Remixing Authorship:
Reconfiguring the Author in Online Video Remix Culture

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ABSTRACT

In an abstract sense, authorship entails the constrained selection or generation of media and the organization and layout of that media in a larger structure. But authorship is more than just selection and organization; it is a complex construct incorporating concepts of originality, authority, intertextuality, and attribution. In this paper we explore these concepts as they relate to authorship and ask how they are changing in light of modes of collaborative authorship in remix culture. A detailed qualitative study of an online video remixing site is presented to help understand how the constraints of that environment are impacting authorial constructs. We discuss users' self-conceptions as authors, and how values related to authorship are reflected to users through the interface and design of the site's remixing and community tools. Finally, we present some implications of this work for the design of online communities for collaborative media creation and remixing.

Categories and Subject Descriptors

H.5.3 [**Information Interfaces and Representation (HCI)**]: Group and Organization Interfaces – *collaborative computing*, *web-based interaction*. H.5.4 [**Information Interfaces and Representation (HCI)**]: Hypertext/Hypermedia – *theory*, *user issues*.

General Terms

Design, Economics, Interfaces, Legal Aspects.

Keywords

Authorship, Hypermedia, Remix Culture, Video Editing, Online Communities

1. INTRODUCTION

As far back as the 1970s, the term "remixing" has referred to the practice of separating individual audio tracks from different multi-track recordings and recombining them into a novel musical work. As easily-manipulable digital media has replaced analog tapes, the popularity of this and similar practices has increased, and the term "remix" has now been generalized to refer to separating and recombining many other types of media, including images, video, literary text, and video game assets. The remix trend, captured by the philosophical ideas of modernism and postmodernism and facilitated by digital technology, is instigating an evolution in our traditional notion of the author. How can authorship be conceptualized in an environment where individuals can easily appropriate, share, and remix media through online systems built to foster asynchronous collaboration?

In this paper, we begin to address this question through a study of the online video remixing community, Jumpcut. In particular, we posit a conception of authorship as constraint satisfaction and contribute an understanding of how environmental constraints, such as *legal codes*, *community and social norms*, *physical and architectural design*, and *economic factors* affect four core components of authorship that we have identified: *originality*, *authority*, *intertextuality*, and *attribution*. Through our study of Jumpcut we seek to understand how authorship in remix culture is being affected by a different composition of environmental constraints. As the role of the author in remix culture can be reinforced through the design of authoring interfaces and social environments, we consider the design implications of our analysis in our discussion.

2. REMIX BACKGROUND

Before delving into how remix culture can impact the author, we first wish to clarify our use of the word "remix" and situate it in reference to hypermedia. Remix culture refers to a society that encourages derivative works by combining or modifying existing media. A core issue to understand here is: what is being remixed? One could imagine a spectrum of physicality within remix, from tangible remixed artifacts to abstract remixed ideas or concepts. When we refer to "remix media", we mean an instantiation of digital media content that was formed by segmenting and recombining other media content.

2.1 Remix and Hypermedia

Remix media can be conceived of as a collection of links to some "original" media, which have been reordered or otherwise edited (i.e. it is *transclusive* [7], consisting of a list of references to fragments that are combined in the final document). Hypermedia consists of a network of potential paths that a reader may take through content, potentially with default paths which define a linear trajectory through the network. The conceptual connection between remix media and hypermedia is that remix media is essentially a reworking of the trajectory through a transclusive hypermedia, which may involve adding material to the trajectory that wasn't present in the original media.

One conception of the reader in interactive hypermedia goes beyond that of passive interpreter to that of co-author. Interactivity allows the reader of a hypertext to choose a path through the network of interconnected media elements, thus generating a personalized text simply through the trajectory of links chosen. The reader becomes co-author of the work insofar as it only exists as the text that was created through their (potentially unique) traversal [15]. This lean-forward notion of the reader in hypermedia can be seen as a stepping stone toward the active construction and publication of a path when remixing media.

3. NOTIONS OF AUTHORSHIP

3.1 Historical Perspectives

Historically there are two competing conceptions of the author: the author as a lone *creative* genius, and the author as *collaborator*. The notion of author as "creative genius" is historically fairly recent, prevalent only since the Romantic period of literature [22]. The major concern with the romantic notion of authorship is that it "exalts the idea of individual effort to such a degree that it often fails to recognize, or even suppresses, the fact that artists and writers work collaboratively with texts created by others" [13].

An alternate conception of the author is as a collaborator in a system of authors and texts working together. This paradigm of authorship is in fact the norm throughout history. A multitude of traditional productions rely on the creative input of groups of people: theater, film production, and architecture among others [16]. This notion is reflected in Barthes' argument that a text does not release a single meaning, the "message" of the author, but that a text is rather a "tissue of citations" born of a multitude of sources in culture [2]. In this light, the author is simply a collaborator with other authors: citing them, reworking their ideas and contributing to an intertextual web of ideas and media

3.2 The Author as Constraint Satisfier

Authorship can be seen as the task of making choices and selections concerning the structure and content of media elements within the constraints of a particular medium [8, 11]. We will term these *production* constraints and include among them aesthetic, semantic, diegetic, and logical or physical coherence. Broadly interpreted, production constraints refer to how structure and content are composed in order to make meaning in a medium. Many of the other constraints in the process of authoring and the main focus of this paper encompass *environmental* constraints which include legal codes, community and social norms, physical and architectural design, and economic factors [14, 18]. Historically, legal and economic constraints dominate the conception of the romantic author. In this paper, we seek to understand how collaborative authorship in remix culture is being affected by a different composition of environmental constraints.

3.2.1 Legal Codes

Legal constraints represent a potent and influential part of authorship in terms of what is and is not lawfully permissible in a particular society and legal jurisdiction [14]. The constraint is enforced using punishment as a consequence of violation or by encoding the legal constraint into the software to passively prevent misuse. In the United States, the primary mechanism for protecting authors' property rights is copyright law. Authors must create in accordance with the law and be aware if their use of appropriated material is covered under the fair use clause of the copyright act [1]. Many aspects of copyright law are codified and standardized in the international intellectual property treaty, the Berne Convention, which most nations of the world have now signed.

In the United States, copyright law is primary used to safeguard economic interests, however, in other jurisdictions such as Europe, Australia, and Canada the concept of *droit moral,* or authorial moral rights is embedded in the legal codes. Moral rights are concerned with protecting the dignity and autonomy of authors and include the right of *disclosure* (when to publicly disseminate a work), the right of *integrity* (prohibition of the misrepresentation of an author's expression) and the right of *attribution* (being recognized as the creator) [12]. Moral rights tend to reflect the romantic notion of authorship and are grounded in protecting the human spirit contained in an author's creations. In the absence of legal safeguards for moral rights (as is the case for most creative work in the United States), other environmental constraints such as community and social norms can step in to mediate such issues.

3.2.2 Community and Social Norms

Plagiarism is a good example of how social norms are used to discourage or constrain behavior surrounding authorship. Plagiarism involves "non-consensual fraudulent copying" [20] of a work and is deeply tied to attribution, intention, and concealment on the part of the copier. Richard Posner eloquently states the point thus, "By far the most common punishments for plagiarism outside the school setting have nothing to do with law. They are disgrace, humiliation, ostracism, and other shaming penalties imposed by public opinion on people who violate social norms whether or not they are also legal norms." [20]. It is clear that to avoid potential stigma, an author must operate within the social values and rules regarding plagiarism in that particular community or culture.

Audience expectations and culture also represent a potential constraint on what an author may produce. The content of a piece of media should match the expectations of the intended audience. Since the meaning of signs can vary culturally, the author should be aware of the consumption context of the production. For instance, readers of a scientific magazine may not tolerate articles developed from an artistic world-view and vice versa.

3.2.3 Physical and Architectural Design

Physical and architectural influences also come into play in the process of authoring, especially in new media, where the computer represents a platform through which the medium is experienced. The design of the platform (e.g. its interface and available features) imposes a set of constraints on what is and is not possible for the author or reader to achieve within that environment. Architectural constraints of software can be used to enforce the other constraints on authorship. For example, Digital Rights Management (DRM) can be built into a software system's architecture to enforce the legal constraints of copyright law [14]. A software system's interface can also enforce social norms – for example, by automatically attributing appropriated content to its original creator.

3.2.4 Economic Factors

The economic model in which the author is operating involves whether or not the value of the media produced is gleaned monetarily or from recognition or attention. In a monetary environment this may give rise to a mentality in which media is created solely for financial benefits. Copyright law was primarily developed in the 18th and 19th centuries in order to protect the property and economic interests of booksellers and printers [22].

In contrast, in a recognition economy, the author is constrained in that their creation should be of the highest quality achievable according to the metrics of the community in which the author seeks recognition. Since the cost of reproduction in digital media is so low, scarcity within a media economy gives way to

abundance; reputation or gift cultures are an adaptation to abundance economics in which value is conferred through peer evaluation and social status through gifting [21]. Alternatively, the author may only be seeking short-lived attention, whereby we consider recognition to be the product of attention over a sustained period of time.

3.3 Authorial Constructs and Remix

Based on a literature review of authorship and media theory [2, 3, 5, 9, 11, 13, 16, 22, 25], we identified four interrelated concepts which are important to understanding what it means to be an author: *originality, authority, intertextuality, and attribution.* Our claim is not that these provide an exhaustive description of authorship, but rather that they are a starting point for analyzing how constraints impact these concepts and ultimately the practice of authorship. For each concept our goal is to understand how digital environments and remix media are impacting these ingredients of authorship.

3.3.1 Originality

Originality and individuality (and their relationship to property) are deeply entwined in the historic emergence of the definition of the authorship in early modern England (i.e., the 17th and 18th centuries), from which American definitions derive. Mark Rose describes the connection between personality and originality in the rhetoric of authorship from this period thus, "A work of literature belonged to an individual because it was, finally, an embodiment of that individual. And the product of this imprinting of the author's personality on the common stock of the world was a 'work of original authorship.' The basis of literary property, in other words, was not just a labor but 'personality,' and this revealed itself in 'originality'" [22].

Indeed, as the modern notion of the author emerged in lock step with the drafting of formal copyright statutes there was talk of the importance of originality over imitation in defining the author's right to assert property rights. The rhetoric used compares original composition with genius and imitative composition with mechanical artisans who use preexistent material. As the system of art benefaction waned and artisans came to be seen as "petty commodity producers," the mystification of the author represented some "spiritual compensation for this degradation" [22]. In this way the notion of genius was introduced into the traditional discourse of authorship; the originality of the work, and its value, becoming dependent on the individuality of the author [22].

A similar rhetoric of authorship in film was introduced as auteur theory by American film critic Andrew Sarris in the 1960s [23]. Auteur theory claims that it is often most appropriate to characterize a film by its director (e.g., "a Hitchcock film") instead of its cast or genre, as was common previously. Sarris argued that the director's signature style can persist through the cooperative efforts of cast and crew and even the external pressures and restrictions of the commercial entertainment industry. This view of authorship has been criticized by filmmakers and film critics alike for privileging one role of a fundamentally collaborative process and for grounding textual interpretation in assumptions about what directors are thinking.

While originality and personality as embodied in creative works are important in defining elements of authorship, clearly there is a difficulty in reconciling this with notions of joint or collaborative authorship prevalent in remix media. Furthermore, the granularity of remix video calls into question the potential pervasiveness of the auteur in the production. There is a need to understand the importance of originality and novelty in collaborative cultural production, especially in an economic marketplace not subject to scarcity. Attribution, which will be discussed later in this section, also serves to mediate individuality and original contribution in collaborative production.

3.3.2 Authority

In general authority is defined as either 1) an individual cited or appealed to as an expert or 2) the power to influence thought. These classic notions of authority in authorship were buttressed by the fixed changelessness of print in books which promulgated the idea that the author had created something staying, unique, and identifiable [13]. Mass production of identical copies from the printing press as well as resource barriers to becoming a publisher also historically supported homogeneity and the authority of the author [5]. Copyright laws also support the immutability of the author's voice (for a limited duration) and the notion of the romantic author as an authoritative source.

In contrast, the ephemeral qualities of digital media including facile remixability and (re)publishing support less authorial control. In exchange for the increased agency of the reader and her ability to choose a path through the text, make annotations, or create links between existing text, the authoritativeness and autonomy of the author is subverted [9, 13]. Furthermore, the networked nature of remix media (or hypermedia), with its fragments of reused material, disintegrates the thoughtful voice of the author [13].

Since every digital technology requires some form of platform or environment in which to run, this also dictates to some degree how autonomous the medium may be. The authority of the author is thus further diminished through the constraints imposed on the text by the software environment. Many games are a good example of this. The authors of the game maintain a great deal of authority, but explicitly relinquish some of that authority by allowing users to modify and add content to the game.

Authority is also defined by the relationship of the author to the community of other authorities in a particular domain. This echoes the Page Rank algorithm in which a webpage's authority is partly a measure of how many other authorities link to it [19]. Authority as a social construct necessarily involves the perceptions of others and a negotiation within the community where the authority is to arise [27].

Production constraints such as the limitations of an authoring environment bound the full range of expression of an author and thus subvert her authority over the medium. Aesthetic factors can limit the author since in order to positively influence the perceived authority (via surface credibility perceptions [10]) texts must have high production value. Texts of low production value lose an element of expertise and authority. A similar argument could be made for semantic constraints; clarity of meaning (or lack thereof) can impact perceptions of authority. Diegetic factors (narrative space and time) limit the characters and settings in a story, especially in something like fan-authored fiction (e.g., http://www.fanfiction.net).

3.3.3 Intertextuality

The notion of intertextuality considers texts as networks of associations with other texts which may be extra-physical to the work itself [9]. Barthes saw this intertextuality as beginning with the author as text, and extending to material drawn from other authors and the society at large. Authorship partly consists of the intake, digestion, and transformation of material that an author has experienced in society [28].

In traditional literature intertextuality can be passive, with the reader potentially not even noticing a tacit reference or allusion to another text. Different discourse communities have different strategies for dealing with intertextuality. Scientific discourse greatly relies on citation (explicit intertextuality) in order to substantiate new claims and to build upon the ideas of others while maintaining credibility [4]. On the other hand, editorials like newspaper columns may form a dialogue with other columns addressing similar topics, but never explicitly cite each other.

Remix media has an intrinsically intertextual nature insofar as it cannot exist outside its network of references to other media (much like hypermedia). Fragments can be traced back to their original piece of media, thus there is always at least one reference. In some remix media, intertextuality is explicit (e.g. hyperlinks are shown) whereas in others it is left unexpressed (e.g. allusion). This relates back to how the community views authorship and how and when explicit attribution is used.

3.3.4 Attribution

Legally and practically speaking, attribution of a creative work to an entity is necessary in order to protect that work and maintain rights for that entity under the copyright law, potentially for economic reasons. Strong attribution can be a consequence of both the legal and economic climates in which the text is produced. On the other hand, attribution can also be considered a moral right [12], due to the author regardless of legal or economic forces.

Some remixers ignore established legal constraints, and favor a free culture in which it is acceptable to borrow and appropriate media without necessarily obtaining the legal right to do so. Remixing media can potentially undermine attribution since the process of appropriation may not involve explicit citation of the original work (i.e., the intertextuality is implicit). This is not to say that remix cultures do away with attribution – attribution can be enforced through architectural constraints, or the social norms within a community. One example of this alternate enforcement of attribution is in a community of Anime Music Video remixers (http://www.animemusicvideos.org) where the site FAQ explains that cases of lacking attribution can be taken before the site administrator for enforcement (removal of the offending material).

Attribution can have economic purposes as well. Manovich notes that since recognizability is important for marketing it is also important to brand collaboratively authored media. Branding transforms the collaborative view to the romantic view of authorship (by attributing collaborative work to an individually recognizable name) for capitalistic purposes [16]. In many scientific discourse communities, attribution is not money or "rights" driven, but rather recognition driven. Scientific communities generally exhibit gift economies in which knowledge is given in exchange for recognition [17]. Reputation through attribution is the currency of the market and can be used as social capital.

4. REMIX AUTHORSHIP ON JUMPCUT

Jumpcut (http://www.jumpcut.com) is an online video sharing, editing, and remixing community which allows people to upload video footage or grab footage uploaded by others, create movies with that footage using an online editor, and then publish or remix those movies. We were interested in studying Jumpcut in order to characterize 1) how remixing is defined and understood there and 2) how constraints imposed on the author in that environment impact the authorial concepts discussed in the last section.

4.1 Study Methodology

Our study of Jumpcut was comprised of several methods of inquiry including interviews, document analysis, and participant observation. We conducted six months of participant observation, including analysis of video creation and remixing behavior and interfaces, and of comments to videos. We also interviewed members of the community who participate in video remixing to better understand how participants conceive of themselves as authors. We corroborated themes that emerged from the interviews with our other methods of inquiry. Finally, we examined the interface of Jumpcut's video editing tool as well as the site's policy documents to understand how the design and rhetoric of these artifacts may affect the community's values and users' behavior.

In order to find active users involved in collaborative movie making and remixing to interview, we undertook to collect and analyze data from the site. We scraped the top 5000 users based on their number of views and looked at the number of remixes and movies they had made in determining whether to try and recruit them. We also scraped 2360 movies from the top 500 users and identified movies with more than one contributor to also recruit these users. It was difficult finding a large number of suitable interviewees and we ended up conducting six interviews including one with a Jumpcut employee who was also active on the site. Interviewing the employee was helpful for understanding some of the normative community and design values.

Five of the interviews were carried out over the telephone/Skype and one was conducted through email. Phone interviews ranged from 40 to 60 minutes and followed a standard sequence of questions but were flexible in following up interesting responses. Questions explored participants' conceptualizations of authority, attribution, and intertextuality as well as their reaction to using copyrighted content and to the editing interface affordances and constraints.

4.2 Defining Remix on Jumpcut

Jumpcut has two slightly different forms of movie making activities which are facilitated on its site. An employee of Jumpcut puts it most succinctly: "One of them is remixing, which is, someone makes a movie and you remix their movie and then change it a little bit. And the other aspect is collaborative movie making, which is where people grab each other's stuff or participate in a group and make something together." As seen in Figure 1(B and C), these activities are initiated by hitting either the green "remix" button or the gray "grab" button respectively. In the case of hitting the remix button, a copy of the movie is made and the user is brought into the editor where he or she can
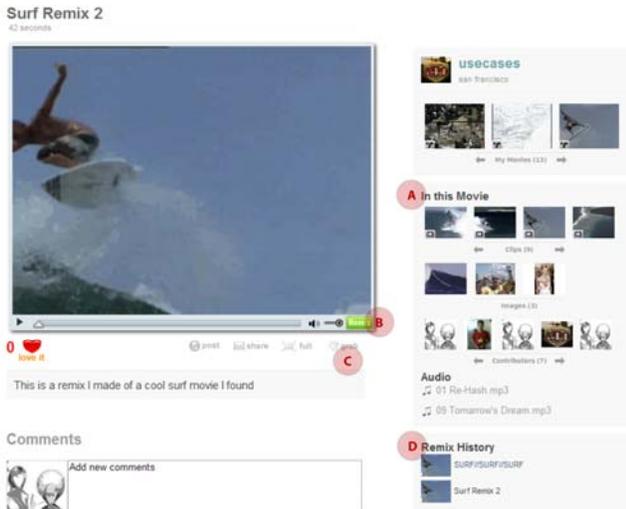
Figure 1. The movie webpage layout and interface. A) Clips, images, and contributors to the movie; B) The remix button; C) The grab button; D) The remix history list.

make changes and republish the new version as a remix. In the case of the grab button, all of the clips from a movie are deposited in the user's grabbed stuff folder, from which the user can then add to and create a new movie from their grabbed clips. The user can also search for and add clips from others directly in the video editing interface.

Functionally the distinction between remixing and grabbing is fairly small. Both essentially achieve similar ends by allowing the user to edit clips in an existing movie with other clips that they choose to add. However, if the remix button is used then a version history is kept and others can see this remix history on the movie page (Figure 1D). By grabbing, a user can first assemble a set of clips and then edit together a new movie for which she will be listed as the progenitor. In both cases, the list of contributors for the movie (Figure 1A.) records who contributed clips to the movie and who edited those clips together. Based on our analysis of the 2360 movies that were collected, there were a comparable number of collaborative movies made using the grab button as there were using the remix button.

4.2.1 Qualitative Analysis of Remix Dynamics

In order to get a better understanding of how people are using the remix button on Jumpcut, we undertook to qualitatively analyze the content of twenty remix movies. We analyzed the original movie and any subsequently derived movies for each remix considered. For this analysis, a remix movie was defined as a movie that was derived from another movie using the remix button. Rather than analyze any intrinsic criteria for remix movies as was done in [24], our goal here was more of a comparative analysis looking at the dynamics of remixing going from one version to the next. Based on various comments from interviewees, we focused our observations on editing, stylistic, and thematic changes. We also looked at the comments, titles, duration, and viewership for each of the remix movies and were interested in how comments, tags, and titles reflect the creative process of remixing.

While several of the interviewees suggested that remixing was good for shortening movies to distill them to their best parts,

many of the remixes we looked at were indeed *longer* than their preceding version. The extension in duration ranged from a few seconds to well over a minute longer. The lengthening occurred by either adding new clips or lengthening existing clips or photo durations. There were of course also examples of movies that had been shortened, but this was considerably less common. Sometimes individual clips were shortened to focus on thematically important parts, but additional new clips extended the total duration of the movie. It is difficult to pinpoint exactly why there is a trend toward remixes being longer than their originals. The remixes which were shortened were more akin to slight tweaks, leaving the core theme of the movie intact, whereas the lengthened remixes could be more drastic in their changes, sometimes including completely different themes or at least expanded or divergent ones

This suggests that there are at least two types of remixing behavior that we can discern by looking at the duration of movies. Some people are apt to optimize movies through remixing by shortening them and distilling the "best" parts of the clips to optimally portray a theme. Many remixers however seem to be inspired to add their *own interpretation or themes,* which is less about subtracting footage and more about associating additional footage or replacing footage to suit their creative goals. These different behaviors may be exhibited by the same person as their situation and goals dictate. The conditions and motivations under which each type of remixing occurs remain unclear because we are only able to analyze the end product.

We observed remix movies changing along several dimensions including alterations to audio, video, titles, and effects covering the spectrum from slight changes to complete replacement of the audio or video. Many remixes involved changing the music track of the original movie or adding background music to movies that had none or which relied on the audio from their constituent clips rather than music. Sometimes a change in music would drive a drastic change in the visuals of a remix as well; whereas other times music would be changed with no concomitant change in the visuals. In many cases, the music set the tone for the visuals of a movie and drove the visuals in the sense of either 1) providing a beat or rhythm for cuts or 2) providing words or sounds which inspired time-synchronized video illustration. In one movie, an audio track of John Belushi introducing members of a blues band drives the hypothetical visuals of these band members as they are introduced. On the other hand, visuals (photos or video) also led to the addition of sound effects in at least a couple of remixes that we examined.

Changes to the video track in remixes ranged from exclusively adding new clips to not adding any new clips. Sometimes original clips were re-sequenced, split up into shorter clips, or interspliced with different new footage. Visual effects were also added to some remixes for aesthetic or emotive effect. Visual titles were also sometimes changed or rearranged temporally in remixes. Titles tended to reflect on the underlying visual content or guide the viewer in interpreting how the author intended to have the video read. One politically motivated remix drove home its critical theme using titles layered over visuals to provide a linking between a visual and a textual label.

4.3 The Environment of Jumpcut

In this section we will systematically examine the legal codes, community and social norms, physical and architectural design, and economic factors as they affect authorship of movies on Jumpcut.

4.3.1 Legal Codes

Analysis of Jumpcut's policy documents indicates that the company is interested in upholding standard copyright precedent for copyrighted content in a U.S. jurisdiction. For instance, notifying Jumpcut of potential copyright infringement will result in the removal of that content from the site and the discretionary removal or termination of the offending user's account. The Terms of Use document contains licensing clauses which dictate that users only upload content that is original (i.e. fully owned) and that they only use the site for non-commercial purposes. These contractual clauses give the company rights to curtail creative activity *including that covered under fair use of copyrighted content* [1]. At the same time, by stipulating that the site may only be used for non-commercial purposes, they are enforcing a prerequisite to be considered fair use.

While the official documents espouse attention to litigious details, we also asked interviewees about their usage and conceptions about using copyrighted material on the site. Do users consider copyright law when editing together a remix? The answer, based on the sample of people that we interviewed, was basically no. Not all users were interested in using copyrighted content, but of the ones that were, they were generally uninformed and unconcerned about the law. Some users preferred using their own footage to make movies and one was deeply interested in using footage and music that was available through a creative commons license.

When asked about their use of copyrighted content in video remixes, respondents had a range of rationalizations including (1) punting responsibility to either the company or to the individual that uploaded the offending material; (2) invoking social proof [6] (i.e., saying they saw somebody else do it so it must be okay); (3) saying that they are not using it for money or profiting. One respondent speaking to the third point said, "It doesn't really matter to me whether it's copyrighted or not because I'm not using it for money and it's already there. I just don't really worry about that." Interestingly, the third rationalization is a valid argument for fair use [1], though none of the respondents referred to it in such terms.

In Jumpcut then, it appears that although there are legal constraints to creation that are in place and enforceable, respondents tended to be lenient or even apathetic about considering the law when they were appropriating content. Some use of remixing copyrighted content on Jumpcut is for criticism and commentary, which is indeed covered under fair use doctrine, though formally against the contract associated with using the site.

4.3.2 Community and Social Norms

With respect to the broader cultural milieu in which the site is situated, members of the community come from many different parts of the world including North and South America, Asia, and Europe. Assumptions or generalizations about the culture of the people using the site are difficult, but some respondents characterized the community as more suited to creativity than passive consumption and that this was specifically what attracted them to the site.

Community values espoused in official site documentation include keeping comments positive and not using pornographic content. Interviewees corroborated these values as being important to the community. Another value which came out of the interviews was that people in the community are not perceived as possessive: they want to share their content and have it remixed or appropriated by others. This lack of possessiveness goes hand-in-hand with a feeling that members on the site are freewheeling and easygoing with respect to copyright law. The general acceptance that people were there to share their content fits well with the idea of freely appropriating others' footage and of enabling (rather than constraining) appropriation, creative reuse, or derivation.

4.3.3 Physical and Architectural Design

Jumpcut's interface and available features constrain the ways in which users are able to create or remix movies. Some legal constraints implied by U.S. copyright law and described in the site's policy documents are encoded into the site's functionality. While presumably implemented to limit the site's legal liability, these constraints also limit the range of creative options available. For instance, it is not possible for music and audio clips to be grabbed and shared in the way that video clips are.

The notion of putting a video editing interface online also imposes constraints on the creative process of movie making. Interviewees mentioned that in order to use the editor one had to have a high bandwidth internet connection. The bandwidth factor is one that does affect creative workflow as uploading many clips can take hours. Many video editors like to pare down their footage as they edit, but the time cost in uploading all footage to an online editor means that it may be more time-effective to extract, review, and only upload the essential clips to the online editor.

While uploading one's own footage is a fairly high cost activity, some interviewees mentioned that a key strength of having an online editor was that other people's footage could be quickly and easily imported into their movies. The networked aspect of Jumpcut and the ability to grab others' content increases a user's ability to collect "interesting" video material directly online. One interviewee spoke of a project for which he wanted clips of the streets of Amsterdam, but was unable to find such clips until he found another user on Jumpcut located in Amsterdam who was willing to collect, upload, and share the clips.

Some users choose to upload movies they make using desktop video editing software, thus circumventing many of the constraints of the online editor. Interviewees mentioned a finer degree of control over editing and publishing when working with desktop software, but appreciated the ease of certain features such as titles in the Jumpcut editor. One respondent used an approach involving both desktop editing for an offline rough cut and online editing for adding titles after the rough cut was uploaded.

4.3.4 Economic Factors

The economic model of the community is by definition non-commercial; no users were observed uploading or creating content for the purpose of making money, although some content could arguably be seen as marketing material. Most of the users of Jumpcut could be seen as video *hobbyists*, participating in movie making for its intrinsic value and challenge. As traditional notions

of authorship are ensconced in the value of media as property, the economic factors with respect to motivation on Jumpcut represent a significant change to the creative environment.

Whether interviewees were using desktop or online tools many mentioned the ability to share their movies and feel a part of the online community as central motivations for creating. Interviewees said that they were motivated to create and remix movies as a mechanism for getting attention and for the purposes of communicating their message and disseminating their ideas and creations since they knew that people would watch them online. One interviewee mentioned a strategy of creating movie lures of scantily clad dancing women to get people's attention, which he hoped would then transfer to his other serious movies. Several people mentioned that getting views for their movies "strokes the ego" and is fun. This indicates that the economic model is based around attention or reputation as conferred through the number of views, comments, and "love" given to the movie.

At the same time, there are contests on the site that seek to engender more remixing behavior by supplying concrete extrinsic rewards (e.g. prizes) for the best judged remix of whatever footage is supplied for the contest. The Jumpcut employee who we interviewed noted that this seemed to enhance participation in the creation of remixes centered around the contest. The contests are typically sponsored by companies wishing to engage people with footage representing their product (e.g. video game clips). In this way, remixers become part of the greater monetary economy by *giving their attention* to the contest material.

4.4 The Impact on Authorial Constructs

4.4.1 Originality
Our interviews with Jumpcut users revealed conflicting opinions on the minimal amount of contribution or modification needed to claim a remix as an original work. Blaine, a remixer who aligns with the legal position on fair use in his country, felt obligated to make substantial alterations to a work along several possible creative dimensions before calling a work his own. "I have to change it significantly in order to publish it. 'Significant' is the music, feeling, the length of time, how they're put together, the titles. I have to change the meaning or organize it in a professional manner." He framed the issue in ethical terms: "I have some kind of artistic integrity." As a remixer and artist, Blaine feels uncomfortable making only minor changes to a video and passing off the result as his own.

Tensions can arise when expectations like Blaine's are violated. His concerns were shared by Adria, a Jumpcut user whose videos have been remixed by others. She described one such remix where "the person who remixed it didn't really change it all that much and their video became more popular than mine and I guess I felt like, why didn't they watch my video?" Adria's example illustrates both the frustration a content creator can feel in this situation and, in contrast to Adria and Blaine's attitudes, the favorable reaction of the community to this kind of remixing.

For Karen, a Jumpcut user and employee who often remixes videos as a way of both improving them and teaching editing skills to other users by example, remixes can be thought of as iterations of a collaboratively-authored creative work. If all videos on Jumpcut are considered perpetual works-in-progress in which anyone may join in developing, notions of originality within a project become unproductive.

Several interviewees described their appreciation for remixes that were "interesting" rather than explicitly original, hinting at the need for a vocabulary to describe successful remixes that draw on existing content. Juanito offered, "I suppose I would have to say [a good remix] uses clips…in an interesting way." Adria drew an explicit connection between originality and interestingness:

> Obviously it has to be something that's interesting and if you see something everyday it becomes no longer interesting. So, kind of by definition, something has to be somewhat original to be interesting. Or you could maybe take a twist on something very familiar and make it a little bit different.

Adria's perspective suggests that on Jumpcut, users presented with a huge repository of raw footage find originality in creative arrangements of that footage. They value skills associated with finding, editing, and remixing existing content in interesting ways. And in contrast to historical perceptions of authorship closely tying originality to the individual, users redefine originality as fundamentally connected to collaborative re-appropriation and remixing.

It is useful to invoke a distinction coming from Warr and O'Neill's study of creativity [26] in which they differentiate originality or novelty from creativity using the notion of *appropriateness*, or the degree to which the new thing conforms to the reality or characteristics laid at the outset. What we heard from interviewees indicates that creative re-arrangement of footage which is appropriate to the remix is more valued than originality in the romantic, traditional sense.

4.4.2 Authority
As suggested earlier, the Jumpcut users we interviewed were ambivalent to the traditional measure of authority—the law—as it applies to remixing videos in an online community. Blaine makes no distinction between copyrighted and uncopyrighted material. He articulated a position common to all the users we interviewed: "If it works, it works. […] If it helps express what I want then I'll go with it, but I don't specifically go out and say, 'I want to steal a copyrighted clip today.'" In other words, Blaine decides whether or not to use a clip in his remix based on his personal goals for a project rather than external rules or regulations constraining how that clip may be used. At the same time, he recognizes that, at least in the legal sense, his use of some of the video material on Jumpcut is "stealing" and a violation of copyright law in his country. Although use of the clip in remixes further disseminates it on the Web, Adria argues that the real damage, if any, has already been done when the copyrighted content is uploaded.

As evinced by the study of remix dynamics presented earlier, the notion of a "finished" video must be redefined in light of these practices. A microscopic perspective looks at each remix as finished and standing on its own, while a macroscopic one abandons any conception of completeness altogether, viewing an online remix community as a constantly evolving network of iterations and variations. This is in stark contrast to the traditional authority conferred through the changelessness of print [5].

Authority can be defined as the influence that something has, which in this case could refer to the influence of an individual or the influence of a piece of footage in the community. The users we interviewed gave little consideration to videos that were deemed "good" or "popular" by others when selecting content for their remixes. When asked how she looked for footage to use on

Jumpcut, Adria noted, "I don't really necessarily care what ratings it gets or how many times it's viewed." Along these lines, Blaine vehemently rejected the idea of selecting videos based on their popularity "unless [he's] specifically making a video to *get* views." Blaine went on to describe two of his remixes which included advertisements for a pornographic website with the purpose of attracting viewers to his profile. He hopes, "If people like that they'll check out the other videos, too." In this case, Blaine makes use of popular video clips to influence the attention which is brought to his other movies, thereby enhancing his own authority and ability to influence others with his movies.

Reputation and authority within the community of remixers was closely tied to users' perceptions of expertise. Interviewees sought to understand a remix's quality, its creator's authority, and its appraisal by the community from information gleaned off the various interface elements on a video's web page (i.e. the physical design), such as the number of constituent clips as a proxy for effort, number of views and "love" conferred, and the use of appropriately-timed music. Blaine stressed the importance of substance over style in videos—"basically anyone who uses the website to express something of substance and tries to express something to the world as opposed to just, 'Oh, let's throw a bunch of clips together and look how cool it looks.'" Others, like Adria and Gemon, drew a distinction between Jumpcut users who upload raw footage and those who remix videos. Adria said:

> Some people might have this great footage and they put it up and put a sound track to it and that's not an expert remixer. But if you're taking all these diverse clips and putting just the right music and time everything just right so it makes this really cool thing, then that would be an expert remixer.

Gemon echoes these sentiments. While he frequently uploads new content from his video camera to Jumpcut, he emphasized that "one clip doesn't make a good online editor. It just means either he's got a great source of raw footage or he got lucky one day. But to put all that together into a composition—that's the clever bit." Building on these statements, Juanito recalled one story of judging a Jumpcut user's expertise and authority:

> …I was really quite impressed with how good it [a remix] was. I thought, "Well, this person either found this clip online and just uploaded it to Jumpcut or this person used their standalone application and uploaded it. So I clicked the "remix" button and there were all these different clips. I couldn't believe it. There must have been dozens of individual clips that the person had used and I was quite blown away. […] It increased my opinion of that user, because I knew that this person had sat at their computer editing clips on Jumpcut as opposed to just ripping off some file that they'd found somewhere or doing it on a standalone application.

Juanito noted how this feature gave him more context or "background" into the remix, which in turn changed his opinion of a user. This example attests to the utility of the Jumpcut video editing interface as a way for users to "look under the hood" of a remix, both to understand how it was made and to evaluate the expertise of its creator.

4.4.3 Intertextuality

Jumpcut connects users and the content they create in myriad ways. Each remix page displays the video itself, as well as it's "remix history" and the names of each user who contributed a clip to the current version (See Figure 1). Videos can be tagged to create relationships among content with similar properties. Most of the users we spoke to used these keyword tags to search for and filter content to use in their movies. User pages link to videos and remixes the user has contributed, as well as "fans" and "friends" of that user. All of these associations coalesce to create a rich tapestry of intertextuality (both explicitly with links and conceptually with tags) within Jumpcut and between Jumpcut and other online communities.

As mentioned earlier, remix pages reveal which Jumpcut users have contributed clips to that remix, thereby facilitating explicit intertextuality. While Karen, a Jumpcut employee, claims that this feature was designed to "encourage the social aspect of our site and also to encourage collaboration and community building," in practice, it appears to be used with other intentions in mind. Asked what he thinks about the list of contributors accompanying each video, Blaine replied:

> If there's some content that I like, chances are they've uploaded a few more things that I like. I don't really talk to people so much as to appropriate clips and find people who are like-minded and might be uploading things that I can use.

Overall, the users we interviewed reported that while the ability to view contributors to a remix is a useful one, the utility lies mostly in identifying potential video resources for appropriation.

Jumpcut users bring content into the site from various sources. The users we interviewed mentioned Jumpcut, YouTube, personal video and still cameras, DVD rips, and even Google Image Search as content sources. The variety of these sources illustrates not only intertextuality between videos and users on Jumpcut, but also between Jumpcut and other online media repositories. In fact, several users opined that they would like to see more explicit connections made between Jumpcut and other websites such as the ability to easily import video from YouTube.

4.4.4 Attribution

The Jumpcut users we interviewed were remarkably consistent in their freewheeling interpretation of copyright law. While they had no qualms about using copyrighted video content in their remixes, they were equally comfortable with having their work appropriated by others. All agreed that uploading video content to Jumpcut places it in the public domain for all intensive purposes. Juanito likened uploading videos on Jumpcut to other collaborative content-creation efforts in online communities such as open source software: "You understand that you're giving away a lot of traditional control over the clips you upload to Jumpcut." Despite these seemingly indifferent attitudes towards ownership of video on Jumpcut, the actual situation appears to be more nuanced. Some users we interviewed admitted they enjoy seeing their videos remixed, which involves being attributed on the contributors list for all subsequent remixes.

Precisely when Jumpcut users feel entitled to attribution and when they do not is complicated. Our interviews elicited several perspectives based on *footage provenance* and *effort*. Gemon avoids attaching his name to video clips he uploads to Jumpcut from other websites and stock footage CDs: "I feel [like] a bit of a fraud putting my name—putting my signature on the painting that isn't mine, if you like." Adria revealed that her policy for explicit attribution depended on the author of the video clip in question:

> …[I]n the title or description I would say, I got it from this person or that person on YouTube. It's especially important, I

think, if it's somebody else's personal creative work, like, not a commercial or an old TV show, but, like, someone on YouTube…They made their own cartoon clip using some kind of animation software and they obviously put a lot of time into that so I was sure to recognize them.

The recognizability of the footage also played into decisions and effort to make attributions. This importance of *footage provenance* goes back to moral rights, economic factors, and social norms and expectations. Moral rights dictate that footage coming from an individual over a company is entitled to attribution. Economically speaking, because the community is non-commercial, there is no strong push from companies or non-hobbyists for branding through attribution. Finally, the social norm surrounding appropriation is associated with the notion of plagiarism introduced earlier. The more recognizable the footage, the more the appropriation can be seen as allusion rather than plagiarism since the audience is expected to already understand the reference without explicit attribution.

Juanito's desire for attribution correlates with the length of the contribution in question. "It's not important to me at all if the individual clips get credited to me," he reveals. For longer videos, attribution becomes more important to him. "If I assembled a movie using everyone else's clips, and then claimed it completely as my own…I would feel that I had ripped somebody off. I had ripped off the community." This aversion to non-attribution was voiced by other users. Blaine remarked, "don't just take it [a movie] – don't just make a carbon copy and put your name on it." Likewise, Gemon commented that "it'd be pretty rude for them to come in and hijack [an entire video] and play it off as their own thing." Length could be seen as one metric of *effort* put into the production of the video, a concept delineated by Adria as important for feeling a sense of creative ownership:

> Some of the things I've spent the longest time working on is stuff that's other people's content because I feel like I can do so much more with it…In the sense of creatively owning something, I feel like I put a lot more of myself into things that maybe I don't even own the footage at all. So I guess there's two senses of owning—a feeling of creative ownership and then a more physical or traditional sense of ownership.

In light of this understanding of ownership as the degree of effort put into production, rather than some property right enforceable through copyright, there are implications for the design of attribution metrics that we will elaborate in the following section.

Interviewees indicated that they often (but not always) notify other users when remixing their footage. This explicit attribution takes place despite the fact that Jumpcut clearly indicates each video's remix history and the names of the users who contributed clips to the current version and *automatically* notifies someone through email if their video has been remixed. After completing a remix, Gemon "contacted the guy who did [the original video], and just let him know, 'Look, I've remixed your movie.' Just so that he was aware of it…I think out of decency you want to do that anyway."

The need to engage in explicit attribution expressed by these Jumpcut users suggests that contemporary culture creates a setting in which people do not yet feel comfortable remixing or re-appropriating the creative works of others without notifying them. Indeed this is evidence that people feel a moral obligation to *people* (but not companies) as creators who have a right to be attributed. Even when technical aspects of the Jumpcut system accomplish this task automatically, users feel obligated to follow up themselves. This behavior highlights the complex set of emotions felt by Jumpcut users with respect to attribution.

5. IMPLICATIONS

Seen through the lens of the analytic framework which we have proffered, our study of Jumpcut has elucidated a range of influences and interconnections between environmental factors and authorship. Through this deeper understanding of authorship, here we suggest a few design implications for those interested in building collaborative creation and remixing communities. These implications should be treated carefully since the environmental system and its impact on the author is extremely complex. The data that we have collected (six interviews plus observations) is indicative of trends but cannot be considered conclusive.

Novelty and originality are still paramount to the conception of the author, albeit there is a subtle distinction in definition of originality with respect to remixing which favors creating within the "platform" of the original movie. From our content analysis we saw that many remixes were in fact extended in duration, using the original movie as a basis to build on with new clips. Novelty arises out of the creative or interesting juxtaposition and combination of footage. Tools to support creativity could be leveraged in the interface to enhance a remixer's ability to find interesting juxtapositions of clips by for instance providing a palette of clips based on loosely related tags. Furthermore, reducing the costs of searching for and importing content from sources outside of the system would enhance the ability to rapidly test and preview creative remix ideas.

Much of traditional authority is regulated by physical or architectural constraints both in the presentation and editing interfaces of the site, whereas new forms of authority (having others remix your material) are regulated by the community. The lack of a monetary economy means attribution, explicit intertextuality, and attention are of utmost importance in providing authority[2]. Designers might consider combining these ideas so that users accrue some metric of value according to how many other users have remixed or appropriated their movies or clips. In addition to providing movie search based on passive metrics of viewership (popularity of viewing), search and filtering could be based on an *active* metric such as frequency grabbed or appropriated (popularity of reuse).

We observed an asymmetry in the understanding of attribution within the Jumpcut community. As mostly hobbyists, many users had an easy going attitude toward attribution and appropriation of copyrighted content, but nonetheless liked receiving credit and attribution when others remixed their footage and movies. The method of automatically adding and showing contributors to every movie seems to enforce this value in the interface fairly well, although a key component that is lacking is some metric of *effort* involved in the contribution. Effort was key in interviewees' feeling a sense of creative ownership; metrics of effort in remixing need to be developed to better explicate the proportionality of the collaboration. Barring automatic metrics or comparisons such as a diff utility available for text, an alternative would be to provide better *visual awareness* of what has changed between remix versions. This would enhance the remix history with more explicit tracking and versioning of who had changed what.

The degree of effort involved with developing a sense of creative ownership is an important point that should be considered by designers of future remixing tools. It is not clear whether the merit of authority, originality, and attribution may be undermined if supported by semi-automated means in the interface. As tools becomes more aware of the constraints that the author must satisfy to create some media, and helps satisfy those constraints, will the user of that tool become merely an operator?

6. CONCLUSIONS

In this paper we have presented a framework for studying the environmental influences on authorship and a qualitative study of a video remixing community meant to better understand how authorship in remix culture is being affected by a different composition of environmental constraints. We suggested some open questions and potential design implications based on our analysis. Future work needs to incorporate the notion of production constraints in conjunction with environmental constraints and to understand how originality, authority, intertextuality, and attribution can best be supported through interface and community design.

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