

Informational cognitive exploitation: concealed relationships behind prosumers' activity on the World Wide Web

Over the last few decades, a distinctive ambiguity related to prosumers' productive activity has been addressed by the literature. On the one hand, it is associated with users' unrestricted freedom, will and desire to be engaged in creative and collaborative activities on the Web. On the other hand, it is emphasized that such freedom is at the price of unpaid work which capitalist companies take advantage of in novel ways. In this framework, the literature has linked prosumers' productive activity with the notion of exploitation. Despite the important contributions of previous studies on the subject where exploitative relationships within prosumers' activities has been pointed out, the literature still lacks a more detailed theoretical approach capable of grasping the differences between this type of exploitation and classical exploitation, and casting light on its defining aspects. Faced with this, the aim of this paper is to reflect on the productive activity of 'prosumers' on the Web, as a specific portion of *free work*, from the point of view of *informational cognitive exploitation*. Thus, this paper will attempt to develop the idea that cognitive exploitation constitutes a concealed relationship of prosumer activity and, taking the knowledge support that drives it as the main criteria, the characteristics of this novel type of exploitation will be studied. The article is organized as follows. Firstly, the concepts for approaching exploitation on the Web are presented. Secondly, the process of this novel type of exploitation is shown by the paradigmatic example of YouTube. Thirdly the literature is reviewed. The fourth section, the core of this article, is dedicated to characterizing the informational cognitive exploitation behind the prosumer's activity, revising the classical concept of exploitation from the perspective of informational capitalism in order to enrich the notion of *informational cognitive exploitation*. Finally, some conclusions are drawn.

Keywords: prosumer activity, informational cognitive exploitation, free work, informational capitalism.

Sfruttamento Cognitivo Informativo: le relazioni nascoste dietro l'attività dei prosumers nel World Wide Web

Nel corso degli ultimi decenni è stata osservata dalla letteratura critica una peculiare ambiguità in relazione all'attività produttiva dei prosumers. Da una parte, risulta associata alla libertà illimitata, alla volontà ed al desiderio degli utenti di venir coinvolti in attività di creazione e collaborazione nel web. Dall'altra, viene sottolineato come questo tipo di libertà paghi lo scotto della non retribuzione del lavoro, di cui le società capitaliste si avvantaggiano in diverse forme. In questa interpretazione, la letteratura ha messo in relazione l'attività produttiva dei prosumers con la nozione di sfruttamento. Nonostante gli importanti contributi dei precedenti studi sul tema, nei quali i rapporti di sfruttamento all'interno delle attività dei prosumers sono in effetti già stati indicati, si sottolinea la mancanza in questo tipo di letteratura di un approccio teorico più dettagliato, in grado di indagare le differenze fra questo tipo di sfruttamento e quello classico, e chiarirne inoltre gli aspetti caratteristici. Considerato ciò, l'obiettivo del presente articolo è quello di riflettere sull'attività produttiva nel web dei "prosumers" come porzione specifica di *lavoro gratuito* dal punto di vista dello sfruttamento cognitivo informativo. Di conseguenza, verrà sviluppata l'idea che lo sfruttamento cognitivo costituisca l'aspetto relazionale celato nell'attività di prosumer, ed assumendo come criterio principale la base conoscitiva che lo supporta, verranno discusse le caratteristiche di questo nuovo tipo di sfruttamento. L'articolo si organizza nel seguente modo. Innanzitutto vengono presentati i concetti chiave per lo studio dello sfruttamento nel web. In secondo luogo, il processo coinvolto in questo nuovo tipo di sfruttamento viene esposto sulla base dell'esempio paradigmatico di YouTube. Terzo, verrà visionata la letteratura critica. La quarta sessione, che rappresenta il cuore del presente articolo, è dedicata alla caratterizzazione dello sfruttamento cognitivo celato nell'attività di prosumer rileggendo il concetto classico di sfruttamento dalla prospettiva del capitalismo informativo, allo scopo di ampliare il concetto di *sfruttamento cognitivo informativo*. Infine verranno tratte alcune conclusioni.

Parole chiave: attività di prosumer, sfruttamento cognitivo informativo, lavoro gratuito, capitalismo informativo.

Introduction

Over the last few decades, within the framework of Informational Capitalism (Castells, 1996) and the consolidation of productive activities related to knowledge (in general) and digital technologies and the Internet (in particular), the literature has focused on prosumers' productive activity on social media and web sites on the Internet and the World Wide Web. This particular activity represents one of the main problematics of so called *free work*, which involves but exceeds the web realm (Beverungen et al 2013). Examples are well known. Prosumers on websites such as Facebook or YouTube produce videos, news, etc., to be consumed by others, and their creativity and commitment translates into better advertising agreements for these sites (Petersen, 2008; Arvidsson & Colleoni, 2012).

Within this context, a distinctive ambiguity related to prosumers' productive activity has been addressed by the literature (Terranova, 2000; Chicchi, Savioli & Turrini, 2014; Briziarelli, 2014). On the one hand, it is associated with users' unrestricted freedom of speech, will and desire to be engaged in creative and collaborative activities on the Web. In this sense, the Internet's emancipatory potential has been highlighted (Hesmondhalgh, 2010; Zambelli, Murgia & Teli, 2014). On the other hand, it is emphasized that such freedom is at the price of unpaid work which capitalist companies take advantage of in novel ways. More precisely, some authors have pointed out that, in the same way that the willing sale of labour-power in industrial capitalism does not lessen capitalist exploitation (Marx, 1909 [1867]), the potential will and desire involved in prosumers' productive activity does not mitigate the fact that, objectively, exploitative relationships take place in it (Boutang, 2011; Zukerfeld, 2010, 2014; Fuchs, 2013; Cosetta & Labate, 2014).

In this framework, the literature has linked prosumers' productive activity with the notion of exploitation (Terranova, 2000; Petersen, 2008; Andrejevic, 2009, 2013; Boutang, 2011; Zukerfeld, 2010, 2014; Fuchs, 2010, 2013; Andrejevic, 2013; Briziarelli, 2014; Beverungen, Böhm & Land, 2015). And although some authors have channeled their efforts towards trying to define this concept in a precise way, it still remains hazy and lacks in-depth discussion. Given this, we ask: What are the features of cognitive exploitation and how is it characterized when the knowledge which drives it is digital information that flows on the web?

Faced with this, the aim of this paper is to reflect on the productive activity of ‘prosumers’¹ on the Web, as a specific portion of *free work*, from the point of view of *informational cognitive exploitation*² (Kreimer & Zukerfeld, 2014), where the “informational” character is given by the material support in which that knowledge is objectified. So, taking as our main criterion the knowledge support that drives it, and attempting to develop the idea that cognitive exploitation constitutes a concealed relationship of prosumers’ activity, we propose to make a theoretical contribution casting light on its defining aspects and its continuities and discontinuities in relation to paradigmatic exploitation in industrial capitalism.

The article is organized as follows. Firstly, the concepts necessary for approaching exploitation on the Web are presented. Secondly, we focus on the asymmetrical exchanges (data, content, attention and money) between prosumers and for-profit platforms in order to describe the former’s activity. Here we show the process of this novel type of exploitation by the paradigmatic example of YouTube. Thirdly the literature is reviewed, revisiting concepts associated with our object, such as «free labor», «unpaid work», among others. Based on that, the fourth section, the core of our article, is dedicated to characterizing the informational cognitive exploitation behind the prosumer’s activity, revising the classical concept of exploitation (CE) from the perspective of informational capitalism in order to enrich the notion of *informational cognitive exploitation* (ICE). Finally, we draw some conclusions.

¹ In this paper prosumers and users are referred to without discriminating between the two. Although the category of prosumers is, from our perspective, imprecise, we chose to keep this expression due to issues of communication and space.

² Cognitive exploitation is defined as «a relationship in which knowledge produced by some actors on a not-for-profit basis is appropriated by others for profit, and in which - material or symbolic- exchanges are voluntary and legal (or non- regulated), and objectively asymmetrical, meaning that the latter actors obtain a surplus with market value.» (Kreimer & Zukerfeld, 2014: 180).

1. Informational capitalism, informational goods, and intellectual property: a theoretical starting point

In order to describe the specific forms that ICE assumes in prosumers' activity and to point out its discontinuities with CE it is necessary to define some central concepts and ideas.

Firstly, exploitation of knowledge does not arrive with informational capitalism (Rullani, 2004; Boutang, 2011; Zukerfeld, 2010)³. However, the prototypical productive activities of this period are knowledge intensive, particularly knowledge objectified in digital information (DI). Thus, we differentiate all knowledge intensive activity (encompassing some forms of so-called "immaterial labour", activities in the service sectors, in other words cognitive labour in general) from the prototypical activities of industrial capitalism at the heart of which knowledge was a marginal factor in relative terms.⁴ However, knowledge -and exploitation related to it- has different economic and sociological properties depending on its material support (Zukerfeld, 2010; 2014). So, we must distinguish from all these activities those which are mediated by digital technologies and that have primary informational goods (IG)⁵ as outputs, which are exchangeable and liable to be awarded intellectual property rights.⁶ It is important to highlight that the IG are replicable (clonable) with costs tending towards zero which, added to the increasing expansion of digital technologies into ever more sectors of society, facilitates their reproduction, circulation, and consumption in commercial and non-commercial spheres and –as we will

³ Indeed classical sociology has given an account of that (Marx, 1857/8; Roemer, 1984; Wright, 1994, among others).

⁴ In this sense, the distinction between cognitive and classical exploitations lies in the primacy of the element that conveys it. Industrial productive processes mainly result in commodities whose expenditure in matter and energy is higher in relative terms than knowledge expenditure (Zukerfeld, 2010) and are principally regulated by classical private property (Boutang, 2011).

⁵ Primary informational goods – IG - (i.e. text, videos, music or software) are products composed of digital information (Zukerfeld, 2010). This is coded information supported on bits. These products have all the features of goods and some of services (Hill, 1999), and they consist mostly of knowledge, having a very low proportion of energy and matter (Zukerfeld, 2010).

⁶ Intellectual property encompasses a diverse range of rights. In particular, the IG dealt with here are regulated by copyright. This in turn includes: patrimonial rights «which enable the titleholder to obtain economic retribution for the use of their property by third parties», and moral rights «which enable the author to take certain measures to preserve the personal link between them and their work» (WIPO, 2014: 8).

observe- modifies the way in which alienation of activities and products takes place. In other terms, they are non-exclusive, non-rival goods (Ostrom & Ostrom, 1977), and difficult to enclose. This definition excludes other cognitive activities and is, therefore, specific to contemporary capitalism.

Secondly, the ICE - as it is defined here – is not exclusively related to the activities of web users and also includes other forms of informational labour.⁷ However, as we will attempt to observe over the course of this paper, the ICE of users presents characteristics that are specific to it and which merit a special treatment.

In summary, the material bearer in which knowledge is objectified, both during the process and in the final product of that process, is a determining factor in order to be able to define and understand the particular features that characterize ICE as a specific social relationship. In particular, the activities of prosumers constitute a significant and specific portion of the prototypical productive activities of informational capitalism which allow us to identify clear divergences from classical exploitation.

2. Prosumers activities on the web: how does the ICE work?

In this section we succinctly characterize the activities of Web 2.0 users on the basis of flows of DI that are exchanged between them and the sites they access. These activities range from chat messages and posts, through production of images and texts, etc., to lines of code. We start from the idea that when users surf the Web and the Internet they participate in different transactions in which – as we shall attempt to suggest – asymmetrical exchanges of flows of data, contents, attention, and money are involved.

Let us begin with an example. A YouTube user enters the website for free in order to view videos, comment on those she likes, and subscribe to some channels. She becomes enthused and decides to create her own channel to upload videos in her leisure time. With her email she opens an account, accepts the “terms of service”, adds a profile picture and writes a blurb that describes the content she will upload. Before embarking on her experience as a Youtuber she devotes some time to considering the concept

⁷ This refers to «the productive activities of those workers who use a secondary informational good (eg. a PC) as their principal means of labour and produce a primary informational good». (Zuckerfeld, 2010b: 78)

of her videos, looking at popular channels on YouTube, studying the subject matter they deal with, how frequently they upload videos, and so on. Eventually, she films her first video. The editing and uploading take her a little longer than she thought, and this discourages her somewhat, but she understands that with practice this time will be reduced. She successfully uploads it to the platform and waits. Little by little her video starts to receive its first views.

In this condensed description of the process involved in participating in a for-profit website like YouTube we can observe how the aforementioned flows of DI circulate. First, our user participates in the site by viewing videos produced, for the most part, by other users like her, making comments, subscribing to channels. There we can detect that DI we would classify as flows of attention circulates from users towards YouTube. Second, this circulation of DI leaves trails of interests, demography, behaviour, etc., data flows capitalized on by the company that become a central element for the advertising business through which the platform generates income (flows of money). Later, when our user begins to upload her own videos, she not only participates in the circulation of flows of content within the site, but she also contributes elements – more content, more variety - which make the site more attractive (capturing flows of attention) and which strengthen the advertising business of the website. Finally, this circulation of attention, contents, and data, leads to flows of money as a product of the insertion of advertising which is consumed by millions of users that, just like ours, participate in YouTube.

We have, therefore, on the one hand, a mass of actors who participate in websites – here YouTube is just an example – who contribute different informational goods (videos, images, text, translations, news, software, data, etc.) which are the product of a heterogeneous productive activity realised without the aim of profit-making, mostly during leisure time and in a recreational way, who do not receive paid compensation for it (but instead receive only free access to the platform and the flows of contents and attention generated by other users). On the other hand, the website – more precisely the site's owners – obtains a profit through the sale of advertising space, data and related services, which is made possible by the attractiveness of the site. Thus, regardless of the way in which the users perceive it, the exchanges that have an effect on flows of money are objectively asymmetrical. These exchanges are regulated, as we have mentioned, primarily by copyright. In this sense, with the exception of the software that the platform is supported by, and the logos and trademarks,

everything that circulates on the website is the property of the users. Indeed, sites like YouTube recognise the authorship of video creators but establish a licence within the terms of service which entitles them to indiscriminate use of the users' content.⁸

3. Literature review: different approaches to prosumers' activity

The literature which deals with the activities of Web and Internet users has begun to focus on the processes of commercialization in which these types of activities are immersed. Concepts such as «Free work», «Free labor», «unpaid work», «estranged free labor», «voluntariat 2.0», «loser generated content», and «inclusive appropriation» are various ways of describing these types of activities and the exchange relationships they are involved in (Terranova, 2000; Petersen, 2008; Andrejevic, 2009, 2013; Beverungen et al. 2013; Briziarelli, 2014; Zukerfeld, 2010, 2014; Fuchs, 2010, 2013; Boutang, 2011; Beverungen, Böhm & Land, 2015). Although all these concepts characterize activities on the Web, some refer exclusively to them (Petersen, 2008; Andrejevic, 2009, 2013; Briziarelli, 2014; Beverungen, Böhm & Land, 2015), while others do so in reference to a broader group that may also include all cultural and/or cognitive activity (Terranova, 2000; Hesmondhalgh, 2010; Boutang, 2011; Arvidsson & Colleoni, 2012) or, broader still, manual or migrant worker activities, etc. (Beverungen et al 2013; Fuchs, 2010; 2013; Fuchs and Sevignani, 2013).

However, what makes them deserving of being approached as a whole is that all these conceptualizations seek to characterize these activities in a capitalist context, linking them to the commercial character of the Web and the Internet. From among these authors arises the idea that these activities form a part of relations of exploitation. Below we review these theorizations, starting with the most general and progressing towards the ones most specifically linked to the concept of exploitation, concentrating on the contributions that they make in order to characterize it, when it is conceived of as a relationship underlying the activities of users.

The term *Free Work* (Beverungen et al, 2013) is an indicator of the diverse types of relationships, most often ambiguous in nature, that exist between freedom and work. Faced with the need to revise the naïve

⁸ It is important to note that on YouTube, and even more for software production, the usufruct of the contents can derive either from non-recognition of the author's patrimonial rights, or from the use of open licences (CC, GPL, etc.).

celebration of freedoms in different sectors and productive activities⁹, these authors emphasise that these become freedoms in the service of work. In this framework, some types are also “free” in the specific sense of unpaid. Under this umbrella the term *Free Labour* emerges (Terranova, Andrejevic, Fuchs, Briziarelli, Beverungen, Böhm & Land, in discussion with Hesmondhalgh, Arvidsson & Colleoni), which has a narrower character, focused on the non-economically compensated nature of the labour or, more precisely, labour power.

Tiziana Terranova (2000), one of the pioneering authors in this debate, captures the generality of the concept «free labor»: «Simultaneously voluntarily given and unwaged, enjoyed and exploited, free labor on the Net includes the activity of building Web sites, modifying software packages, reading and participating in mailing lists, and building virtual spaces on MUDs and MOOs» (Terranova, 2000: 33). The author contributes to the debate about the characterization of exploitation in relation to the activities of Web users in at least four aspects, underlining that: i. as in the Marxian definition of exploitation, the voluntary nature of these activities does not negate the objective process of the appropriation of value; ii. the dissociation between displeasure and exploitation is a novelty specific to these activities; iii. the production and appropriation of value through digital means are «mutually constituted» (2000: 51) in such a way that value is produced on the same platforms from which it is appropriated; iv. although with differences, both the production of free software and chat messaging form part of relations of exploitation, insofar as they depend on profit and the survival of the Web platforms (2000:49).

Along similar lines, but specifically dedicated to thinking about exploitation, Boutang (2011) identifies two types of exploitation: exploitation at degree 1 - exploitation of manual labour-power typical of industrial capitalism, and exploitation at degree 2, particular to contemporary capitalism, applicable to all cognitive labour-power, which he calls «invention-power».

Beyond the problems concerning the way in which he defines it¹⁰, his contribution stands out due to: i. distinguishing exploitation principally supported by knowledge from that based on the expenditure of energy and

⁹ The freedom to move geographically, self-expression, free time during the working day, etc.

¹⁰ This second form of exploitation is implemented during the productive process and accumulates in the worker (in the form of skills or know-how) but is not completely objectified in the machinery but is maintained as living labour (Boutang, 2011: 93-94).

matter¹¹; ii. showing that both forms of exploitation have always existed and that they occur in conjunction, although manifestly with varying weight in each stage of capitalism and each productive process.

In line with an approach from the Marxist tradition, Fuchs (2013) characterizes the activity of prosumers as a form of «digital labour», specifically linking it to capitalism as a totality, to the class system, exploitation and the creation of surplus value. Accordingly, he proposes a schema of two coexisting productive processes, two sources of surplus value, on a website which both workers are exploited in the manner described by Marx (software creators, forum moderators, etc., employees of a company such as Google), and also prosumers. The latter, as productive workers¹² who receive no paid compensation, are «infinitely» exploited (Fuchs, 2013: 276). Therefore, although Fuchs expands this formulation to the most varied forms of digital labour, he paves the way towards characterizing the exploitation of users, in discussion with «wage labour-centric» schools of thought (2013: 272).

Likewise, other authors are committed to reflecting on relations of exploitation but, unlike the authors mentioned above, they limit themselves to the activities of Web and Internet users. Thus, Petersen (2013), Briziarelli (2014), and Andrejevic (2013) identify these relations with the «double-edged sword» of the Web that accomodates both practices and meanings linked to promises of emancipation as well as capitalist structures of appropriation and exploitation. In this sense, both Petersen (2008) and Briziarielli (2014), on the basis of empirical studies, observe that a single activity and product can have different valuations (both in economic and in symbolic terms) according to the ensemble of relations in which they are embedded¹³.

¹¹ Brain, muscle and power, in Marxian terminology.

¹² In the category of “prosumer”, taken from Avin Toffler, production in consumption time is what for Fuchs distinguishes a user of traditional social media from a user of new media (Fuchs, 2013: 273).

¹³ Thus, indicating the ideological character of notions such as “social network”, “participatory Web”, etc., when they are considered in terms of for-profit platforms, they highlight that on the one hand the participatory or “affective” motivations do not negate or may even stimulate the existence of commercial practices and, on the other hand, that the technologies themselves can serve as the basis for commercial and non-commercial practices. While Petersen concentrates on Internet infrastructure, showing cases in which the architecture of participation becomes architecture of exploitation, Briziarelli uses the metaphor «voluntariat 2.0» to suggest that the promise of emancipation offered by social networks is a necessary subjective condition for the effectivization of exploitation.

Andrejevic (2013), in a more thoroughgoing exploration of the idea of exploitation in these activities, observes the surveillance (tracking, accumulation, and classification of data from users' activities) embedded in the ownership infrastructure of the Web as the foundation of the new business models of the «online economy» (Andrejevic, 2013: 193). In this way, he identifies exploitation with the compulsory surrender of data, decoupling the production of content from this characterization. The main contribution to highlight here is that, upon underlining that exploitation implies alienation, he adds a characteristic feature of this type of activity: exploitation is also the producer's loss of control over their productive activity (2013: 203). A second contribution, in discussion with Hesmondhalgh (2010)¹⁴, arises from pointing out that the difference in degree of the effects of immiseration between classical exploitation and exploitation on the Web does not nullify the existence of shared structural aspects. Lastly, it is important to retrieve the idea that in the compulsory transfer of data, exploitation is intertwined with legality (2013: 202).

Finally, in dispute with some of the mentioned authors, Arvidsson and Colleoni (2012), starting from the well-known critique of the *labor theory of value* as a tool for analysing practices on the Web, affirm that what takes precedence for companies as Facebook is not the exchange of commodities but the impact of their reputation and brand building (related to the commitment and affectivity of prosumers – attention objectified in « social buttons») on the financial market. Thus, although these ideas lead them to abandon the category of exploitation, we salvage the importance given to flows of attention on these platforms.

From this literature review, important contributions can be pointed out. Nevertheless, it reveals a fundamental problem: there is no unified criterion on how to define and characterize exploitation on the Web and, along with that, on what distinguishes the latter from classical exploitation. In some cases, the current exploitation is linked to the expansion of what should be considered as “labor”; in others it appears associated with traditional exploitation but differing in quantity (being the latter an infinite exploitation); finally, the exploitation on the Web depends on the existence of character imposed on the contribution (this associated at same time with non-possession of means of production).

¹⁴ Although he criticises the category of exploitation, his revision reveals the disparity between meanings that the literature has attributed to the category (2010: 276) and raises an underexplored (with exception of Fuchs, 2010) debate: the necessary, or otherwise, connection between exploitation and life productive processes (2010: 274).

More specifically, if we agree to identify relations of exploitation in readers and mailing list participants as much as in software producers, how can we operationalize the category of work to include these activities under the same term? Is there any measure that allows us to establish which of these activities are to be considered as work and which are not? How can we define which users and what quantity of contributions deserve to be paid? And if we affirm that prosumers are infinitely exploited, what distinguishes them from a homemaker, who receives no payment either for her/his labor? What is the difference, in terms of the possibilities that exploitation of the productive activity and of its IG assumes, between a software programmer who works in a company and one who does it in a free software community and whose output is then appropriated for-profit? The salaries and work regulations of these programmers can present many differences, but if we look into the exploitation potentiality, the differences may not be that many¹⁵.

So, in order to move towards a unified criterion of the definition of exploitation and to answer this questions, it is now useful to identify some specific limitations.

The first shortcoming is lack of consideration given to the knowledge bearer that facilitates these relations of exploitation and, along with it, the absence of attention to their specificity. Along the same lines, confusion can be detected between immateriality and intangibility (Hill, 1999), goods and services, activities that are objectified and living, affective labour, etc. Neither is it taken into consideration that, although with particularities, the products of users' activities are exchangeable, measurable and liable to be conferred intellectual property rights.

In this sense «inclusive appropriation» (Zukerfeld, 2014) is a direct antecedent of the concept of informational cognitive exploitation, insofar as it takes into consideration the economic and sociological properties that distinguish the digital bearer and is linked specifically to activities mediated by digital technologies.

The second limitation lies in the lack of distinction between the forms that the relations of exploitation assume within these productive activities. With regards to this, the relations of cognitive exploitation are connected to productive activities defined as informational, but these activities and products are heterogeneous. In particular, we regard it as useful to isolate

¹⁵ In both cases, what drives exploitation, knowledge supported by digital information, is replicable and difficult to enclose, and it is like this despite the technological and regulatory efforts to avoid it.

the ICE of data, content¹⁶ and software producers. In the following section we explore these differences in more detail.

4. Towards a characterization of Informational Cognitive Exploitation: behind prosumers' activity

Next, we characterize the «informational cognitive exploitation» (ICE) behind prosumers' activity, revising the classical concept of exploitation (CE) from the perspective of informational capitalism in order to enrich the former. This section is divided into two parts. The first part concentrates on the continuities and ruptures between classical exploitation and ICE of prosumers, and the second centres on an analysis of the forms that the latter assumes, proposing a possible typology.

4.1. ICE of prosumers' activity: continuities and discontinuities with CE

In general terms, in tune with its classical definition (Hogson, 1988; Marx, 1857/8; Wright, 1994; Roemer, 1984, etc.), we understand exploitation to refer to a social relationship by means of which an actor or group obtains an economic surplus through a productive process whose functioning depends – to a significant degree – on the activity of other actors who are excluded from obtaining said profit¹⁷. More specifically, this social relationship involves (a) an asymmetrical exchange – material or symbolic, (b) a contingent legal framework or one without explicit illegality, and (c) no physical coercion (Kreimer & Zukerfeld, 2014; Yansen, 2015). In this sense, it is important to underline that exploitation directly binds the activity of exploiters and exploited in a productive process. Therefore, a relationship of mutual dependency is forged: i. of the former on the latter (without the labour of the exploited, the exploiters could not obtain their profits), and ii. of the latter on the former (the exploited are often subjected to these relations without being able to configure alternative forms of subsistence or, as we shall see further on, of access and belonging).

¹⁶ Content refers to any video – used as an example in the first section –, any piece of text (comment, note, article etc.), or image.

¹⁷ As we have pointed out, following Andrejevic's ideas, this implies, in a specific form of alienation, the producer's loss of control over their productive activity (2013).

As previously described in the second section, the activity of Web users on commercial sites corresponds with this general definition of exploitation. However, departing from these structural characteristics, divergences from classical exploitation begin to surface. As indicated, ICE primarily takes advantage of the circulation of knowledges objectified in DI. This brings with it a series of consequences of a diverse nature related to the forms and potential that this type of exploitation possesses.

Firstly, the main output of the productive activity, the IG, is not alienated from the exploited subject as is the case with traditional commodities. While to realise the relation of classical exploitation, the exploited must surrender, alienate, their product and cede property rights pertaining to it along with it, in the case of ICE, the replicable IG is cloned by the exploiter. In effect, the exploited conserve the goods they produce and ownership rights over them, but they surrender a licence to use to the website. Furthermore, while for classical exploitation the persistent presence of the worker is required in order to realise new exploitation, for ICE, once the knowledge has been translated into DI, the original source can be dispensed with.¹⁸ This implies that when talking about ICE it is not only the first alienation but the tracing of the ID, that skips the exploited resistance, that must be attend, including Internet infrastructure and connections between the giants of Internet, like Google, among other aspects.

Secondly, in ICE relationships the circulating knowledge can be harnessed in its totality during the productive process. Thus, both the knowledges objectified during the process (“flows of DI”) and those objectified in the principal output of the activity, the IGs are exploited. This implies a central feature of ICE: ICE is more apprehensible at a collective level, than at an individual one. Flows of attention, not mediated by production of content, take part of the mass of exploited prosumers.

Indeed, returning to the concept of «inclusive appropriation» mentioned above, this is not merely a lateral question but is in fact constitutive of relations of ICE: while classical exploitation operates by excluding the worker from the product of their activity in order to later present it in exchange for money, ICE harnesses the product, opening access to it, enabling it to circulate free-of-charge in order to obtain profit in other forms and using it as an input (Zukerfeld, 2014). This mechanism of

¹⁸ This idea echoes the concept of alienation contributed by Andrejevic.

exploitation is, therefore, specific to informational capitalism, whose principal goods are not easily excludable (Ostrom & Ostrom, 1977).¹⁹

Thirdly, in the case of classical exploitation the relationship of exploitation is reduced to the confines of a finite labour process, localised in the space/time of a factory. In contrast, a Web user's activity occurs in a hybrid space/time which carries with it a series of particular characteristics. The first of these is the supremacy of the forms of control operating in "open", flexible, shifting spaces over and above discipline (Deleuze, 1999; Zukerfeld, 2010b; Yansen et al, 2012). The second, related, characteristic is that while the activity in classical exploitation relates to the activity that the exploited subject depends upon for their survival – life sustaining activity – most activities that Web users engage in do not coincide, although they may be connected, with their life activities.²⁰ Finally, also related to the preceding characteristics, exploitation that depends on Web users is bound up with a pleasurable activity, willingly engaged in and recreational, thus breaking, as Terranova points out, the classical association between exploitation and displeasure.

Therefore, and in relation to the interdependence between exploiter and exploited, it is evident that the exploiters depend on users' activity in order to obtain a surplus and reproduce themselves as capitalists: a mass withdrawal of users would mean the collapse of this type of company. But, on the other hand, there is an inverse and less visible relationship of dependence related to the existence of an increasingly proprietary infrastructure of the Internet and the Web. Although, as has been suggested, these subjects or groups do not economically depend on these activities for their survival, it can be asserted that not accessing or not belonging to these communities has a direct impact not only on users' subjectivities (who become excluded subjects), but also on the access to channels of circulation (of leisure and work) already legitimated by the social fabric as a whole.

All these aspects that characterize users' activity on the Web generate symbolic, but above all economic, value for the sites on which they are carried out. This is an activity which is recognised as a creator of value and

¹⁹ These aspects are, of course, related to the fact that users' main means of production (computer, mobile phone, etc.) is, unlike in the case of the typical factory worker, property of the exploited subject and, in general terms, is widespread as a mass consumption good.

²⁰ This merits two clarifications. The first is that although empirical studies are needed, it can be assumed that this is not homogeneous. The second is that although today this fraction may be negligible (Dolcemáscolo, 2014; Yansen, 2015), some users have already begun to convert their Web activities into a source of sustenance (for example *YouTubers*).

as being informational but, in the majority of cases, not as labour. In this sense the debate about the category of “labour” tends to obscure the objectively asymmetrical relationship in which users’ activities are immersed: ICE is sustained by a spectrum of waged workers, informational workers, but also by a number of unpaid productive activities that are concealed. The main point here can be formulated as follows: if these activities are so heterogeneous, what should we be paying attention to in order to understand what they have in common? We tried to show that a possible alternative to answer this question is relying on the way they can be exploited based on the knowledge support that drives the phenomenon. Taking into account that we are heading to a progressing and unstoppable digitalization of knowledge, this implies reexamining entirely the way in which the latter is regulated when digitally supported. Given that, it is possible that the activities mediated by DT become more manifold, making it difficult to apprehend them under the same framework.

4.2. On prosumers’ activity: the different forms of ICE.

Given this general characterization of ICE on the Web and the contrast drawn in relation to classical exploitation, it is necessary to make some distinctions within the concept itself. Picking up some of the discussions distilled in the previous section and paying particular attention to the heterogeneity of informational activities, it is necessary to refer to various subtypes of exploitation (Andrejevic, 2013) and to isolate the production of data, contents, and software²¹.

Firstly, it is important to distinguish software and content productive processes from data productive processes. While the former arise from activities oriented towards the objective of production, data is produced without the mediation of conscious activity aimed at such an end. Of course, this does not negate the fact that the three types of IG serve as an input by which to extract economic surpluses nor does it annul the producers’ ownership of them.

²¹ We have seen a clear example of exploitation driven by content, particularly videos, in section 2. In fact, as that description has shown, *Youtubers* are exploited in relation to data too. But other case of exploitation driven by data, indeed a paradigmatic one, is that which occurs when users look for information –“surf”- in Google’s browser. In relation to software the process could be more complex, but a common way consist of using Free Software (licensed under GPL) by companies, like IBM, as an input and selling associated services (support for companies, for example).

Secondly, the production of each output requires different techniques and degree of knowledge codification which involve different sectors of society. In this sense it is useful to draw a distinction between software and some types of content production and the production of data.²²

Thirdly, these outputs have variable social uses and potentials. For example, while the creation of a particular content (eg. a video) generates value for an entertainment platform, the participation of users generating lines of code has an effect on the means of production that traverse all sectors of the economy. Data is capitalized on for the optimization and customization of websites (incorporating new functionalities and designs on the basis of users' activity), and constitutes the driving force behind the advertising market to generate targeted advertising.

In this sense, lastly, the value and use made of knowledge bestowed on the products of each of these activities differs. Perhaps in the case of software it is more evident that the knowledge exploited is directly related to a specific knowledge objectified in lines of code which is capitalized on by the companies in order to develop other products for the purposes of profit-making (see Zukerfeld, 2014). In the case of contents, we argue that in many cases exploitation does not arise from the direct appropriation of determined know-how, but from the impact (in terms of flows of attention) that this content generates, valorizing the websites. Finally, in the case of data we have an activity that traverses the previous two²³, given that its production is a part of any action the user performs on the Web, and which is highly valued by the sites as it constitutes one of the main inputs necessary for their survival.

In agreement with some of the mentioned authors, we hold that it is necessary to incorporate these distinctive features of ICE on the Web (in relation to CE and within its own dynamic) into a definition of exploitation, without forgetting that there are structural characteristics which are often concealed.

4. Conclusions

Over the course of this paper we have proposed an approach towards the particular characteristics of users' activities from the concept of

²² The use of digital technologies and access to websites that collect data also, naturally, requires certain knowledges.

²³ Unlike Andrejevic we say "traverse" not "exclude".

informational cognitive exploitation, starting from the idea that the material bearer of knowledge that conveys it is indispensable to understanding its forms and potentials. In this sense, the differences between this type of exploitation and classical exploitation, and its defining aspects were pointed out. This does not only imply reappraising the literature recently engaged in this debate, but also revising the concept of exploitation in the light of the changes brought about by digital technologies and the knowledge supported by digital information. Accordingly, we support the idea that, although they have differences, both the production of data and software and content production on for-profit websites constitute part of concealed relations of exploitation, insofar as an objective asymmetry exists in their exchanges. What is concealed in these relations, then? It is not work or productive work, it is not individual contributions (as we have seen, not always present in these activities); it is the potentialities of the exploitation based on the digital support. In effect, this typologization seeks to underline the differences within exploitation, establishing that these differences do not nullify the broader framework that defines them. The free, and mostly unpaid, activity of Web users is capitalized on by companies, configuring an asymmetrical social relationship in which the profit seeking actors obtain surpluses due to the production of non-profit-seeking actors. The only mediation we consider to regulate this relationship is the famous “Terms of Service”. In this regard, the regulation of knowledges in informational capitalism and particularly the scope and difficulties of the intellectual property regime leaves plenty to be discussed.

Lastly, as we present distinctions within the dynamic of the different productive activities of users (software, contents, and data), we wish to suggest some questions that open further paths of interrogation: Which sectors of society are implicated in the exploitation of each of these types of production? Which knowledges are set in motion in each? What degree of information regarding the form in which their exchanges are regulated do the users possess?

Therefore, we believe that there are many as yet unresolved questions to explore in more depth. This paper constitutes an attempt to take a step in that direction.

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Reviewer 1 comments	Answering
<p>The paper does not make a significant contribution to knowledge of the phenomenon it precisely proposes to analyze: informational cognitive exploitation (ICE). It does not actually ever develop an argument about the specifics of that kind of exploitation and how it works — arguments that would constitute a political economy. It is not until the final half of the final section that there is a suggestion that the reader will get an analysis of how ICE actually works, and then there is no such analysis offered.</p> <p>The paper mainly consists of a discussion of what other scholars have said in relation to ICE, free/digital labor, exploitation, and related topics. There is no argument presented for why the reader should understand the phenomenon of prosumer web activity as involving a process of exploitation that is specifically ICE. There has been such a significant amount of scholarship dealing with precisely this question in the last 5-10 years, if not longer, that it cannot be considered significant to describe much of this scholarship and suggest that a different framework should be used but then go no further than make that suggestion. If we are to understand that the activity of using the web involves a process of ICE, rather than the many related but different characterizations that have been put forward by the scholars cited in the paper, then we need a clear</p>	<p>We have made some changes, as far as possible, in order to emphasize the main argument, underlying the implications and political economy issues (taking in here, also, the suggestion of reviewer 2) and summarizing the literature review.</p> <p>In relation to the absence of a clear argument about how the ICE process works in prosumers activities, there are two sections of the paper advocated to show that: section 2 (which shows the process by the paradigmatic example of YouTube, and section 4, which shows the structure of its functioning.</p> <p>We have also pointed out what is specific concealed in these relations (see conclusions).</p> <p>The paper takes what it may seem like a detour in the literature about exploitation/digital labor on the web, in order to strength the argument of why a new concept is needed to characterize this phenome. As far as we know, no paper presents this literature revision and we thought it would be helpful to address the ECI.</p>

<p>argument about how that process works. This would require the paper to deal with issues of political economy that it simply does not address. Instead, the paper deals only with the surface appearance of web users'/prosumers' relationship to the owners of web sites, describing what is readily apparent about that relationship while not making an argument about what is concealed behind the appearance of those relationships, despite the claim in the very title of the paper that it is those concealed relationships that will be addressed.</p> <p>The paper argues (in the abstract) that "a more detailed theoretical approach" is needed, but it does not offer this. There is no detailed theoretical elaboration of what it terms informational cognitive exploitation. To do so would require an almost completely different paper. The discussion of copyright and "material support" (seeming to mean the materiality of information's objectivity) provides an interesting entryway into a more detailed theoretical elaboration, but the discussion is not developed in this way.</p>	
<p>There is a significant amount of attention paid to reviewing what other scholars have said on the topic. Some of the characterizations seems incorrect on important points, such as the claim that Fuchs following the Italian autonomist perspective.</p>	<p>In relation to the characterizations of Fuchs, we appreciate the comment and we have corrected the mistake.</p>
<p>More importantly, there is not serious engagement with the specific claims those other scholars have made about</p>	<p>It could probably be interesting to include some discussion of Italian autonomism, but we decided to mention the main</p>

exploitation in relation to web activities. Such an engagement would provide a useful foundation for developing the argument the author presumably wants to make about ICE as a superior, alternative framework.	problem detected on their point of view (when pointing out the limitations of the literature) and to focus on the review on a more variety of authors who directly discuss the intersection between the two relevant topics of the paper: exploitation and prosumers activities.
Reviewer 2 comments	Answering
The author/s fail to explain what are the broader implications of distinguishing between different kinds of exploitation? Why is that important, what do we gain by enriching ICE? If you clarify this you will make your paper considerably stronger	We appreciate this comment and we have made changes emphasizing the implications.
Second, I appreciate the discussion that connects exploitation and alienation. I think that can help even further your ways of distinguishing ICE. I would then develop it and maintain that link from the beginning to end of the paper.	We appreciate the suggestion and we have made some changes (in section 1 and section 4). It would be probably necessary to add more links between alienation and exploitation but we have limited space to do this.
Finally,I suggest the author/s to provide concrete examples of how those different ICE modalities look like (like in your initial example of the young youtuber).	We have added examples of those modalities (section 4.2)