

Publication of mathematical research: who, how, for who, at what cost?

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- 1 The actors of mathematical publications
- 2 Steps of an article publication
- 3 Access models
- 4 Economic models

Different roles

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1 The actors of mathematical publications

2 Steps of an article publication

- Writing
- Submission
- Peer-reviewing
- Production and publication

3 Access models

4 Economic models

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Writing an article

One or several mathematicians work their way through a problem.

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They need access to existing literature:

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When they succeed, they write a paper with \LaTeX ,

- a compiled language,
- ensuring precise mathematical typography,
- producing camera-ready pdf.

ISOLATION, EQUIDISTRIBUTION, AND ORBIT CLOSURES FOR THE $SL(2, \mathbb{R})$ ACTION ON MODULI SPACE.

ALEX ESKIN, MARYAM MIRZAKHANI, AND AMIR MOHAMMADI

ABSTRACT. We prove results about orbit closures and equidistribution for the $SL(2, \mathbb{R})$ action on the moduli space of compact Riemann surfaces, which are analogous to the theory of unipotent flows. The proofs of the main theorems rely on the measure classification theorem of [EMi2] and a certain isolation property of closed $SL(2, \mathbb{R})$ invariant manifolds developed in this paper.

1. INTRODUCTION

Suppose $g \geq 1$, and let $\alpha = (\alpha_1, \dots, \alpha_n)$ be a partition of $2g - 2$, and let $\mathcal{H}(\alpha)$ be a stratum of Abelian differentials, i.e. the space of pairs (M, ω) where M is a Riemann surface and ω is a holomorphic 1-form on M whose zeroes have multiplicities $\alpha_1 \dots \alpha_n$. The form ω defines a canonical flat metric on M with conical singularities at the zeros of ω . Thus we refer to points of $\mathcal{H}(\alpha)$ as *flat surfaces* or *translation surfaces*. For an introduction to this subject, see the survey [Zo].

The space $\mathcal{H}(\alpha)$ admits an action of the group $SL(2, \mathbb{R})$ which generalizes the action of $SL(2, \mathbb{R})$ on the space $GL(2, \mathbb{R})/SL(2, \mathbb{Z})$ of flat tori.

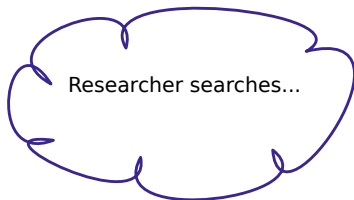
Affine measures and manifolds. The area of a translation surface is given by

$$a(M, \omega) = \frac{i}{2} \int_M \omega \wedge \bar{\omega}.$$

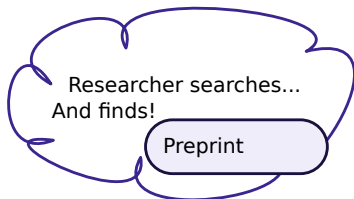
2 Steps of an article publication

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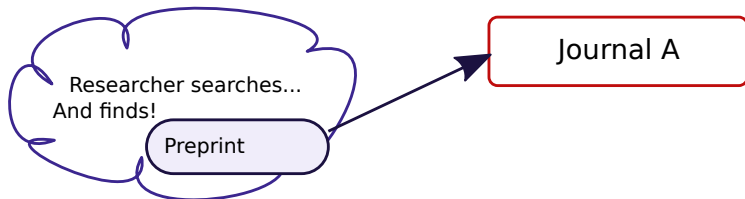
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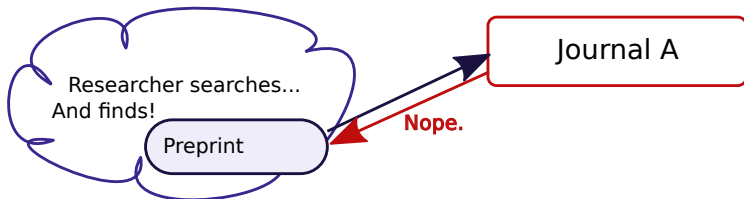
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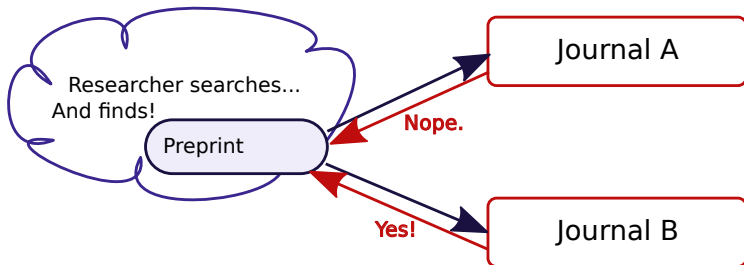
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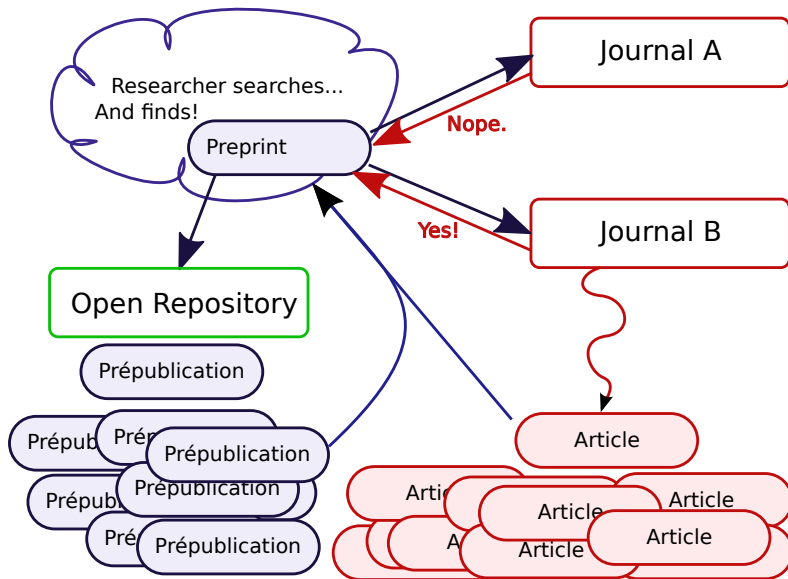
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Two questions

- How do authors choose the journal?
- How does a journal choose whether to accept a given article?

How to choose a journal?

Most common criterion:

- Compromise between prestige and acceptance probability.

→ seek for a potentially interested editor.

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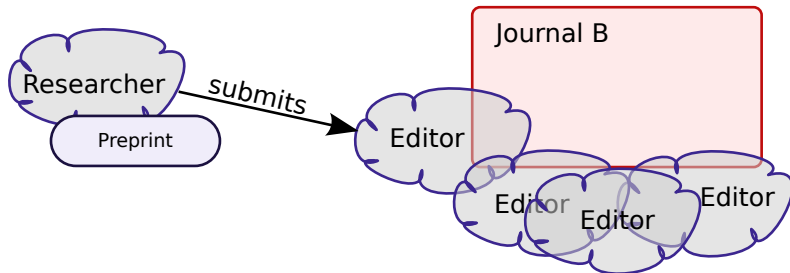
Other criteria include:

- Open Access policy,
- price,
- beauty, sentimental attachment.

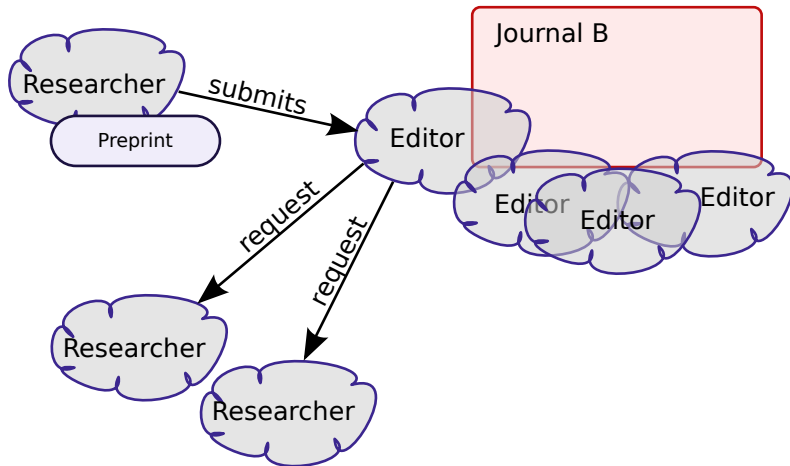
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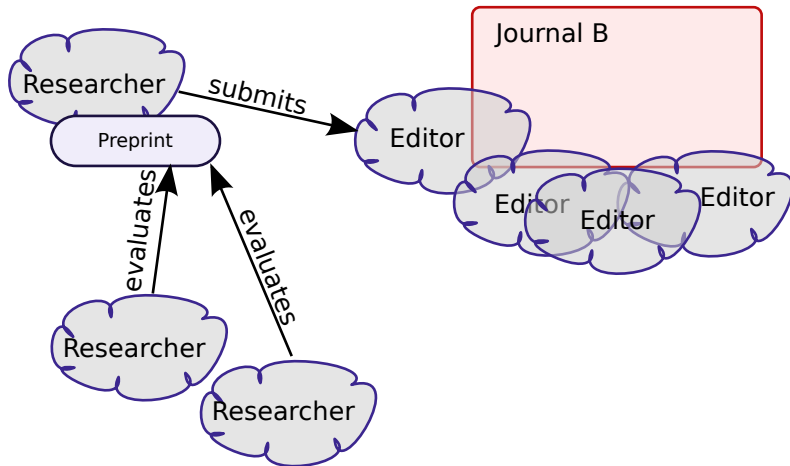
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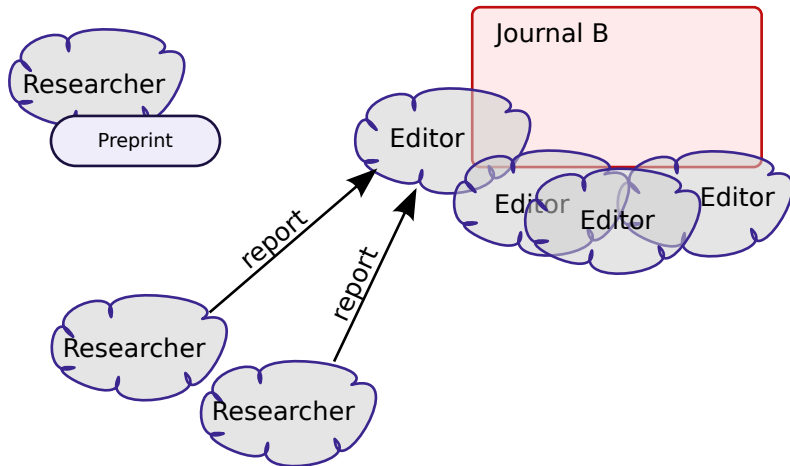
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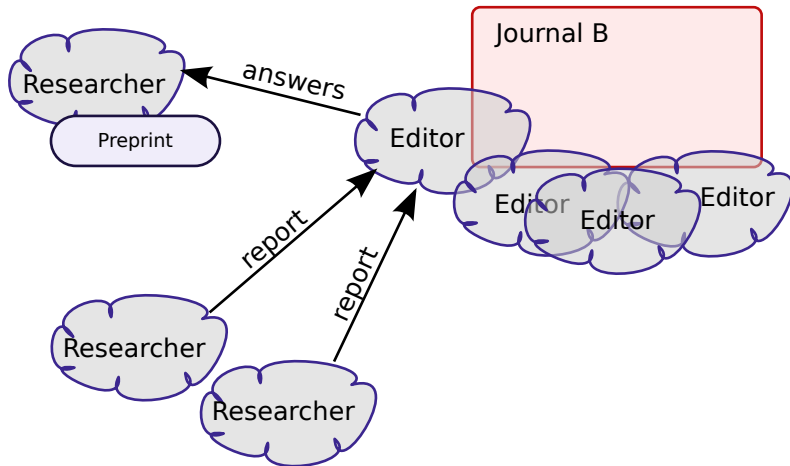
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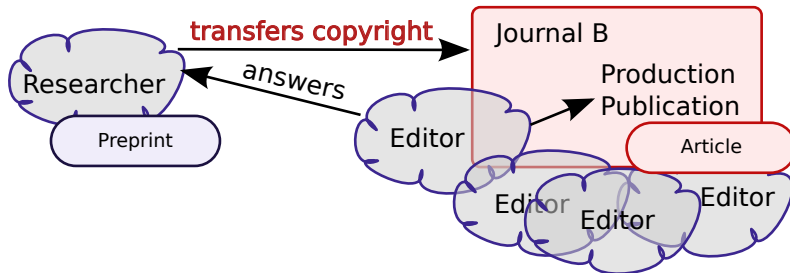
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Criteria to judge an article

The editorial board judges whether the article is:

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They may

- accept as is,
- accept with revision,
- ask revision before reassessing,
- reject.

Pressure on journals

Most journals receive far more articles than they can publish;

- some reject over 90% of submissions,
- the answer delay varies typically between 3 months and 2 years,
- some use desk-reject,
- the process is quite subjective.

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The result is called the **galley proofs** of the article.

Production and publication 2 : checking galley proofs

Authors are given 3 to 5 days to check galley proofs:

- answer questions from production's team,
- check signaled modifications,
- play the “spot the difference” game.

Production and publication 3 : publication

The article is finally published:

- online first,
- then in a volume of the journal,
- often years after the research was finalized.

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The cost of electronic distribution is largely devoted to prevent access to non-subscribers.

Green Open Access

An article is *Green OA* if a **preprint version** is made available **by the authors** in an **open repository** (arXiv, HaL, Zenodo, etc.)

- goes along with subscription model (the journal policy must allow it),
- pretty common in maths,
- preprints can differ from published articles.

Gold Open Access

An article is *Gold OA* if the **version of record** is made available under an **open licence** by **the journal**.

- incompatible with subscriptions (except paper),
- getting traction for a decade in some fields,
- problem of the economic model.

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0.26 \$/p versus 0.82 \$/p to **2.41** \$/p

Bundles and consortia

Publishers tend to **bundle** journals together to offer “discounts” .

National negotiations lead by consortia (Couperin in France).

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Green OA

Green OA is very cheap (arXiv: < 10 \$/article).

Open repositories are mostly funded by research institutions.

Subscriptions are still needed since not all papers are deposited.

Gold OA 1: Article Processing Charges

Most well-know way to fund a Gold OA journal is to ask authors' institutions to pay **APC**.

- APC vary from \sim \$500 to $>$ \$5000,
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Temptation to bundle APC at the national level.

Gold OA 2: Diamond/Platinum

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Several models:

- cheap operations (*Journal of Machine Learning Research*),
- subsidies (*Annales de l'Institut Fourier*),
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Algebraic combinatorics is the heir of Springer's *Journal of Algebraic Combinatorics* and runs on a mix of the above models.