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What Is Collaboration Anyway?

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Sharing Is the First Step

Information technology informs and structures the language of networked collaboration. Terms like "sharing," "openness," "user-generated content," and "participation" have become so ubiquitous that too often they tend to be conflated and misused. In an attempt to avoid the misuse of the term "collaboration" we will try to examine what constitutes collaboration in digital networks and how it maps to our previous understanding of the term.

User-generated content and social media create the tendency for confusion between sharing and collaboration. Sharing of content alone does not directly lead to collaboration. A common paradigm in many web services couples identity and content. Examples of this include blogging, microblogging, and video and photo sharing, which effectively say, "This is who I am. This is what I did." The content is the social object, and the author is directly attributed with it. This work is a singularity, even if it is shared with the world via these platforms, and even if it has a free-culture license on it. This body of work stands alone, and alone, this work is not collaborative.

In contrast, the strongly collaborative Wikipedia deemphasizes the tight content-author link. While the attribution of each contribution made by each author is logged on the history tab of each page, attribution is primarily used as a moderation and accountability tool. While most user-generated content platforms offer a one-to-many relationship, in which one user produces and uploads many different entries or media, wikis and centralized code-versioning systems offer a many-to-many relationship, in which many different users can be associated with many different entries or projects.

Social media platforms can become collaborative when they add an additional layer of coordination. On a microblogging platform like Twitter, this

layer might take the form of an instruction to "use the #iranelections hashtag on your tweets," or on a photo-sharing platform, it might be an invitation to "post your photos to the LOLcats group." These mechanisms aggregate the content into a new social object. The new social object includes the metadata of each of its constituent objects; the author's name is the most important of this metadata. This creates two layers of content. Each shared individual unit is included in a cluster of shared units. A single shared video is part of an aggregation of demonstration documentation. A single shared bookmark is included in an aggregation of the "inspiration" tag on the social bookmarking service delicious. A single blog post takes its place in a blogosphere discussion, and so on.

This seems similar to a single "commit" to an open-source project or a single edit of a Wikipedia article, but these instances do not maintain the shared unit/collaborative cluster balance. For software in a code-versioning system or a page on Wikipedia, the single unit loses its integrity outside the collaborative context and is indeed created to only function as a part of the larger collaborative social object.

Coordinating Mechanisms Create Contexts

Contributions such as edits to a wiki page or "commits" to a version-control system cannot exist outside the context in which they are made. A relationship to this context requires a coordinating mechanism that is an integral part of the initial production process. These mechanisms of coordination and governance can be both technical and social.

Wikipedia uses several technical coordination mechanisms, as well as strong social mechanisms. The technical mechanism separates each contribution, marks it chronologically, and attributes it to a specific username or IP address. If two users are editing the same paragraph and are submitting contradicting changes, the MediaWiki software will alert these users about the conflict and requires them to resolve it. Version-control systems use similar technical coordination mechanisms, marking each contribution with a time stamp and a username and requiring the resolution of differences between contributions if there are discrepancies in the code due to different versions.

The technical coordination mechanisms of the Wiki software lowers the friction of collaboration tremendously, but it doesn't take it away completely. It makes it much harder to create contributions that are not harmonious with the surrounding context. If a contribution is deemed inaccurate, or not an

improvement, a user can simply revert to the previous edit. This new change is then preserved and denoted by the time and user who contributed it.

Academic research into the techno-social dynamics of Wikipedia shows clear emergent patterns of leadership. For example, the initial content and structure outlined by the first edit of an article are often maintained through the many future edits years on.[1] The governance mechanism of the Wiki software does not value one edit over the other. Yet what is offered by the initial author is not just the initiative for the collaboration; it is also a leading guideline that implicitly coordinates the contributions that follow.

Wikipedia then uses social contracts to mediate the relationship of contributions to the collection as a whole. All edits are supposed to advance the collaborative goal—to make the article more accurate and factual. All new articles are supposed to be on relevant topics. All new biographies need to meet specific guidelines of notability. These are socially agreed upon contracts, and their fabric is always permeable. The strength of that fabric is the strength of the community.

An interesting example of leadership and of conflicting social pacts happened on the Wikipedia "Elephants" article. In the TV show *The Colbert Report* Stephen Colbert plays a satirical character of a right-wing television host dedicated to defending Republican ideology by any means necessary. For example, he constructs ridiculous arguments denying climate change. He is not concerned that this completely ignores reality, which he claims "has a liberal bias."

On July 31, 2006, Colbert ironically proposed the term "Wikiality" as a way to alter the perception of reality by editing a Wikipedia article. Colbert analyzed the interface in front of his audience and performed a live edit to the "Elephants" page, adding a claim that the elephant population in Africa had tripled in the past six months.

Colbert proposed his viewers follow a different social pact. He suggested that if enough of them helped edit the article on elephants to preserve his edit about the number of elephants in Africa, then that would become the reality, or the "Wikiality"—the representation of reality through Wikipedia. As he said, "If you're going against what the majority of people perceive to be reality, you're the one who's crazy." He also claimed that this would be a tough "fact" for the environmentalists to compete with, retorting, "Explain that, Al Gore!"[2]

It was great TV, but it created problems for Wikipedia. So many people responded to Colbert's rallying cry that Wikipedia locked the article on elephants to protect it from further vandalism.[3] Furthermore, Wikipedia banned the user Stephencolbert for using an unverified celebrity name, a

violation of Wikipedia's terms of use.[4] Colbert's and his viewers' edits were perceived as mere vandalism that was disrespectful of the social contract that the rest of Wikipedia adhered to, thus subverting the underlying fabric of the community. Yet they were following the social contract provided by their leader and his initial edit. It was their own collaborative social pact, enabled and coordinated by their own group. Ultimately, Wikipedia had to push one of its more obscure rules to its edges to prevail against Stephen Colbert and his viewers. The surge of vandals was blocked, but Colbert gave them a run for the money, and everyone else a laugh, all the while making a point about how we define the boundaries of contribution.

Does Aggregation Constitute Collaboration?

Can all contributions coordinated in a defined context be understood as collaboration? In early 2009 Israeli musician Kutiman (Ophir Kutiel) collected video clips posted on YouTube of hobbyist musicians and singers performing to their webcams. He then used one of the many illegal tools available online to extract the raw video files from YouTube. He sampled these clips to create new music videos. He writes of his inspiration,

> Before I had the idea about ThruYou I took some drummers from YouTube and I played on top of them—just for fun, you know. And then one day, just before I plugged my guitar to play on top of the drummer from YouTube, I thought to myself, you know—maybe I can find a bass and guitar and other players on YouTube to play with this drummer.[5]

The result was a set of seven music-video mashups which he titled "ThruYou—Kutiman Mixes YouTube." Each of these audiovisual mixes is so well crafted it is hard to remind yourself that when David Taub from NextLevelGuitar.com was recording his funk riff he was never planning to be playing it to the Bernard "Pretty" Purdie drum beat or to the user miquelsi's playing with the theremin at the Universeum, in Göteborg. It is also hard to remind yourself that this brilliantly orchestrated musical piece is not the result of a collaboration.

When Kutiman calls the work "ThruYou" does he mean "You" as in "us" his audience? "You" as in the sampled musicians? Or "You" as in YouTube? By subtitling it "Kutiman mixes YouTube" is he referring to the YouTube service owned by Google, or the YouTube users whose videos he sampled?

The site opens with an introduction/disclaimer paragraph:

What you are about to see is a mix of unrelated YouTube videos/clips edited together to create ThruYou. In Other words—what you see is what you get.

Check out the credits for each video—you might find yourself.

PLAY ▶[6]

In the site Kutiman included an "About" video in which he explains the process and a "Credits" section where the different instruments are credited with their YouTube IDs (like tU8gmozj8xY and 6FX_84iWPLU) and linked to the original YouTube pages.

The user miquelsi did share the video of himself playing the Theremin on YouTube, but he did not intend to collaborate with other musicians. We don't even know if he really thought he was making music: it is very clear from the video that he doesn't really know how to play the Theremin, so when he titled his video "Playing the Theremin" he could have meant playing as music making or playing as amusement. It would be easy to focus on the obvious issues of copyright infringement and licensing, but the aspect of Kutiman's work we're actually interested in is the question of intention.

Is intention essential to collaboration? It seems clear that though these works were aggregated to make a new entity, they were originally shared as discrete objects with no intention of having a relationship to a greater context. But what about works that are shared with an awareness of a greater context, that help improve that context, but are not explicitly shared for that purpose?

Web creators are increasingly aware of "best practices" for search-engine optimization (SEO). By optimizing, web-page creators are sharing objects with a strong awareness of the context in which they are being shared, and in the process they are making the Google PageRank mechanism better and more precise. Their intention is not to make PageRank more precise, but by being aware of the context, they achieve that result. Although reductive, this does fit a more limited definition of collaboration.

The example of PageRank highlights the questions of coordination and intention. Whether or not they are optimizing their content and thus improving PageRank, web-content publishers are not motivated by the same shared goal that motivates Google and its shareholders. These individuals do coordinate their actions with Google's mechanism out of their own self-interest to achieve better search results, but they don't coordinate their actions in order to improve the mechanism itself. The same can be said about most Twitter users, most Flickr users, and the various musicians who have unintentionally contributed to YouTube's success and to Kutiman's ThruYou project.

Collaboration requires goals. There are multiple types of intentionality that highlight the importance of intent in collaboration. The intentional practice is different from the intentional goal. Optimizing a web page is done to intentionally increase search results, but it unintentionally contributes to making Google PageRank better. When we claim that intention is necessary for collaboration, we really are talking about intentional goals. Optimizing your site for Google search is a collaboration with Google only if you define it as your personal goal. Without these shared goals, intentional practice is a much weaker case of collaboration.

Collaborationism

As collaborative action can have more than one intent, it can also have more than one repercussion. These multiple layers are often a source of conflict and confusion. A single collaborative action can imply different and even contrasting group associations. In different group contexts, one intent might incriminate or legitimize the other. This group identity crisis can undermine the legitimacy of collaborative efforts altogether.

Collaboration can mean collaborating with an enemy. In a presentation at the Dictionary of War conference in Novi Sad, Serbia, in January 2008, Israeli curator Galit Eilat described the joint Israeli-Palestinian project "Liminal Spaces":

> When the word "collaboration" appeared, there was a lot of antagonism to the word. It has become very problematic, especially in the Israeli/Palestinian context. I think from the Second World War the word "collaboration" had a special connotation. From Vichy government, the puppet government, and later on the rest of the collaborations with Nazi Germany.[7]

While there was no doubt that "Liminal Spaces" was indeed a collaboration between Israelis and Palestinians, the term itself was not only contested; it was outright dangerous.

The danger of collaboration precedes this project. I remember one night in 1994 when I was a young soldier serving in an Israeli army base near the Palestinian city of Hebron, around 3:30 a.m. a car pulled off just outside the gates of our base. The door opened, and a dead body was dropped from the back seat on the road. The car then turned around and rushed back towards the city. The soldiers that examined the body found

it belonged to a Palestinian man. Attached to his back was a sign with the word "Collaborator."

This grim story clearly illustrates how culturally dependent and context-based a collaboration can be. While semantically we will attempt to dissect what constitutes the context of a collaboration, we must acknowledge the inherit conflict between individual identity and group identity. An individual might be a part of several collaborative or noncollaborative networks. Since a certain action like SEO optimization can be read in different contexts, it is often a challenge to distill individual identity from the way it intersects with group identities.

> The nonhuman quality of networks is precisely what makes them so difficult to grasp. They are, we suggest, a medium of contemporary power, and yet no single subject or group absolutely controls a network. Human subjects constitute and construct networks, but always in a highly distributed and unequal fashion. Human subjects thrive on network interaction (kin groups, clans, the social), yet the moments when the network logic takes over—in the mob or the swarm, in contagion or infection—are the moments that are the most disorienting, the most threatening to the integrity of the human ego.[8]

The term "group identity" itself is confusing, as it obfuscates the complexity of different individual identities networked together within the group. This inherent difficulty presented by the nonhuman quality of networks means that the confusion of identities and intents will persist. Relationships between individuals in groups are rich and varied. We cannot assume a completely shared identity and equal characteristics for every group member just by grouping them together.

We cannot expect technology (playing the rational adult) to solve this tension either, as binary computing often leads to an even further reduction (in the representation) of social life. As Ippolita, Geert Lovink, and Ned Rossiter point out, "We are addicted to ghettos, and in so doing refuse the antagonism of 'the political.' Where is the enemy? Not on Facebook, where you can only have 'friends.' What Web 2.0 lacks is the technique of antagonistic linkage."[9]

The basic connection in Facebook is referred to as "friendship" since there is no way for software to elegantly map the true dynamic nuances of social life. While "friendship" feels more comfortable, its overuse is costing us richness of our social life. We would like to avoid these binaries by offering variation and degrees of participation.

Criteria for Collaboration

"Collaboration" is employed so widely to describe the methodology of production behind information goods that it occludes as much as it reveals. In addition, governments, business, and cultural entrepreneurs apparently can't get enough of it, so a certain skepticism is not unwarranted. But even if overuse as a buzzword has thrown a shadow over the term, what follows is an attempt to try and construct an idea of what substantive meaning it could have and distinguish it from related or neighboring ideas such as cooperation, interdependence, or coproduction. This task seems necessary not least because if the etymology of the word is literally "working together," there is a delicate and significant line between "working with" and "being put to work by" . . .

Some products characterized as collaborative are generated simply through people's common use of tools, presence, or performance of routine tasks. Others require active coordination and deliberate allocation of resources. While the results may be comparable from a quantitative or efficiency perspective, a heterogeneity of social relations and design lie behind the outputs.

The intensity of these relationships can be described as sitting somewhere on a continuum from strong ties with shared intentionality to incidental production by strangers, captured through shared interfaces or agents, sometimes unconscious byproducts of other online activity.

Consequently we can set out both strong and weak definitions of collaboration, while remaining aware that many cases will be situated somewhere in between. While the former points toward the centrality of negotiation over objectives and methodology, the latter illustrates the harvesting capacity of technological frameworks where information is both the input and output of production.

Criteria for assessing the strength of a collaboration include:

Questions of Intention

Must the participant actively intend to contribute? Is willful agency needed? Or is a minimal act of tagging a resource with keywords, or mere execution of a command in an enabled technological environment (emergence), sufficient?

Questions of Goals

Is participation motivated by the pursuit of goals shared with other participants or individual interests?

Questions of (Self-)Governance

Are the structures and rules of engagement accessible? Can they be contested and renegotiated? Are participants interested in engaging on this level (control of the mechanism)?

Questions of Coordination Mechanisms

Is human attention required to coordinate the integration of contributions? Or can this be accomplished automatically?

Questions of Property

How is control or ownership organized over the outputs (if relevant)? Who is included and excluded in the division of the benefits?

Questions of Knowledge Transfer

Does the collaboration result in knowledge transfer between participants? Is it similar to a community of practice, described by Etienne Wenger as "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis."[10]

Questions of Identity

To what degree are individual identities of the participants affected by the collaboration toward a more unified group identity?

Questions of Scale

Questions of scale are key to group management and have a substantial effect on collaboration. The different variables of scale are often dynamic and can change through the process of the collaboration, thus changing the nature and the dynamics of the collaboration altogether.

Size—How big or small is the number of participants?

Duration—How long or short is the time frame of the collaboration?

Speed—How time consuming is each contribution? How fast is the decision-making process?

Space—Does the collaboration take place over a limited or extended geographic scale?

Scope—How minimal or complex is the most basic contribution? How extensive and ambitious is the shared goal?

Questions of Network Topology

How are individuals connected to each other? Are contributions individually connected to each other, or are they all coordinated through a unifying bottle-neck mechanism? Is the participation-network model highly centralized, is it largely distributed, or does it assume different shades of decentralization?

Questions of Accessibility

Can anyone join the collaboration? Is there a vetting process? Are participants accepted by invitation only?

Questions of Equality

Are all contributions largely equal in scope? Does a small group of participants generate a far larger portion of the work? Are the levels of control over the project equal or varied between the different participants?

Continuum Set

The series of criteria just outlined provides a general guide for the qualitative assessment of the cooperative relationship. In what follows, these criteria are used to sketch out a continuum of collaboration. The following clusters of cases illustrate a movement from weakest to strongest connections. This division is crude, as it sidelines the fact that within even apparently weak contexts of interaction there may be a core of people whose commitment is of a higher order (e.g., ReCaptcha).

The Weakest Link . . .

(1) Numerous technological frameworks gather information during use and feed the results back into the apparatus. The most evident example is Google, whose PageRank algorithm uses a survey of links between sites to classify their relevance to a user's query.

Likewise ReCaptcha uses a commonplace authentication in a two-part implementation, first to exclude automated spam and then to digitize words from books that were not recognizable by optical character recognition. Contributions are extracted from participants unconscious of the recycling of their activity into the finessing of the value chain. Website operators who integrate ReCaptcha, however, know precisely what they're doing and choose to transform a necessary defense mechanism for their

site into a productive channel of contributions to what they regard as a useful task.

(2) Aggregation services such as delicious and photographic archives such as Flickr, ordered by tags and geographic information, leverage users' self-interests in categorizing their own materials to enhance usability. In these cases the effects of user actions are transparent. Self-interest converges with the usefulness of the aggregated result. There is no active negotiation with the designers or operators of the system but acquiescence to the basic framework.

(3) Distributed computing projects such as SETI and Folding@Home require a one-off choice by users as to how to allocate resources, after which they remain passive. Each contribution is small, and the cost to the user is correspondingly low. Different projects candidate themselves for selection, and users have neither a role in defining the choice available nor an ongoing responsibility for the maintenance of the system. Nonetheless, the aggregated effect generates utility.

Stronger . . .

(4) P2P platforms like BitTorrent, eDonkey, and Limewire constitute a system in which strangers assist one another in accessing music, video, applications, and other files. The subjective preferences of individual users give each an interest in the maintenance of such informal institutions as a whole. Bandwidth contribution to the network guarantees its survival and promises the satisfaction of at least some needs, some of the time. Intention is required, especially in the context of attempts at its suppression through legal action and industry stigmatization. Links between individual users are weak, but uncooperative tendencies are disadvantaged by protocols requiring reciprocity or biasing performance in favor of generous participants (e.g., BitTorrent, emule).

(5) Slashdot, the technology-related news and discussion site, does not actually produce articles at all. Instead, stories are submitted by users, which are then filtered. Those published are either selected by paid staff or voted on by the user base. Following this, the stories are presented on the web page, and the real business of Slashdot begins: voluminous commentary ranging from additional information on the topic covered (of varying levels of accuracy) to analysis (of various degrees of quality) to speculation (of various degrees of pertinence), taking in jokes and assorted trolling along the way. This miasma is then ordered by the users themselves, a changing subset

of whom have evaluation powers over the comments, which they assess for relevance and accuracy on a sliding scale. The number and quality of comments presented is then determined by users themselves by configuring their viewing preferences. User moderations are in turn moderated for fairness by other users, in a process known as metamoderation.[11]

In addition to the news component of the site, Slashdot also provides all users with space for a journal (which predates the blog) and tools to characterize relations with other users as "friends" or "foes" (predating and exceeding Facebook). The software behind the site, slashcode, is free software which is used by numerous other web communities of a smaller scale.

(6) Vimeo, a portal for user-produced video, shelters a wide variety of subcultures/communities under one roof. Two factors stand out which distinguish it from other apparently similar sites: the presence of explicit collective experimentation and a high level of knowledge sharing. Members frequently propose themes and solicit contributions following a defined script and then assemble the results as a collection.

Several channels are explicitly devoted to teaching others techniques in film production and editing, but the spirit of exchange is diffuse throughout the site. Viewers commonly query the filmmaker as to how particular effects were achieved, equipment employed, and so on. The extent to which Vimeo is used for knowledge sharing distinguishes it from YouTube, where commentary regularly collapses into flame wars, and brings it close to Wenger's concept of a "community of practice," previously discussed.

Vimeo is nonetheless a private company whose full-time employees have the final word in terms of moderation decisions, but substantially the community flourishes on a shared set of norms which encourage supportive and constructive commentary and on a willingness to share know-how in addition to moving images.

. . . Intense

(7) Although there is something of an overreliance on Wikipedia as an example in discussions of collaboration and social media, its unusually evolved structure makes it another salient case. The overall goal is clear: construction of an encyclopedia capable of superseding one of the classical reference books of history.

The highly modular format affords endless scope for self-selected involvement on subjects of a user's choice. Ease of amendment combined with preservation of previous versions (the key qualities of wikis in general) enable

both highly granular levels of participation and an effective self-defense mechanism against destructive users who defect from the goal.

At the core of the project lies a group who actively self-identify themselves as Wikipedians and dedicate time to developing and promoting community norms, especially around the arbitration of conflicts. Jimmy Wales, the project's founder, remains the titular head of Wikipedia, and although there have been some conflicts between him and the community, he has in general conceded authority. But the tension remains without conclusive resolution.

(8) FLOSSmanuals, the organization that facilitated the writing of this text you are reading, was originally established to produce documentation for free software projects, a historically weak point of the Free Software community. The method usually involves the assembly of a core group of collaborators who meet face-to-face for a number of days and produce a book during their time together.

Composition of this text takes place on an online collective writing platform called booki, integrating wiki-like versioning history and a chat channel. In addition to those who are physically present, remote participation is actively encouraged. When the work is focused on technical documentation, the functionality of the software in question provides a guide to the shape of the text. When the work is conceptual, as in the case of this text, it is necessary to come to an agreed basic understanding through discussion, which can jumpstart the process. Once under way, both content and structure are continually refined, edited, discussed, and revised. On conclusion, the book is made freely available on the website under a Creative Commons license, and physical copies are available for purchase on demand.

(9) Closed P2P communities for music, film, and text, such as the now-suppressed Oink, build archives and complex databases. These commonly contain technical details about the quality of files (resolution, bit rate), samples to illustrate quality (screenshots), relevant sources of information elsewhere (IMDb links, track listing, artwork), descriptions of the plot, director, musician, or formal significance of the work.

In addition, most have a means of coordinating users such that delivery of the data is ensured. If someone is looking for a file currently unseeded, preceding downloaders are notified, alerting them to the chance to assist. When combined with the fixed rules of protocol operation and community-specific rules such as ratio requirements (whereby one must upload a specified amount in relation to the quantity downloaded), there is an effective scheme to encourage or even oblige cooperation. Numerous other tasks are assumed voluntarily, from the creation of subtitles, in the case of film, to the assembly

of thematic collections. All users participate in carrying the data load, and a significant number actively source new materials to share with other members and to satisfy requests.

(10) Debian is built on a clearly defined goal: the development and distribution of a GNU/Linux operating system consistent with the Debian Free Software Guidelines. These guidelines are part of a wider written "social contract," a code embodying the project's ethics, procedural rules, and framework for interaction. These rules are the subject of constant debate, and additions to the code base likewise often give rise to extended debates touching on legal, political, and ethical questions. The social contract can be changed by a general resolution of the developers.

Debian also exemplifies a "recursive community,"[12] in that participants develop and maintain the tools which support their ongoing communication. Developers have specified tasks and responsibilities, and the community requires a high level of commitment and attention. Several positions are appointed by election.

Nonhuman Collaboration

It is interesting to ask ourselves if humans are the only entities which might have agency in the world. Do you need language and consciousness to participate? Donna Haraway has observed that "it isn't humans that produced machines in some unilateral action—the arrow does not move all in one way. . . . There are very important nodes of energy in non-human agency, nonhuman actions."[13] Bruno Latour suggests it might be possible to extend social agency, rights, and obligations to automatic door closers, sleeping police officers, bacteria, public transport systems, sheep dogs, and fences.[14] Taking this view, perhaps we might begin to imagine ourselves as operating in collaboration with a sidewalk, an egg-and-cheese sandwich, our stomachs, or the Age of Enlightenment.

Most of our conversations about collaboration begin with the presumption of a kind of binary opposition between the individual and social agency. Latour solves this problem by suggesting that there are actor-networks—entities with both structure and agency. We ignore the nonhuman at our own peril, for all manner of nonhuman things incite, provoke, participate in, and author actions in the world. How might it inform and transform our conversations about collaboration if we imagined ourselves to be collaborating not only with people but with things, forces, networks, intellectual history, and bacteria?

NOTES

This chapter is excerpted from Adam Hyde et al., *Collaborative Futures*, FLOSSmanuals.net, http://www.booki.cc/collaborativefutures/ (accessed July 20, 2010). This work is licensed under the Creative Commons Attribution-ShareAlike license.

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