Taking Notes

(or why I do not use your favorite text editor)

@xllora

20210503

Why do you take notes?

- Keep track of things
  (TODOs, ...)
- Preserve some interesting nugget
  (How to create a new Spanner or Datomic DB, ...)
- Record meeting discussions
  (Topics brought up, topics to follow up on, ...)

That is ***not*** why I take notes

- I take notes to think and understand
- I take notes to connect ideas in multiple contexts
- I take notes to talk with my past and future self

A common misconception:

Note archival is ***not*** note taking

- Meeting notes record and archive
- Transcribing does not force you to think
- Archival pushes predefined categories
- Text editors silo ***your*** information

  *(**your** siloed info in docs, folders, or drives has no way to surface easily nor in context as part of your daily journey)*

Why should you care
about your notes?

1. Cope with the information you get bombarded with every single day

2. Have a systematic and low energy process to sift what is relevant to ***you***

3. Separate actionable, from useful and from worth exploring further someday

4. Embrace it as *continuous* learning; the goal? Build and grow ***your*** knowledge

Taking notes should help you with:

1. Intentional thinking
2. Newly connecting existing ideas
3. Enjoy serendipity and foster curiosity
   (juxtaposition, recontextualization, insights, ...)
4. Prioritize selecting promising directions

A detour into...

Apparently unconnected research

1. Memex

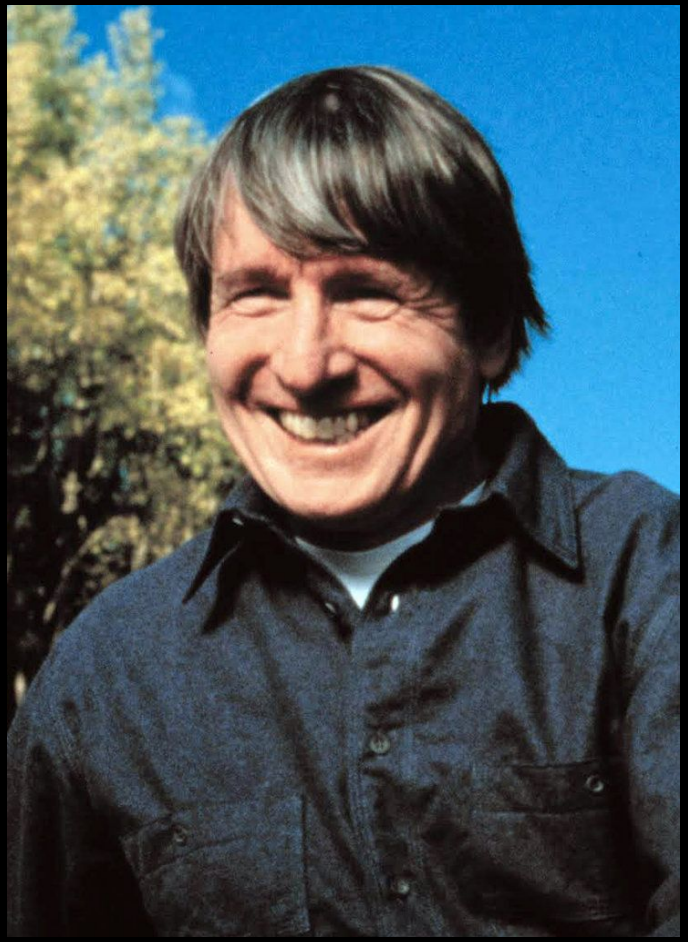
Wikipedia Vannevar Bush's portrait

Bush, Vannevar. *"As we may think."* The atlantic monthly 176.1 (**1945**): 101-108.

(Original paper)

- Collective memory machine (Memex)
- Memex would transform an information explosion into a knowledge explosion (make it available)
- Memex: (1) information archival, (2) fast retrieval and (3) logical thought process

2. Genetic Algorithms



Portrait by The New York Times

Holland, John H.
"Outline for a logical theory of adaptive systems."
Journal of the ACM (JACM) 9.3 (**1962**): 297-314.

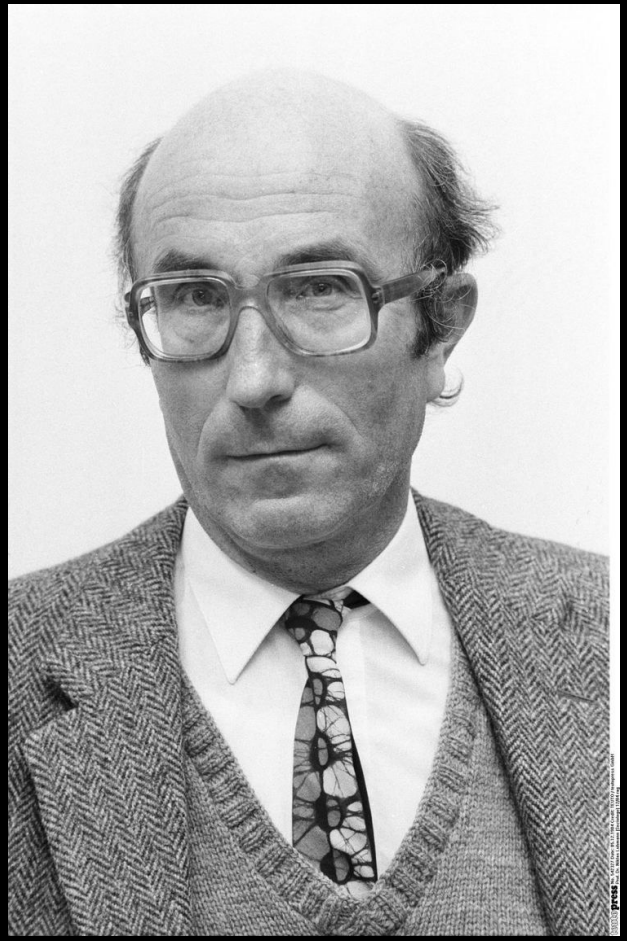
- A first computational theory of adaptation
- Realization populations, genetic recombination, and selective pressure landscapes as information processing
- A key insight: schemata processing

Soundcloud David E. Goldberg profile portrait

Goldberg, David E.
“The Design of Innovation: Lessons from and for Competent Genetic Algorithms”
Vol. 7. Springer Science & Business Media, 2002.

- Building blocks are the underlying information unit of adaptive processes
- Recombination of blocks with guided selection creates new unseen individuals (**innovation**)
- Small changes and selection lead to continual improvement **(kaizen)**

3. Zettelkasten



Niklas Luhmann portrait by Fortelabs

Luhmann, Niklas. *"Kommunikation mit Zettelkästen."* Öffentliche Meinung und sozialer Wandel/Public Opinion and Social Change. VS Verlag für Sozialwissenschaften, **1981**. 222-228. (Springer)

- Individual notes describing one idea
- Notes are numbered hierarchically
- Notes inserted at the appropriate place

- Metadata associate notes
- Tags that describe key aspects of the note (think indices)
- Cross-referencing build connections
- Networked notes unearth information that may not be apparent in isolation

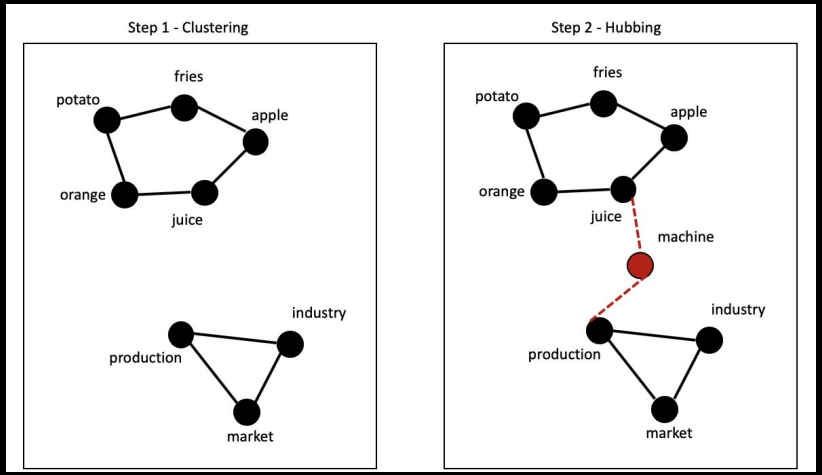
Niklas Luhmann original slip box

Addendum: Evergreen notes (a.k.a Andy Matuschak's notes)

- Write about what you read
- A reading inbox to capture possibly-useful references
- A writing inbox for transient and incomplete notes
- Executable strategy for writing (routine)

- Evergreen notes should be atomic
- Evergreen notes should be concept-oriented
- Evergreen notes should be densely linked
- Prefer associative ontologies to hierarchical taxonomies

4. KeyGraphs



Ohsawa, Yukio, Benson, Nels E.; Yachida, Masahiko. *"KeyGraph: Automatic indexing by co-occurrence graph based on building construction metaphor"*.

IEEE Intl forum on research and technology advances in digital libraries, (**1998**). ADL 98, pp. 12-18

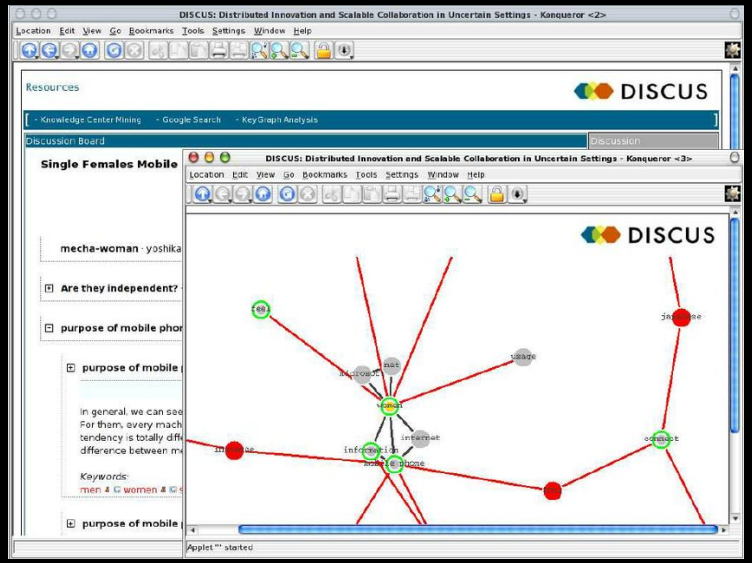
- How can you identify interesting connections between ideas?
- Ideas are represented by text
- Co-occurrence graphs may surface connections between cluster of ideas
- Visualizing key bridging concepts may provide you with valuable insight

5. Human-based Genetic Algorithm

Alex Kosorukoff profile on Twitter

Kosorukoff, Alex.
"Human based genetic algorithm."
2001 IEEE International Conference on Systems, Man and Cybernetics. e-Systems and e-Man for Cybernetics in Cyberspace (Cat. No. 01CH37236). Vol. 5. IEEE, 2001.

- John H. Holland and David E. Goldberg *adaptation as information processing*
- What if individuals were knowledge?
- Humans recombine it
- Humans serendipitously add more
- Humans select promising knowledge



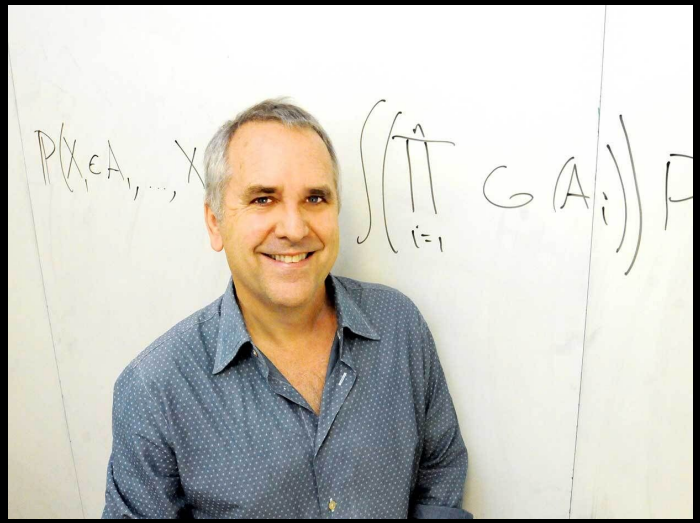
IlliGAL TR 2004025

Llorà, Xavier, et al.
"Chances and Marketing: On-line Conversation Analysis for Creative Scenario Discussion."
IlliGAL TR 2004025 (2004).

Llorà, Xavier, et al.
"Innovation and creativity support via chance discovery, genetic algorithms, and data mining."
New Mathematics and Natural Computation 2.01 (2006): 85-100.

- Evolve a population of ideas
- An ever growing pool of knowledge
- Juxtapose ideas in a new context
- A serendipitous insertion and viz of ideas
- A way to favor promising interesting novel idea exploration in a certain context

6. AI and ML



Michael I. Jordan portrait on IEEE Spectrum

Pretz, Kathy.
“Stop Calling Everything AI, Machine-Learning Pioneer Says”.
IEEE Spectrum 2021, March 31.

- Michael I. Jordan says AI does not involve high-level reasoning or thought, but can excel at *perception*

- Semantic representations of ideas and inference are still on the human realm

- For the foreseeable future, computers will not be able to match humans in their ability to reason abstractly about real-world situations

- We will need well-thought-out interactions of humans and computers to solve our most pressing problems

- Michael I. Jordan actually points back to the same ideas Vannevar Bush proposed on Memex machines

- It also follows that adaptation driven by human intention is a key player

What do all these efforts
have to do with taking notes!?

1. Record thoughts that ***you*** run into

2. Revisit your recorded thoughts to pick nuggets driven by ***your*** interests

3. Distill ***your*** insights into atomic concepts and note them down as units

4. Link ***your*** atomic insight to create larger contexts

5. Understand how ***your*** insight recombine atomic concepts creating new insights on different contexts

6. Tend to ***your*** knowledge intentionally evolving and grow it to ***your*** interests

Enough theory

Tools can help you!

Warning!

The medium is not the workflow

Tools can help,
but this is ***your*** journey

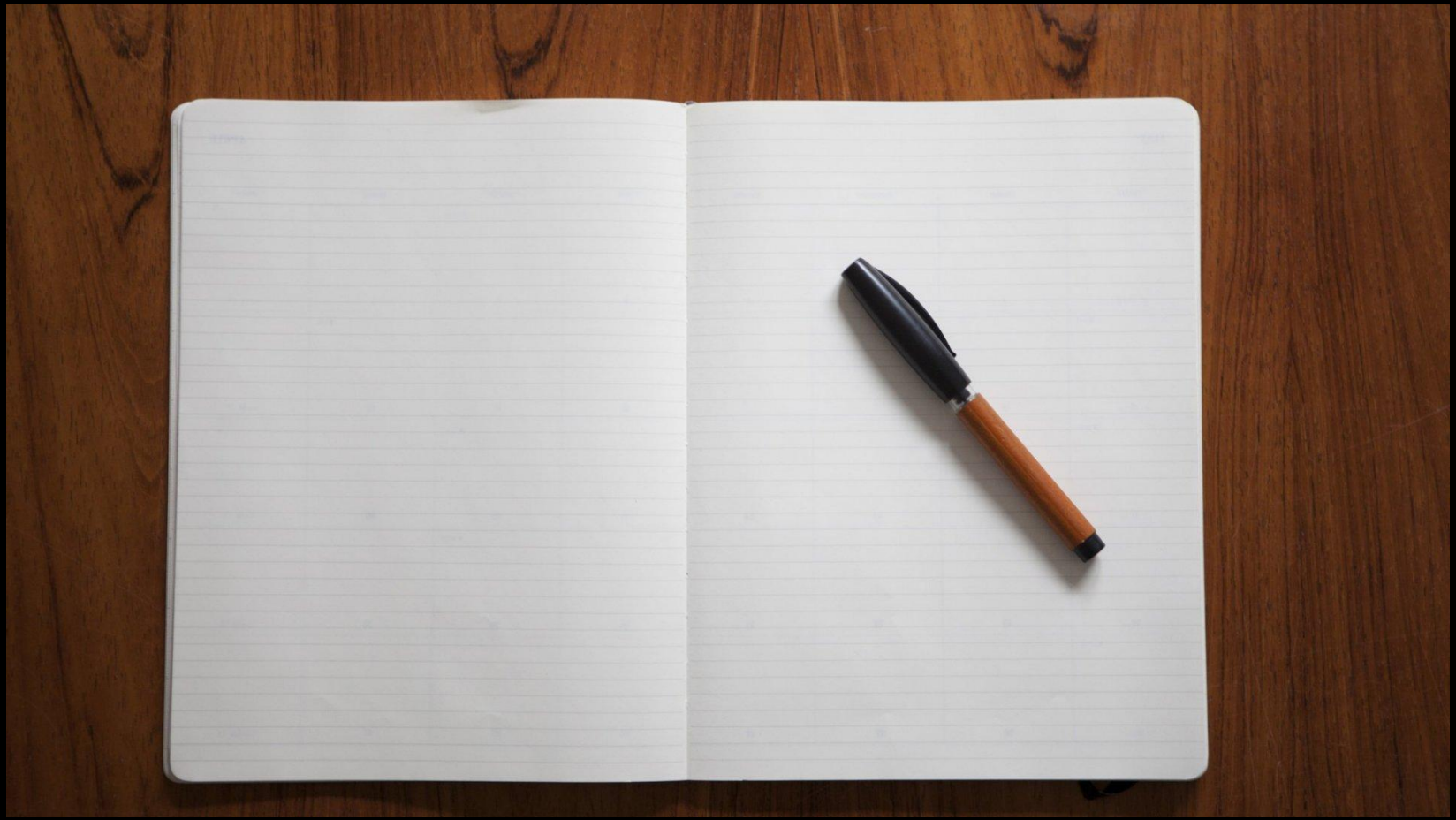
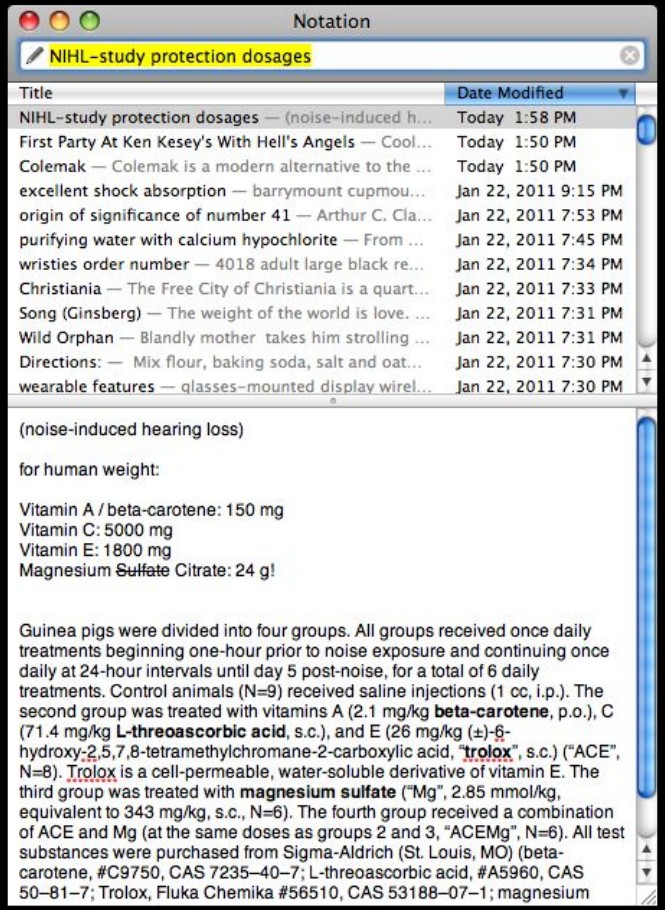


Image by Getty Images published on Inc.com

- Tactile and great for reflection
- Forces to write in ***your*** own words
- Not good at indexing and fast retrieval
- Extremely flexible workflow
  (e.g. Bullet journaling, spaced repetition, etc.)

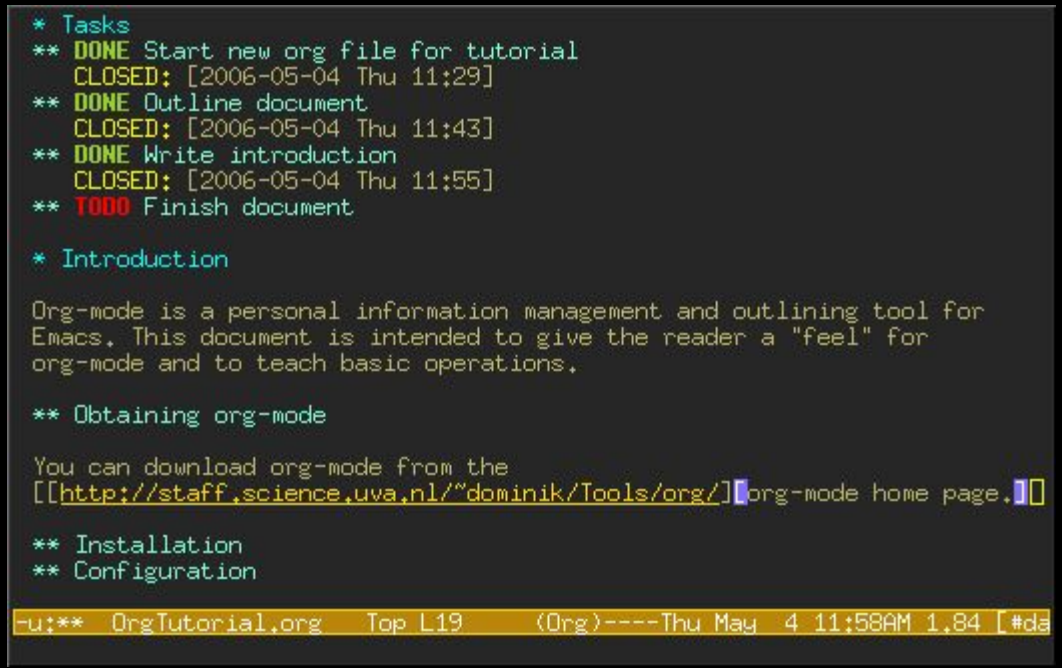
1. Open source tools



Notational Velocity

nv, nvAlt, nvUltra*

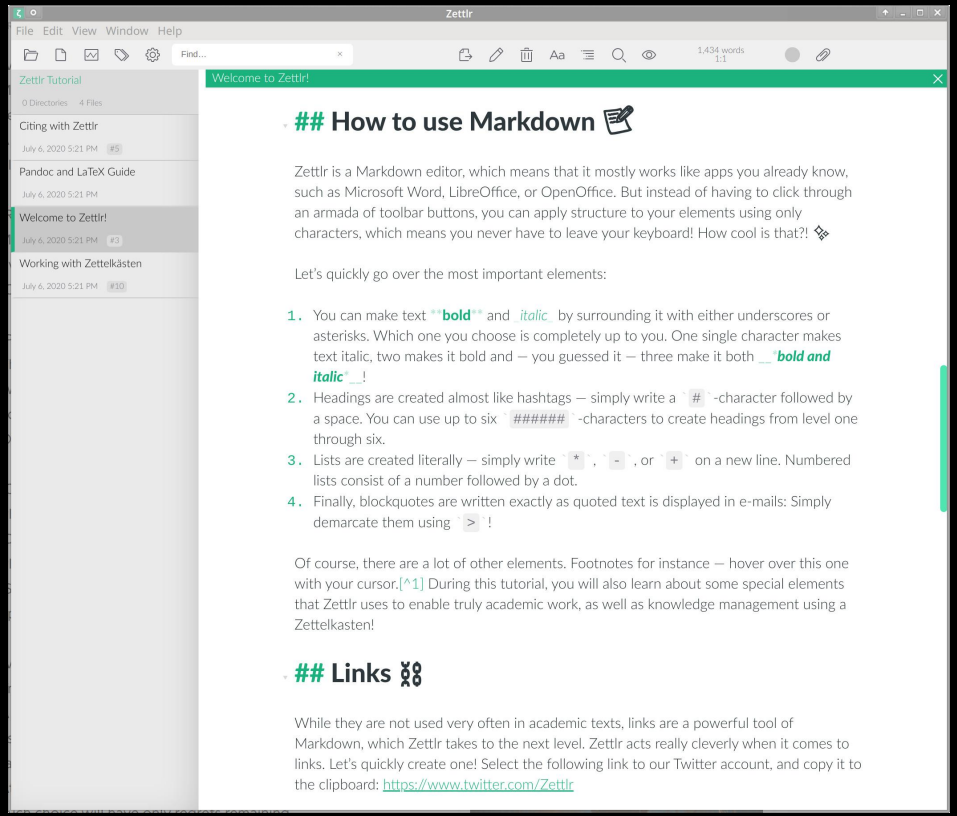
- Fast and simple
- Local files or encrypted database
- Search for it; not there? It is now
- Labels (before tags were a thing)
- Killer feature: labels are text searches!



Org Mode

orgmode.org, tech talk

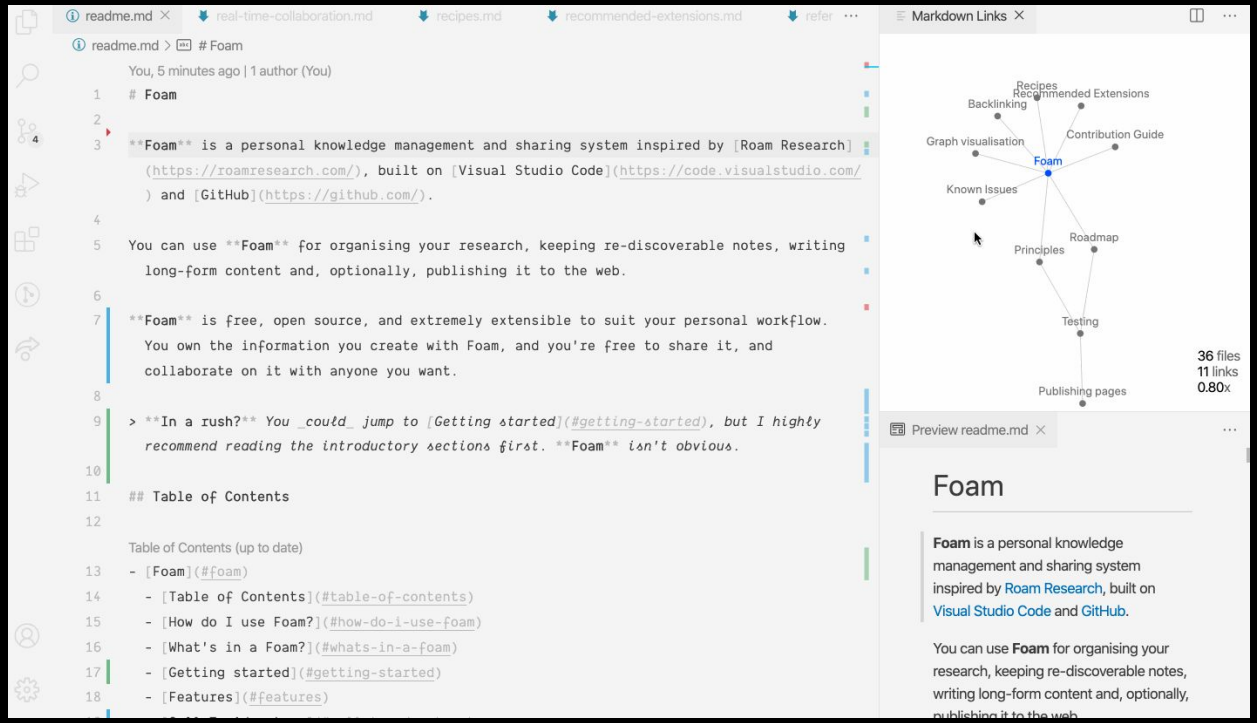
- Note taking, TODO list manager, GTD
- Highly influence by “Literate Programming” (Donald E. Knuth)
- Markdown became a first-class citizen giving you just plain text files
- Killer feature: Transclusion
  (All TODOs extracted into dedicated view, etc.)



Zettlr

zettlr.com/

- As you guessed Zettelkasten centric
- Local markdown files
- Searchable, tags, modern rendering
- Killer feature: Keep it ***nv*** simple



Foam

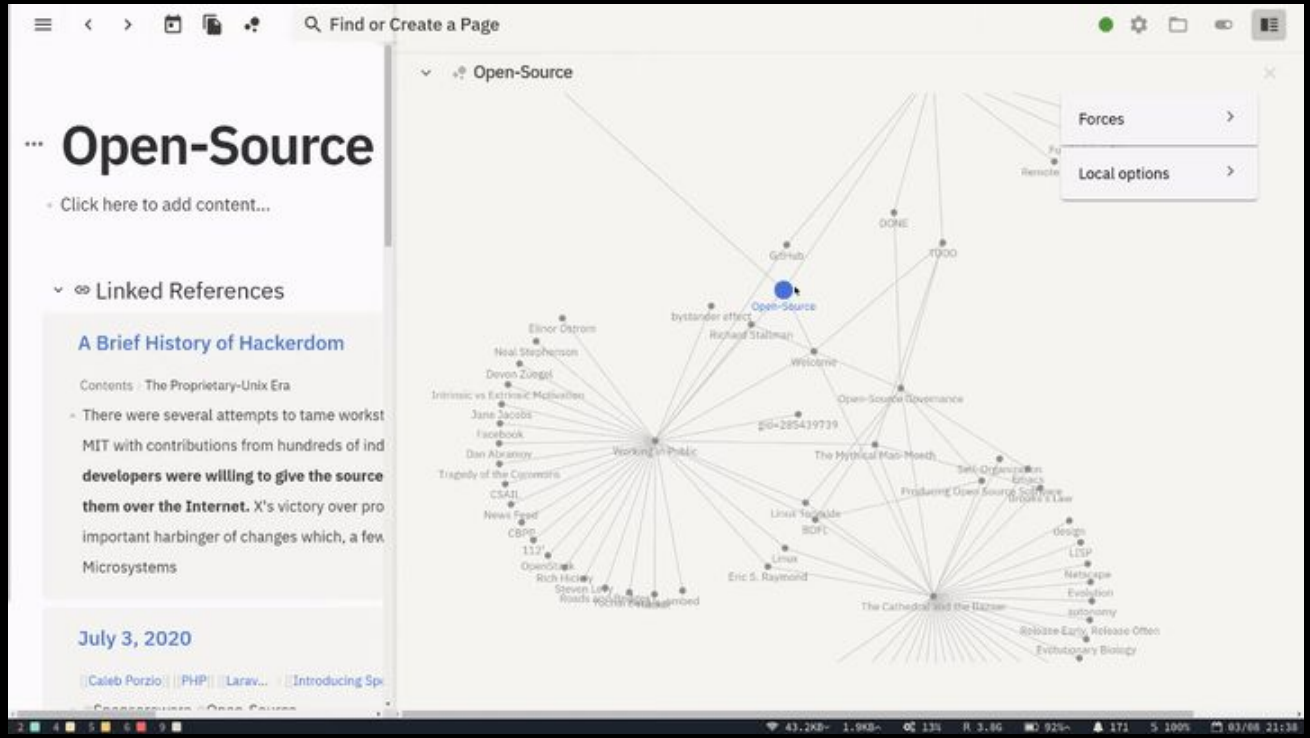
foambubble.github.io

- Visual Studio Code plugin party
  (Foam plugin, markdown, backlinks, image pasting, ...)

- Local markdown files

- Searchable, tags, highly customizable

- Killer feature:
  Backlinks and network visualization



Athens

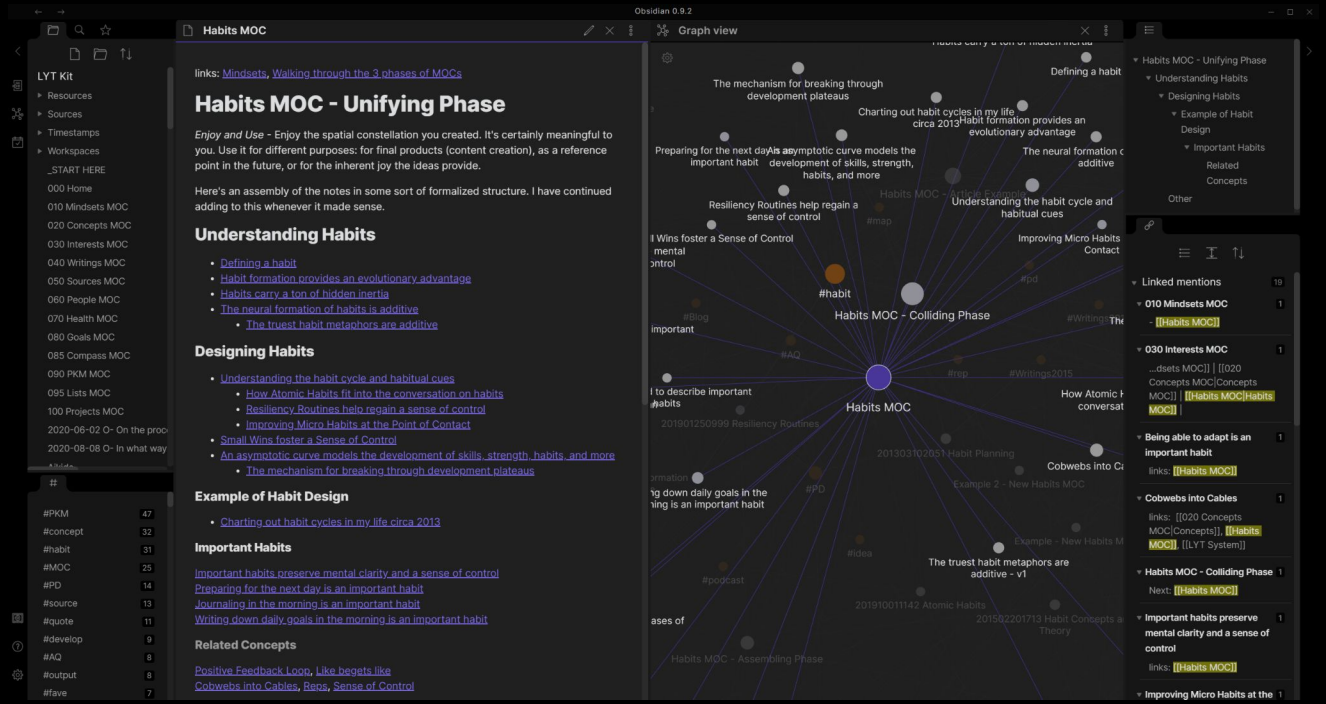
github.com/athensresearch

- Block oriented outliner to fully manage ***your*** knowledge graph
- Many local databases (DataScript)
- Markdown, transclusion, block zooming and embedding, network viz...
- Killer feature: *all of the above!*

2. Storing and sharing notes

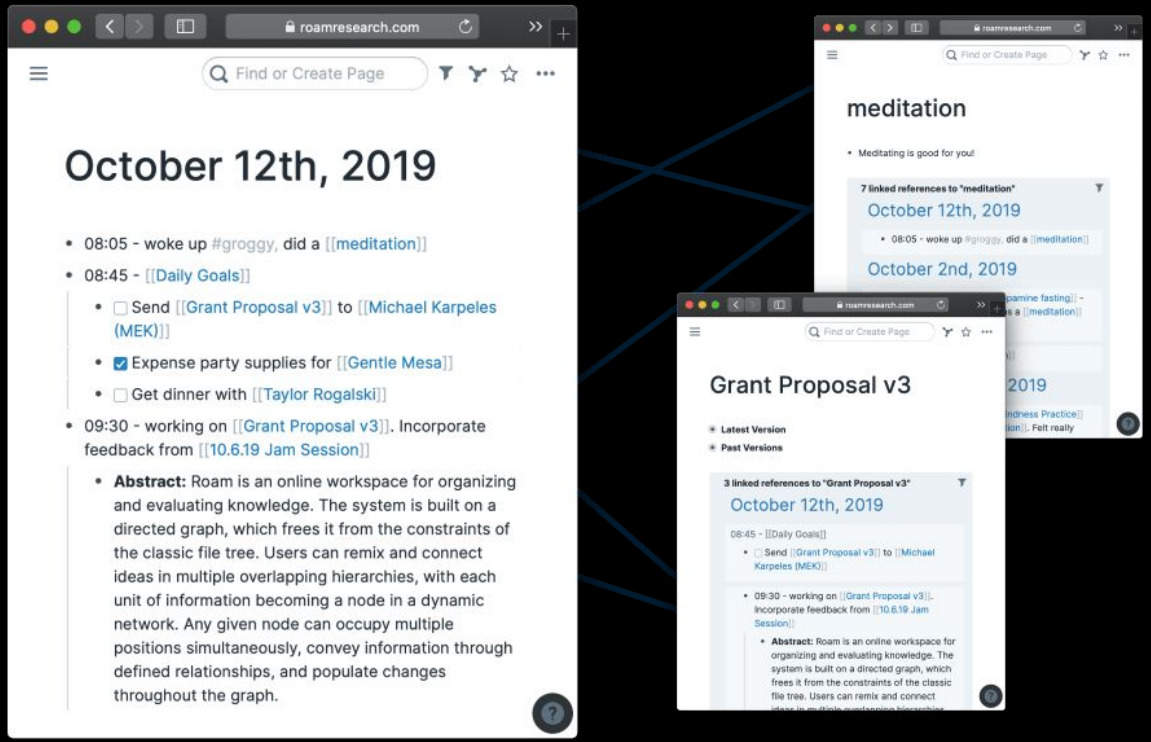
- Cloud storage
  (Pick you favorite cloud sharing services, Drive, Dropbox, etc.)
- Version control system
  (Allows you to manage history, GitHub, GitLab, etc.)
- Your local filesystem
  (Do not forget to back up!)

3. Closed source and/or commercial alternatives



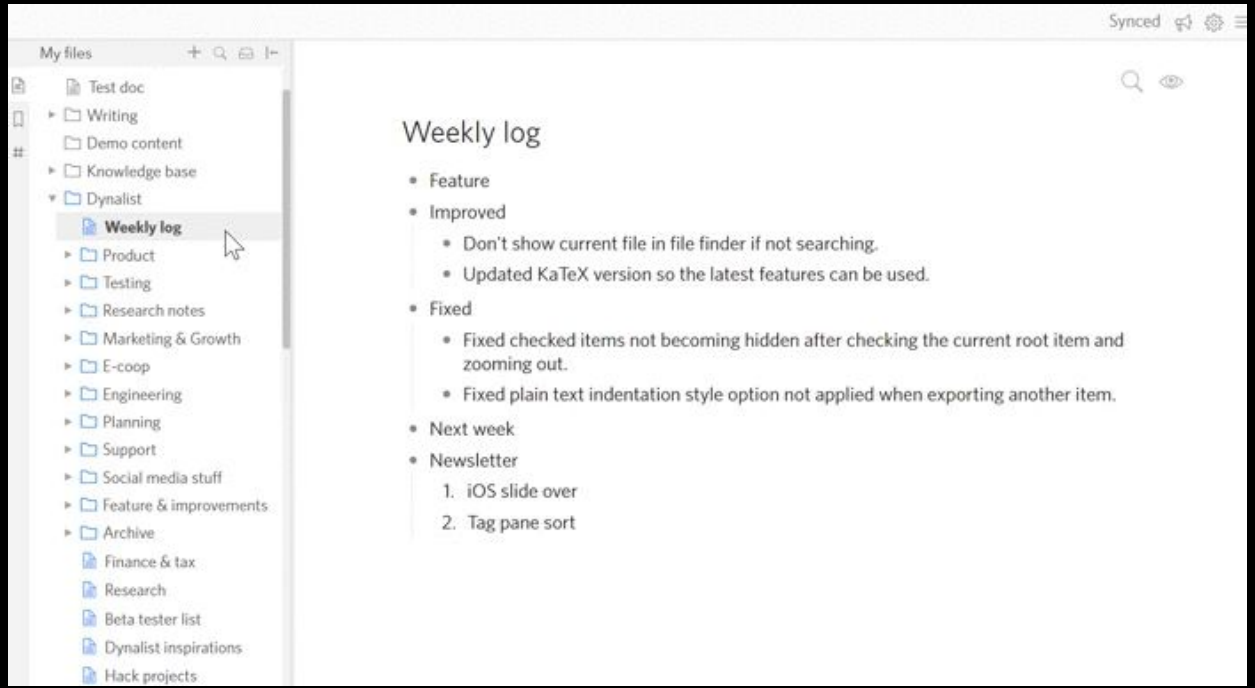
Obsidian

obsidian.md



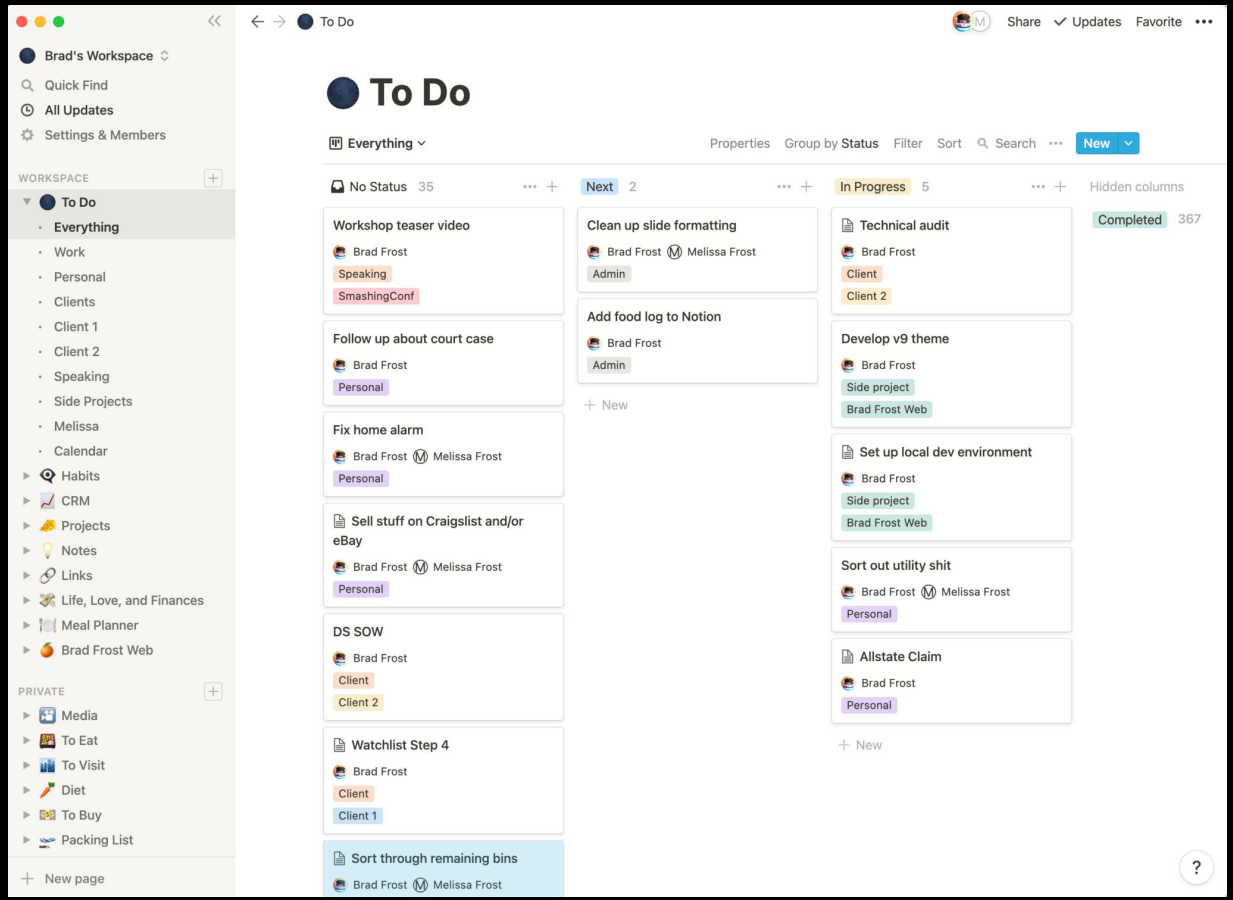
Roam Research

roamresearch.com



Dynalist

dynalist.io



Notion

notion.so

Example time!

How do I chose a tool for my workflow?

- Speed to get to information
- Simplicity of input
- Support quick linking
- Help me reason visualizing concepts

What tool am I currently using?

Athens Research

Example:

*Research for **this** presentation*

Lots of historical reading

- Collecting highlights that matter to ***me***
- Rewording the concept in my words
- Sifting for what is the basic idea

matuschak2019:ttft

- #reading #book #creativity #thought
- **Title**: How can we develop transformative tools for thought?
- **Author**: [[Andy Matuschak]] and [[Michael Nielsen]]
- **Abstract**
- **Citation**
  - Original source
  - Archived PDF
  - `@electronic{matuschak2019ttft, Author = {Matuschak, Andy and Nielsen, Michael}, Date-Modified = {2020-08-06 20:55:47 -0700}, Keywords = {productivity, creativity}, Title = {How can we develop transformative tools for thought?}, Url = {https://numinous.productions/ttft/}, Year = {2019}}`
- **Highlight and notes**
  - Computers were supposed to change the way we think
  - Aspirationally, the mnemonic medium makes it almost effortless for users to remember what they read
    - This sound a bit far fetched
    - He claims that cognitive scientist know how we store in long term memory
    - Steps to achieve so poorly supported by current media (e.g. books)
  - Questions about the mnemonic medium:
    - How could you build a medium to better support a person's memory of what they read?
    - What interactions could easily and enjoyably help people consolidate memories?
    - And, more broadly: is it possible to 2x what people remember? 10x?
    - And would that make any long-term difference to their effectiveness?
  - The first prototype on _Quantum Country_
    - It is an essay with 112 questions scattered through it in the form of flash cards.
    - Few days later they get an email to sign in for a review session.
    - The review session follows the same original flash cards
    - As the review sessions advance, these sets the knowledge on their long term memory.
    - The idea is to grow the review interval: when reading, 5 days, 2 weeks, a month, and so on. (5 intervals -> four months)
    - Failure to remember drop down the interval automatically one level.
  - This takes advantage of a fundamental fact about human memory: *as we are repeatedly tested on a question, our memory of the answer gets stronger, and we are likely to retain it for longer*.
  - Exponential scheduling of the reviews is more efficient that traditional one long session.
  - The experimental data shows that the time between successful recalls also grows following the same exponential trend.
  - This results are interesting since they provide exponential returns vs the traditional experience of diminishing ones.

- The local graph as a thinking tool
- Surfaces previous connections
- Are there connections I miss that may be relevant?

Find or Create a Page

matuschak2019:ttft

Add Shortcut
Show Local Graph
Delete Page

#creativity #thought

we develop transformative tools for thought?

Author: [[Andy Matuschak]] and [[Michael Nielsen]]

- **Abstract**
- **Citation**
  - Original source
  - Archived PDF
  - `@electronic{matuschak2019ttft, Author = {Matuschak, Andy and Nielsen, Michael}, Date-Modified = {2020-08-06 20:55:47 -0700}, Keywords = {productivity, creativity}, Title = {How can we develop transformative tools for thought?}, Url = {https://numinous.productions/ttft/}, Year = {2019}}`
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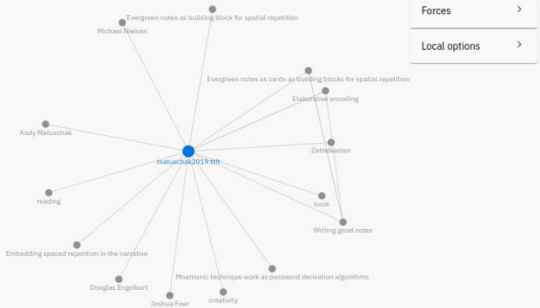
matuschak2019:ttft



- Create dedicated notes
- Only for things that matter to ***me***
- Rule of thumb:
  No more than a paragraph

Find or Create a Page

Evergreen notes as cards as building blocks for spatial repetition

- If evergreen notes are atomic and and concept oriented, they seem like the perfect candidates for spacial repetition. I have seen folks on YouTube rave about Notion being useful for spacial repetition. They achieve this by collapsible divs. They treat the subject, or tittle, as the question, and the body as the answer.
- You may argument that evergreen notes also follow a similar construct. They force you to synthesize a cue or concept with a concise title. They provide you a way to elaborate the meeting of that atomic concept on the body. It conduces to uphold [[Ideas as building blocks]]. With one extra feature, they allow you to put them in variable context (links and backlinks) as opposed to being immovable in a doc. [[Roam research]] also helps by providing [[transclusion]], or allowing you to embed the note elsewhere.
- Hence, it seems reasonable to think that writing good cards follows the same steps of [[Writing good notes]].

Linked References

Writing good notes

- [[matuschak2019:ttft]] put forward three principles an how to write good questions when thinking of [[Evergreen notes as cards as building blocks for spatial repetition]]. They put forward three main points to keep in mind:
  - 1. Most questions and answers should be atomic, or [[Ideas as building blocks]].
  - 2. Make sure the early questions in a mnemonic essay are trivial: it helps many users realize they are not paying enough attention as they read. [[Writing craft]] can take advantage of such realization to keep the reader engage with the text. Such engagement is crucial to be able to deliver the intended points across.
  - 3. Avoid orphan cards that do not connect to anything else. Ideally you should target for a densely interconnected web or cards. [[Elaborative encoding]] or the view that network density is important for leaning and recall among others.

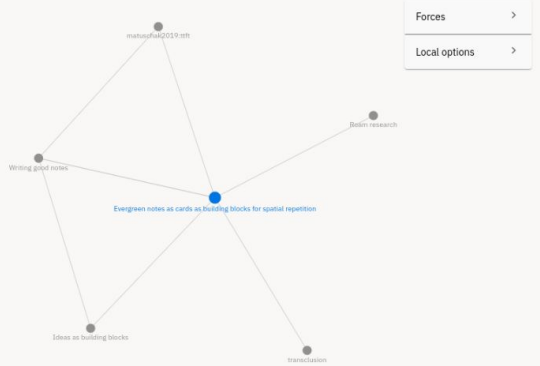
matuschak2019:ttft

Highlight and notes

- Actually the authors eventually also make the explicit point around [[Evergreen notes as cards as building blocks for spatial repetition]]
  - For *Quantum Country* they mention they achieved by: *"[...]many detailed strategies for constructing cards capable of encoding this kind of understanding[...]"*.
  - They highlight that the medium [[Embedding spaced repetition in the narrative]].

Unlinked References

Evergreen notes as cards as building blocks for spatial repetition



Ideas as building blocks

Ideas as building blocks

- [[Sönke Ahrens]] [[ahrens2017smartnotes]] describes [[Niklas Luhmann]]'s [[Zettelkasten]] as a way to organize the creativity process. Originally focused on academic productivity, it describes the concept of self-contained ideas and how they can be fluid beyond the context they originally appeared. Ideas may propel new arguments on different contexts that the ones they originated in.

Linked References

allosso2020:mynotesonluhmannzettelkastenarticle

Highlights and notes - Interestingly he points out that [[Niklas Luhmann]] hinted that this model works thanks to [[evolution]]

- Ideas show up in cards (like [[Ideas as building blocks]])

Writing as therapy

- Using writting exercises can help unblock and find new directions. Writing on a regular basis can also help reprogram habits and expand views. It can help also refine [[Ideas as building blocks]].

The medium is not the workflow

- [[Tevin Zhang]] [[zhang2020:digitalzettelkasten]] proposed a digital version of the [[Zettelkasten]] method or [[Ideas as building blocks]]. He attempts to implement it on a digital system with files and links. It changes subtle things merging the reference and the slip box together.

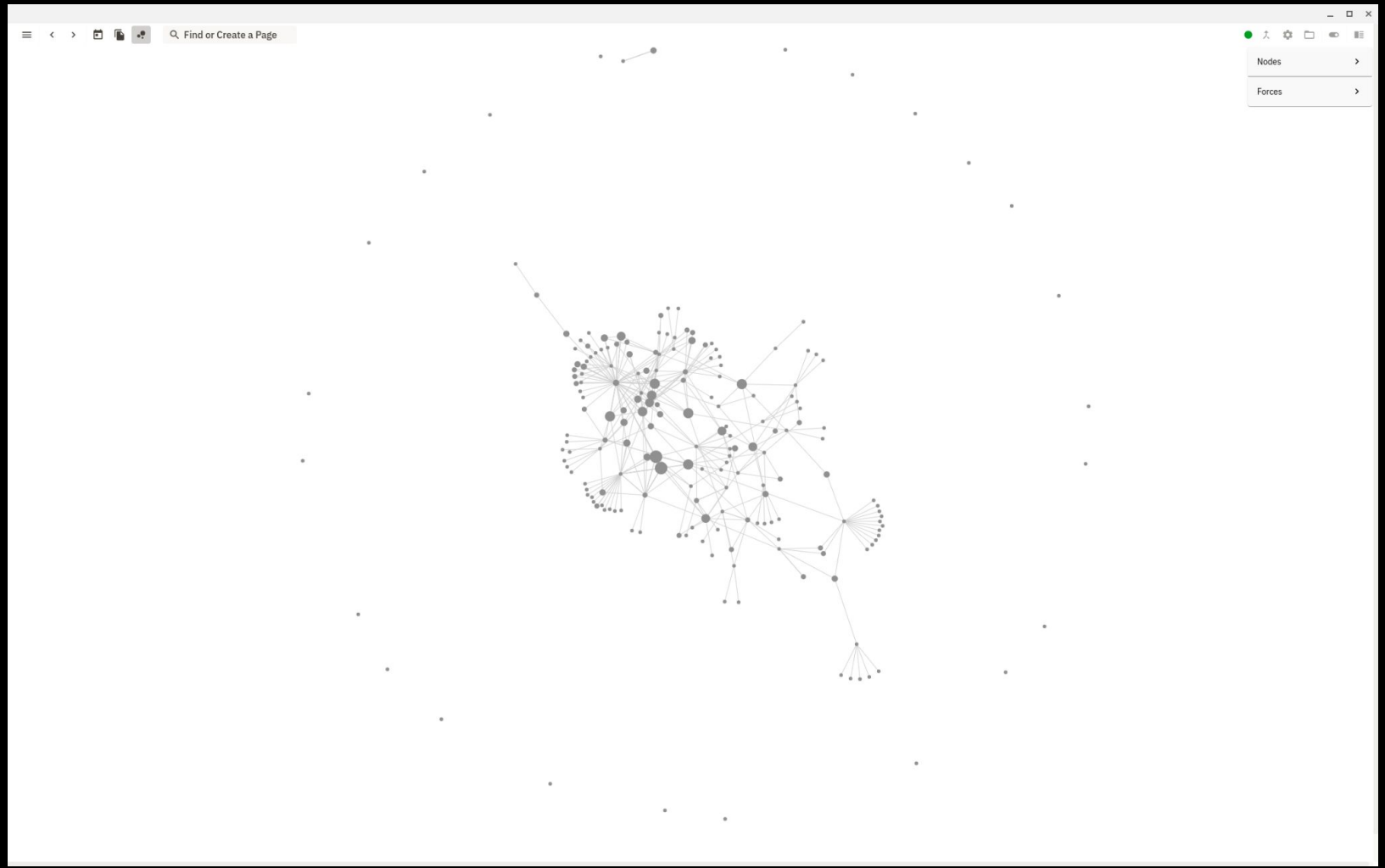
Writing good notes

“I just work on the things that are easy”

--Niklas Luhmann

“If you can't explain it simply,
you don't understand it well enough.”

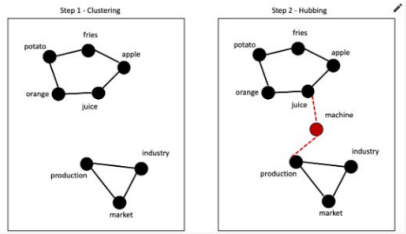
-- Albert Einstein

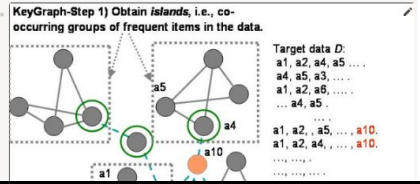

Find or Create a Page
Nodes
Forces

- Preparing this presentation was playing with blocks I already had
- Shaping a narrative was just finding a coherent linear argument for the blocks

Note taking (or why I do not use Google Docs nor Keep)

- #personal knowledge management #presentation
- **Title**: Note taking (or why I avoid Google Docs and Keep)
- **Working outline**
  - Why do you take notes?
  - That is not why I take notes
  - A misconception: Note archival is not note taking
  - Why you should care about your notes?
  - Taking notes should help you with
  - Recurrent models through
    - [[Memex]]
    - [[Zettelkasten]]
    - [[evergreen notes]]
    - [[genetic algorithms]]
    - [[KeyGraphs]]
      - How can you identify interesting connections between ideas? [[ohsawa1998:keygraph]]
      - Ideas are represented by text
      - Co-occurrence graphs may surface connections between cluster of ideas
      - Focusing on bridging concepts may provide you with valuable insight





Note taking (or why I do not use Google Docs nor Keep)

Forces

Local options

holland1962:adaptivesystemstheory

holland1962:adaptivesystemstheory

- #reading pending #article #adaptive systems
- **Title**: Adaptive systems theory
- **Abstract**
  - Growing automata theory can reasonably be said to begin with the work of [[Allan M. Turing]] "On computable numbers with an Application to the Entscheidungsproblem". Turing's theory originated in his investigation of expressions calculable by finite means. In order to give rigorous formulation to this kind of calculation, he conceived of it as being carried by a machine. A tape, divided into squares and indefinitely extendible, supplies instructions to the machine and records the result of he computation.
- **Citation**
  - Original article
  - Archived copy
  - `@article{holland1962outline, title={Outline for a logical theory of adaptive systems}, author={Holland, John H}, journal={Journal of the ACM (JACM)}, volume={9}, number={3}, pages={297--314}, year={1962}, publisher={ACM New York, NY, USA} }`
- **Notes and highlights**
  - TBD

Linked References

Note taking (or why I do not use Google Docs nor Keep)

Working outline · Recurrent models through · [[genetic algorithms]]

What is ***note taking*** for me?

It is just ***my*** learning journey

Taking Notes

(or why I do not use your favorite text editor)

@xllora

20210503