



Episciences

Publishing in diamond open access with overlay journals

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La Science partagée



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An overlay (epi) journal model

- On top of AO repositories e.g. HAL, arXiv, Zenodo, ...
- A service to review preprints (single-blind review)
- A toolbox to publish in open access

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

overlay journal



Sample result: Article published by LMCS - hosted on arXiv

arXiv.org

Reachability for infinite time Turing machines with long tapes

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 .

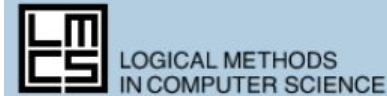
We further use the above characterizations, and an analogue to Welch's submodel characterization of the ordinals λ , ζ and Σ , to show that δ is large in the sense that it is a closure point of the function $\alpha \mapsto \Sigma_\alpha$, where Σ_α denotes the supremum of the T_α -accidentally writable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

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

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

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Reachability for infinite time Turing machines with long tapes

Authors: Carl, Merlin and Rin, Benjamin and Schlicht, Philipp

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 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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REACHABILITY FOR INFINITE TIME TURING MACHINES WITH LONG TAPES

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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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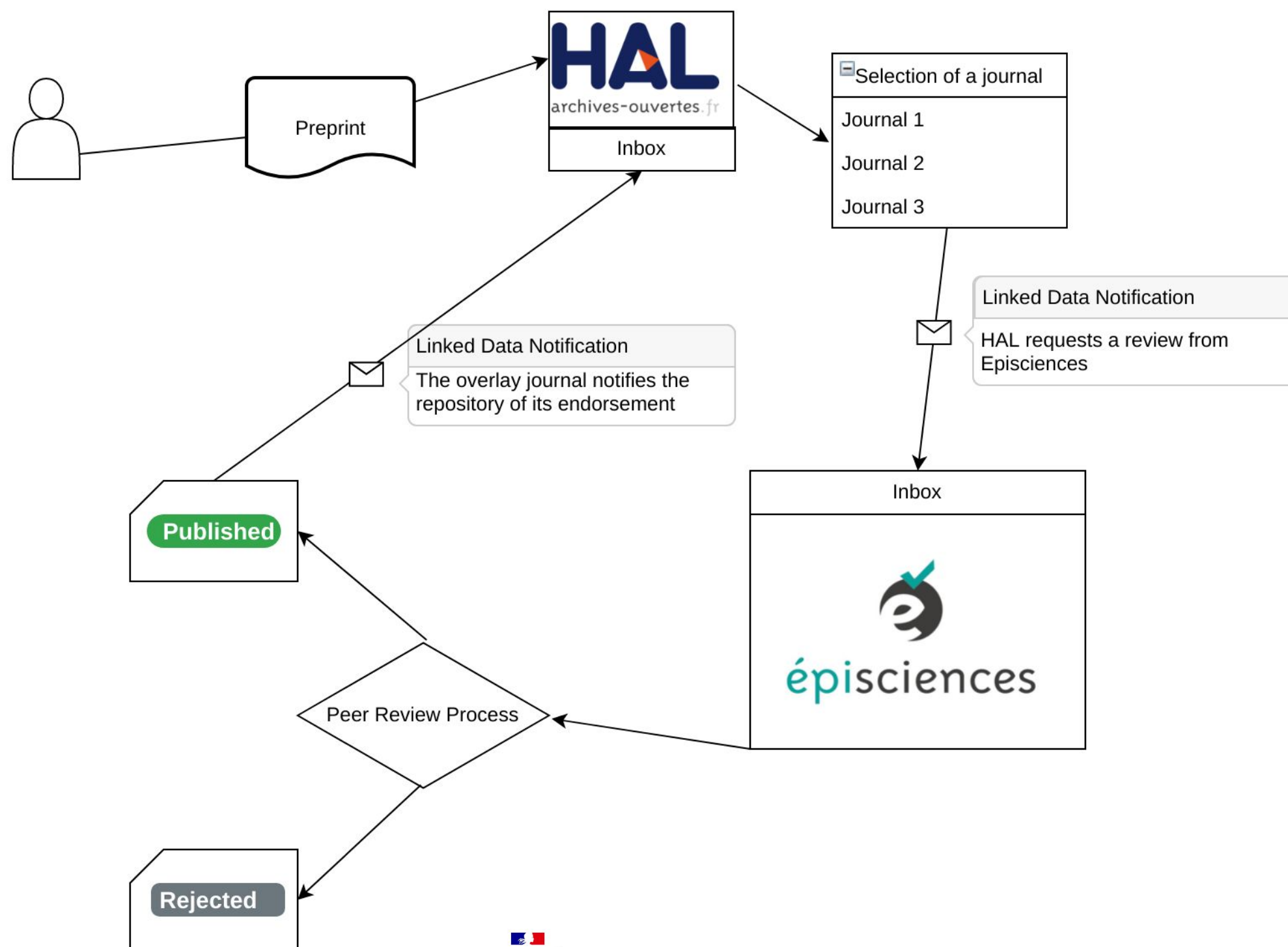
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