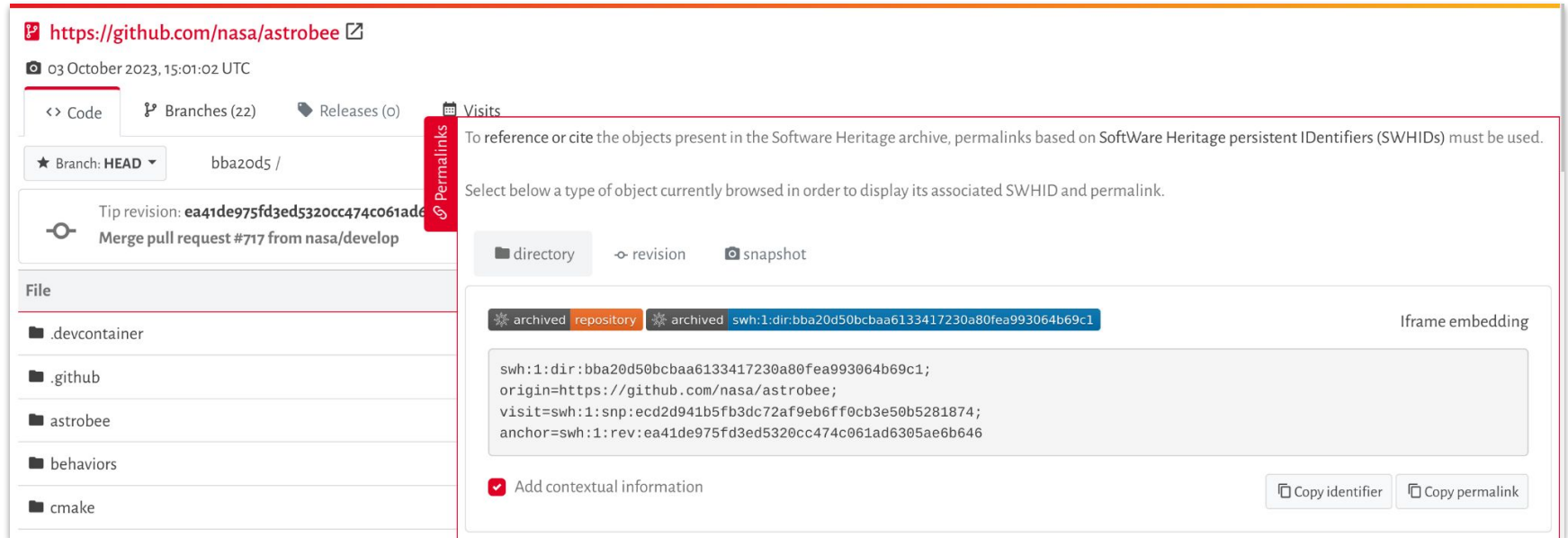
Keywords: Mathematics - Logic, Computer Science - Logic in Computer Science

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Linked publications - datasets - softwares



Allows to cite a whole repository, revisions, snapshots with PIDs (SWHID)



The screenshot shows a GitHub repository page for `https://github.com/nasa/astrobee`. A red-bordered overlay from the Software Heritage archive is positioned over the repository details. The overlay contains the following text and elements:

- A red vertical label on the left side of the overlay reads "Permalinks".
- Text: "To reference or cite the objects present in the Software Heritage archive, permalinks based on SoftWare Heritage persistent IDentifiers (SWHIDs) must be used."
- Text: "Select below a type of object currently browsed in order to display its associated SWHID and permalink."
- Three buttons: "directory", "revision", and "snapshot".
- Two buttons: "archived repository" and "archived `swh:1:dir:bba20d50bcbaa6133417230a80fea993064b69c1`".
- A text box containing the SWHID and permalink information:

```
swh:1:dir:bba20d50bcbaa6133417230a80fea993064b69c1;
origin=https://github.com/nasa/astrobee;
visit=swh:1:snp:ecd2d941b5fb3dc72af9eb6ff0cb3e50b5281874;
anchor=swh:1:rev:ea41de975fd3ed5320cc474c061ad6305ae6b646
```
- A checkbox labeled "Add contextual information" which is checked.
- Two buttons: "Copy identifier" and "Copy permalink".

The background of the screenshot shows the GitHub repository interface with the following visible elements:

- Repository URL: `https://github.com/nasa/astrobee`
- Timestamp: 03 October 2023, 15:01:02 UTC
- Navigation tabs: Code, Branches (22), Releases (0), Visits
- Branch: HEAD, `bba20d5 /`
- Tip revision: `ea41de975fd3ed5320cc474c061ad6305ae6b646`
- Merge pull request #717 from nasa/develop
- File list: `.devcontainer`, `.github`, `astrobee`, `behaviors`, `cmake`

Citing lines of a specific version



<https://github.com/nasa/astrobee>

03 October 2023, 15:01:02 UTC

<> Code Branches (22) Releases (0) Visits

Revision: **ea41de975fd3ed5320cc474c061ad6305ae6b646** bba20d5 / ast

Tip revision: **ea41de975fd3ed5320cc474c061ad6305ae6b646** aut Merge pull request #717 from nasa/develop

Permalinks

To reference or cite the objects present in the Software Heritage archive, permalinks based on SoftWare Heritage persistent IDentifiers (SWHIDs) must be used.

Select below a type of object currently browsed in order to display its associated SWHID and permalink.

content directory revision snapshot

archived repository archived **swh:1:cnt:5d2f36d0fbb5062cb233770858fd42856c62eaa0** Iframe embedding

```
swh:1:cnt:5d2f36d0fbb5062cb233770858fd42856c62eaa0;
origin=https://github.com/nasa/astrobee;
visit=swh:1:snp:ecd2d941b5fb3dc72af9eb6ff0cb3e50b5281874;
anchor=swh:1:rev:ea41de975fd3ed5320cc474c061ad6305ae6b646;
path=/astrobee/plans/undockp4.fplan;
lines=1-30
```

Add contextual information

```
undockp4.fplan
1 {
2   "type" : "ModuleBayPlan",
3   "operatingLimits" : {
4     "maxAVelocity" : 0.38,
5     "obstacleDistanceLimit" : 0.1,
6     "allowBlindFlying" : false,
7     "keepoutMargin" : 0.2,
8     "name" : "Conservative",
9     "checkKeepouts" : true,
10    "maxVelocity" : 0.2,
11    "maxAcceleration" : 0.015,
12    "maxAcceleration" : 0.15
13  },
14  "visible" : true,
15  "site" : {
16    "type" : "Site",
17    "bbox" : [ -0.7, -0.5, -0.65, 0.7, 0.5, 0.65 ],
18    "crs" : {
```

The article + the software repository

- For reviewers
- For readers

Reachability for infinite time Turing machines with long tapes

Text

Authors: Merlin Carl ; Benjamin Rin ; Philipp Schlicht

Infinite time Turing machine models with tape length α , denoted T_α , strengthen the machines of Hamkins and Kidder [HL00] with tape length ω . A new phenomenon is that for some countable ordinals α , some cells cannot be halting positions of T_α given trivial input. The main open question in [Rin14] asks about the size of the least such ordinal δ . We answer this by providing various characterizations. For instance, δ is the least ordinal with any of the following properties: (a) For some $\xi < \alpha$, there is a T_ξ -writable but not T_α -writable subset of ω . (b) There is a gap in the T_α -writable ordinals. (c) α is uncountable in L_{λ_α} . Here λ_α denotes the supremum of T_α -writable ordinals, i.e. those with a T_α -writable code of length α . We further use the above characterizations, and an analogue to Welch's submodel characterization of the ordinals λ , ζ and Σ , to show that δ is large in the sense that it is a closure point of the function $\alpha \mapsto \Sigma_\alpha$, where Σ_α denotes the supremum of the T_α -accidentally writable ordinals.

Source: [arXiv.org:1802.05734](https://arxiv.org/1802.05734)
 Submitted on: November 4, 2023
 Keywords: Mathematics - Logic, Computer Science - Logic in Computer Science
 Licence: [Attribution 4.0 International \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

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Software Heritage
Navigating in
archived
swh:1.dir:bba20d50bcbaa6133417230a80fea993064b69c1
↗

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File	Mode	Size
.devcontainer		
.github		
astobee		
behaviors		
cmake		
communications		
debian		
description		
doc		

Permalinks

Linked publications - datasets - softwares

Datasets

References Dataset Franc, A., Frigerio, J.-M., Chancerel, E., Salin, F., Théron, S., Rimet, F., & Bouchez, A. (2023). *Reads and pairwise distances from 10 samples of diatoms in Geneva lake* [Data set]. Recherche Data Gouv. <https://doi.org/10.57745/NKTRHO>

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</related_item>
-<related_item>
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</related_item>
-<related_item>
  -<inter_work_relation identifier-type="other" relationship-type="references">
    swh:1:dir:bba20d50bcbaa6133417230a80fea993064b69c1;origin=https://github.com/nasa/astrobee;
    visit=swh:1:snp:ecd2d941b5fb3dc72af9eb6ff0cb3e50b5281874;anchor=swh:1:rev:ea41de975fd3ed5320cc474c061ad6305ae6b646
  </inter_work_relation>
</related_item>
```


Peer-review

- Multiple rounds of peer-review
- New improved versions
- Copy-editing

Versions

Version 10

Version 8

Version 5

Version 4

Version 3

Version 2

Reachability for Turing machines with long tapes

Merlin Carl, Benjamin Rin, Philipp Schlicht

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Subjects: **Logic (math.LO)**; Logic in Computer Science (cs.LO)

Cite as: [arXiv:1802.05734](https://arxiv.org/abs/1802.05734) [math.LO]

(or [arXiv:1802.05734v5](https://arxiv.org/abs/1802.05734v5) [math.LO] for this version)

Submission history

From: Philipp Schlicht [[view email](#)]

[v1] Thu, 15 Feb 2018 19:55:02 UTC (23 KB)

[v2] Wed, 21 Feb 2018 07:58:12 UTC (23 KB)

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4. Journal Layout

Reachability for infinite time Turing machines with long tapes

Authors: *Merlin Carl ; Benjamin Rin ; Philipp Schlicht*

Infinite time Turing machine models with tape length α , denoted T_α , strengthen the machines of Hamkins and Kidder [HL00] with tape length ω . A new phenomenon is that for some countable ordinals α , some cells cannot be halting positions of T_α given trivial input. The main open question in [Rin14] asks about the size of the least such ordinal δ . We answer this by providing various characterizations. For instance, δ is the least ordinal with any of the following properties: (a) For some $\xi < \alpha$, there is a T_ξ -writable but not T_α -writable subset of ω . (b) There is a gap in the T_α -writable ordinals. (c) α is uncountable in L_{λ_α} . Here λ_α denotes the supremum of T_α -writable ordinals, i.e. those with a T_α -writable code of length α . We further use the above characterizations, and an analogue to Welch's submodel characterization of the ordinals λ , ζ and Σ , to show that δ is large in the sense that it is a closure point of the function $\alpha \mapsto \Sigma_\alpha$, where Σ_α denotes the supremum of the T_α -accidentally writable ordinals.

[https://doi.org/10.23638/LMCS-16\(2:2\)2020](https://doi.org/10.23638/LMCS-16(2:2)2020)

Source: [arXiv.org:1802.05734](https://arxiv.org/abs/1802.05734)

Volume: Volume 16, Issue 2

Published on: April 24, 2020

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Submitted on: April 16, 2018

Keywords: Mathematics - Logic, Computer Science - Logic in Computer Science

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Logical Methods in Computer Science
Volume 16, Issue 2, 2020, pp. 2:1–2:16
<https://lmcs.episciences.org/>

Submitted Apr. 16, 2018
Published Apr. 24, 2020

REACHABILITY FOR INFINITE TIME TURING MACHINES WITH LONG TAPES

MERLIN CARL, BENJAMIN RIN, AND PHILIPP SCHLICHT

Fachbereich Mathematik und Statistik, University of Konstanz, 78457 Konstanz, Germany, and Europa-Universität Flensburg, Institut für mathematische, naturwissenschaftliche und technische Bildung, Abteilung für Mathematik und ihre Didaktik, Auf dem Campus 1b, 24943 Flensburg, Germany
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ABSTRACT. Infinite time Turing machine models with tape length α , denoted T_α , strengthen the machines of Hamkins and Kidder with tape length ω . A new phenomenon is that for some countable ordinals α , some cells cannot be halting positions of T_α given trivial input. The main open question in a paper of Rin from 2014 asks about the size of the least such ordinal δ .

We answer this by providing various characterizations. For instance, δ is the least ordinal with any of the following properties:

- For some $\xi < \alpha$, there is a T_ξ -writable but not T_α -writable subset of ω .
- There is a gap in the T_α -writable ordinals.
- α is uncountable in L_{λ_α} .

Here λ_α denotes the supremum of T_α -writable ordinals, i.e. those with a T_α -writable code of length α .

We further use the above characterizations, and an analogue to Welch's submodel characterization of the ordinals λ , ζ and Σ , to show that δ is large in the sense that it is a closure point of the function $\alpha \mapsto \Sigma_\alpha$, where Σ_α denotes the supremum of the T_α -accidentally writable ordinals.

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5. Publication: one Version Of Record

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Merlin Carl, Benjamin Rin, Philipp Schlicht



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Subjects: **Logic (math.LO)**; Logic in Computer Science (cs.LO)
 Journal reference: Logical Methods in Computer Science, Volume 16, Issue 2 (April 24, 2020) lmc:6429
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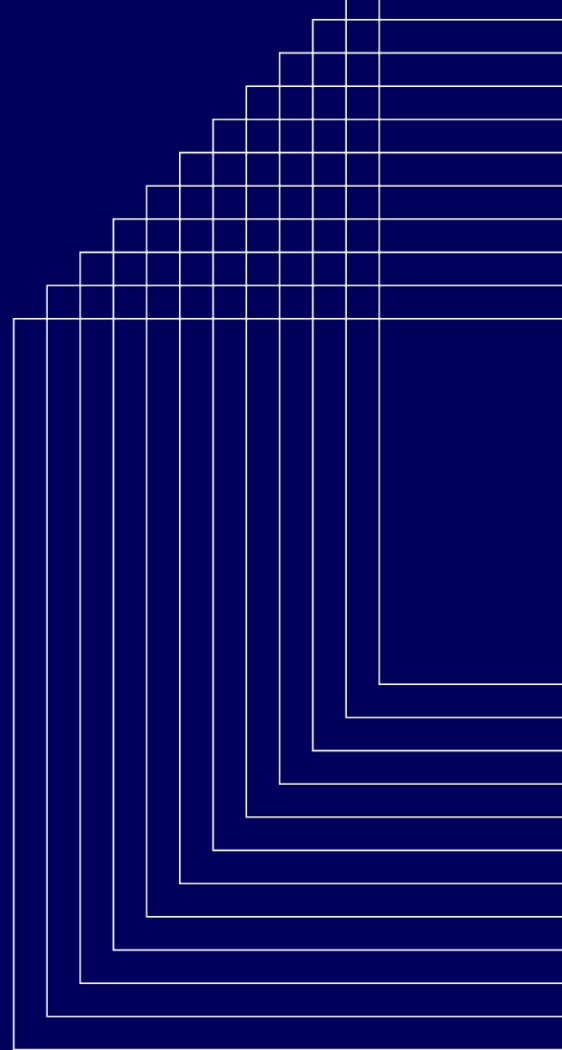
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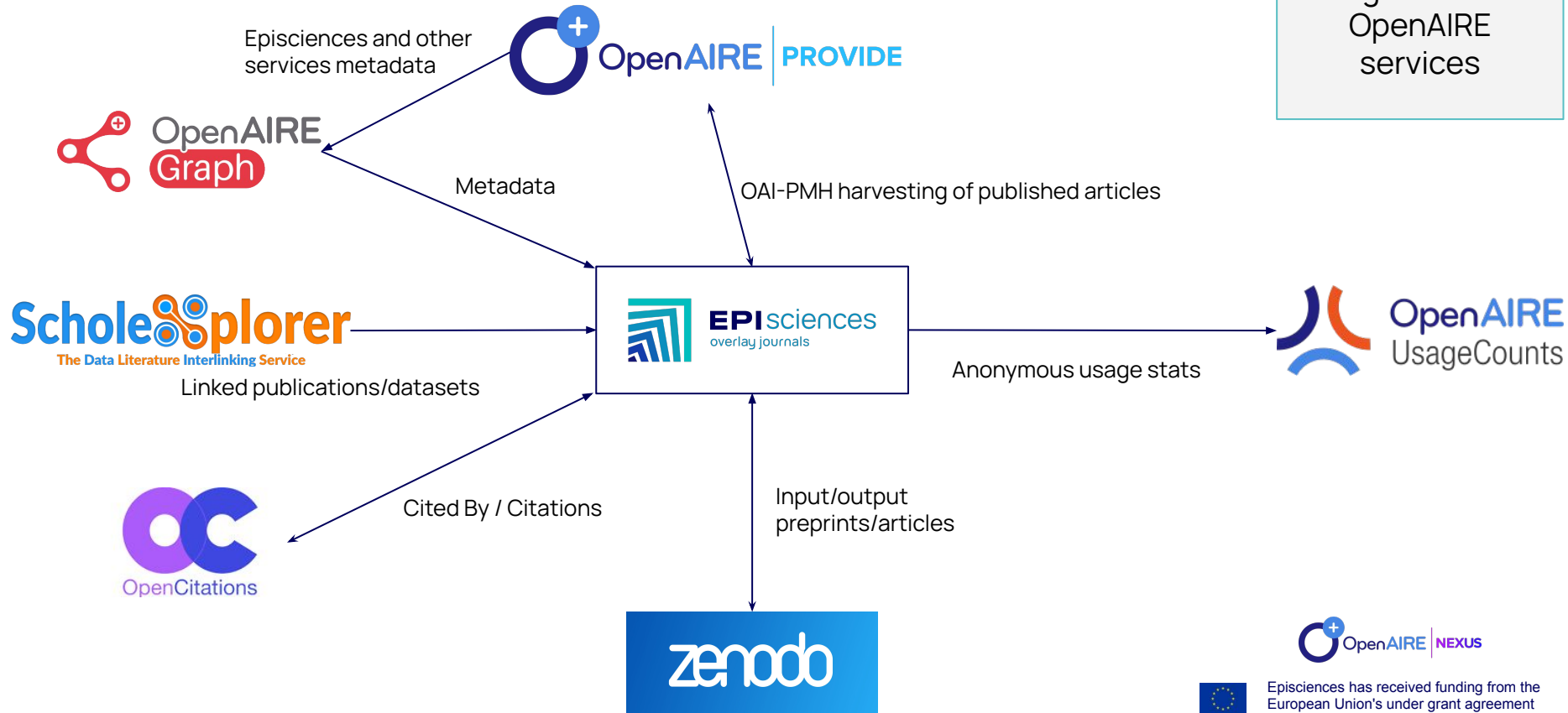
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Nested Hoare Triples and Frame Rules for Higher-order Store

Authors: Jan Schwinghammer ; Lars Birkedal  ; Bernhard Reus  ; Hongseok Yang

Separation logic is a Hoare-style logic for reasoning about programs with heap-allocated mutable data structures. As a step toward extending separation logic to high-level languages with ML-style general (higher-order) storage, we investigate the compatibility of nested Hoare triples with several variations of higher-order frame rules. The interaction of nested triples and frame rules can be subtle, and the inclusion of certain frame rules is in fact unsound. A particular combination of rules can be shown consistent by means of a Kripke model where worlds live in a recursively defined ultrametric space. The resulting logic allows us to elegantly prove programs involving stored code. In particular, using recursively defined assertions, it leads to natural specifications and proofs of invariants required for dealing with recursion through the store.

[https://doi.org/10.2168/LMCS-7\(3:21\)2011](https://doi.org/10.2168/LMCS-7(3:21)2011)

Source: [arXiv.org:1109.3031](https://arxiv.org/abs/1109.3031)

Volume: Volume 7, Issue 3

Published on: September 28, 2011

Imported on: March 8, 2011

Keywords: Computer Science - Logic in Computer Science,F.3.1, F.3.2

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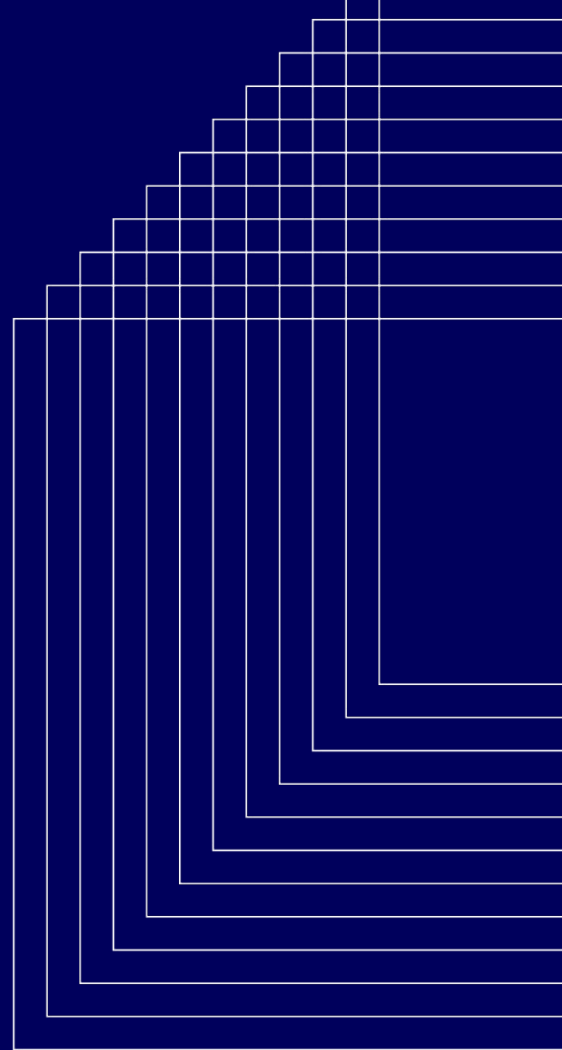


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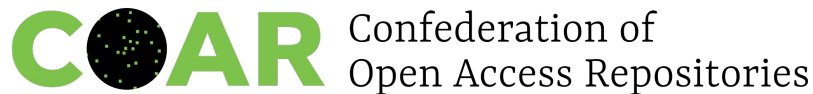
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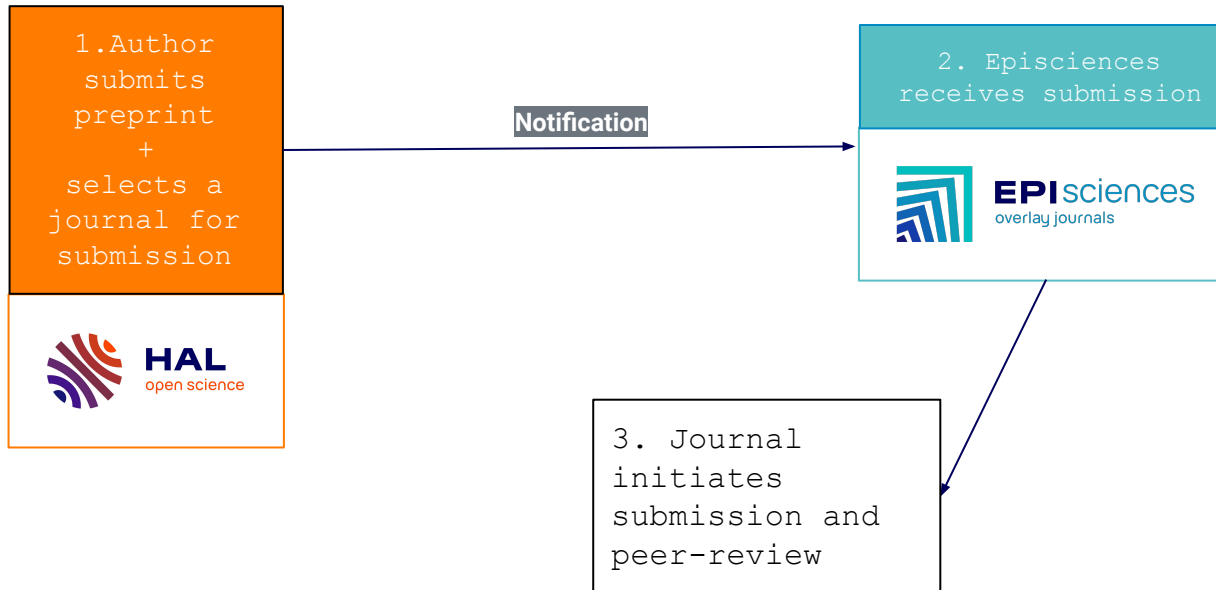
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5	Repository requests review (on behalf of corresponding author)	Repository <-> Review Service
6	Author submits to overlay journal using repository to host resource and reviews	Overlay Journal <-> Repository
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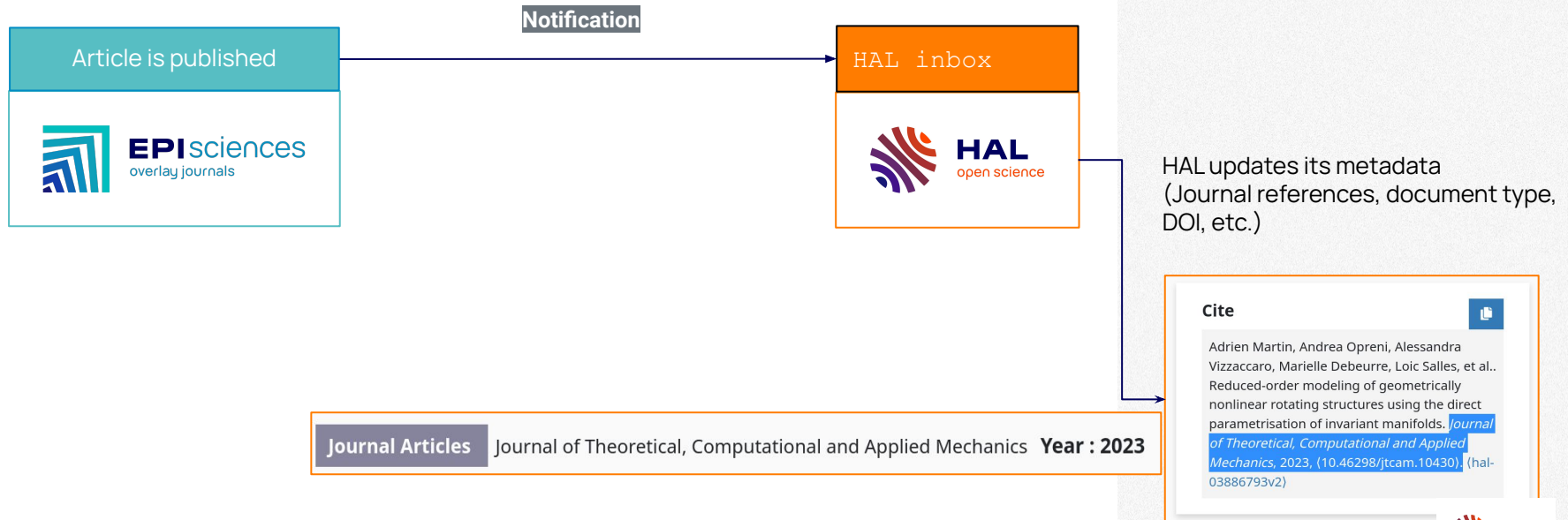
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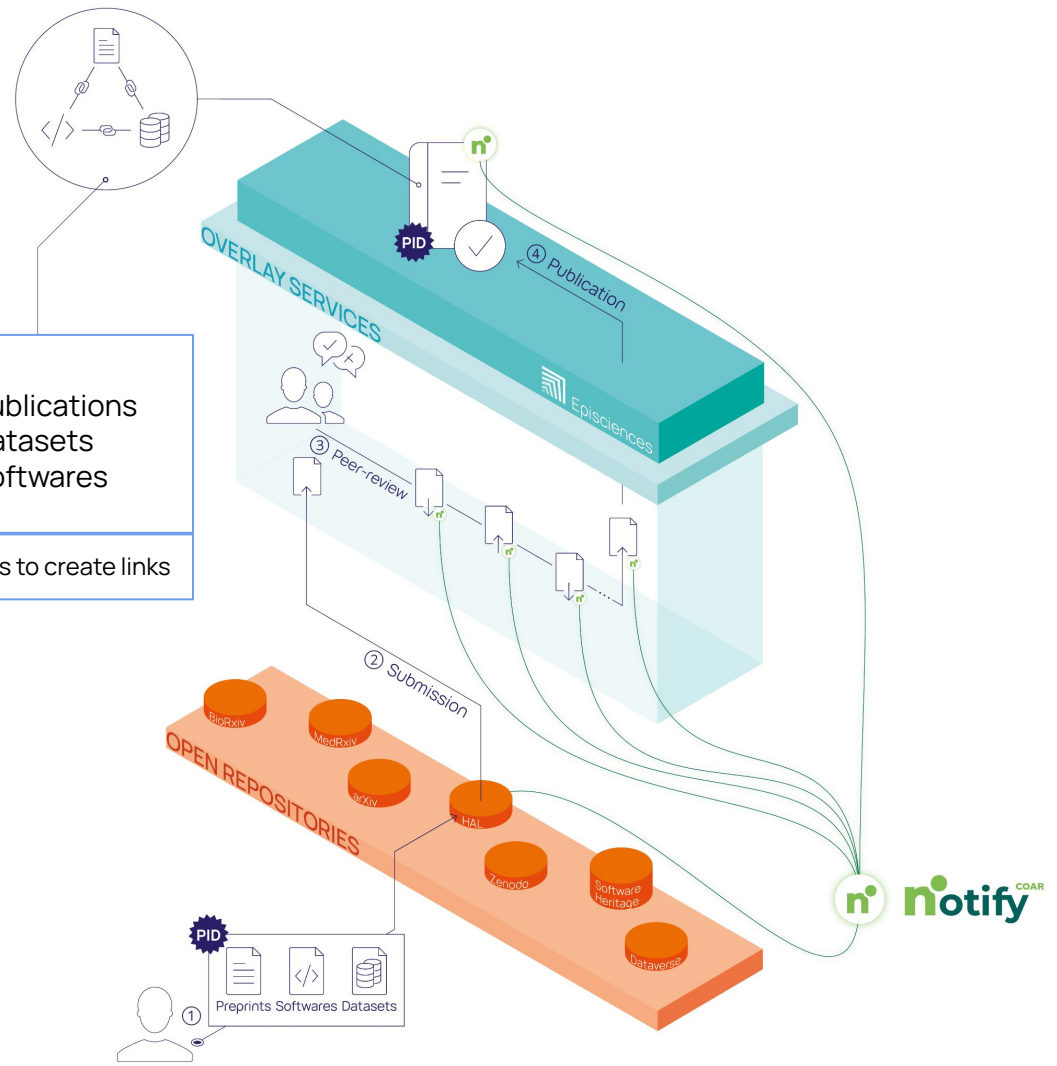


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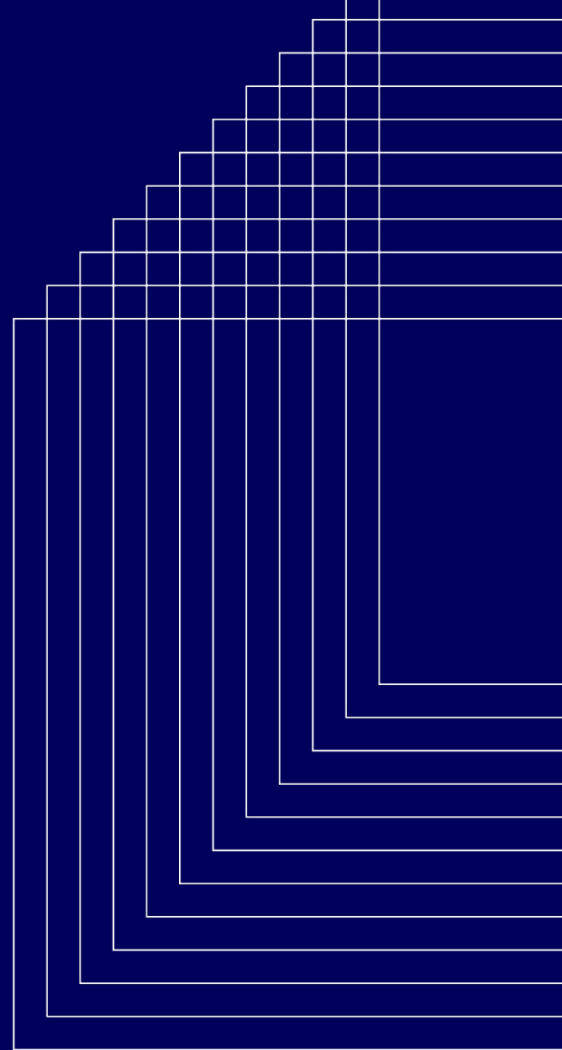
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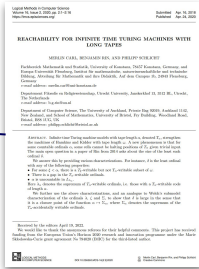
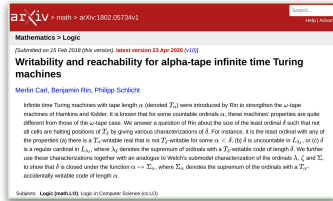
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Submitted on 25 Feb 2018 (this version), latest version 22 Apr 2019 (v5)

Writability and reachability for alpha-tape infinite time Turing machines

Meelis Carl, Benjamin Rei, Philipp Schlicht

Infinite time Turing machines with tape length ω (denoted T_{ω}) were introduced by Rin to strengthen the ω -tape machines of Hartman and Kötter. It is known that for some countable ordinals α , these machines' properties are quite different from those of the ω -tape case. We answer a question of Rin about the size of the least ordinal β such that not all sets are halting positions of T_{ω}^{β} by giving various characterizations of β . For ordinals β that are least ordinal with any of the properties (i) there is a T_{ω}^{β} -writable real that is not T_{ω}^{β} -reachable in some $n < \omega$, (ii) β is uncountable in L_{ω_1} , (iii) β is a regular cardinal in L_{ω_1} , where L_{ω_1} denotes the supremum of ordinals with a T_{ω}^{β} -writable code of length β . We further use these characterizations together with an analogue of Rin's admitted characterization of the ordinals ω_1 and Σ_1^1 to show that β is closed under the function $\alpha \mapsto \Sigma_1^1(\alpha)$, where $\Sigma_1^1(\alpha)$ denotes the supremum of the ordinals with a T_{ω}^{α} -writable code of length ω .

Subject: Logic (math.LO), Logic in Computer Science (cs.LG)



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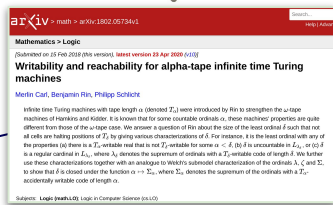
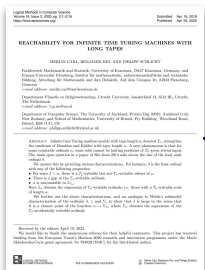
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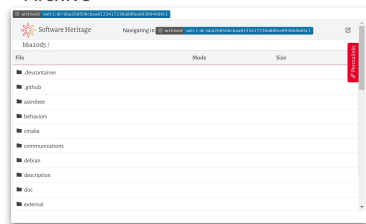
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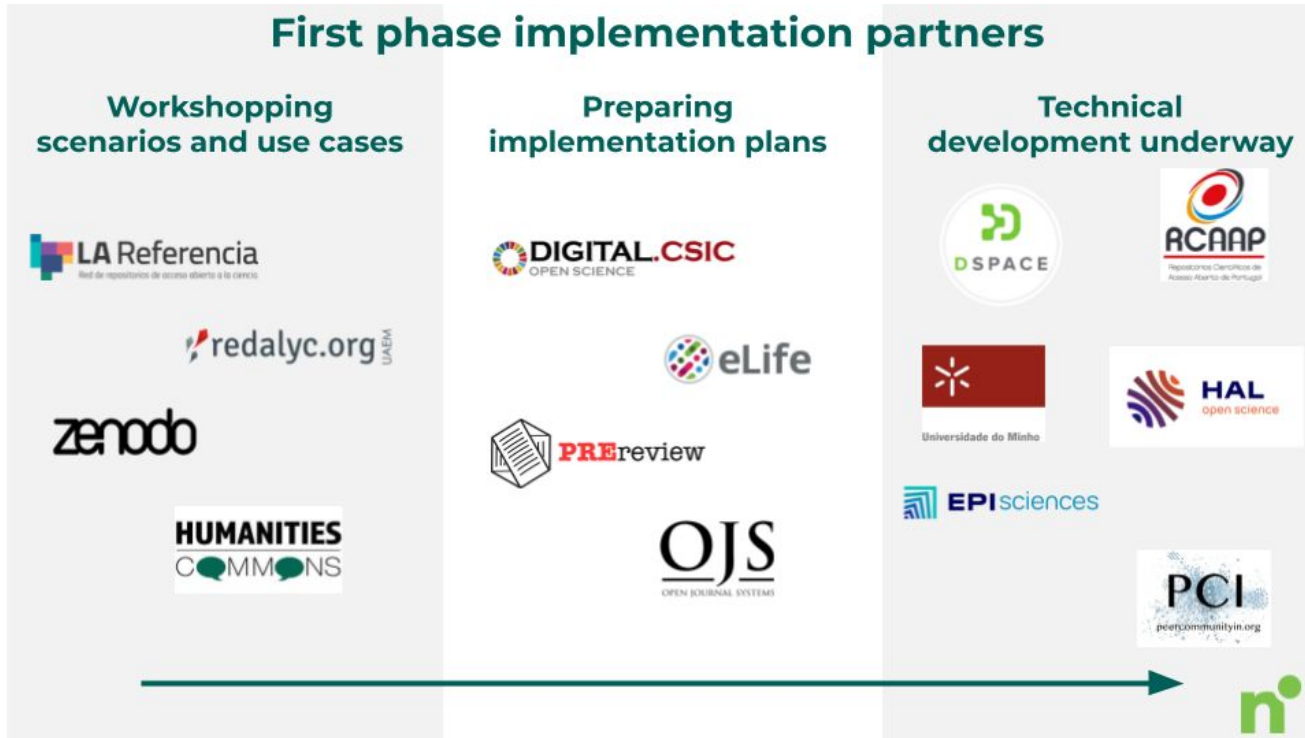
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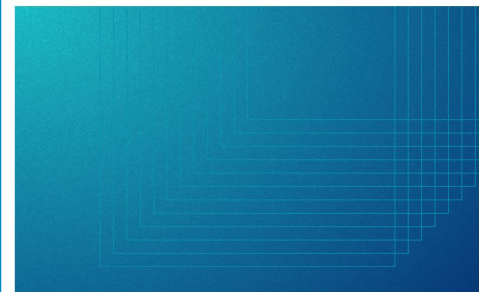
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