

# At the intersection of commons and market: negotiations of value in open-sourced cultural production

**Julia Velkova**, Södertörn University, [julia.velkova@sh.se](mailto:julia.velkova@sh.se)

**Peter Jakobsson**, Beckmans College of Design and Södertörn University

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## Abstract

This article explores the way in which producers of digital cultural commons use new production models based on openness and sharing to interact with and adapt to existing structures such as the capitalist market and the economies of public cultural funding. Through an ethnographic exploration of two cases of open-source animation film production – Gooseberry and Morevna, formed around the 3D graphics Blender and the 2D graphics Synfig communities – we explore how sharing and production of commons generates values and relationships which trigger the movement of producers, software and films between different fields of cultural production and different moral economies – those of the capitalist market, the institutions of public funding and the commons. Our theoretical approach expands the concept of ‘moral economies’ from critical political economy with ‘regimes of value’ from anthropological work on value production, which, we argue, is useful to overcome dichotomous representations of exploitation or romanticization of the commons.

## Introduction

New models for digital cultural and creative work based on openness and sharing have, during the last decade, enriched the field of cultural production, as well as production within other sectors such as software and technical innovation (Benkler, 2006; Thrift, 2006; von Hippel, 2005). The hopes and expectations for these production models are many, ranging from the fulfilment of economic goals of efficiency to cultural and democratic goals of inclusiveness and participation (Bruns, 2008; Jenkins, 2008; Tapscott and Williams, 2008). Whatever the long-term effects of open-source, crowdsourcing, open innovation systems, etc. are going to be, there is a growing realization that not only are these models here to stay, but that they are also already interacting with the wider fields of cultural and knowledge production. As public funding institutions, and the media industries are adapting to open production models, so are cultural producers within the new production models adapting to and interacting with existing structures. In the theoretical discussions over these phenomena there are disagreements over the implications of the interaction between markets and commons, and there are considerable concerns over what processes of commodification will mean for open production (Jakobsson, 2012; Prodnik, 2014). Whereas some argue that the logic of the market is exploiting open-source and commons-based cultural production, others argue that these new production forms are going to have politically radical effects on societies and the economy (Hardt and Negri, 2009; Söderberg, 2012).

This article extends these debates through an empirical analysis of the interaction between market and commons observed in two cases of open-source and commons-based cultural production through an investigation of open-source animation film production within the 3D graphics Blender community and the 2D graphics Synfig community.

There are surprisingly few empirical studies that try to analyse the implications of such interactions. While there exist several theoretical models of cultural production that take into account the potential interactions between market, the institutions of public cultural funding and commons-based producers, and which we briefly review in the next section, these models have often had relatively little to say about the outcomes and the forms that these interactions can take. It is our claim in this article that we need to study these interactions within concrete open production practices as they both will provide valuable lessons for anyone involved in open-source and commons-based production, as well as producers within other spheres, and are crucial for constructing encompassing theories of cultural production, media industries, commons-based production, etc. This article proposes a theoretical and methodological framework for conducting such studies.

## Research on commons-based production and its relationship to the market

The British critical political economist Graham Murdock (2011) suggests that a useful way of conceptualizing the relationship between the economy of the market and the economy of the commons is to think of them as distinct moral economies. Economic systems, he argues, cannot be considered only as systems for managing resources, they also entail a moral outlook that corresponds to the economic rationality of the system and legitimizes the functioning of the system. In a market system, actors are morally obliged to act as rational utility-maximizers, whereas in a commons-based economy actors are supposed to act according to a morality of mutuality. While we agree on Murdock's general framework, and particularly his insistence on including both economic systems and systems of beliefs and values in the analysis, we think that the model suffers from a dichotomous thinking that recurs in a lot of the recent work on cultural commons production and its relationship to the market. Much of the research on the interactions between different moral economies with regard to commons-based and open-source production has concentrated on theorizing the exploitative powers of markets and capital (Andrejevic, 2008; Arvidsson, 2008; Cova et al., 2011; Firer-Blaess and Fuchs, 2014; Roig et al., 2014) or, conversely, on the gains that the market can make by initiating such relationships (Benkler, 2006; Leadbeater and Miller, 2004; Weber, 2004). In both cases it is, however, assumed that the agency and will to establish relationships between the market and commons rests within the market, whereas relatively little is said about the actors within the sphere of the commons. Critical political economy approaches have also had a tendency to romanticize commons-based production and accounts of, for example, how commons-based cultural producers initiate relationships with the market and the media industries are therefore not very prevalent. The macro perspective favoured in many of these studies, even when combined with qualitative and even ethnographic methods, has also tended to result in generalizations that obscure the variety and diversity of practices, social organizations and exchanges taking place in commons-based production. By focusing on dichotomous relationships at a macro level, previous studies have often ignored the organizational sociologies of free and open-source software and thus failed to understand the often mixed and conflicted ethics, politics and economics of open production<sup>1</sup> (Coleman, 2013: 207–10).

There is of course a range of other theoretical frameworks besides critical political economy that try to take account of the interactions between different regimes of valuation. Manuel Castells (2009), for example, argues that the existence of global networks (military, financial, media) in the network society is predicated on the production of value, and that they are competing over which value will come to dominate over the other values. Once again, however, there is not enough consideration of the micro levels of the competition between different regimes of value, and it is difficult to say, through such approaches, what forms these competitions take and what are their outcomes. In the following sections we therefore suggest that these macro-theories can beneficially be complemented with an anthropologically inspired approach that pays attention to the intricacies of the negotiations between different regimes of value at both organizational and individual level.

## Regimes of value in cultural production

Our approach to how to analyse the establishment of relationships between commons and market is to follow objects and persons as they move between what Arjun Appadurai has referred to as 'regimes of value' (1986: 4), and what, in other literature, has been discussed as 'systems of belief' (Bolin, 2009, 2011; Bourdieu, 1993), and to map the negotiations that these moves trigger. This approach is inspired by Igor Kopytoff's (1986) suggestion that the production of a commodity should not be regarded only as a material process but also as a cultural process, which consists in marking certain things as commodities. By replacing the word 'commodity' with 'thing', he turns our attention towards the cultural and social processes of attribution of value. This perspective invites us to note the potential shifts of value that occur when an object is inserted, taken out of or re-inserted into the circulation of commodities, and suggests that neither commodification nor de-commodification necessarily marks the end point in the biography of a 'thing'. In this sense, commodification is 'best looked upon as a process of becoming rather than as an all-or-none state of being' (Kopytoff, 1986: 73), and the biography of an object occasionally can contain and reflect the movement of a thing between different regimes of value, being in one moment of its biography a commodity, and in another moment – a part of the commons. We find this important in order to move beyond the dichotomous conceptualizations mentioned in the previous section.

In our analysis that follows it is also important to note how actors, who are, in a certain sense, rooted in the economy of the commons, initiate shifts between different regimes of value in order to maximize the value(s) that can be extracted from their products, and which they themselves also exploit. Also important are the conflicts that this brings to the community. Objects produced within the community are experienced by some members as 'singular', meaning that they are perceived as exempted from exchange value and thus should not be exchanged on the market. Other community members, however, attempt to make the products produced by the community commensurable with the values of other regimes of value (e.g. market or public institutions) and thus exchangeable (Comaroff and Comaroff, 2006). These conflicts are political in the sense that they concern the underlying rules and values of the community, and the outcomes of the conflicts tend to reproduce the relations of power and influence between community members.

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<sup>1</sup> It should be noted that there is a slight preponderance of empirical studies focusing primarily on the Linux or Wikipedia communities, meaning that other examples are needed to construct more encompassing theories of cultural production.

This, we argue, allows for a nuanced analysis not only of the relations between different regimes of value, but also of how these are constructed and negotiated within the different spheres of the regimes themselves.

For those familiar with Kopytoff's and Appadurai's writings we should perhaps underline that methodologically our biographical perspective is not restricted to artefacts but also includes, more conventionally, people. Kopytoff's remark that production is a cultural process that marks objects as belonging to different regimes of value is also relevant in relation to the producers themselves. Through the act of production people are marked, as either waged labourers or amateurs, as employees or members of more informal communities. This process of labelling determines, in turn, their relation to and position in regimes of value. We have also adopted a broader definition of what constitutes an object, since digital objects are somewhat different from the objects that Kopytoff discusses (Lesage, 2013). The ontology of immaterial objects such as software, algorithms, code, media and images presents some problems for a biographical analysis. Are we, for example, to follow a single copy of a software, if one can speak of such a thing, or is it the code as such that is to be followed biographically? This is a question of method, and acknowledging the challenges to ethnographic research in digital media contexts (Markham, 2013) we have favoured thinking in broader terms and speak about 'entities'.

## Method and material

Below we develop the theoretical points discussed above in an analysis of open-source based production of two feature animation films with the code names Morevna project and Gooseberry project, formed around two open-source graphics communities – the 2D animation Synfig Studio community and the 3D Blender animation software community<sup>2</sup>. What we take as 'entities' to follow biographically are the production software, the animations produced with that software, and the people participating in the production. It is important to emphasize that the Blender community is to date the largest and most mature in the domain of open-source based digital computer graphics and media production. Its existence as an open-source project since 2002 made available far richer material for our study in terms of analysing the shifts between different regimes of value than Synfig/Morevna. While for our purposes it was important to have a comparable case to suggest some generalizations, Synfig and Morevna represent a smaller and newer community that has only been active since 2008 and is still experimenting with models of scaling up and developing funding models. Recognizing this difference is important in order to emphasize the time it takes and difficulties that open-source projects face in developing sustainable platforms for community, media and software development.

The material has been collected through a 'multi-sited' (Marcus, 1995) ethnographic approach, where understanding of cultures is built through tracing the changing nature, and use of things in different contexts (1995: 105–8). This has involved tracing documents and relevant data in online, as well as offline settings; performing face-to-face and internet-mediated qualitative interviews with 35 individuals; as well as conducting participatory observation in online settings, and in situ among the producers of the two animation films. When speaking of ethnography, we have adopted the view from media studies research that short but regular periods of immersion in geographically dispersed cultures can be equally fruitful as long, continuous observations (Bolin, 1998: 26). Julia Velkova has been immersed in different ways for a period of one year in the production of one of the films, Gooseberry, and for about a year and a half in the production of the other, Morevna.

## The Blender and Synfig software projects: from commodities to commons and beyond

Our empirical investigation starts with the histories of the Blender and Synfig open-source graphics communities, and, in particular, the 'biographies' of the Blender and Synfig software projects used for the creation of Gooseberry and Morevna.

The Blender 3D animation software had its inception in the early 1990s within the small, independent Dutch animation studio NeoGeo. It was initially developed as an in-house, proprietary tool. Made by people with predominantly artistic and design backgrounds, it responded to a need at the time to have cost-efficient tools under the control of animators. As one of the founders of NeoGeo, Ton Roosendaal, explains:

it worked extremely well for our own work because you could tweak the software in a way that would work for you really fast, and get everything well and controlled. (in Niederer, 2009)

The need for such controllable tools has been the foundation for the further development of the software and set the premises for a later transition from a proprietary to an open-source model. In 1998 the software went online and, while remaining proprietary, it shifted to a freeware model which led to the gradual formation of a user base. During the years of the dotcom bubble the software faced an uncertain future as the studio went into bankruptcy. To resolve a debt issue with investors NeoGeo attempted in 2002 to raise €100,000 from its users in order to finance the release of the software

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2 For the projects see: [www.morevnaproject.org](http://www.morevnaproject.org) and [gooseberry.blender.org](http://gooseberry.blender.org); for the communities: [www.synfig.org](http://www.synfig.org) and [www.blender.org](http://www.blender.org).

as free and open-source under a GNU/GPL license. The campaign, which may represent one of the first examples of online crowdfunding, succeeded, and since then Blender has been a free software project<sup>3</sup>. This example demonstrates how a community of users can take an object – a software tool – from the market and convert it into common property, a process that has been labelled as ‘socialisation’ of tools (Suoranta and Vadén, 2008: 161), and which, at the same time, illustrates the move of a commodity from the sphere of the market and one system of valuation to the sphere of commons and a different valuation (Kopytoff, 1986) and morality (Murdock, 2011).

The process of ‘open-sourcing’ the software involved a shift in the status of the initiator and main developer of the software – Ton Roosendaal, who became recognized by the Blender user community as its ‘benevolent dictator’ for life. The role of benevolent dictator in free software projects is usually assumed by individuals with strong charisma, reputation and authority among the community members and signifies a strong identification between projects and their founders (O’Neil, 2013). In the case of Blender there was an additional peculiarity – the role of benevolent dictator was supported by the economic exchange through which a renegotiation of decision-making and authoritative power took place. While, in most free software projects, the community creates mechanisms for self-regulation, organization and decision-making (Coleman, 2013; O’Neil, 2013), in the case of Blender its initial founder set the framework of this relationship, navigating between his personal agenda and the wishes of the community. As he stated: ‘this makes me need to listen, see where there are issues in Blender, try to solve them, but also try to move them’ (in Niederer, 2009). During this process, Ton Roosendaal also founded a new commercial entity in the form of an animation ‘studio for open projects’: the Blender Institute. In addition, a non-profit organization – Blender Foundation – was established in order to take care of the legal and economic aspects of the free software project. The establishment of these three entities – the Blender Institute, the Blender Foundation, and the community of artists and developers surrounding the Blender software – suggests a very intricate web of relationships involving many negotiations over values, and production of new values and goals. The aim of the commercial animation studio has since been to develop open-content animation films (predominantly shorts) of industry quality in order to speed up the development of the Blender software. This has been tested so far through four short productions, with Gooseberry being the fifth and most ambitious one, aimed at creating a feature film. The animation films and the assets (graphics, artwork, animation, software) that the studio produces are released under an open licence, but the studio still manages to generate and circulate money to try to make the production viable, something which we discuss in detail in the next section.

Looking at the other software in focus, Synfig – which is a 2D animation software – it was developed in the early 2000s as a proprietary animation in-house tool within a small, US-based animation studio called Voria Studios. Like Blender, it also faced bankruptcy and in 2005 released the code as free software under a GNU/GPL licence (Synfig Studio Documentation, n.d.). This was a way for the initial founder of the software, Robert Quattlebaum, also an artist and designer, to give it a chance of further life:

While we were a company without customers, we are not a company without a product – and our product is quite powerful ... I refuse to just let this software evaporate into oblivion. (Quattlebaum, 2004)

Thus, the Synfig software tool also went through a process of de-commodification, but in this case the process did not involve any monetary exchange. Nor did the author and owner of Synfig retain an active role in developing the software or in Synfig-based animation projects. Nevertheless, in 2013, an economic transaction consisting of a small grant of \$5000 from the private fund of the philanthropic Shuttleworth Foundation also shifted the power relationships in the community making an individual based in Siberia, Russia – Konstantin Dmitriev – a de facto ‘benevolent dictator’ in the community. As was the case with Blender, he also runs an ambitious open animation film project for creating a 2D feature-length animated film – Morevna – based on the Synfig software.

The two communities and software projects thus share a similar background story but, as we will show next, the differences in how these communities developed highlight two different, and in some aspects even opposite, relationships between commons and market. The Blender community, with its benevolent dictator and surrounding legal entities, was substantially influenced by its origins as a commercial product, whereas Synfig veered into a more unstructured and self-organizing direction after its de-commodification:

Open-source started with communities, Richard Stallman, the Linux and so on. This is not the way Blender started. This is a very big difference. Because the ... other open-source projects do not look at the industry. Blender is not typical, it is not coming from this movement. It is the other way around. (Interview with Ton Roosendaal, August 2014)

The Blender project and community actively sought ways to enter and maintain relations with the market – Blender exists ‘between community and market’, as Roosendaal puts it<sup>4</sup> – while for Synfig these relationships have been less obvious. These differences can only be understood in the context of the broader biographies of the Synfig and Blender software and communities which we develop further in the next section. As will become clear, the different life paths of the two communities have also laid the ground for the subsequent shifts between different regimes of value, between the

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<sup>3</sup> For more information on this time in the Blender software history, see Neus (2002).

<sup>4</sup> The source of this and similar quotes used in text later on is fieldwork and interviews taken in the course of research.

market, cultural funding institutions and user communities.

## Shifting values in the open-source production of animated films

In this section we take a closer look at the shifts between different regimes of value involved in the production of the Blender Institute's fifth, and most ambitious animation film, *Gooseberry*, and the Synfig-based equally ambitious 2D animé project, *Morevna*. Both projects have been aiming to create open-content feature-length animation films by using only free and open-source software tools. This means the films can be regarded as entities that generally reside in the value regime of commons. However, key moments from their production biographies have involved attempts to establish, and the actual establishment, of a spectrum of economic relationships with the market and public funding institutions.

For example, since its inception, *Gooseberry* has been perceived and presented by the Blender Institute as a low-budget film production. Its budget has been estimated at 'ideally three to five million euros' (see Price, 2014). While this may seem low in comparison to an industry where the productions of Disney, Dreamworks and Blue Sky are measured in millions per minute of animation, the *Gooseberry* budget sets a precedent in the larger context of commons-based and open cultural production. Attempts to value crowdfunded animation films have suggested that, as of 2012, their costs per minute have been up to \$15,000 (Amidi, 2012). For *Gooseberry* this figure is higher, and the discourse surrounding the production has constantly attempted to place it in comparison to the industry, and not to existing open-source communities. As the director suggested when confronted with differences between the work of professional studios and the *Gooseberry* project:

Mathieu: Pixar projects take four to five years internally and thousands of people. Blender Institute [sic] did *Sintel*<sup>5</sup> in six months with like, eight people. So it is very difficult to compare those two because it's not the same means at all. And expense, and budget. A Pixar movie is \$200 million. Per movie.

Julia: But is the ambition to be comparable?

Mathieu: Yeah! To me it is. And we can.

(fieldwork, August 2014)

Therefore, we can observe that while from one perspective the values associated with the production of *Gooseberry* reside in the domain of the commons, at the same time the project strives to adapt and associate itself with the market and the industry. This has also been visible in the division of roles and hierarchies within the production of the film. While on a day-to-day, interpersonal basis, the participants in *Gooseberry* have maintained informal relationships and rather flat hierarchies (Velkova, 2014), within the frame of concrete work on the production these have been highly vertical, as reflected in the role division which is borrowed from the industry – with a producer, director, technical directors, art directors, character animators, riggers, modellers, etc. And their own perception has been that there is not much difference between them and the industry except for the focus on sharing and open-content production:

Do you watch *Game of Thrones*? ... So, it's high production value, it looks good, and it's extremely efficiently produced.... What we do is not that different. The only thing we really do differently and we are going to do radically is sharing ...

(Interview, fieldwork, August 2014)

An obvious difference has however been the scale of resources, which has led to creative solutions and a variety of approaches to raise funding from either the market, public funding bodies or its own community. With regard to public cultural funding, the Blender Institute and *Gooseberry* have managed to raise about €200,000 through a grant from the European Union (EU) Media programme<sup>6</sup> in order to enable the full-time temporary employment of software developers from the Blender community and people to document the film production. The project has also received financial support from the Dutch governmental Enterprise Agency. This shows the belief of the Blender community's leader, its benevolent dictator, that the creation of cultural commons should not be totally volunteer driven and free from monetary exchanges, something which inevitably leads to a negotiation of values between the regimes of, in this case, the institutions of public funding and commons.

With regard to the market, the project has established numerous ties to the creative industries in Netherlands, from recruiting individuals to do dialogue and voice recording for the film, to attempts to pitch for money from private investors. As part of the latter, it produced a pitch-book in a limited edition that has been handed in to different investors. The book framed the project as 'filmmaking from the future', emphasizing its unique business model that combines a studio, a free software community, and a potential market established around the open-source technology development and open-content sharing. The exact return on investment for investors was not clearly formulated, yet it implied benefits from a potentially substantial exposure in the eventual success of this large-scale, though high-risk experimental project. While some participants in *Gooseberry* have been positive about not having an investor, as it

5 *Sintel* is an earlier short film by the Blender Institute.

6 Since 2014 the EU Media Programme has been renamed as the Creative Europe Programme.

provides substantial creative autonomy to the project, the stated goal of producing films of industry quality has led the project to attempt to enter into such relations. Lastly, Gooseberry attempted also to raise funds from within the Blender software user community. As stated by one of the Gooseberry participants:

We are actually seeking from the community about €1.8 millions in the end and it is very hard to raise such an amount of money in 40 days or a month. That's why we decided to setup a Blender Cloud subscription. That's how we decided to make the crowdfunding as a subscription based system, because in this way people can donate small amounts of money during the production as it happens.

(Interview with F. Siddi, Price, 2014)

The Blender Cloud has aimed to replace pre-sales of DVDs and other forms of pre-funding that have been tested by the Blender Institute in earlier productions. Members of the community can demonstrate their support for Gooseberry by donating directly through long-term subscription to the Cloud. The Cloud demonstrates also the possibility for those who produce digital commons to develop their own, independent infrastructures (Löwgren and Reimer, 2013: 18), and seek opportunities to generate money from their own community. An initial campaign for €500,000 of crowdfunding through subscriptions failed, however, and the production temporarily scaled down. From the perspective of value shifts and their negotiation, the introduction of the Cloud infrastructure is an important element as it represents the introduction of a wall between free and paid access to content, including all previous open animation films by the Blender Institute and a substantial volume of open-content training materials. Content available in the Cloud represents, in this sense, a hybrid between being a commodity and belonging to the commons. This presents an example of how those who produce digital commons try to commodify their own, open content while trying to remain faithful to the principle of commons and knowledge sharing. While the Cloud does not restrict the access to technology, it puts up a barrier to accessing the content and the knowledge bank that has been developed – such as tutorials for animators, music, graphics, archived blog content, etc. This has caused reactions:

many people accuse openly these projects to be like bad projects, people are saying – Ton wants to make a feature film. So, he is asking us for money. Right? I mean, in a way it's almost like that, because it's true that we want to make a film. But, we give back so much, that you can actually forget about the fact of producing a movie. We do it to make the software better.

(Interview, March 2014)

The last part of this quote suggests that the development of technology through the production of a film is valued higher by the community than the aesthetic expression and actual film itself. What is interesting here, from the perspective of value creation and the biography of things, is that while the technology remains in the commons, the film content produced shifts its status – from commons to commodity. What was presented to the potential 'investors' was the open-source aspect as a unique quality that should be supported. But what was being sold to the community was content through subscription to the new Cloud service.

Morevna has also been actively trying to find funding schemes to enable artists and developers to be employed. For nine months it kept running a successful crowdfunding campaign aiming at gathering \$1000 a month to provide a salary for one programmer in Siberia, who would develop new features and fix bugs in Synfig. The rewards, or as the Morevna project has called them 'prizes', for funders have been temporary influence over the direction of development of Synfig.

you can pay to set higher priority on one thing per month and develop it faster. The second prize will go to select an operating system for the development.

(fieldnotes, 2014)

The reward offered was that whoever pledges to donate a set amount would get the power to decide what feature the programmer should focus on and implement during one month. This option was used on several occasions and resembles what has become known as an 'equity' model of crowdfunding, where the contributors become shareholders in the project they fund. In this case, instead of actual shares, they have been granted temporary influence and decision-making power. This again reflects the fluctuation and negotiation of different values, between commodities and commons and between the community as volunteers and as shareholders.

Morevna also developed an online video training course on Synfig which it now distributes through three platforms: as a commodity through the online educational platform Udemy.com; as commons through the Synfig community website; and as a hybrid between both through a 'pay what you want model'. This is yet another example of an object which shifts and moves between the state of commodity and commons, and not least – resides in a hybrid state through the 'pay what you want' scheme. All this suggests that producers of commons and their ethics and morality do not deny the possibilities for monetizing and creating commodities from their work. The point of tension for the participants is therefore not so much how to merge capital/economy with commons, but how to remain ethical and faithful to the core values of freedom and open knowledge of the community.

## **The movement of people between different regimes of value: from fanboy to a freelancing professional**

We will now switch our focus to the move of people between regimes of value, taking Morevna and the Gooseberry animation film productions as the focal points that trigger this move.

The Blender community is populated by both graphic artists and software developers. The success of establishing the Blender software project as a viable tool for professional animation and 3D creation has led to the creation of a substantial base of Blender Institute ‘fans’ who are willing to devote their free time and skills to contribute to the films and software projects developed within the Blender Institute. The social histories of the participants who have been employed within the production of Gooseberry can be summed up and generalized in order to speak of ‘Blender careers’, or ‘open-source graphics careers’ that are closely tied to the work for the Institute. The general pattern for both artists and developers tends to be a start in their early 20s, or even teenage years when they discover Blender, then start exploring it and gradually contribute to the software project or to the ‘objects’ produced around it, such as code, concept art, graphics or documentation. The individual biographies of these individuals provide us with illuminating accounts on how motivations, goals and values are renegotiated.

I was a fanboy. I remember I came to the Blender Institute the first time with all my DVD covers to get them signed by anyone here.... Ton, even during the time of Elephant Dream, was a legend to me.... His ideas are always 5 or 10 years ahead; and I could feel this around the start of 2000; the first massive crowdfunding to make Blender open-source; then an open-movie project. The idea to open a movie production was shiny new at this time. Also mixing software development with a model of artistic creation or demoing is something really innovative. Putting all of this in the context of the time they were done – it’s amazing. (Interview with David Revoy, artist, August 2014)

From being fans, many get gradually involved and start participating as volunteers in various activities of the Blender Institute. This helps them establish a reputation and portfolio as specialists in the Blender software – be it as artists or developers. This reputation can often later be rewarded by temporary employment on projects like Gooseberry, or by starting own independent open-source based animation projects and studios. This process also involves a renegotiation of the relationship with and valuations of other community members. From ‘volunteers’ and ‘hobbyists’ they gradually become ‘employees’ and ‘freelancers’, and may change their authoritative power in the Blender community structure – moving higher up or exiting the community. In this process, the autonomy of being an independent contributor in the community can be traded for a temporary employment within the Blender Institute. One of the Gooseberry participants discusses the shift from volunteer to an employee in the following way:

you get other sort of pleasures. Like, you get your code tested immediately, you get to participate in a movie which will be, you know, seen and appreciated, so you get something real in the end. Of course, you get something anyway. I think it’s the experience that matters.

(Interview with developer, August 2014)

The downside of this, as expressed by some participants, is entering into more industry-like, vertical production structures and relationships:

It is a bit harder of course when you dip into it.... We have to schedule, we have to, you know – conform to deadlines of course ... so it is totally different than you know, doing it like a volunteer.... There is the pressure and the interaction is ... bigger.

(Interview with developer, August 2014)

The fandom and respect towards the Blender Institute creates a large user base and potential labour force that could be employed in actual film productions. The Gooseberry project has been aiming at selecting a handful of the best talents of the community, and ‘insourcing’ them in the production. This has been generally perceived as very positive by the project participants, as the shift in the way they are valued has also created visibility, and greater chances for creating economic value out of other commons-based artistic projects.

As an independent artist, the visibility offered by this project is really cool; especially because it brings also eyes on my other personal project, such as Pepper&Carrot, or paintings.

(Interview with David Revoy, artist, August 2014)

At the same time, it is not only the community members who become ‘marked’ in different ways and move between different states and regimes of value in the community – this process also alters the regimes of the community’s ‘benevolent dictator’, whose role shifts from being a legitimate authority among many to an employer of some. This is most visible in the intention to crowdsource parts of Gooseberry:

in 3–4 months, when we are settled with the characters ... we will need props, and backgrounds, etc. We will put it online, and then the community will start modelling. We have tried it before, it worked quite well, but not for animations – animations did not

While such a campaign in the end did not happen within Gooseberry, the initial intentions of having it shows that the simultaneous roles of the 'benevolent dictator' – being both producer of Gooseberry and head of the Blender Institute – makes it possible to combine and reconcile the Blender community and the animation studio, in spite of the different structures and organizational models. This creates an efficient and low-cost model of industry-like animation film production. Instead of hiring thousands of people, the community could contribute when needed with labour force and creativity, and get rewarded in various ways ranging from employment to getting a credit in the film.

Similar, though less structured processes happened in Morevna project and the Synfig community. For example, in the summer of 2012, Morevna project's producer and Synfig's main contributor crowdsourced the production of 3D models of two of the main film characters. After a month in which various artists were working on volunteer basis and submitting suggestions, what was favoured was a contribution by two freelance animators from India who got credit in the film as a reward. Follow-up interviews with them suggested that they contributed partly for fun, partly to get experience that would boost their portfolio. Their involvement also resulted in new contacts and participation in other projects of open-source based animation films, and has been helpful for running their own commercial Blender-based animation studio in India. The possibility of converting free and voluntary labour into market value means that the free labour is not experienced as exploitation. In their own experience, the synergy between market and commons also means that they can generate monetary flows while at the same time aligning to the ethics and practices of the commons.

The manifold and various relationships between regimes of value in these examples demonstrate the problems with theoretical approaches that try to apply dichotomous definitions of markets and commons on open-source-based cultural production. Producers, as well as the things produced, reside in different regimes of value simultaneously and the lines between different regimes are constantly crossed in order to further both market goals and community-related goals. This is not to suggest that the cases analysed constitute hybrids between markets and commons, even though there are signs of such hybridity, but rather that the question of which regime stands to gain from aligning itself with other regimes can vary on a case-to-case basis. However, it is also to suggest that the opportunity to move between different regimes of value is unevenly distributed in the production communities analysed. Whereas the central members of the community can, and do reside and move between the institutions of public funding, market and commons, participants in the periphery are usually relegated to a single regime of value. The question of power is thus central to the processes analysed here; but power does not only come from possession of economic capital, but also from the position occupied in relation to the other regimes of value and in the communities' structure.

## Conclusion

In this article we have demonstrated the breadth of relations and flows of interaction between the practices of open-source based cultural production and the capitalist market through the cases of two large-scale open-source film projects around two open-source graphics software communities. By mapping and investigating the biographical trajectories of both objects and persons involved in the film production projects we have concluded the following.

First, the different regimes of value involved in the analysed projects are experienced by the participants as (sometimes incommensurable) differences in goals, beliefs, ethics, and thus as constituting barriers between different regimes. At the same time, however, there are participants who work to create commensurability between the different regimes of value – trying to align the goals of the community with the capitalist logics of other related actors, primarily the cultural industries and/or public funding bodies. This involves translation processes which align the different regimes of value by finding ways of converting one value into another. The project participants deliberately and unconsciously shift between different regimes of values in the interactions with market actors and with community members, as seen in our interviews when the participants try to explain their work. Often the participants do not notice these shifts in their appeal to different systems of valuation, or that there could potentially be conflicts between different goals. The move from one regime of value to another can happen several times in a single sentence without the speaker noticing it.

Second, it should be noted that the two cases analysed here showcase different dynamics in the relation between markets and commons. There is thus nothing predetermined or automatic in this relationship and commons-based production communities can stand both to gain and lose from interacting with the market. The development of the two communities into two different directions is contingent on a number of factors that are too complex to sort out in the space of a single article. This complexity could be further explored in future research with a particular focus on the nature and dynamics of 'business models' in open cultural production. While for Appadurai (1986: 57) the politics of value ultimately leads to an expansion of the pool of commodities, our empirical material suggests that it can also expand the domain of commons, thus contesting our traditional understanding of what a business model is. The projects analysed here are run as businesses with inspiration from regular market production but the 'business' in itself is not ultimately about making money, but rather producing a community centred on the re-enactment of liberalist values of individual benefit through cooperation and work based on sharing.

Lastly, it should be acknowledged that these moves are still ultimately tied to questions of power. In both markets and commons there are hierarchies of power which enable some actors to move between different spheres and to reconcile the different regimes of value, whereas others remain for longer periods of time in a single regime. To be unable to move between different regimes can mean that you are not able to convert the skills learnt in commons-based production into gainful employment, or to remain in precarious labour conditions (e.g. as crowdsourced labour) without experiencing the psychological fulfilment of being part of the community. For us it is important to point out that the power relationships underlying these work conditions not only hinge on access to economic capital but are also related to the position of the actor in relation to different regimes of value. This insight should lead researchers to investigate not only how capital impinges on the commons but also on the multi-faceted relationships between the different regimes of value. Open-source-based cultural production, like any cultural production, does not conform to – nor can it be made sense of from – the perspective of a single economic system. By following the cultural biographies of cultural producers and objects – in this case software, developers, and film-makers – our ethnographic research has revealed the complexities and the cultural embeddedness of the open-source economy.

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### **Author biographies**

Julia Velkova is PhD candidate in Media and Communication Studies at Södertörn University. She is interested in media production in the domain of digital commons, techno-art and computer cultures, and the politics of internet governance. Previously she studied the relevance of alternative journalism to internet governance that resulted in her work 'WikiLeaks CableGate and the multi-stakeholder model of internet governance'.

Peter Jakobsson is senior lecturer at Södertörn University and Beckmans College of Design. His research interests include the political economy of social media, media policy and representations of social class. Recent publications include 'Reinforcing property by strengthening the commons' in *tripleC* and 'Time, space and clouds of information' in *Cultural Technologies: The Shaping of Culture and Media in Society* (ed. G. Bolin).