



HAL
open science

A Story about Entropy

Dominique Bontemps

► **To cite this version:**

| Dominique Bontemps. A Story about Entropy. 2023. hal-04412243

HAL Id: hal-04412243

<https://hal.science/hal-04412243>

Submitted on 23 Jan 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Copyright

A Story about Entropy

Dominique Bontemps^{*†}

January 23, 2024

At the beginning there was simplicity. A physical system without entropy.

In the first stages there were clear structures. Easy to decode information, a short history.

Later on there was complexity. Traces of a longer history. Somehow a compressed, maybe even encrypted, information?

Near the end, high compression. Nearly impossible to decode history. Almost uniform distribution?

At the end, noise?

Does science ends when philosophy begins? Where exactly?

References

- [Sha48] Claude E. Shannon. A mathematical theory of communication. *Bell System Tech. J.*, 27:379–423,623–656, 1948.

^{*}Institut de Mathématiques de Toulouse, UMR5219; Université de Toulouse; UPS, F-31062 Toulouse Cedex 9, France.

[†]The author thanks Pierre Petit and Vojkan Jaksic for interesting discussions.