Stigmergy, self-organization and large scale collaboration

Ncraft 2017

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How do we work together ?

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Pyramidal hierarchy and competitive models

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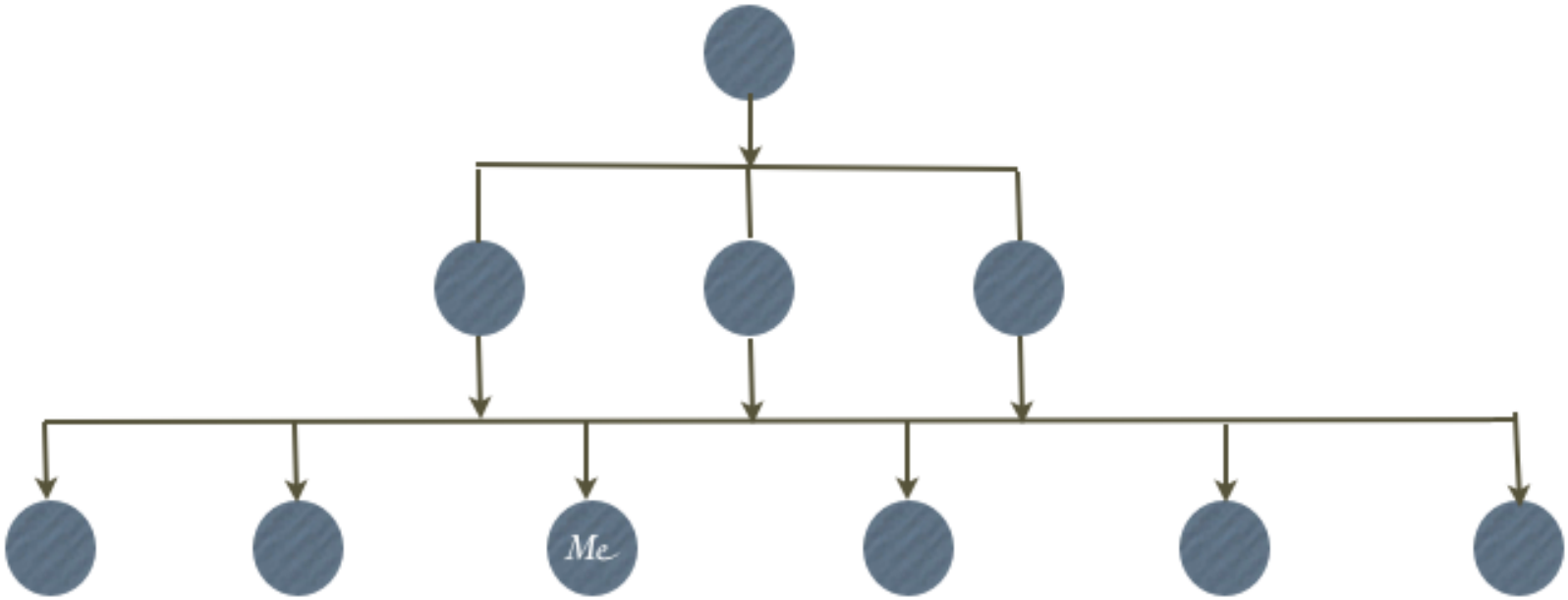

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Consensus-based hierarchy and cooperative models

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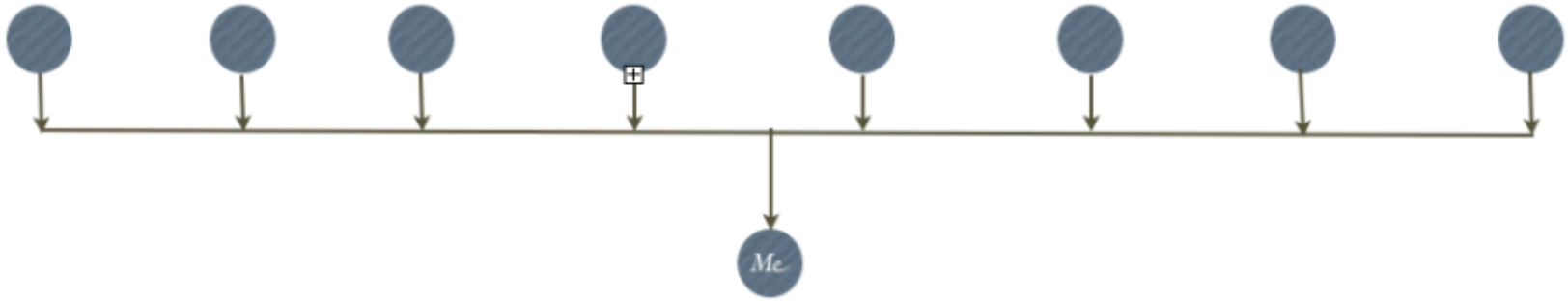

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Pyramidal and consensus based hierarchy are models of *a priori* control

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Any alternatives ?

drumroll...

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Termite leaders ?

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Termite counsel ?

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Self-organization !

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Stigmergy

> Greek στίγμα stigma "mark, sign" and ἔργον ergon "work, action"

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Stigmergy

“Stigmergy is a mechanism of indirect coordination between agents or actions. The principle is that the trace left in the environment by an action stimulates the performance of a next action, by the same or a different agent. In that way, subsequent actions tend to reinforce and build on each other, leading to the spontaneous emergence of coherent, apparently systematic activity.”
Wikipedia

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Stigmergy in ant societies

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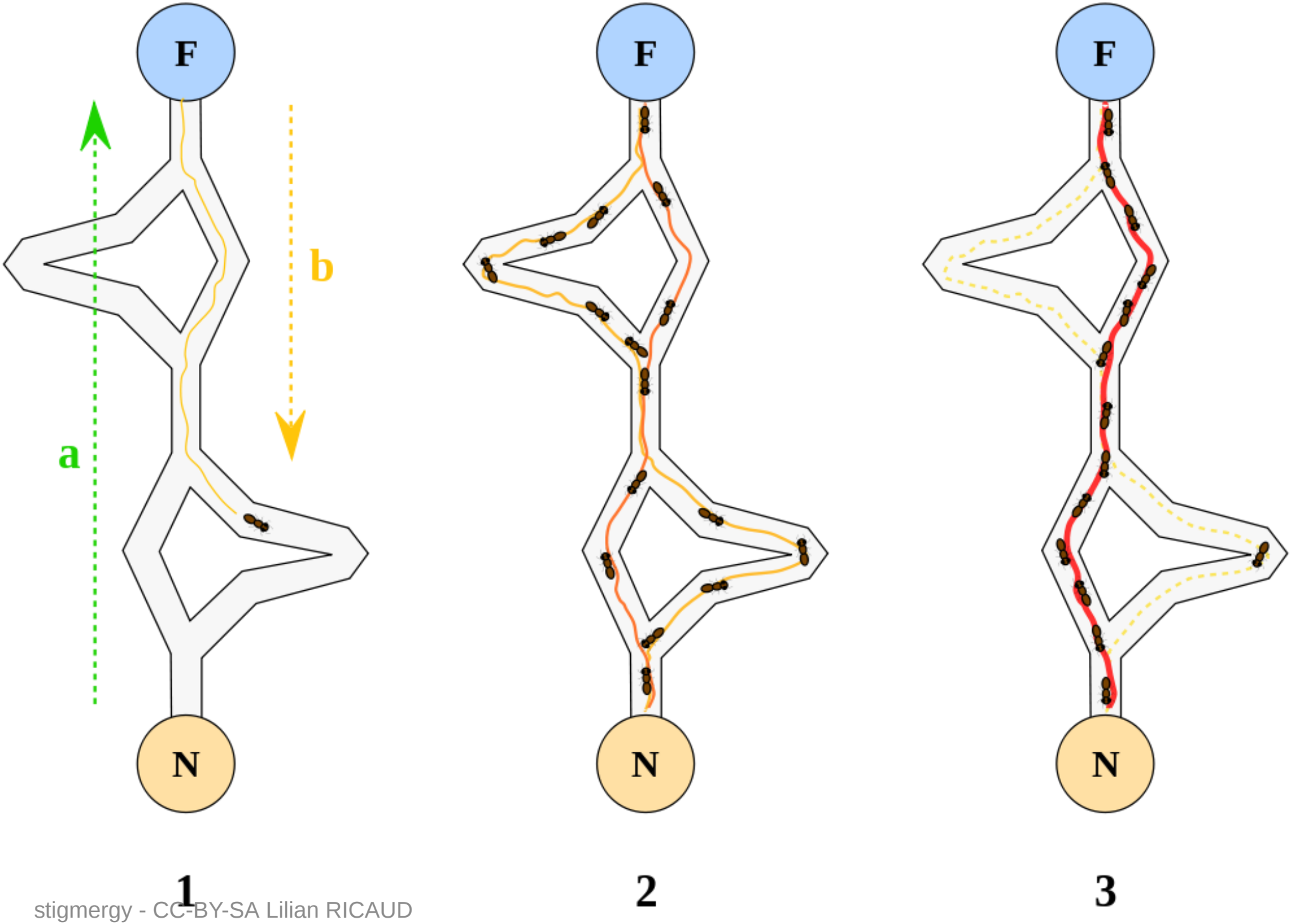

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Humans also use stigmergy

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Stigmergic model for human organizations

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Ubuntu Start Page | de passage vers la belg | pntbr | archipel Slack | Framapiaf | Stigmergy | Heather Ma

https://georgiebc.wordpress.com/2012/12/24/stigmergy-2/

stigmergy

Outils | Projets | Pads | Timers | Multibao-Prose | Webmail Ouvaton | Diigolet | leboncoin | via ferrata en Midi-Pyr...

My Site | Reader | Write

Heather Marsh

Rethinking the moats and mountains

Binding Chaos | Autonomy Diversity Society | Releasing Chaos | Code Will Rule | New Orwellian Dictionary (NOD) | Glossary

Stigmergy

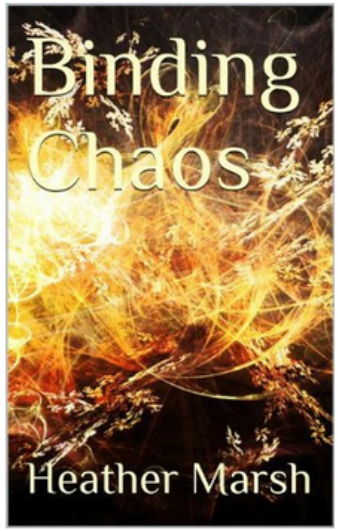
Posted on December 24, 2012 by Heather Marsh

Kind people have stigmergically translated this article into German, French, and Spanish.

This article is part of a series now incorporated into : 'Binding Chaos'.

Stigmergy is a mechanism of indirect coordination between agents or actions. The principle is that the trace left in the environment by an action stimulates the performance of a next action, by the same or a different agent. In that way, subsequent actions tend to reinforce and build on each other, leading to the spontaneous emergence of coherent, apparently systematic activity. Stigmergy is a form of self-organization. It produces complex, seemingly intelligent structures, without need for any planning, control, or even direct communication between the agents. – Wikipedia

A personality based system can never allow for mass collaboration on a global scale without representation such as that seen in organizations like the United Nations. If the world is to move away from representation and allow all voices to be heard, we need to find methods of collaboration which work with idea and action based systems. Concentric user groups with epistemic communities and knowledge bridges may work for idea based systems; for action, stigmergy may be the



Binding Chaos

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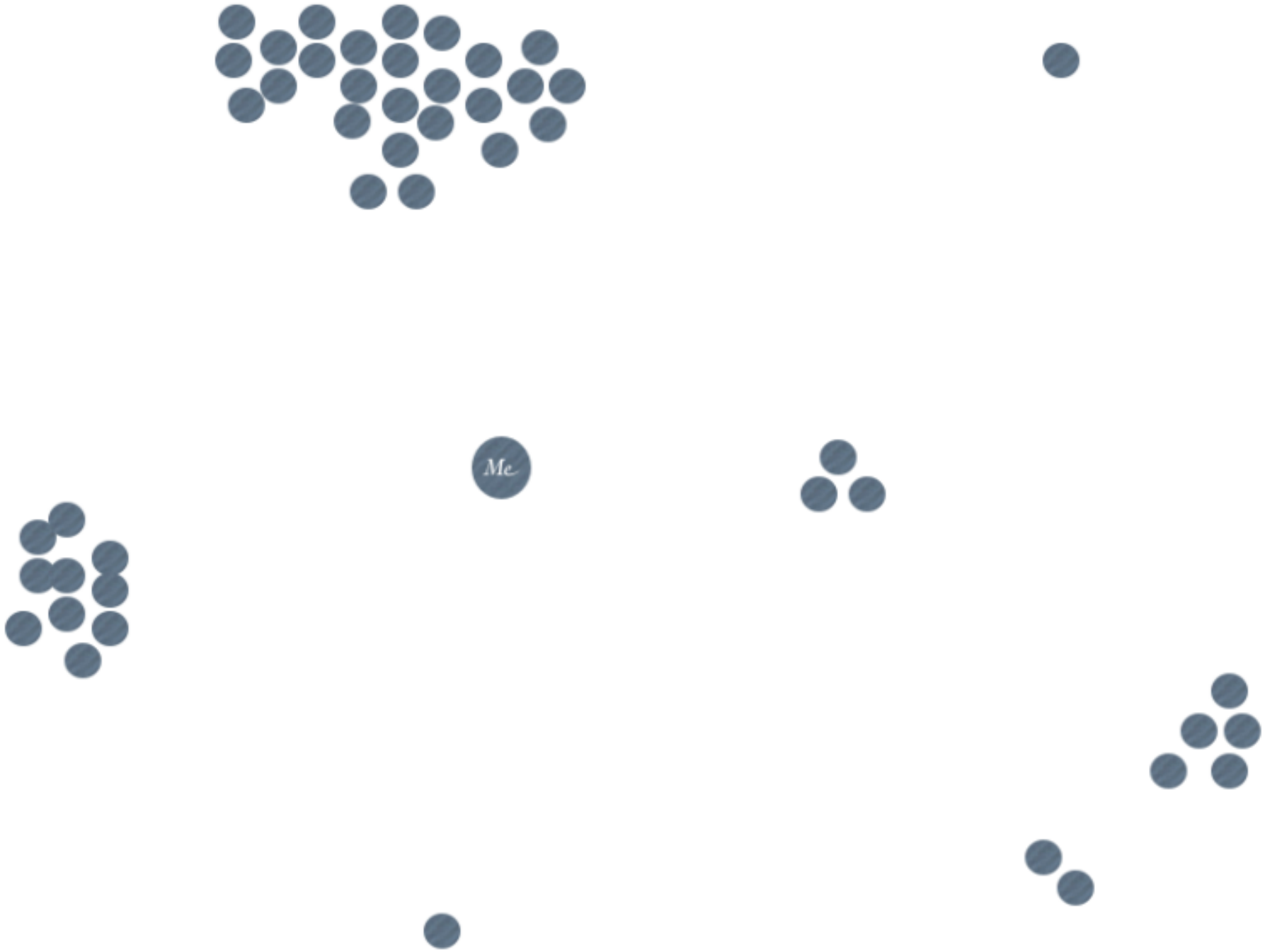

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An idea is freely given and left in the open

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Anyone can engage, when, where, how and how long they want

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The project is driven by the idea, not by a personality or group of personalities.

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No need for discussion or approval

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Individuals are in control over their own work

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If an idea is good it will receive the support required

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Action-centered: good projects attracts contributive efforts, not empty votes

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Acceptance or rejection is for the work contributed, not the person contributing it

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No need for communication outside of task completion

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Information sharing is driven by the information, not personal relationships

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Workgroups emerge, divide, specialize or disappear organically according to the needs of the system

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Self-responsability for the work encourage self-limitation, not indiscriminate growth

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The system is decentralized and resilient

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Aggregated efforts of agents leads to emergence of complex work

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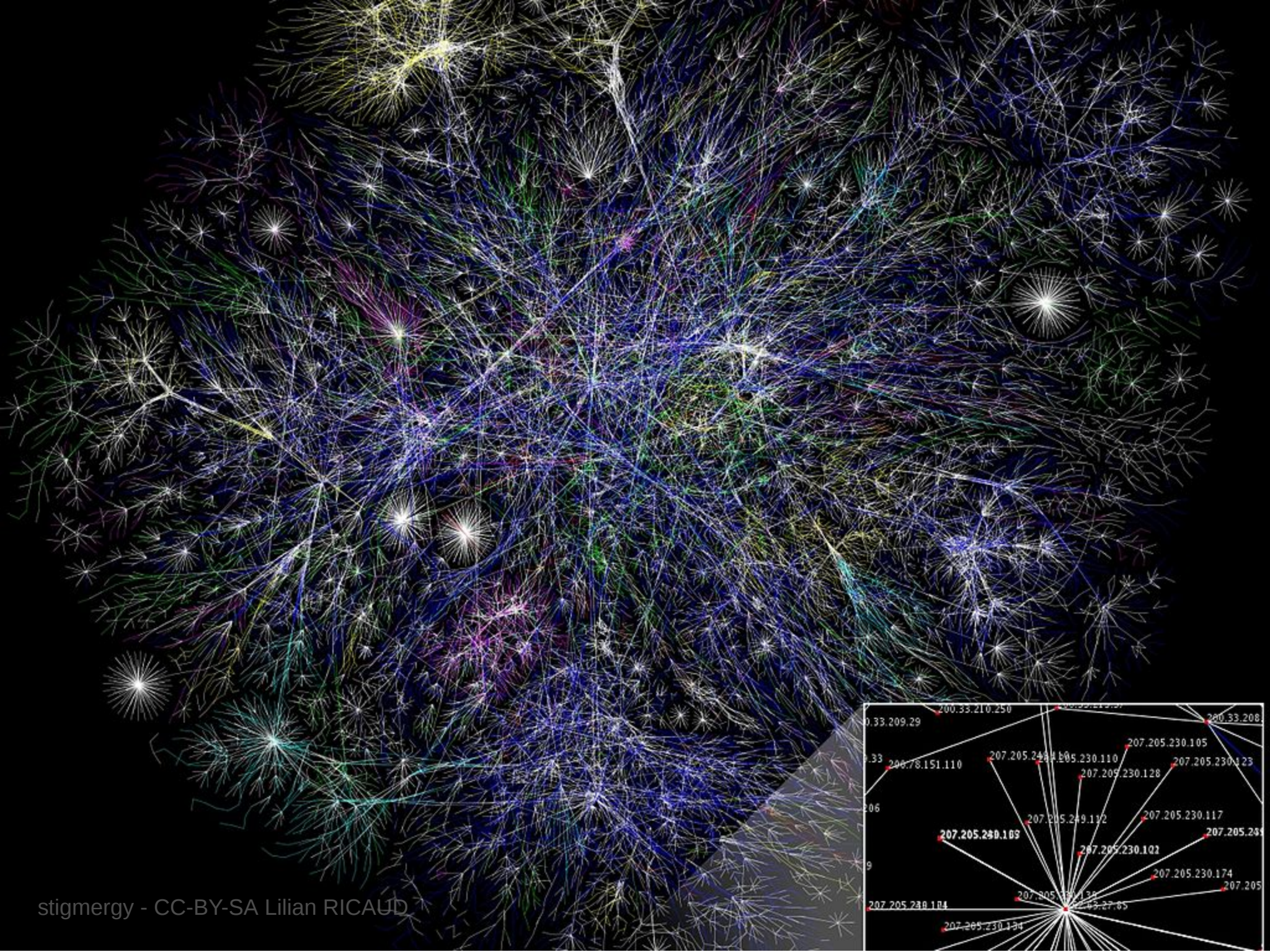

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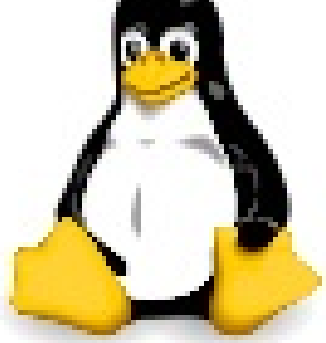

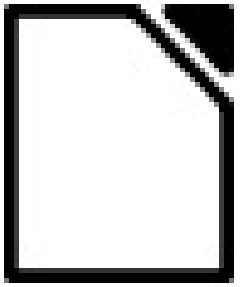

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Can we promote the emergence of stigmergic cooperation ?

Wikipedia as a stigmergic system

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Environment with perceptibles traces

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Depuis le 28 avril, Wikipédia en français compte **plus d'un million et demi d**

Lélouma

Cet article est une ébauche concernant une localité de Guinée.

Vous pouvez partager vos connaissances en l'améliorant (**comment ?**) selon le projets correspondants.

Lelouma est une ville du Fouta-djalon, région montagneuse située au centre de la Guinée. Elle est le chef-lieu de préfecture de Lélouma.

Géographie [modifier | modifier le code]

Sur les contreforts du Fouta, Lélouma, comme l'ensemble de la région, bénéficie d'un climat tempéré par l'altitude et d'une végétation profitant des pluies abondantes.

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Dans le monde scientifique [modifier | modifier le code]

De nombreux chercheurs et étudiants utilisent des outils collaboratifs, en particulier dar

Une cartographie des collaborations entre chercheurs montre des structures de réseau centralisées autour de la région parisienne en France[7].

- Opendoar[8] est un exemple de répertoire mondial d'archives ouvertes scientifiques.

  Articles détaillés : Science citoyenne, Sciences participatives et Crowdsourcing.

Dans la gouvernance [modifier | modifier le code]

Divers études ont conclu que certains outils collaboratif ou démarches collaboratives pc « approches adaptatives » et même permettre de nouvelles formes de résilience des sc

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a priori openness / authorization / transparency

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World Wide Web

Ne doit pas être confondu avec Internet.

Pour les articles homonymes, voir web (homonymie).

Le **World Wide Web** (WWW), littéralement la « toile (d'araignée) mondiale », c
et parfois la **toile**, est un système hypertexte public fonctionnant sur internet qu
navigateur, des pages accessibles sur des sites. L'image de la toile d'araignée

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Wiki Loves Earth photo contest during May 2017: Upload photos of natural heritage sites in France to prizes!

Wikipedia:Be bold

From Wikipedia, the free encyclopedia

"WP:BOLD" redirects here. For the Manual of Style guideline on the use of boldface in Wikipedia text formatting, see
"WP:BB" redirects here. For the inactive Wikipedia Bounty Board, see WP:BOUNTY.

This page documents an English Wikipedia editing guideline. It is a generally accepted s
that editors should attempt to follow, though it is best treated with common sense, and occasion
exceptions may apply. Any substantive edit to this page should reflect consensus. When in doub
first on the talk page.

This page in a nutshell: Please feel free to make improvements to the encyclopedia.

Be bold can be explained in three words: "Go for it". The Wikipedia community encourages users to **be bold when updating the encyclopedia**. Wikis like ours develop faster when everybody helps to fix problems, correct grammar, add facts, make sure wording is accurate, etc. We would like *everyone* to be bold and help make Wikipedia a better encyclopedia. How many times have you read something and thought – *Why don't these pages have good spelling, grammar or layout?* Wikipedia not only allows you to add, revise, and edit articles: it *wants* you to do it. This does require a certain amount of politeness, but it works. You'll see. Of course, others here will edit what you write. Do not take it personally! They, like all of us, just wish to make Wikipedia as good an encyclopedia as it can possibly be. Also, when you see a conflict in a talk page, do not be just a "mute spectator": be bold and drop your opinion there!

Don't be upset if your bold edits get reverted. The early advocate of trial and error followed by observation to

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Self-allocation of tasks

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Large number and large diversity of agents

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Work step by step / iteratively

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- (actu | diff) 25 décembre 2011 à 15:22 92.128.121.126 (discuter) . . (83 821 octets) (+946) . . *(→Marx et la monnaie comme leurre : nouvelle section)* (annuler)
- (actu | diff) 30 octobre 2011 à 22:55 Gribeco (discuter | contributions) . . (82 875 octets) (-3 785) . . *(rv avis personnel, Wikipédia n'est pas un forum)* (annuler)
- (actu | diff) 30 octobre 2011 à 22:06 93.19.125.114 (discuter) . . (86 660 octets) (+18) . . *(→Vandalisme par ignorance)* (annuler)

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a posteriori Control

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5 juin 2014

- (diff | hist) . . **m** Pan-Pacific Championship 2009 ; 15:31 . . (+7) . . Thierry Caro (discuter | contributions) *(HotCatsMulti : ± Catégorie:Comté de Los Angeles->Catégorie:Sport à Carson (Californie))*
- (diff | hist) . . Rosier ; 15:31 . . (+21) . . Abrahami (discuter | contributions) *(→Obtenteurs et rosiéristes célèbres)*
- (diff | hist) . . Utilisateur:81.67.26.9/Brouillon ; 15:31 . . (+12) . . Claudia Lihaci (discuter | contributions) *(→Les projets) (Balise : modification d'une page utilisateur tierce)*
- (diff | hist) . . Autriche-Hongrie ; 15:31 . . (+47) . . Philippe Pierre CAMPION (discuter | contributions) *(→Le compromis de 1867)*
- (diff | hist) . . Sergueï Solomko ; 15:31 . . (+142) . . Meissen (discuter | contributions) *(→Biographie)*
- (diff | hist) . . Coupe d'Europe de rugby à XV 2013-2014 ; 15:31 . . (+160) . . 78.238.225.248 (discuter) *(lein gareth davies)*
- (diff | hist) . . Gifi ; 15:31 . . (-1) . . 91.135.176.215 (discuter) *(Faute d'orthographe côté --> coté)*
- (diff | hist) . . **N** Discussion:Xu Wei ; 15:31 . . (+58) . . Fuhraih-eval (discuter | contributions) *(éval)*
- (diff | hist) . . Modèle:Déco Croix du combattant volontaire de la guerre de 1939-1945 ; 15:31 . . (-37) . . 89.91.79.161 (discuter)
- (diff | hist) . . Modèle:Déco Croix du combattant ; 15:31 . . (-38) . . 89.91.79.161 (discuter)
- (diff | hist) . . Discussion utilisateur:Rei Momo ; 15:31 . . (-283) . . Rei Momo (discuter | contributions) *(→Marianna Madia)*
- (diff | hist) . . Enseignement public et informatique ; 15:31 . . (+7) . . Zizomis (discuter | contributions)
- (diff | hist) . . Préférence pour la liquidité ; 15:31 . . (+227) . . Financial95 (discuter | contributions) *(→Notes et références)*
- (diff | hist) . . Wikipédia:Demande de restauration de page ; 15:31 . . (+363) . . Matpib (discuter | contributions) *(→francois*

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Critical tasks management

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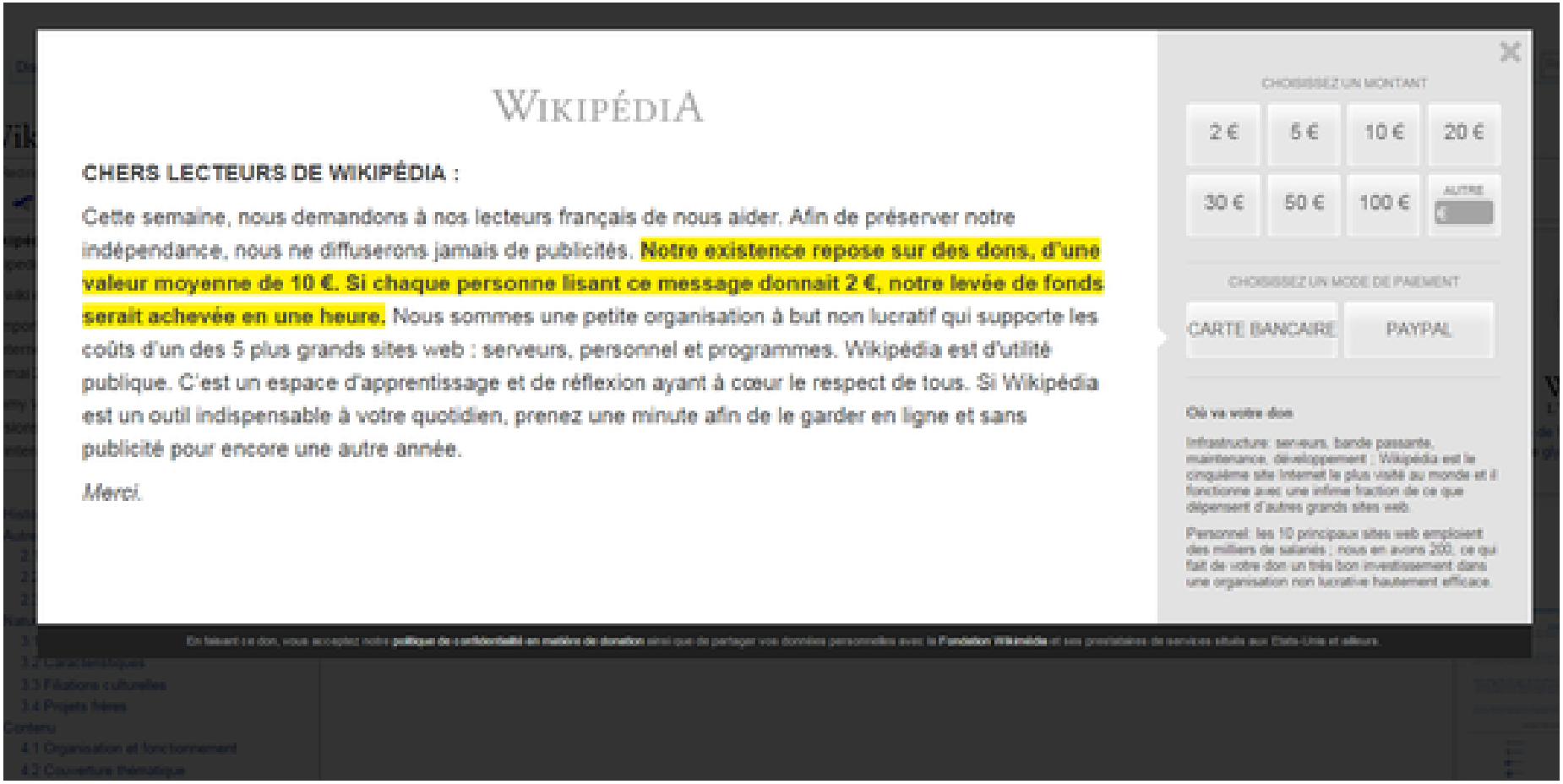

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Simple rules

Wikipedia five pillars

```
Wikipedia is an encyclopedia
Wikipedia is written from a neutral point of view
Wikipedia is free content that anyone can use, edit,
and distribute
Editors should treat each other with respect and civility
Wikipedia has no firm rules
```

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Superordinate goal

> « Imagine a world in which every single person on the planet is given free access to the sum of all human knowledge. That's what we're doing. » – Vision of the Wikimedia Foundation

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Accept forks and parallel branches

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Open research

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lilianricaud / **patterns**

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Patterns and patterns language. Work in Progress. Read, copy, share, remix. http://lilianricaud.com/

Edit

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232 commits | **1** branch | **0** releases | **1** contributor | CC0-1.0

Branch: **master** | New pull request | Create new file | Upload files | Find file | Clone or download

lilianricaud / 'cultural-patterns/patterns-histoires.md' Latest commit ce9cd65 a day ago

Christopher-Alexander-Langage-P...	Add files via upload	5 months ago
Christopher_Alexander_Pattern_L...	Rename Small_work_groups.md to Christopher_Alexander_Pattern_Language...	5 months ago
Commons_pattern_language	Rename Commons_pattern_language.md to Commons_pattern_language/common...	5 months ago
Extreme_Manufacturing_Patterns	Create XM_patterns.md	5 months ago
Group_Works	Rename Appreciation.md to Group_Works/Appreciation.md	5 months ago
Liberating_voices	< 'Liberating_voices- Communication_Revolution_Patterns/'	3 months ago
Liric_Pattern_Language	/ 'Liric_Pattern_Language/Pattern_mining_area.md'	a day ago
Music	Rename Patterns_en_musique.md to Music/Patterns_en_musique.md	5 months ago
Occupy_Patterns	Delete File OccupyHandSignals.jpeg	5 months ago
Online_Learning_Systems	Rename Online_Learning_Systems_patterns.md to Online_Learning_Systems...	4 months ago
Pattern_Research	/ 'Pattern_Research/cartographier_langages_patterns_organisations.md'	a day ago
	b_Paquet_Patterns/Intentcasting.md	5 months ago

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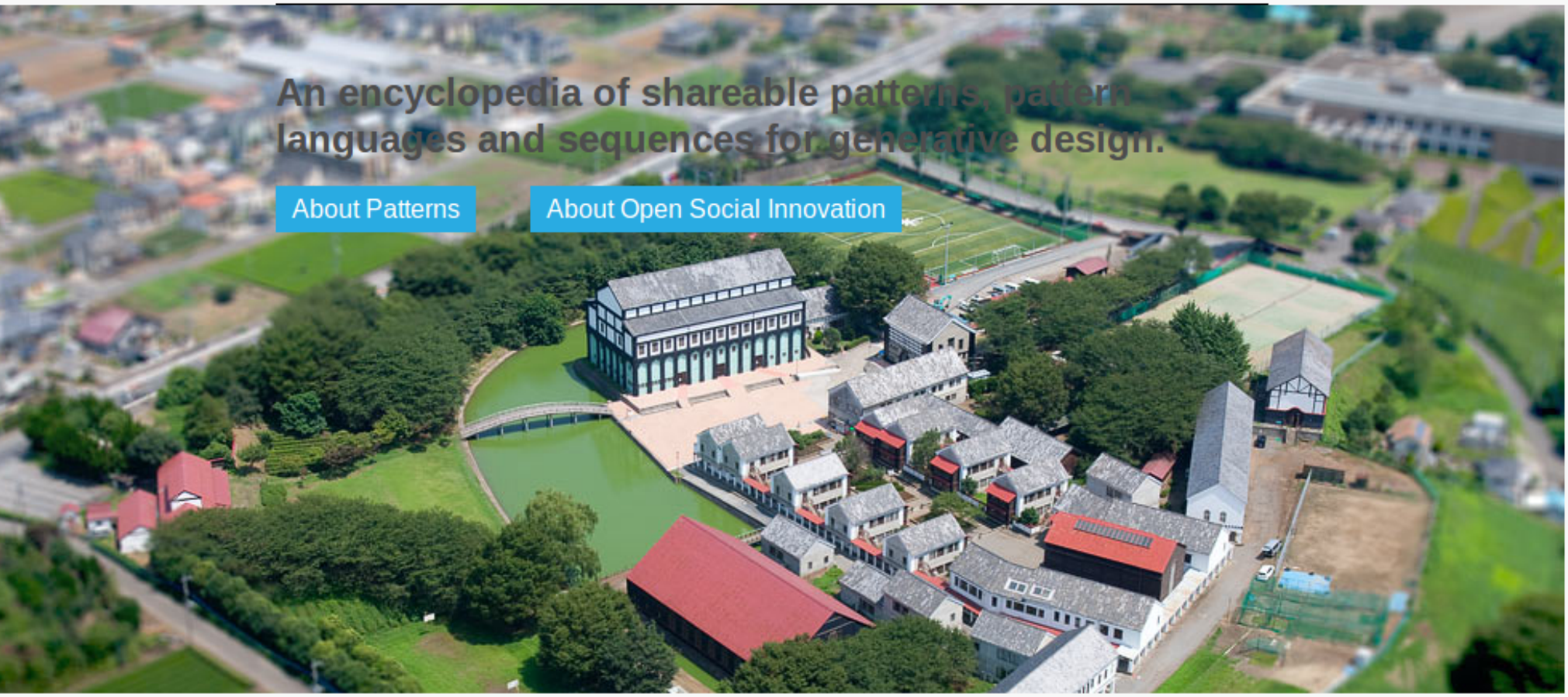
ricaud/patterns/commit/03e1b0290a1dad8cfe38154b6ee5129e19f6b5d7

OpenPatternPedia



Christopher Alexander Pattern Language

(shareable english edition)

Pattern Languages

(English)

Jeu De Cartes Co-créatives

(nouvelle méthode pour gérer la complexité des patterns)

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/PatternPedia/#multibao/contributions/blob/master/pages/commencer_ici.md

Christopher

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search

 a stool for stigmergy

work, leave an artifact
 where others can find it.

f my work:

ome traces on github, twitter,

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-organized system

: action -> trace -> action -
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Stigmergy

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Wikipedia

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Stigmergy is ...

if you slept here is the TlDr

a mechanism of indirect coordination

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a self-organized system

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a loop : action -> trace -> action -> ...

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a method of large-scale collaboration

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centered on individual choice and action

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a mechanism producing complex structures

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emerging when certain conditions are present

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a way to produce software, events, change the world...

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References / sources

Stigmergy; Binding chaos (Heather Marsh 2012)
https://georgiebc.wordpress.com/2012/12/24/stigmergy-2/

Stigmergic self-organization and the improvisation of Ushahidi (Janet Marsden, 2013)

Stigmergic Collaboration: A Theoretical Framework for Mass Collaboration; Mark Elliot,2007)

http://mark-elliott.net/blog/?page_id=24

Self-organization in Communicating Groups: the emergence of coordination, shared references and collective intelligence (Francis Heylighen, 2008)

More ...

- http://lilianricaud.com/
- http://github.com/lilianricaud
- lilious@framapiaf.org (#JoinMastodon !)

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Shan zhai innovation ecosystem

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Open Space Technology

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18 03 2014 00:52:
{{secondes}}

ersion 3790 Enregistré le 18 Mars 2014

Retour à ce Pa

eurs : nathalie , slb , J , lilian , Sylvain , Sylvain + 1 unnamed author ( )

ec l'arrivée de membres supplémentaires, plus de personnes feront l'expérience de la frustration liée à une utilité ou une autonomie limitée. Certains ces membres trouveront un intérêt dans le travail laissé inachevé et ils créeront un nouveau noeud de membres dans les mêmes dispositions et de uvelles personnes pour prendre en charge le travail non accompli. De façon alternative, des usagers occasionnels et des observateurs du système, ont pas l'envie ou l'expertise pour être plus actif dans le système originel, verront un nouveau besoin et démarreront un nouveau noeud. La stigmergie courage la fragmentation en différents noeuds plutôt que le modèle entrepreneurial traditionnel d'acquistion et d'expansion sans fin. Parce que chaqu dividu n'est responsable que de son propre travail, et que personne ne peut diriger un groupe de contributeurs, l'expansion signifie plus de travail pou dividu et une perspective d'auto-limitation. Au fur et à mesure que le système se développe, le travail supplémentaire exige à la fois des ressources pplémentaires et de nouvelles fragmentations. Comme la communication est plus facile et qu'il y a plus d'autonomie dans des groupes plus petits, la gmentation est le résultat le plus probable du développement.

UT7 ?

ommunication between nodes of a system is on an as needed basis. Transparency allows information to travel freely between the various nodes, but a rmal relationship or communication method is neither necessary nor desirable. Information sharing is driven by the information, not personal ationships. If data is relevant to several nodes it will be immediately transmitted to all, no formal meetings between official personalities are necessary

communication entre les noeuds d'un système s'établit sur la base du besoin. La transparence permet à l'information de circuler librement entre les férents noeuds, mais une relation formelle ou une méthode de communication n'est ni necéssaire ni souhaitable. Le partage d'information est guidé p formation elle-même, pas par les relations personnelles. Si une donnée est pertinente pour plusieurs noeuds elle sera immédiatiement transmise à us, aucune rencontre formelle entre des personnes officielles/légitimes n'est nécessaire.

y node can disappear without affecting the network, and the remaining necessary functionality of that node can be taken up by others. Nodes which fi ey are performing the same tasks will likely join, or one will be rendered obsolete by lack of use. New nodes are only created to fulfill a new need or ovide greater functionality; it is inefficient to have the same task performed twice, and that only occurs if a second group discovers an alternative metho at the first group is unwilling to adopt. In that case, the best system will win the most support from the user group, the other will die or remain as a value ernative. Any user can contribute to the node which best matches their interests and abilities, or contribute to multiple nodes.

mporte quel noeud peut disparaître sans affecter le réseau, et les fonctionnalités subsistantes nécessaires peuvent être récupérées par d'autres. Les euds qui s'aperçoivent qu'ils travaillent sur les mêmes taches sont susceptible de s'associer, ou bien certains seront rendus obsolètes par le manque usage. De nouveaux noeuds sont créés seulement pour remplir un nouveau besoin ou fournir une meilleure fonctionnalité; il est inefficace que la mêm che soit exécutée deux fois et cela n'arrive que quand un deuxième groupe trouve une méthode alternative que le premier groupe ne souhaite pas opter. Dans ce cas, le meilleur système gagnera plus de soutien de la part du groupe d'usagers et l'autre système disparaitra ou restera comme une

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Ushahidi at Five

Ushahidi is 5 years old.

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[The map above represents all of the reports on Crowdmap, visualized from 2010 until now.]

Stigmergy is not just for building code...

watch out for open social innovation !

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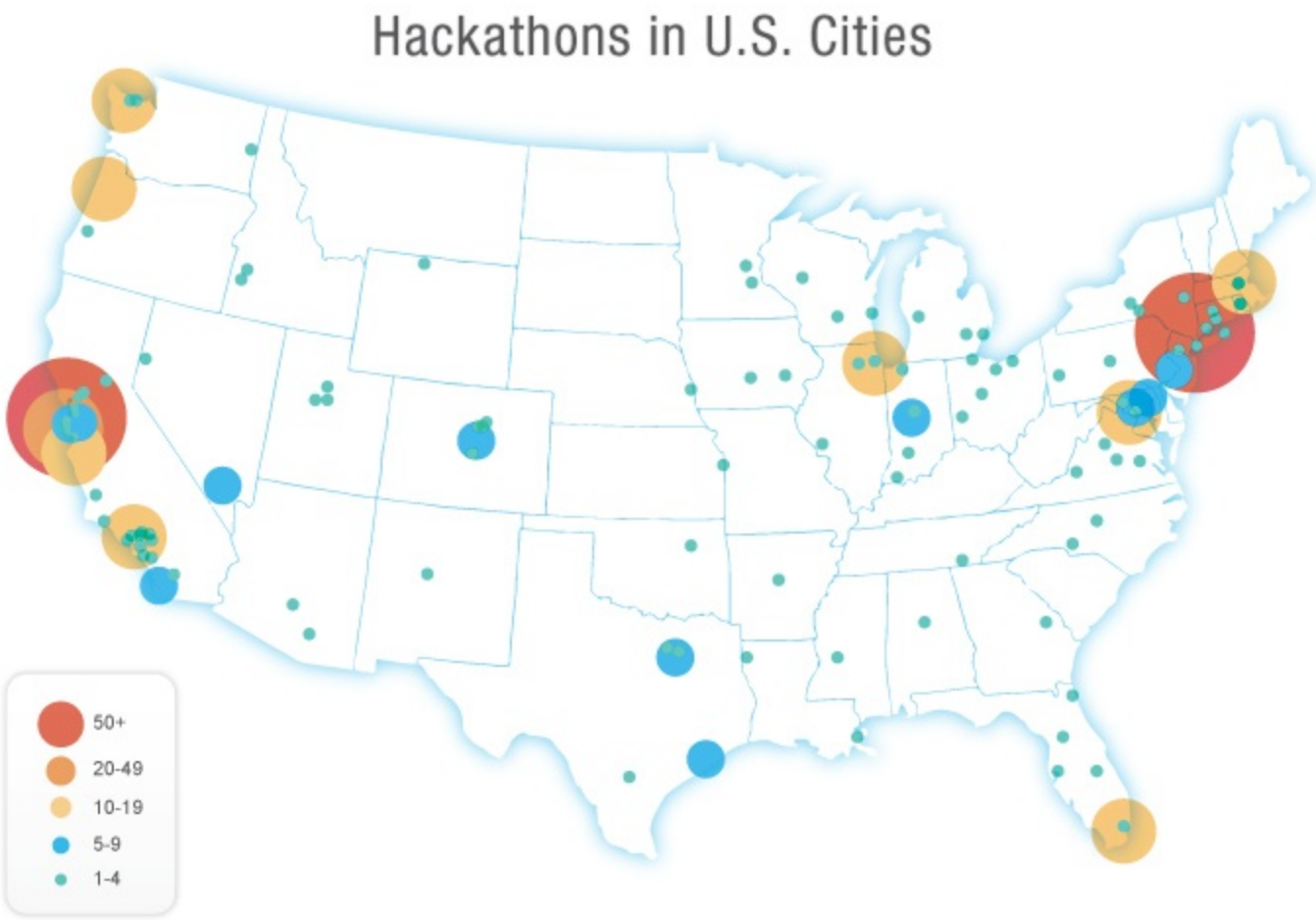

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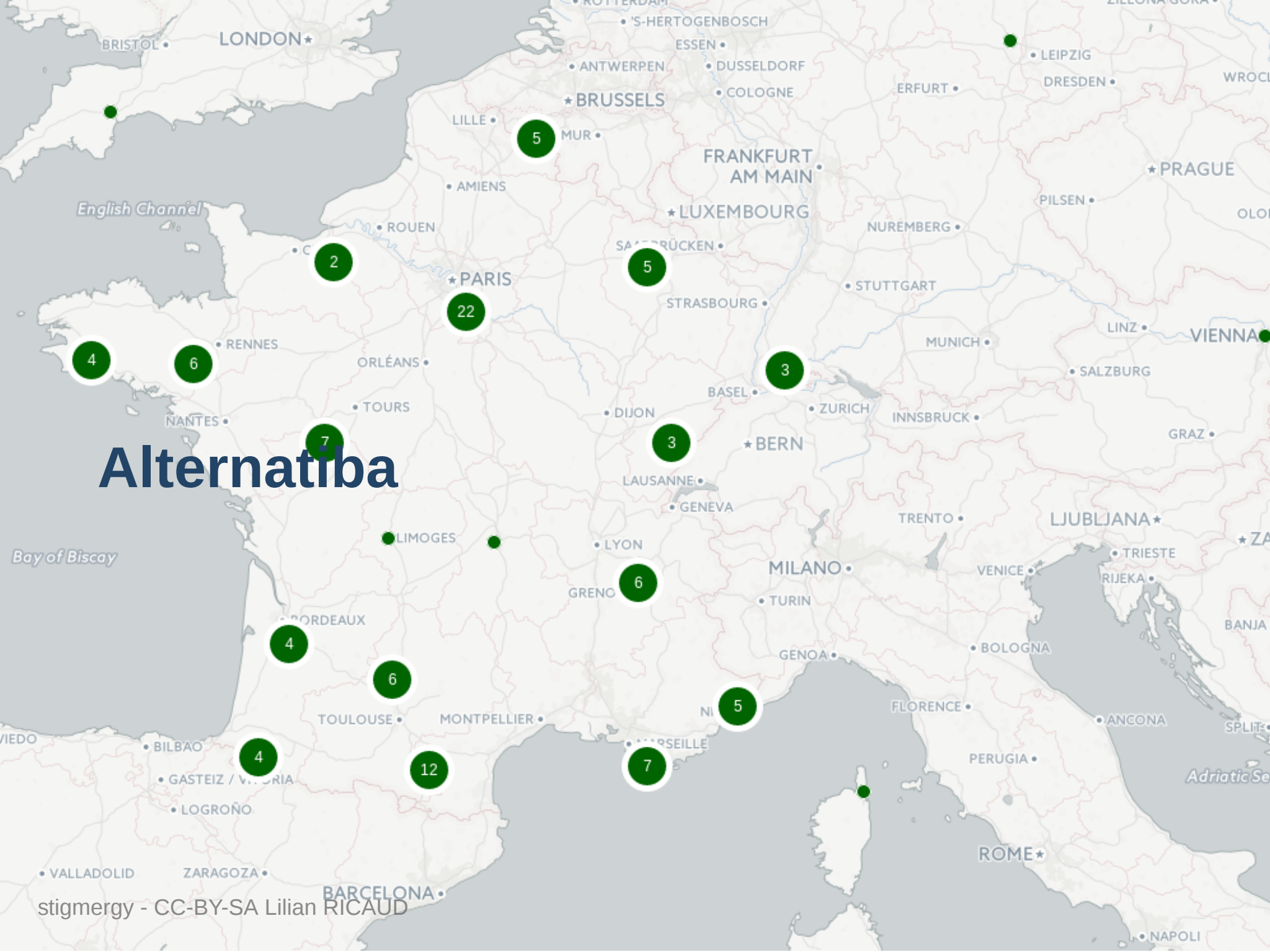

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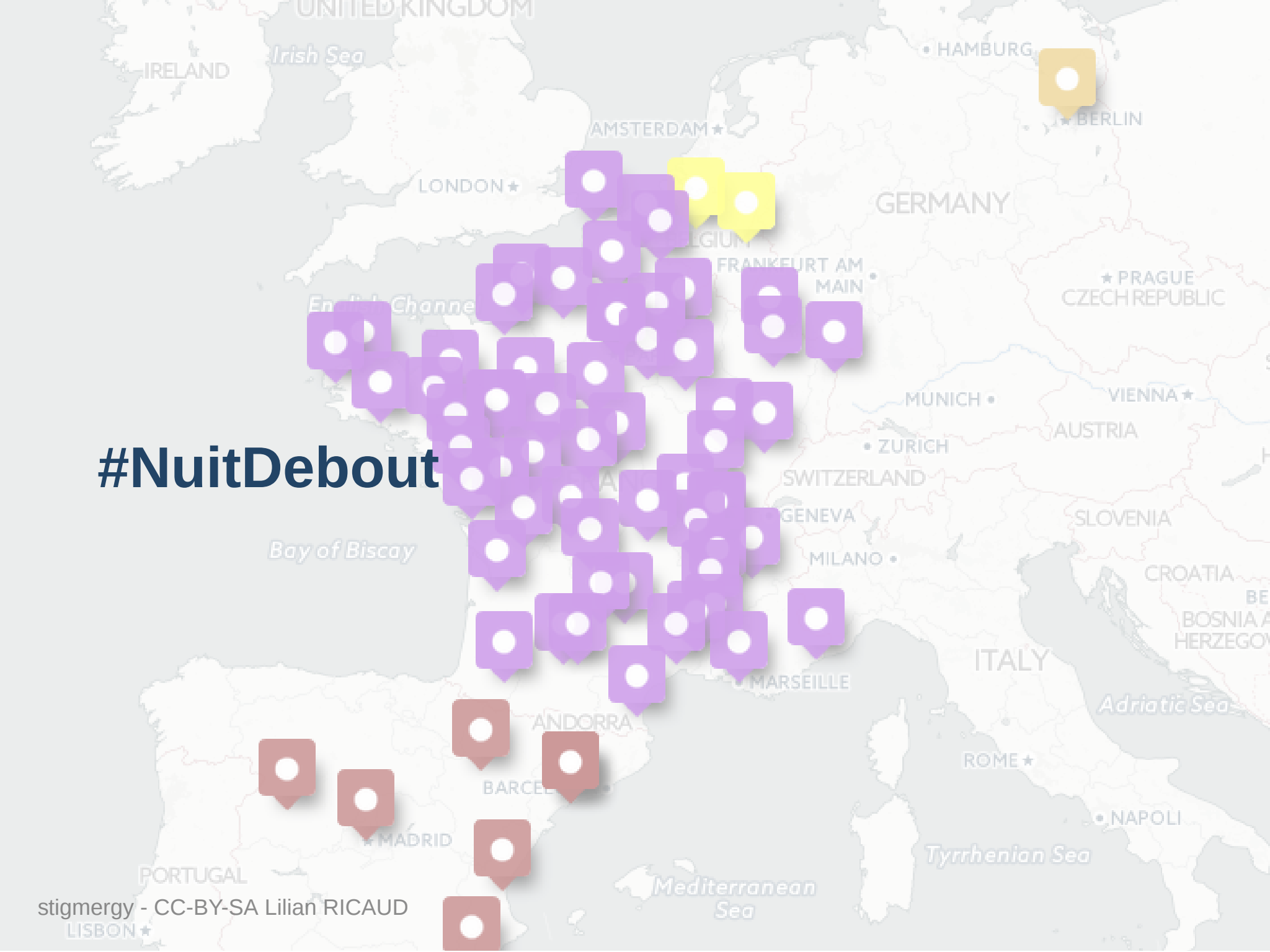

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