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Copyright issues related to reproduction rights arising from streaming

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Abstract

With the rapid development of streaming media technology, more and more people have begun to watch films on streaming websites. However, it has been noted that some of them are streaming unauthorized content, which has posed a major challenge to the entertainment sector's traditional business model. Against this background, legal issues arising from the streaming of media online is an area of huge current interest, one issue being the exact liability of providers and users of streaming services and whether they are infringing on the reproduction right of the copyright holders. Since the liability of platforms has been extensively discussed in the academic literature, in this article we mainly focus on the liability of users who stream unauthorized works. To this end, the article analyses the reproduction act of streaming platform users under the UK and European Union approaches and examines Article 5(1) of the Information Society Directive in the context of streaming. In addition, we explore the liability of users who stream unauthorized content via virtual private network services.

KEYWORDS

reproduction rights, streaming, VPN user

1 | INTRODUCTION

Along with the rapid development of internet technology, networks have become an indispensable part of most people's lives. The rise of the internet has not only greatly advanced the progress of science and technology, but also profoundly changed people's ways of life. One remarkable example is that people increasingly prefer to watch films in the comfort of their homes rather than go to a cinema. To access films more quickly and conveniently, people are rapidly discovering new ways of watching films at home. The preference now is for streaming—so films can be consumed in real time—rather than downloading for later viewing. However, the advancement of streaming media technology has also helped increase the number of unauthorized streaming services. A World Intellectual Property Organization (WIPO) report on the laws of member states (2014) surveyed prohibited reproduction from unlawful sources, which included "a peer-to-peer network, newsgroups, torrent sites and the like, where movies and music have been uploaded without consent from the right holders (WIPO, 2013)." It is not in dispute that the rise of unauthorized streaming websites raises the question of copyright infringement, especially as it relates to reproduction rights.

The liability of internet users who upload and download unauthorized movies is straightforward, since downloading definitely creates a permanent reproduction of a movie (Quintais, 2018, p. 37), and uploading also involves making an upstream permanent copy of the movie on a network platform (Rodrigues & Druschel, 2010, p. 72). Although it is impractical for right holders to sue all the people who download and upload unauthorized content, the point of the law is that these people are liable, so they can be sued if the right holders choose to do so. Unlike downloading, streaming allows users to watch movies online instead of making a permanent copy of the movies on devices. However, this feature of streaming raises a crucial question: whether streaming films from unlicensed internet sites infringe the reproduction right of right holders.

To this end, the first question we put forward in this article is whether the reproduction of copyright-protected work takes place during streaming. In general, streaming can be divided into two categories: interactive streaming and noninteractive streaming. During streaming, two important dimensions are worth noting: (a) to play the film smoothly, one-fifth of it will be loaded into the device buffer; (b) the data packets will be automatically deleted from the buffer once end users stop streaming the film (Foley, 2010, p. 100). The first characteristic suggests that copies of the film exist in the buffer, even though they are transient. However, the second characteristic of streaming complicates the problem. To clarify this, we should view the research question in the context of European Union (EU) and UK copyright law.

Before joining the EU, the UK had developed its own criterion of judging whether the reproduction right is infringed. Under the Copyright, Designs and Patents Act 1988 (CDPA, 1988), Article 16(3) stipulates that the copying of "the work as a whole or any substantial part of it" can be regarded as infringement. While this position was amended once the UK became a member state of the EU, the Brexit decision has created legal uncertainty and it is possible that the UK approach may be reinstated once the Brexit process has been implemented. In this article, we will analyse whether the reproduction that occurs during the streaming of unauthorized films is sufficient to trigger liability under current EU and former UK copyright law, and which approach is more conducive for the UK to protect the reproduction right of right holders.

The second question we will explore is whether the exception under Article 5(1) of the Information Society Directive (2001) can be applied to such copyright infringement. In the case of *Public Relations Consultants Association Ltd v Newspaper Licensing Agency Ltd* ("*Meltwater*") (2014), the Court of Justice of the European Union (CJEU) held that users are not liable for the reproduction occurring in the process of internet browsing. However, streaming is different from internet browsing, and the recent case of *Stichting Brein v Jack Frederik Wullems* ("*Filmspeler*") (2017) seemed to indicate that the act of streaming could fall within the exclusive right of reproduction of right holders. These cases have led to uncertainty as to whether end-users should be liable when they stream unauthorized content, and we intend to resolve this question in this article.

Taking note of the current situation and trends of streaming media technology, we find that one of its limiting factors is territorial copyright licensing. Marsoof (2017, p. 102) says that modern online content service providers

tend to implement geo-blocking measures to fulfill contractual obligations with right holders, although there are also multiterritorial licensing models in place for reproduction rights on Internet platforms. Against this background, virtual private network (VPN) services have become popular with internet users, which poses another question: does using VPN services to circumvent geo-blocking technology amount to an infringement of the reproduction right? In general, the content that VPN users stream is unauthorized. However, the tricky part of this question is that in some situations, VPN users have subscribed to a legitimate online service, but the content they stream via a VPN is supposed to be accessible only to viewers in a designated country. We will analyse the liability of VPN users in both of these situations.

In Section 2, we first introduce two kinds of streaming and analyse how reproduction occurs in the course of streaming. Then we analyse whether the act of reproduction during streaming unauthorized content amounts to infringement under current EU and former UK copyright law, and conclude which approach would be more practical for the UK following Brexit. In Section 3, we explore whether the temporary reproduction defense under Article 5(1) of the Information Society Directive can be applied to such copyright infringement by analysing four conditions of the exception. In Section 4, we introduce the issue of why streaming films via a VPN is becoming popular with internet users all over the world, and then analyse the liability of VPN users in different situations.

2 | LIABILITY FOR COPYRIGHT INFRINGEMENT OF THE USERS OF STREAMING PLATFORMS

2.1 | Reproduction acts of streaming platform users

2.1.1 | Streaming of copyright materials by end-users

In the last 20 years, the rapid development of streaming media technology has created a totally new industry, which enriches people's lives in their spare time. For instance, streaming websites such as Netflix and iTunes let people watch the latest films and sport without leaving their homes. However, it should be noted that such advanced information technology has also helped increase the number of unauthorized streaming services. What rational person would pay from $14.99 to $19.99 to download HD movies from iTunes when they can watch films on streaming websites like BitTorrent for free (Murray, 2016, p. 275)? Therefore, the development of digital technology networks has not only caused a change in the sales methods of the film and music market, but also poses a major challenge to the entertainment sector's traditional business model (Ariyarathna, 2019, p. 89).

From the legislative point of view, ownership of copyright has been attributed to the person who creates authorial works, sound recordings, films, and broadcasts, and copyright holders have the exclusive right to copy the work. Under the CDPA (1988), section 17(6) emphasizes that the copying of the work includes the making of copies which are "transient" and "incidental." More specifically, Article 2 of the Information Society Directive stipulates that the member states should provide authors, film producers, broadcasters, and phonogram producers the exclusive right to "authorise or prohibit direct or indirect, temporary or permanent reproduction by any means and in any forms, in whole or in part."

From the perspective of internet users, there are six main types of use involved in digital content sharing: browsing, downloading, uploading, streaming, stream-ripping, and hyperlinking (Quintais, 2017, p. 153). Of these, downloading, uploading, and stream-ripping involve the act of permanent reproduction, so such acts amount to infringement when the users access unauthorized content. First, there is no denying that the act of downloading copyright-protected movies from unauthorized websites is infringing the reproduction right, since downloading makes a permanent reproduction of a movie. It is not infringing if the download is made from legal websites such as iTunes, whereas downloading movies from a P2P platform such as *The Pirate Bay* is obviously infringing, since the latter lacks the right-holder's authorization (Quintais, 2017, p. 37).

Uploading also involves making an upstream permanent reproduction of the content on a network platform, which would make the work available to the public (Rodrigues & Druschel, 2010, p. 72). During this process, uploading copyright-protected content to an illegal streaming platform without the permission of the right holder can also be considered copyright infringement of the reproduction right. In the UK, it might infringe both the right of communication to the public and the right of reproduction, and no exception could be applied in this situation. In some European countries like Spain and Germany, uploading might only infringe the communication right, namely its making-available prong (Quintais, 2018, p. 41). In addition, stream-ripping also involves the permanent reproduction of the streaming content. Stream-ripping technology works by using some specific software tools to "capture, aggregate and save all streaming data" (Quintais, 2017, p. 37). When internet users use this kind of technology, they will retain a permanent copy of the selected content. In this way, stream-ripping infringes the reproduction right of copyright holders (Anderson, 2011, p. 168).

However, a crucial issue is whether those who merely watch unauthorized films and sport on illegal streaming platforms are infringing. Unlike downloading, streaming allows people to watch films online instead of downloading films to their computers. It is the lack of a necessity to download films that causes problems concerning copyright law (Ariyarathna, 2019, p. 89). To answer this question, we should think about these questions: (a) whether streaming films on unauthorized websites amounts to a reproduction of copyright-protected works; and (b) if so, whether the exception under Article 5(1) of the Information Society Directive can be applied (Campus, 2017, p. 367). In this section, we will mainly focus on the first question; we will discuss the temporary reproduction exception in Section 3.

2.1.2 | Acts of reproduction in the process of streaming

In the context of the maturity of multimedia technology and internet technology, streaming media was invented to solve the problem that downloading media files always took too much time. Streaming is popular for its ability to play in real time and its film playback capabilities. In addition, when a new data packet is loaded into your device, the earlier packet can be reassembled before the entire resource is downloaded (Anderson, 2011, p. 168). It is obvious that streaming technology challenges the reproduction right of right holders, since it enables users to access unauthorized content without the need to download it to their computers.

In general, streaming can be divided into two categories: on-demand/interactive streaming and live/non-interactive streaming. For interactive streaming, the digital content is stored on a central server, and it will be available to the end users once they request it (Haber, 2012, p. 769). That means end-users of on-demand streams can initiate the transmission at their will. When the transmission is initiated, the transmitted content is provided rapidly, and parts of it are being received and decoded at the same time (Lunardi, 2009, p. 1077). Interactive streaming is frequently used for entertainment, like listening to music and watching films on the internet at home. It has become one of the most convenient ways of making digital content available for end-users, since they can play, pause, fast forward, and rewind the movie whenever they want (Ariyarathna, 2019, p. 90).

Unlike interactive streams which are available on demand at a time chosen by the end user, noninteractive streams are only accessible at a specified time. This kind of streaming delivers the digital content through a multicast system in real time from a single source to multiple customers simultaneously (Ariyarathna, 2019, p. 90). The advantage of live streaming is that it can let internet users watch some real-time content, such as live sports games, live concerts, and conferences. Some websites even use the technology of on-demand streaming to provide "livecasting" facilities, such as Trueman TV and Justin TV (Borghi, 2011, p. 318).

Similarities and differences exist when comparing the transmission process of live streams with that of on-demand streams, the most significant difference being the initiation of the transmission. In the transmission process of on-demand streams, the data is stored in a central server at the beginning, and it will be transmitted to end-users from the central server when they request it. In contrast, during the live stream transmission process, the data is

captured from a source, and is treated as a digital signal directly and transmitted to multiple end-users (Borghi, 2011, p. 318). The lack of interactive capability means that users of live streams can access the content only when the website delivers it.

Although the transmission initiation method is different, it should be noted that the streamed copies of both interactive and noninteractive streams are transient to end-users. It means these streams only allow the final user to access the digital content in real time, and the streamed copy disappears after the transmission. For instance, if the final users want to re-use the digital content, it may not be available, unless they capture the content and translate it into a more permanent format by using appropriate software. During this process, it is the buffering process involved in the streaming that enables the end-user to convert and capture the digital content (Ariyarathna, 2019, p. 90).

In computer language, the term "buffering" refers to the use of a "buffer," which is a temporary intermediate memory. When an internet user accesses a film on a streaming platform, the film begins to play as soon as the first data packet is processed by the software which is being used to display it (Campus, 2017, p. 367). Meanwhile, one-fifth of the film is loaded into the buffer, since the buffer can keep the digital content in random access memory (RAM; Foley, 2010, p. 100). At the same time, the player starts to process the subsequent data packets of the film in a buffer memory, which makes the film play smoothly. This process can decrease the risk of losing content if there are short delays when films are playing because this system is unaffected by temporary interruptions occurring during the downloading process. However, once end users stop accessing the streamed video file, the data packets will be automatically deleted from the buffer memory and their processing will cease (Campus, 2017, p. 367).

In conclusion, it is clear that the making of a temporary copy occurs in RAM when end users use on-demand streaming and live streaming. The legal issue here is whether these temporary copies of the digital content in RAM infringe the right of reproduction under EU/UK copyright law.

2.2 | The right of reproduction in UK and EU copyright law

UK law had its own approach to the question of what amounts to copyright infringement before becoming a member of the EU. Against the background of Brexit, it is possible that the UK will revert to its original approach once the transition period runs out. In this section, we will analyse both the former UK approach and current EU approaches to judging whether the right of reproduction is infringed by users during streaming, and conclude which one is more conducive for the UK to protect the reproduction right of right holders.

2.2.1 | The UK approach: Requirement in "substantial part"

Before joining the EU, the UK developed its own criterion of judging whether the right of reproduction is infringed. It is reflected in Article 16(3)(a) of the CDPA (1988), which stipulates that the restricted act under this legislation includes infringing "the whole work or any substantial part of it" (CDPA, 1988). Since 1911, UK copyright law has been extending copyright protection from the whole work to any substantial part of the work (Bently et al., 2018, p. 199). This is because lawmakers realized that if copyright protection is limited to fighting against "identical copying," people can easily avoid taking legal responsibility for infringing the reproduction right by making a few minor changes in the copied work.

The term "substantial" has not been defined in the CDPA (1988), but we find that some standards have been established under UK case law. In the early twentieth century, "substantial part" referred to the "vital" and "essential" part of a work (*Hawkes & Son (London) Ltd v Paramount Film Service*, 1934). In recent years, however, the scope of "substantial part" has been expanded significantly. In the case of *Designers Guild v Williams* (2000), although the infringing design was different in detail, the Court still held that the defendant infringed the copyright holder's

right of reproduction since the overall impression of the design was the same. The judgment showed that in the UK the substantiality is assessed in relation to the entirety of the work.

Against the background of UK law, an issue related to streaming has emerged: can the sequential fragments of a stream be regarded as a "substantial part" of the work? To answer this question, we can use the three-stage test for infringement which was explained by Lord Millett in *Designers Guild v Williams* (2000). The first step is to identify whether the features of the defendant's design which the claimant alleges have been copied can in fact be adjudged to have been so copied from the claimant's work. Lord Millett pointed out that an overall comparison should be made during this process. Second, if there are similarities between the defendant's work and the copyright work, and the defendant had the opportunity to copy, the burden of proof will be shifted to the defendant. Third, once it has been proved that the features of the defendants' work are taken from the copyright work, it must be decided whether these features are a substantial part, assessed by reference to their importance to the copyright work.

When a user streams unauthorized content via the Internet, the copies of fragments are stored in the RAM for only "a fraction of a second" in the RAM during streaming. However, if we makes an overall comparison, we will find that there is no difference between the content streamed by the user and the original video. As Lord Millett said in *Designers Guild v Williams*: "whether the part taken is substantial depends on its quality rather than quantity," so even a small part might be a "substantial part" of the work as long its quality is important enough. Overall, the content streamed by users is almost the same as that of the original, which means that the issue of the reproduction of unauthorized content is important to the copyright work. Therefore, the copied part can be considered as a substantial part of the whole work. At the same time, as we demonstrate similarities and show that users had the opportunity to copy, the burden of proof passes to the defendant. As a result, users who stream unauthorized content must show that the copies stored in the RAM did not result from copying, which is practically impossible to prove. Thus, the temporary reproduction created in the RAM during streaming can amount to "a substantial part" of a film.

In conclusion, if we choose to use the UK approach, we will find that end-users might infringe the right of reproduction when viewing unauthorized work on streaming platforms. In the UK, the substantiality is assessed in relation to the entirety of the work. Through an overall comparison, we find the reproduction of unauthorized content amounts to a substantial part of the whole work.

2.2.2 | The EU approach: Requirement in "part"

Under the Information Society Directive, Article 2 enumerates some forms of reproduction, which include direct/indirect and temporary/permanent reproduction in whole or even in part. In the case of Infopaq I (2010), the Court pointed out that Article 2(a) of the Information Society Directive can only be applied to subject matter which is the author's own intellectual creation. It also emphasized that various parts of a work enjoyed protection as long as each of those parts showed evidence of the author's intellectual creation.

If we look at EU case law, we will find that the scope of the protection of the reproduction right has been continually expanded since Infopaq I (2010). For instance, in the case of *Football Association Premier League Ltd v QC Leisure* (FAPL, 2011), the right of reproduction has been extended to "transient fragments" of the authorial works which were on a telescreen and within the memory of a satellite decoder, and the premise was that those fragments contained the expression of the author's intellectual creation. Although the Court finally held that the act of reproduction could be carried out without the authorization of right holders once it satisfied four conditions (which we will discuss in Section 3), the scope of the right of reproduction was extended in this case.

If we use the EU approach to analyse the liability of end-users using streams, we will focus on the issue of whether the digital content which is temporarily copied in RAM contains an expression of the author's own intellectual creation. If so, the use of streaming will amount to reproduction of a part of the copyright-protected work. In the recent case of *Pelham v Hutter* (2019), the meaning of "a part" in relation to the reproduction right has

been further interpreted by the CJEU. In this case, the defendant sampled 2 sec of Kraftwerk's 1977 single "Metall auf Metall" for the track "Nur mir" he produced. The key issue was whether the extraction of a 2-sec sequence of rhythms from the composition "Metall auf Metall" amount to a violation of the reproduction right. The CJEU held that the reproduction by the defendant of his sound sample, "even if very short," taken from the phonogram should be regarded as a reproduction "in part" of it. Therefore, although the reproduction of the streaming content in RAM is so small that it is negligible, it is still possible that the act of copying amounts to an infringement of the reproduction right.

In the case of FAPL (2011), the Court held that "frames of digital video and audio which are created within the memory of a decoder constitute part of the broadcast author's own intellectual creation." Similarly, the act of creating a temporary copy of the work during streaming can also be regarded as a technical and automatic extraction. However, as we have mentioned before, when an internet user accesses a film on a streaming platform, one-fifth of the film is loaded into the buffer (Foley, 2010, p. 100). For an average 100-min film, 1/5th of the film would be 20 min. Any 20-min length of a film must, in a legal sense, constitute an "original part." Therefore, although every single fragment is deleted automatically within a short time in the process of streaming, it would still amount to an infringement.

In conclusion, if we choose to use the EU approach, we will find that the act of copying during streaming could amount to an infringement of the reproduction right, since the reproduction of the streaming content shows the author's own intellectual creation.

2.2.3 | An alternative approach for the UK after Brexit

Before joining the EU, the UK had developed its own criterion for copyright infringement. Under this approach, the Courts focus on whether the part copied comprises a "substantial part" of the protected work, and thus take account of the substantiality in relation to the entirety of the work. However, it seems that this position has been amended since the UK became a member state of the EU. Under the EU approach, the CJEU merely pays attention to whether the copied part showed evidence of the author's intellectual creation. Compared with the UK approach, an end-user is more likely to be infringing the reproduction right during streaming under the EU approach, as reflected in the case of FAPL (2008). In this case, the UK High Court held that four frames do not constitute a substantial part of the work, since "the substantial part" must be embodied in the transient copy, rather than a series of different transient copies stored one after the other in the device. However, the 2008 High Court decision in FAPL is by no means final. In 2011, the CJEU said the temporary copies on the decoder, in this case, infringed the right of reproduction, which means the EU approach was the one finally applied. However, it is noted that copies made in the decoder boxes are different from copies in the RAM during streaming. In general, 1/5th of the film in the buffer would have been held substantial, even compared to the entirety of the work. As a result, even under the UK approach, users are infringing the right of reproduction when viewing unauthorized work on streaming platforms.

Against the background of the Brexit, it is possible that the UK may revert to the original form of its test once the transition period runs out. Under the UK approach, the Courts not only focus on the originality of the part taken, but also take account of the parameters of the work, which is more practical. For instance, with rapid developments in science and technology, new problems and new cases, such as illegal streaming services, are appearing. The standard of copyright laws need to be reformed continuously so as to adapt to the new copyright protection demands. Under the EU approach, every time there is a new case of internet infringement related to the reproduction right, the CJEU need to decide whether the part taken shows evidence of the author's intellectual creation. If we take the UK approach, once the claimant pointed out the similarities between the defendant's work and the copyright work, and the defendant has had the opportunity to copy, then the burden of proof will be shifted to the defendant. It, therefore, seems that the UK approach is more conducive to protecting the reproduction right of right holders.

This indicates that the UK approach would be the more appropriate one to retain in the aftermath of Brexit. However, even if that were the case, the CJEU decisions taken before the end of the transition period will still be part of UK law. In addition, no matter which approaches the UK takes in the future, policymakers in this field should ensure that appropriate flexibility for users is provided by ways of exceptions.

3 | FOUR CONDITIONS OF THE EXCEPTION RULE IN THE CONTEXT OF STREAMING

As we all know, one of the features of digital technology is that the act of use cannot avoid the act of copying. When an end-user watches a movie on a streaming platform, the act of streaming creates transient fragments of digital content in the buffer on his/her device. As we have discussed before, such an act amounts to an infringement of the reproduction right. It is now time to analyse whether or not the temporary copy defense under Article 5(1) of the Information Society Directive can apply to such copyright infringement.

Relatedly, in the case of *Public Relations Consultants Association v The Newspaper Licensing Agency Ltd and Ors* (PRCA, 2013), we find that end-users should not be liable for internet browsing. Although each act of viewing a webpage causes the digital content to be copied and stored in the cache memory of the browser, the Supreme Court agreed to rule in a manner that legitimized normal internet browsing activities (Lloyd, 2017, p. 326). This raises a further question: can end users of streaming media use the temporary copy defense under the Information Society Directive? To answer this question, we will consider four conditions related to temporary copying which have been developed in EU and UK case law.

The first condition is that the copy must be temporary. In practice, this term has been manifested in two alternative requirements: (a) it is transient, or (b) it is incidental (Information Society Directive, Art. 5). The requirement of "transient" means that the copy made only lasts for a short period of time (Depreeuw & Hubin, 2014, p. 46). In the case of Infopaq I (2010), the Court realized that it was hard to be compatible with the literal meaning of "transient," because the copy could remain in the cache for a considerable length of time. However, provided that the copies in the cache are destroyed automatically and without human intervention, the Court finally held that those cache copies were in this sense transient. It seems that the existence of an automatic deletion process was a condition required by the court to be able to assert that such copies are transient. Nevertheless, the requirement for automatic deletion does not prevent the same result being interfered with by the user. For instance, in the case of Meltwater (2014), the on-screen copies in the process of internet browsing could be regarded as "transient," although end users activated and terminated the session at all times.

The requirement of "incidental" means that the copy should not have particular relevance for copyright purposes (Depreeuw & Hubin, 2014, p. 46). It requires that the existence and purpose of a copy must be dependent on the technological process it integrates (Meltwater, 2014). Sometimes, temporary copies remain in the cache for so long that it is hard to regard them as "transient" copies, but they may qualify as "incidental" copies in terms of their main use. For example, in the case of PRCA (2013), Lord Sumption illustrated that even if the cache copy was not transient, it was incidental to the technological process, and finally the Court held that the copies fell within the exception.

In the context of streaming, we believe that the copies of the digital content in RAM meet the requirements of being transient and incidental. On the one hand, copies occurring in the RAM would be continuously and automatically deleted during the process of streaming, so they are transient. On the other hand, the purpose of streaming is to play films online, and the act of copying in the process of streaming aims to play films smoothly. There is no doubt that the purpose of the copy is dependent on the technological process it integrates. In this sense, we argue that copies in the buffer are incidental. Therefore, a copy in a buffer during streaming can be regarded as a temporary copy, so the act of temporary reproduction satisfies the first condition of exceptions under Article 5(1) of the Information Society Directive.

The second condition requires that the copy must form an "integral and essential" part of a technological process (Information Society Directive, Art. 5). This condition requires that these criteria be fulfilled: (a) the acts of temporary reproduction must be carried out entirely under the circumstances of implementing the technological process; (b) the completion of those acts of copying is so necessary that the technological process could not be carried out correctly without those acts. This condition has been taken into account in the cases of Infopaq II (2012) and Meltwater (2014). In the Infopaq II (2012) case, given that the file containing the extract of 11 words would not be created unless the acts of reproduction were completed, the Court of Justice held that those acts satisfied this condition.

In the case of Meltwater (2014), it was held that every act of reproduction was necessary, since internet browsing required that the digital content be copied and stored in the cache memory of the browser. This was because the browser could not immediately deal with the requested volume of online data transmission without on-screen copies and cache copies (Campus, 2017, p. 373). In addition, it is required for the proper functioning of the process (Meltwater, 2014). It followed that those copies should be regarded as integral parts of the technological process. Similar to browsing, an internet user is accessing a website and displaying it on screen during streaming. In this light, copies made during streaming are similar to on-screen copies made in the process of internet browsing (Quintais, 2017, p. 211). In addition, it is undeniable that keeping the digital content in RAM is an essential part of streaming. Without those copies, the streaming media would be unable to play the selected movies smoothly. Therefore, the acts of copying during streaming are an "integral and essential" part of its technological process.

The third condition is that the purpose of reproduction must be to enable internet transmissions or to enable a "lawful use" (Information Society Directive, Art. 5). In the case of *Football Association Premier League Ltd v QC Leisure* (FAPL, 2011), receiving a satellite broadcast was thought to be lawful, so the Court held that the copies created in the buffer did not give rise to liability. In the case of Infopaq II (2012), it was held that the purpose of a temporary copy in the process of making a summary of a newspaper article could be considered as a lawful use, and such an act was unavoidable. Both of these cases have indicated a broad construction of "lawful use" (Bently et al., 2018, p. 237). In fact, the CJEU has made clear that the exemption must be interpreted strictly and be consistent with the "three-step test" (Van den Heuvel, 2017). The three-step test was first established under Article 9(2) of the Berne Convention for the Protection of Literary and Artistic Works in 1967 (Berne Convention, 1967). Now, it is reflected in Article 5(5) of the Information Society Directive, which stipulates that under this test, (Step 1) the exemption is to be applied only in certain special cases, that (Step 2) the act of reproduction does not conflict with a normal exploitation of the work, and (Step 3) does not unreasonably prejudice the author's legitimate interests.

Relatedly, in the case of Meltwater (2014), the copyright holder argued that Article 5(1) of the Information Society Directive could apply only to those acts which were committed in the process of transmitting internet content to users. However, it did not confer any rights on internet users themselves (Bently et al., 2018, p. 235). Nevertheless, the Supreme Court rejected this argument. Lord Sumption drew support from Recital 33 of the Information Society Directive which stipulated that the exception should include "acts which enable browsing as well as acts of caching to take place." The Supreme Court finally held that end users of internet browsing were not infringing. It seems that the Court was in favor of ruling in a manner that legitimized normal internet browsing activities (Lloyd, 2017, p. 326). However, it is noted that the CJEU did not refer to the question of lawful use in the case of Meltwater (2014). This then raises a question: could Article 5(1) also provide a defense to end users who view unauthorized streams?

The CJEU has now answered this question with a "no" in the case of *Stichting Brein v Jack Frederik Wullems* ("*Filmspeler*"). The Filmspeler multimedia player was a device with preinstalled software, including third-party add-ons which linked to different websites, and unauthorized content was available on those websites. Not insignificantly, in advertising this device, the defendant had pointed out its ability to allow viewing of online audio-visual material without the permission of copyright holders, and kept this ability as a selling point. The key task for the Court was to judge whether the sole purpose of the copies from unauthorized sources was to enable a lawful use of the copyright-protected works (Hansson, 2017, p. 210). After comparing this case with Infopaq II (2012), the Court

concluded that the buyers of the Filmspeler multimedia players deliberately accessed the free and unauthorized works since they had admitted this through the nature of the advertisements for the player. In addition, the sale of Filmspeler multimedia players might decrease the lawful transaction, which would cause unreasonable prejudice to the copyright holders and affect the normal exploitation of the works. It followed that the temporary copies did not meet Steps 2 and 3 of the three-step test (*Stichting Brein v Jack Frederik Wullems*, 2017).

The *Filmspeler* judgment has undoubtedly had a far-reaching impact on individual users, since the CJEU clearly stated that the act of streaming can fall within the exclusive right of reproduction of copyright authors, which broadened the potential group of defendants. The judgment gave an indication that judicial opinion is moving in the direction of deciding that the purpose of making temporary copies of unauthorized content during streaming might not enable a lawful use. It is noted that Filmspeler was a case where conveniently, the end-users knew that the content they were streaming was infringing. This case does not address what happens if the end-users are unaware of the infringing nature of the content. If internet users of streaming deliberately and in full knowledge view free and unauthorized works, just like those who bought Filmspeler multimedia players, they will not be able to use Article 5(1) as a defense. However, it does not mean that internet users who unintentionally stream a pirated film and make temporary copies of it can escape the responsibility. In fact, copyright infringement is a strict liability tort as far as primary infringement is concerned, which means that no fault—be it intentional or negligent—is relevant to establishing breach of duty.

This has been reflected in the Digital Single Market Directive (DSM Directive, 2019), which fundamentally reshaped EU copyright law (Angelopoulos & Quintais, 2019, p. 147). Article 17 of the DSM Directive stated that platform providers shall be directly liable for copyright infringements committed by their users. Under this article, owners of websites must take effective measures to prevent the unauthorized posting of protected content, otherwise they should be liable. It means platform providers must be liable for their users' actions, no matter whether those platform providers know that the users have posted unauthorized materials or not. Current trends show that copyright holders will enjoy increasing protection by the law, and it is inappropriate to evaluate the lawfulness of the use only based on users' states of mind.

The fourth condition for the application of Article 5 is that a reproduction must have no "independent economic significance." This condition can be considered as an application of Step 3 of the three-step test, which emphasizes that the temporary copy should not affect the economic potential of the reproduction right of copyright-protected work (Infopaq II, 2012). In the case of FAPL (2011), the CJEU indicated that the economic significance must be independent in the sense that "it goes beyond merit brought by merely picking up of the broadcast and its visual display." In the case of Meltwater (2014), the CJEU analysed the details by using the three-step test, and held that the making of temporary copies during browsing was not infringing. However, although the Court affirmed the conclusion of the Supreme Court related to the first two conditions, it has not referred to either of the issues of lawful use (as we have mentioned before) or independent economic significance.

Recently, the *Filmspeler* case (2017) made it clear that Article 5(1) did not protect users who deliberately and in full knowledge accessed free and unauthorized works. The Court also pointed out that using Filmspeler multimedia players to access films from unauthorized websites could decrease the lawful transaction. In this sense, the act has "independent economic significance." However, in the context of streaming, whether viewing unauthorized movies on streaming platforms leads to the decrease of lawful transaction is open for debate. Unlike the Filmspeler multimedia players with preinstalled add-ons, some streaming platforms which include unauthorized films might be free. It raises a question: does watching unauthorized films on a free streaming platform cause a decrease in the lawful transaction? For instance, for a law-abiding person, it is possible that viewing an unauthorized film on a free streaming platform might attract him or her to purchase legal copies. Therefore, in the context of streaming, it should be considered on a case-by-case basis.

In conclusion, to qualify for the exception under Article 5(1) of the Information Society Directive, a reproduction must meet four conditions. By comparing with the *Meltwater* case (2014), which ruled that end-users should not be liable for internet browsing, we found that the temporary copying occurring in streaming meets the

first two conditions: (a) it is temporary (transient and incidental), and (b) it forms "an integral and essential part of a technological process." However, the Court did not refer to the question of lawful use or of "independent economic significance" in that case. As for the third condition, the judgment in the *Filmspeler* (2017) case gave an indication that judicial opinion is moving in the direction of deciding that the purpose of making temporary copies of unauthorized content during streaming might not enable a lawful use. As for the fourth condition, which stated that the exception applies only when the temporary reproduction is devoid of "independent economic significance," we suggest this be considered on a case-by-case basis in the context of streaming.

4 | VPN USERS' LIABILITY IN THE CONTEXT OF GEO-BLOCKING MEASURES

Geo-blocking is the use of technical measures by which copyright holders implement the practice of territorial licensing arrangements in relation to copyright-protected content online (Marsoof & Roy, 2017, p. 672). In practice, such territorial copyright licensing has led to the fragmentation of markets. With the advent of geo-blocking, online consumers who have subscribed to content service offered by providers with an expansive global presence are becoming increasingly frustrated, since they believe they have the right to access online content regardless of borders (Hoffman, 2016, p. 145). Against this background, VPN services and other similar unblocking tools have become popular with internet users, who can virtually fake where their computers are located by using VPN services (such as BlackVPN and Private Internet Access) to access websites that are blocked in their countries (Earle, 2016, p. 11). In this section, we will focus on whether using such circumvention technology to stream amounts to a violation of the right of reproduction under EU and UK copyright law.

4.1 | Geo-blocking technology and circumvention technology

In theory, with the popularity of the internet and the development of network-searching technology, online users can access content originating from any part of the world. However, modern research has found that this is not so. In reality, the territorial scope of licence agreements is commonly limited (Marsoof, 2017, p. 102). As a result, geo-blocking technology has become an essential tool for content suppliers when they offer audio-visual works online, so that they can ensure the content they provide is not consumed in breach of the licence agreements (Marsoof, 2017, p. 102). From a copyright perspective, the term "geo-blocking" refers to technical measures that permit access to online content services only to internet users from a designated geographical area, and effectively block everyone else from accessing the same content (Marsoof & Roy, 2017, p. 673). Geo-blocking technology is therefore designed to fulfill contractual obligations between copyright holders and their licencees. For instance, Apple released iTunes in all European countries, but each country has its own version of iTunes which can only be used within that country's borders (Marsoof, 2017, p. 105).

Although geo-blocking seems to be a reasonable tool for content providers to use to comply with licence agreements, it has inevitably led to the fragmentation of the market for digital content (Marsoof & Roy, 2017, p. 673). First, for content providers, imposing the practice of territorial copyright licensing leads to a restriction of their consumer bases (Marsoof, 2017, p. 102). A content provider cannot extend its consumer base beyond the specified geographic area designated in the licenses it obtained, although some multiterritorial licensing schemes do exist. Second, for consumers who have subscribed to the online content services, the practice of geo-blocking has a direct influence on users' satisfaction when they use the services. In reality, an EU citizen who has subscribed to online content services in his/her own country may not be able to access the same content when he/she travels to another member state. Take Netflix for example: this online movie service has been available for years to subscribers located in the UK and Ireland, but the same content is not available in other EU countries

(Mazziotti, 2016, p. 369). There is a consensus that such use of geo-blocking technology has blocked the formation of pan-European markets (CEPS & Economisti, 2015).

Some legal practitioners, however, question the legitimacy of the act of geo-blocking, arguing that such an action flies in the face of measures designed to promote competitiveness, especially Article 101 of the Treaty on the Functioning of the European Union, 2007 (Treaty on the Functioning of the European Union, 2007 (TFEU 2007), Art. 101). In the case of *Football Association Premier League Ltd (FAPL) v QC Leisure and others* (FAPL, 2011), the FAPL brought an action against the importation of equipment by the defendant that enabled UK users to access Greek broadcasts. However, the defendant argued that the FAPL had breached Article 101 of TFEU 2007, since it licensed broadcasting rights for live transmission of football matches on a territorial basis (Bently et al., 2018, p. 341). The Court of Justice noted that the aim of such agreements was "to restore the divisions between national markets," so FAPL's act amounted to a breach of Article 101 of the TFEU 2007.

Although the phenomenon of "geo-blocking" has to some degree been curbed by this case, it is noted that the judgment in the FAPL case (2011) explicitly limited itself to satellite broadcasting, whereas distribution through the internet is now more common (Bently et al., 2018, p. 342). From December 3, 2018, the Geo-blocking Regulation, which is regarded as part of the Digital Single Market strategy, has been adopted to provide consumers with more opportunities within the EU's internal market (Regulation (EU), 2018). However, Art 1(3) of this regulation explicitly stipulates that this regulation does not apply to audio-visual services at all, and Art4(1)(b) points out that it cannot regulate services "the main feature of which is the provision of access to and use of copyright protected works or other protected subject matter." Therefore, the legitimacy of the abovedescribed technology of geo-blocking is not affected by this new Geo-blocking Regulation.

When legally streamed content is blocked because of geographic location, internet users begin to circumvent geo-blocking technology via VPNs to access more online content. This leads to a situation in which online consumers who would otherwise have followed the law look for an alternative way that is not necessarily legal (Earle, 2016, p. 11). VPNs are a way in which internet users can use encryption and a dedicated connection to extend private networks over the public internet infrastructure (Burroughs & Rugg, 2014, p. 373). Simply put, with VPN services, internet users can easily bypass geographic restrictions and access whatever they want to view. Although it is legal to use VPNs, copyright holders have argued that such technology could invalidate the territorial nature of copyright licenses (Marsoof & Roy, 2017, p. 673), which may facilitate copyright infringement. Against this background, more and more people are streaming unauthorized content by using VPN services, and one of the questions arising in this context is whether using VPN services to bypass the geo-blocking technology amounts to copyright infringement of the reproduction right. We will explore this question below.

4.2 | VPN users' liability in the context of streaming

Two of the essential rights that copyright owners rely on are the right of reproduction and the communication to the public right. If the act of using VPNs results in the internet users exercising the above rights without authorization, such an act will amount to an infringement. In this section, we will mainly focus on whether the use of VPNs constitutes conduct infringing the reproduction right of copyright owners. Under the Information Society Directive, Article 8(3) stipulates that in the event that "the services of intermediaries are used by a third party to infringe a copyright or related right," then the right holder is entitled to apply for an injunction against those intermediaries. This means that, in these circumstances, those intermediaries could be forced to take technical measures to inhibit geo-blocking measures being circumvented.

However, applying the injunction under Article 8(3) to those who use the VPN services to circumvent geo-blocking measures is more complex, since their behaviors may not always amount to an infringement (Marsoof & Roy, 2017, p. 676). The circumvention of geo-blocking measures will be considered as an infringement of the reproduction right only if VPN users exercise such right. Therefore, for those who download copyright-protected

works by using VPN services to bypass geo-blocking measures, their acts definitely amount to an infringement. As we have discussed in Section 2, downloading makes a permanent reproduction of the work, and so the VPN users are, no doubt, infringing the reproduction right of right holders in this situation.

With the rapid development of streaming media, a further complication is that more and more people prefer to watch movies online, rather than download them. The resulting problem is whether using VPN services to bypass geo-blocking measures with the aim of streaming audio-visual content constitutes an infringement. As we have outlined in Section 2, only one-fifth of the film is loaded into the buffer during the process of streaming, and those temporary copies would be automatically deleted during this process. Even if this temporary copy constitutes an infringement under copyright law, the users will not be liable if their acts of copying satisfy the temporary copy exception under Article 5(1) of the Information Society Directive. However, the content that VPN users stream by bypassing geo-blocking measures might be authorized within a particular geographic region. It is against this background that we should discuss whether Article 5(1) can be applied in different situations. If the exception can be applied, then the act of streaming content by using VPN services to circumvent geo-blocking services would not be regarded as an infringement, and injunctions against VPN users could not be adopted.

4.2.1 | Using VPN services to stream unauthorized content

To determine whether the injunction is available against VPN operators, it is necessary to consider whether the websites that VPN users bypass geo-blocking measures to stream are infringing content. If so, then we should refer to the four conditions related to the exception under Article 5(1) in turn.

First, the copy taken by VPN users during streaming is temporary, since it would be deleted automatically, and the purpose of the act of copying is to play audio-visual content smoothly. Second, as with copies made during internet browsing, the copy occurring during streaming is an unavoidable product of the technological process. Without those copies, even if internet users can bypass geo-blocking services via a VPN, they could not stream that content online. Thus, the act of copying in this situation satisfies both the first and second condition.

The third condition requires that the sole purpose of the reproduction must be to enable internet transmissions or the "lawful uses." Since VPN users deliberately circumvent geo-blocking measures to stream content, we infer that they have the ability to recognize whether the content they stream is unauthorized. In this sense, we argue that they should be subjected to a higher standard than a normal person, because they are skilled in the use of VPN technology. Therefore, we can conclude that VPN users have actual knowledge, and deliberately access unauthorized content on websites. As a result, the purpose of using VPN services to stream such unauthorized content is not to enable a "lawful use." Even if they unintentionally stream a pirated film via VPNs, they cannot evade their responsibilities, since copyright infringement is a strict liability tort as far as primary infringement is concerned.

The fourth condition requires that the reproduction itself must have no "independent economic significance." It seems that internet users who use VPN services to bypass geo-blocking measures to stream unauthorized content would not be willing to purchase legal copies. It means that using VPNs to stream unauthorized content could also decrease the lawful transaction, so their acts of temporary reproduction during streaming do not meet Steps 2 and 3 of the three-step test. Therefore, copies occurring in the RAM when VPN users stream unauthorized content have independent economic significance.

In conclusion, when internet users stream unauthorized content by using VPN services to bypass geo-blocking measures, the copies occurring during this process do not meet the third and fourth conditions of the exception under Article 5(1) of the Information Society Directive. It means that the VPN users are exercising the right of reproduction of right holders during streaming. In this situation, right holders have the right to seek injunctions under Article 8(3) against operators that provide VPNs, so that those intermediaries could be forced to take technical measures to inhibit the circumvention of geo-blocking measures.

4.2.2 | Streaming by circumventing geo-blocking measures implemented by legitimate content providers

When VPN services are used to bypass geo-blocking measures implemented by legitimate content providers, the conclusion might be different. When analysing the liability of VPN users during streaming, we mainly focus on the following two situations:

(1) An online service provider permits its subscribers to exclusively stream the copyright-protected content within a specific EU member state, and a subscriber in another EU member state uses a VPN to stream that content;
(2) An individual resident in a non-EU member state subscribes to an online service which can only be used to stream the copyright-protected content within an EU member state, and streams the content in his/her country via a VPN.

In both cases, when these subscribers stream the copyright-protected content via VPNs, temporary copies occur in their devices. If we focus on the state of mind of these subscribers, we will find they deliberately stream the content, and therefore we may conclude the purpose of the temporary copy might not be to enable a "lawful use." However, the act of those VPN users would not alter the lawfulness of their action, since they have subscribed to the legal online service. It seems that we produce contradictory results when analysing whether the act of VPN users is infringing the right of reproduction. In fact, this question can be resolved by referring to the case of FAPL (2011).

In FAPL (2011), the CJEU held that the licence term should not prevent the Greek broadcaster from supplying decoding services that could be used outside of the territory covered in the licence agreement, since such an act was in breach of Article 101 of the TFEU 2007. Not insignificantly, the CJEU also noted that the reception of the broadcasts must be regarded as a lawful act when a user received the broadcasts by using a foreign decoding device in a member state other than the UK Since using decoders to circumvent geo-blocking services is similar to using VPNs to do so, we can infer that the reception of streams could also be considered lawful when a subscriber from another EU member state streams the content by using VPN services. Coming back to our question, we can now conclude that in the first case, the purpose of temporary reproduction during streaming via a VPN is to enable a lawful use. Therefore, Article 5(1) could be applied in this situation, which means the act of the VPN user does not amount to an infringement of the right to reproduce.

In the second case, the subscriber who streams copyright-protected content via a VPN is doing so from a non-EU country. In the case of FAPL (2011), the CJEU noted that if the aim of the licence agreement was to "restore the divisions between national markets," it would defeat the object of integrating markets by making interpenetration of market more difficult. However, the subscriber in the second case is attempting to make the copyright-protected content available to a non-EU market, so the user's behavior cannot be legalized by the EU competition law principle (Marsoof, 2017, p. 109). In this sense, the purpose of the copy occurring in the RAM during streaming is not to enable a lawful use, so the exception under Article 5(1) cannot be applied. Therefore, using a VPN to make copyright-protected content streamed exclusively for territories inside the EU available in a non-EU country amounts to infringement.

5 | CONCLUSION

Copyright issues arising from streaming have become a prominent topic in recent years. The first question analysed was whether reproduction occurring during streaming unauthorized content is enough to trigger the end-user liability. Based on the analysis of current EU and former UK copyright law, we conclude that end users are infringing the right of reproduction when viewing unauthorized work on streaming platforms. In addition, compared with the EU approach, the former UK approach would be more appropriate for the UK after Brexit as the Courts

focus on both the originality of the part taken and the parameters of the work, which can address new issues more effectively.

The *Filmspeler* (2017) judgment broadened the group of potential defendants. In this context, we discussed whether the exception under Article 5(1) of the Information Society Directive can be applied in the context of streaming. We considered four conditions related to temporary reproduction, finding that the first and second requirements were clearly satisfied, and the fourth should be considered on a case-by-case basis. As for internet users streaming deliberately, and who in full knowledge view free and unauthorized works, they do not satisfy the third condition of Article 5(1).

We then focused on the copyright effect of streaming via VPNs, concluding that when users stream unauthorized content, the use of VPNs will increase the likelihood of their being liable. This is not only because users skilled in the use of VPNs should be subjected to a higher standard than a normal person, but also because such an act decreases the lawful transaction.

When VPN services are being used to bypass geo-blocking measures implemented by legitimate content providers to content which can only be viewed in an EU country, liability depends on the territory in which the streaming service operates. Based on FAPL (2011), when VPN users operate the streaming service in an EU member state, they are not liable, since the reception of streams can be regarded as a lawful act. However, when subscribers stream the content via VPNs in a non-EU country, their behaviors cannot be legalized by the EU competition law principle under Article 101 of the TFEU 2007. They cannot use the Article 5(1), exception and are infringing the reproduction right of right holders.

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