An Adaptation of Medium Theory Analysis: YouTube as a Digital Moving-Image Medium

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I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any tertiary education institution.

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Abstract

YouTube has fast come to support global moving-image communication for millions of people. In the current literature, however, YouTube is not considered a ‘medium’ the same way that cinema and television are. Much of this has to do with the computer’s suggested status as a ‘meta-medium’, or ‘medium that can be all mediums’, which in turn heralds the computer itself as a single digital medium. My own perspective is that the term ‘medium’ deserves to be revised to include digital platforms that support novel communication practices. In my perspective, digitisation is yet another foundation technology that facilitates the invention of new mediums from its new ‘proto-affordance’ of computability. In this regard, previous foundation technologies include that of the machine and electricity, with the respective new proto-affordances of reproducibility and instantaneity. The emergence of both of these foundation technologies instigated periods of new media at the time and, hence, spawned new mediums. In terms of moving-image mediums, cinema is mechanical, television is electrical, and YouTube is digital. New mediums of each original foundation technology remediate those of the foundation technology before it, and foundation technology proto-affordances are cumulative. This describes our current engagement with digital, electrical, machines.

Bolter and Gruisin define a medium as “that which remediates” (2000, p. 65). Thus, to demonstrate that YouTube remediates cinema and television and is a medium in its own right, I created perthbands.tv. perthbands.tv consists of 28 published video episodes (plus one private) portraying local original music acts, and exists in many online forms—including a streaming web-page and a YouTube channel. Distributing content that is not unlike that of television through YouTube,
perthbands.tv exhibits new aspects of moving-image communication. It demonstrates that the participatory culture of YouTube promotes on-going media conversations regarding its moving-image content, which in turn contribute to the overall text. In more ways than one, YouTube users are shaping cultural meaning and contributing to future moving-image content, something that neither traditional cinema nor television can support. This remediation of cinema and television makes YouTube a moving-image medium in its own right, with its own specific affordances and conventions of communication.

Gaudreault and Marion outline the emergence of a new medium as consisting of three stages: appearance, emergence and constitution (2005, p. 12). The first indicates a medium’s initial state as a new technology for communication that adopts the existing nature and practices of existing mediums. Then, through maturation into a new communicative process a medium offers itself for social experimentation. Finally, in a form of rebirth, it becomes institutionalised as a new singular medium that supports unique communicative practices. In the case of YouTube, it appeared with its roots in existing practices, such as initially being touted as a private way to share home videos online. As its creators evolved its technological interface, YouTube users explored its potential for novel forms of communication—including the illegal viral dissemination of snippets of broadcast television. This arguably led to a boost in YouTube’s popularity, which in turn influenced its purchase by Google. With Google ownership came YouTube’s institutionalisation, in its commercialisation, legalisation, and forging of relationships with big media. This was YouTube’s rebirth, in its constitution as a singular new medium.
Throughout YouTube’s emergence and evolution, the online participatory culture that was its users continued to explore its communicative affordances and develop new conventions and practices of communication. The video blog is a result of this effort, as an asynchronous, two-way, genre of the moving image that was developed from the affordances of Web 2.0 platforms. That the moving image genre of video blogs relies on the Internet as technological infrastructure implies that YouTube is its supporting medium. Once YouTube is recognised as a medium, it can be analysed in opposition to cinema and television as to its social, cultural, and psychological impact. This helps clarify the position of YouTube as an evolution of human communication via the moving-image, as well as its place within visual culture.
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I should also thank my friends. Yes, it’s going nicely, cheers for asking.
INTRODUCTION
Only twenty-five years ago, Saturday mornings in Australia were very different.

In 1990, one might have woken up and tuned the lounge-room television set to whatever cartoon show was scheduled on one of Australia’s four free-to-air television channels. This may hopefully have entertained the kids for a couple of hours while you headed back to bed for a sleep-in. After lunch you could have cheered in your own lounge-room to the same live-sports broadcast that so many other Australians were watching simultaneously. The evening may have found you engrossed in the public spectacle of the latest blockbuster movie at the cinema, while your home VHS Video Cassette Recorder (VCR) responded to your earlier programming, and recorded that six o’clock current affairs program that you so wanted to see. Maybe you would have watched it later in the week—that’s if the kids hadn’t accidentally recorded over the tape…

Today, people can lie in bed and ‘like’ the latest viral video on their iPad. They may have found it embedded in their Facebook newsfeed after a close friend had published a comment on it. Later in the day, they could use their mobile phone to video the kids swimming in the new pool, and post that video on their private YouTube channel for the overseas grandparents to view when they next went online. This may encourage a Skype session before the kids go to bed, where the grandparents note how much they’ve grown over the last month. Finally, the parents could retire to watching a live-streamed movie they had chosen from the large selection available on one of Australia’s online movie services, such as BigPond Movies or Quickflix.

It’s a common change in technological experience for many Australians, and it indicates a paradigm shift in our engagement with moving images over the last two decades or so. It reflects the changes in our relationships with other people, and with technology. The analogue broadcast era of the 20th century
was about small numbers of people creating and distributing content to large numbers. Moving-image content was often synchronously experienced through the medium of television, or stored, copied, and mass-distributed as low quality analogue VHS tapes or bulky reels of film. Even the Digital Video Disc (DVD), which became popular in 1995, had to be physically transported to its globally-fragmented audience.¹ Australian people were viewers, watchers, and spectators of analogue (and early digital) moving images. This meant that they were largely unable to interact with the content or its creators, or make their thoughts about the content known to the general public. In essence, they were moving-image content consumers.

In the mid-1990s, when the Internet first became capable of streaming low-quality video across its network of globally-connected digital computers, a very similar model of moving-image content production, distribution, and consumption was employed. That is, a small number of websites provided moving-image content for growing World Wide Web audiences to watch. A number of proprietary movie players, QuickTime, RealPlayer, and Windows Media Player battled it out for viewer attention. The bandwidth available to people’s homes further demonstrated the culture of the spectator, in that dial-up modems were designed and built to download data considerably faster than it could be uploaded. This early period of the Internet later became known as Web 1.0.

The emergence of what is conceptually known as Web 2.0 (O’Reilly, 2005) transformed the World Wide Web from a collection of information and entertainment providing websites, to platforms and services enabling global social interaction. Web 2.0 users can create and publish their own video content for friends or strangers to interact with asynchronously, through online services

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¹ The DVD is also called the ‘Digital Versatile Disc’, though this is less common.
such as YouTube and Vimeo. They can also visually interact one-on-one with a person across the world through live-video-streaming applications such as Skype. Thus, through its uptake, Web 2.0 enabled broadcast-age consumers to also become network-age producers. Axel Bruns calls this new incarnation of Internet users ‘produsers’ (2006), due to the increased ability for ordinary consumers and users of media to also produce and publish their own content. The digital shift in the technology through which we communicate is widely recognised and, though rapidly becoming familiar, is often still referred to by the name “new media”. In this thesis I wish to examine the change in our media environment due to this digital technological shift, and explore how this affects our traditional understanding of what a medium is. In this, I will use YouTube as a case study and show that, as an online digital moving-image repository, it can be considered a new medium, in effect the digital evolution of the existing moving-image mediums of traditional cinema and broadcast television.

I should clarify that in this thesis I will use ‘mediums’ as the plural of ‘medium’. This avoids the confusion that the term ‘media’ can sometimes cause, with its connection to wider notions such as ‘mass media’, ‘multimedia’, and ‘hypermedia’. The term ‘medium’ can also be used to refer to a medium of communication such as the telephone, as well as an element of mass media such as television. The first allows members of society to engage with each other in conversation over distance, and the second supports the production, distribution, and widespread consumption of cultural information and entertainment. This scope is important when referring to mediums, as Web 2.0 platforms often support the combination of both within their technological and cultural structures.

In relation to the multiplicity of meanings of the term ‘medium’, Yvonne Spielmann notes that “the variety of terms reflects the uncertainty and
sometimes confusion that is to be found in media debates” (2001). I will continue to use common theoretical terms such as ‘new media’, ‘social media’, ‘media studies’, and ‘media theorists’ in the traditionally accepted fashion, though. That is, in these contexts, the term ‘media’ describes a collection of culturally embedded practices, industries, and technologies that facilitate human communication.

Though media theorists commonly still use the term ‘media’ when discussing digital technologies of expression and communication (Stauff, 2009; Chou, Hunt, Folkers, & Augustson, 2011; Freeman & Chapman, 2007), it is unclear whether this is entirely appropriate. This is because our traditional understanding of ‘the medium’ is based on the notion that it is a material support for the formulation and distribution of a message, or a physical channel of communication. In this, the digital computer is seen to be a ‘meta-medium’ that can encompass all existing mediums by simulation (Kay & Goldberg, 1977). That is, through digitisation, prevailing analogue mediums are numerically represented within the one material mediating technology. Many theorists suggest that this, in turn, nullifies the term ‘medium’ (Coy, 1995; Kittler F. A., 1999; Heidenreich, 2011). Because of this, the meta-medium of the digital computer is often called ‘the digital medium’, as a single new medium of representation and communication (Murray, 2003, p. 3). In contrast, my thesis suggests that the term ‘medium’ is still valid in in the contemporary, and that we do still need to attend to the specificities of mediums. Further, I will argue that YouTube is an example of a digital medium that supports the public sharing of videos and conversations.

Theorists such as Raymond Williams (1974/2008), Ithiel de Sola Pool (1977), and Andrew Crisell (1986) have respectively analysed the individual analogue mediums of television, the telephone, and radio, as to their effect on
culture and society, and vice versa. One particular perspective of analysis in this regard is called ‘medium theory’. The term ‘medium theory’ was first introduced by Joshua Meyrowitz to describe the analysis of the specific technological aspects of mediums, and how they affect society on a large scale (1985). This type of analysis is different from other approaches within ‘media theory’, in that it looks past the content of a medium to its distinctive material, communicative, and infrastructural characteristics (Meyrowitz, 1997, p. 61). Conversely, the focus of much traditional ‘mass media’ (i.e. television, radio, newspapers, etc.) research is on “how people (often children) react to what they are exposed to through various media: how institutional, economic, and political factors influence what is and is not conveyed through media; whether media messages accurately reflect various dimensions of reality; how different audiences interpret the same content differently; and so on” (Meyrowitz, 1994, p. 50). Though these issues regarding content are no doubt important, study of the uses and social impact of a medium itself also bears much relevance.

The perspective of medium theory is apparent in the work of influential medium theorist, Harold Innis (1950/2007), who explored how various technologies of writing and printing affected the civilisations from ancient Egypt through to late 19th century Europe. One of his arguments is that in 14th century France and England the proliferation of “paper supported the growth of trade and cities and of education beyond the control of the monasteries, and in turn the Church and the cathedrals” (1950/2007, p. 158). Medium theory is also embedded in the spirit of Marshall McLuhan’s well-known aphorism ‘the medium is the message’ (1964, pp. 7-21), which exemplifies the importance of the medium itself over the content it carries. The perspective of medium theory, in many ways, is indicative of the fact that mediums offer particular potential for human expression and communication that is dependent on their specific
technological and material structures. That is, different mediums offer an individual or a society different expressive and communicative affordances.

The term ‘affordance’ will be a central concept throughout this thesis. In its most basic of senses, it was first introduced by James Gibson to describe an ecological frame of reference for visual perception (1977). In short, it is a complementary relation between an organism and an objective feature of an environment that provides the organism the opportunity to perform a specific action. The properties of both the organism and the environmental feature enable or limit the potential for such action. From this it is clear that the objective physical properties of an environmental feature, and the subjective experience of the person or animal perceiving them, are inseparable. Hence, an affordance is not reducible to the material constitution of a given object, but only exists as an ‘action possibility’ relative to the agent. Additionally, Gibson also suggests that an affordance exists independent of an agent’s ability to perceive it, or the agent’s specific needs (1986). Further, “the richest and most elaborate affordances of the environment are provided by other animals and, for us, other people” (Gibson J. J., 1979/2014), indicating that Gibson perceives of affordances as also existing between organisms.

Since its introduction by Gibson, the term ‘affordance’ has been embraced by researchers in many fields, including human-computer interaction (HCI) (Norman D. A., 1988), information and communication technology (ICT) (Hsieh, 2012), and computer-supported collaborative learning (CSCL) (Suthers, 2006). Throughout its adoption, it has been used for a variety of purposes from a diverse range of perspectives—many of which changed Gibson’s original meaning to either fill theoretical gaps or the explicit needs of a discipline. Specifically, human-centred design (HCD) theorist, Donald Norman, introduced the term to HCI research in 1988 and adapted Gibson’s use to the
design of objects for human use (Norman D. A., 1988), from where the term’s use has been debated and further reshaped.

Norman’s adaptation of the concept defines affordances as object oriented, and suggests that the intentionality in providing affordances to agents through careful and deliberate technological design is crucial. That is, the construction of perceived affordances, which the agent interprets based on their cultural experience and previous knowledge of similar technologies, increases the potential for the user of an object to use it in the way that its designer intended (2013, p. 17). This ‘intended use from design’ understanding of affordances does not indicate that the object must be used this way, but it does focus on the ‘proper’ or ‘planned’ use. In this way, an affordance becomes something that is defined by human design. In another way, however, an objects affordances can also be what Celia Pearce would term as ‘emergent’, or “the result of individual agency, bottom-up individual actions that aggregate[d] into large-scale patterns of social behaviour” (Pearce & Artemesia, 2009, p. 40). This allows for unplanned and unexpected object interpretation and hence social use.

In this thesis I wish to adapt the concept of affordance to reflect the complex, culturally-influenced, ways that social members can use intentionally-designed technological artefacts to express themselves and communicate. This will provide me with a way to discuss the multitude of potential social uses that today’s complicated technologies of communication, such as YouTube, offer humans. This perspective of affordances adopts the essence of Gibson’s ecological approach, in that they are action possibilities offered to agents by objects and environments. This maintains the desired relational aspect of affordances, in that they reside not solely in the materiality of the object, but emerge only from interaction between the object and subject. Specifically
though, I will focus on the notion of ‘object’ as tools intentionally designed for mediation. This emphasises the cultural context of an agent’s engagement with technologies that have been created with certain modes of social interaction in mind. The use of such technologies often becomes habitual and complexly structured and layered in terms of available affordances.

For example, as I will discuss in depth in Chapters Two and Three, YouTube’s intended social function emerges from at least two core technologies; electricity and digitisation. Neither of these two essential properties of YouTube’s (and indeed, the Internet’s) technological substrate are obviously apparent to the user, and yet they are both integral to the foundation of YouTube’s social practices. At this level, electricity and digitisation respectively afford instantaneity and computability, which, when combined, afford global many-to-many asynchronous communication. I call the instantaneity of electricity, and the computability of digitisation, both ‘proto-affordances’, in that they are fundamental properties of a multitude of derivative technologies that offer higher level affordances.²

Electricity and digitisation are both what I call ‘foundation technologies’, as original technological substrates from which new specific and singular mediums emerge. A foundation technology is a paradigm shift in technology that brings with it at least one unique proto-affordance, and I will discuss this in more depth in Chapter Two. Beyond their collective foundational layer of potential action, though, an agent’s specific engagement with YouTube is afforded by the intricate workings of the digital networked computer itself. This includes the processing unit (which affords digital computation), different types of memory (affording the storage of algorithmic processes and temporary

² The term ‘proto-affordance’ has previously been employed in computer science research by Aaron Sloman to define future action potentials that are not currently available to a perceiver (2008), though it is yet to take on popular use in this field.
computational data), telephone lines or satellite uplinks (that afford online social connectivity), and more.

The various computer hardware that affords intentional physical interaction also provides the agent with specific affordances, including a mouse for navigation and a keyboard for entering text, audio speakers for hearing sounds, and a screen for viewing the graphical user interface and the videos themselves. Adding further complexity to the affordances offered by this modern technology of social interaction is the heterogeneous software component. This itself is intricately layered, with (in a basic sense) a foundation of machine code underlying an assembly language that supports an operating system. Each of these offer their own individual affordances, but, combined, they afford the facilitation and operation of a web browser—which in turn allows social interaction through the YouTube interface. From here the YouTube interface, itself, is a myriad of designed affordances promoting particular cultural activity, allowing users to upload their own videos and watch and comment on each other’s videos, at the very least. This entire complex and distributed system, then, offers the affordances of social interaction—as its combination of variable and complex independent technologies connect individual users as part of a developing culture of participatory media (Jenkins, 2009).

It is the complex mediating system of expressive and communicative technology that is YouTube, and the large-scale social affordances that it offers, that I wish to examine in this thesis. Identifying YouTube as a digital medium expands on the current understanding of medium theory, which conventionally considers material technologies as possessing medium status. As I have noted, medium theory is less concerned with the social and cultural effects of media content, as it is with the infrastructural and material characteristics of mediums
that package and deliver content in particular ways, and enable or restrict particular forms and modes of expression and communication. Thus, a medium’s affordances are, in some ways, a result of the ecological relationship between itself and a particular culture. As such, a medium affords certain modes and practices of expression and communication within that culture.

The digital computer can rightly be considered a meta-medium, in that it numerically simulates all existing analogue mediums, which is, in part, due to its digitised state. Following this, as previously mentioned, digitality’s proto-affordance is one of computability. Thus, according to medium theory, the unique technological support (roughly, specific hardware and software functionalities) of digital communication creates a marked change in the opportunities available for people to express themselves and communicate with each other. However, I expand on existing medium theory and suggest that this is not the first time that Western society has witnessed the introduction of a foundation technology, such as the digital, that is responsible for the emergence of radical new mediums. The advent of the ‘mechanical’ and ‘electrical’ foundation technologies also offered the respective unique proto-affordances of ‘reproducibility’ and ‘instantaneity’. From the social adoption of these proto-affordances for expression and communication emerged periods of great civilisational change.

This change was due to the many mediums of mechanisation, for the first time, offering the affordance of the efficient and accurate mechanical creation and mass replication of messages, while electrical mediums exhibited the unique affordance of near-immediate communication over very large distances. The Western cultures during the time of each foundation technology’s emergence transformed notably, with the development of entirely new modes of communication. In terms of the mechanical foundation
technology, the medium that instigated the initial change was the printing press, which emerged in the mid-15\textsuperscript{th} century. In the early to mid-1800s, the electrical foundation technology saw its beginnings in the telegraph, which introduced the ability to send written messages across space. The mechanical and electrical foundation technologies subsequently spawned many new individual mediums as the ‘new media’ of their time.

All of these new mediums indeed ‘remediated’ mediums from the previously existing foundation technology. That is, in short, they refashioned the prior mediums while also adding new characteristics to them—ones that supported unique processes of human expression and communication (Bolter & Gruisin, 2000). Thus, the laborious process of copying written books by hand was replaced by the much easier and more accurate standardised technology of the printing press in the 15\textsuperscript{th} century. Over time this afforded more efficient and rapid dissemination of the written word, and subsequently inspired a literary culture. Sending written messages from one place to another also became infinitely faster when using the telegraph. Affording faster and wider dissemination of news, the consequence of this was a weakening of the political control that the metropolitan press had over the regions through the post-office and the newspaper exchange (Innis, 1951/1991, p. 169). Mechanical mediums that were invented much later include the phonograph and film, while radio and television are electrical mediums that were introduced in the 20\textsuperscript{th} century.

Within the foundation technology of digitisation I will argue that there also exists the potential for new mediums to emerge, and I will examine the online moving-image platform of YouTube as one of these. As the largest, and most popular, video repository on the Internet, and with more than one billion unique users visiting the platform each month (YouTube, 2014), YouTube can be considered culturally important in terms of contemporary moving-image
communication, because it exemplifies the participatory media environment by offering users a way to upload and share their own content. YouTube reaches more adults between the ages of 18-34 in the US than any cable network (YouTube, 2014), and this statistic alone justifies its comparison to the existing moving-image mediums of traditional cinema and broadcast television. As I shall later describe, both of these ‘old’ mediums can be seen as the culturally dominant moving-image mediums of, respectively, the mechanical and electrical foundation technologies, and indeed the 20th century.

YouTube is a socially constructed, shaped, and shared, evolving process of digital moving-image communication that remediates, at the very least, the classical incarnations of both cinema and television. After an early period of borrowing the conventions of symbolic representation within existing mediums such as home video, television, and cinema, YouTube began a rebirth in its purchase by Google in 2006. Subsequent monetisation, legal negotiation, ‘big media’ appropriation, and facilitation of the emergence of new moving-image genres (such as that of video blogging), saw YouTube’s institutionalisation and constitution as a medium. Video blogging capitalises on the new communicative affordances of YouTube’s platform in many-to-many asynchronous social interaction, via comments, likes, and response videos; or, what Lev Manovich (2013) calls ‘on-going media conversations’. In short, YouTube can be considered not just a Web 2.0 social platform or service, as it is currently often described, but a culturally-embedded medium in its own right.

It is important to recognise and research mediums in their specificity in that they are the technological basis of the social and cultural processes of communication. Mediums and society are in constant tension, and the study of this relation helps us understand our past, our present, and even hypothesise our potential future. The works of theorists such as Harold Innis (1951/1991),
Marshall McLuhan (1964), Joshua Meyrowitz (1994), and Friedrich Kittler (2002/2010), demonstrate such potential. Though much medium theory appears to look backward, through “historical analysis of macroscopic, cultural developments in different epochs” (Helles, 2013, p. 16) there is scope for applying it to present medium environments. This aids in understanding a new medium’s technological substrate and unique affordances, so that we are better equipped to critically understand and analyse its adoption, social uses, and cultural practices.

Accepting that YouTube is a singular digital medium also implies that perhaps other online platforms can also possess this status. This recognises the mediating function of specific online software interfaces, and thus provides media theorists with a useful perspective from which to analyse the newness of various digital mediums. It permits comparisons between the affordances of both old and new digital mediums, and in making sense of the relation between social changes and the evolutionary process of medium emergence and constitution. Further, it allows us to make better-informed choices in regards to the ways we engage with new digital technologies, as we are more aware of their implications and effects.

To show that YouTube is indeed a medium in its own right, I created perthbands.tv (McMullan, 2011). A Perth-based original-music video webpage, perthbands.tv consists of two dozen five minute videos of local bands in the form of digitally shot and edited live-performance and interviews. The finished videos were uploaded to several pre-prepared online-distribution interfaces over the period of two years—including YouTube, iTunes, Facebook, and the perthbands.tv webpage itself. Further details of these incarnations of

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3 I decided to shut down the perthbands.tv webpage in late 2014, due to lack of recent activity. To avoid confusion, however, in this thesis I have chosen to refer to it as if it still exists.
*perthbands.tv*, and the process and particulars of their design and construction, can be found in Appendix A. The aim of the *perthbands.tv* exercise was to digitally create and publish moving-image content that was designed similarly to that which is normally viewed on broadcast television; that is, for an audience of primarily non-participatory spectators. This allowed me to examine how the online distribution of this digital content through YouTube compared with that of moving-image mediums that have their roots in classical analogue processes, such as traditional cinema and broadcast television.

My reconceptualization of the term ‘medium’, as one that can apply to new mediums emerging within the digital space, is what allows me to make this comparison between cinema, television, and YouTube. This extension of medium theory suggests that the history of medium evolution includes radical spikes of technological and socio-cultural change due to the introduction of foundation technologies. These entirely new substrates of technology inspire periods of new media, in that they furnish an affordance that has never before been available to support the expression and communication of human beings in exactly the same way. This original and unique affordance is a ‘proto-affordance’, in that new higher-level affordances can be built upon it to create completely new mediums.

My adaptation of medium theory in the introduction of foundation technologies with distinctive proto-affordances shows that within the material technologies of the digital computer and the Internet, new singular digital mediums can exist. The affordances of these mediums are software based, and hence the definition of a medium is expanded to include non-material technologies. My analysis of YouTube shows that it remediates the two ‘old’ mediums of traditional cinema and broadcast television, while also affording
new processes of human expression and communication. It thus suggests the potential for YouTube to be considered a new medium.

A core element of this analysis required me to construct my own working definition of the term ‘medium’. Thus, in Chapter One, I undertake a full exposition of relevant theories and concepts concerning the medium. Incorporated in this study are the principles of technological determinism, the social shaping of technology, medium specificity, medium essentialism, and intermediality. Also relevant in Chapter One is my adaptation of, what Marie-Laure Ryan (Introduction, 2004) calls, the expressive and communicative aspects of a medium. As often two components of a single medium, Ryan loosely links these respectively to the creation of art and the more modern channels of communication, information, or entertainment—though perhaps a better way of understanding this heuristic distinction is that the first identifies the production of meaning, and the second the dissemination of such. Using a moving image medium as an example, Thomas Elsaesser theoretically separates the storage medium for recording movement ‘film’ as ‘text and work’, from the place of ‘cinema’ as ‘event and experience’ (2013, p. 25). The expressive component of a medium is always in tension with its communicative component, though it is useful to distinguish them in order to understand their relation. It also provides an avenue for analysing the different uses of technologies that are often intrinsically interrelated.

Also of primary importance in this chapter is Andre Gaudreault and Philippe Marion’s (2005) concept of medium rebirth. This theory describes the initial emergence of a new medium as a borrowing of existing symbolic communication (e.g. cinema emerged as filmed theatre). Then, a period of social adoption and shaping, and institutionalisation, ensues, resulting in the development and constitution of a new medium with its own language and
established social uses and conventions. This medium, in finding its place in
distinction to all existing mediums and possessing an original technological
support, will afford new communicative practices and modes of expression. Jay
Bolter and Richard Gruisin’s (2000) theory of ‘remediation’ is deeply embedded
in this understanding of the evolution of mediums. Remediation is the concept
that new mediums build on old mediums, at the same time adding scope for
new methods of expression or communication. There are several modes of
remediation, though the remediation of one medium by another is the most
important to my argument that singular digital mediums exist.

With a working definition of the term ‘medium’ in place, in Chapter Two
I examine the translation of this term into the digital age. This begins with an
analysis of the digital computer’s position as a ‘meta-medium’ in its ability to
simulate all existing mediums. In doing this, I follow Innis’s (1951/1991) theory
that, historically, there existed epochs of dominant mediums that enabled
dramatic shifts in social communication processes—and hence altered the
existing civilisations of their time. I apply and develop this theory in
demonstrating the distinctions between film, analogue video, and digital video,
which in turn allows me to assign these to independent eras of technological
upheaval. From this basis I propose the theory of foundation technologies,
which suggests that previous epochs of radical new-medium emergence have
existed. The advent of a new foundation technology epoch is brought about by
the introduction to social use of an original and novel technology, which offers
what I call a ‘proto-affordance’.

As discussed, the concept of proto-affordances applied to new
foundation technologies suggests a unique relation between a new type of
mediation and an existing culture, one that offers a radical new mode of
message creation or distribution. That is, the unique characteristics of
mechanical, electrical, and digital technologies each offered new potential in terms of expressive and/or communication practices. Further, this is a potential that the respective previously-dominant foundation technology did not have, necessitating a process of remediation. Electricity’s unique affordance for supporting instantaneous communication over great distance is a good example of this new potential, and through this novel affordance the interaction between members of a society can be transformed.

Next, Chapter Two explores the evolution of moving-image mediums as they transition through subsequent foundation technologies. Traditional cinema and broadcast television’s transition into the digital foundation technology are key here, as this will begin to clarify how digitisation has affected the moving-image mediascape. It becomes evident in this discussion that mediums that emerge from one foundation technology epoch do not necessarily transition easily through another or fully embrace its proto-affordance. The affordances of mediums, in some ways, are anchored to the foundation technologies that they emerged from, and hold traces of this throughout their evolution. In this, the Internet is shown as a uniquely digital technology, which cannot function without the numerical simulation of medium content. This is similar to the way that traditional television is uniquely electrical, and could not function as we know it without this foundation technology and its underlying proto-affordance of instantaneity.

In Chapter Three I first discuss the emergence of the Internet as a platform that facilitates global social interaction, often referred to as Web 2.0. In this, the Internet enables many-to-many asynchronous forms of communication. I then introduce YouTube and explore the process of rebirth as applied to its institutionalisation—from its emergence as an adaptation of home-video, to a platform of digital moving-image culture. YouTube facilitates
an online participatory culture (Jenkins, et al., 2009) where users contribute to its cultural texts in the form of on-going media conversations—in what can be seen as an extension of Bruns’s (2006) concept of ‘produsage’ (or, briefly, where content consumers also become creators). As such, it is demonstrated that YouTube has its own communicative conventions, and I identify the video blog as a new genre of the moving image that reflects this.

Through the analysis of my experiences of the distribution of perthbands.tv content, I then explore the unique expressive and communicative properties of YouTube, as opposed to the traditional mediums of cinema and television. This includes an analysis of my online publication of perthbands.tv videos to identify some of YouTube’s moving-image specificities. The on-going negotiation of the cultural meaning of YouTube videos through viewer comments is crucial here, as it is evidence of YouTube’s remediation of the moving-image mediums of traditional cinema and television. From this I conclude that YouTube must be recognised as an individual medium of the digital moving image, along with a range of other unique digital mediums—each with their roots in historical foundation technologies.

In sum, the final chapter of this thesis aims to show that a platform such as YouTube is a digital medium of the moving image. In order to make this argument, in the first two chapters I will provide a critical re-working of the term ‘medium’ and explore how a new medium emerges in terms of its unique combination of affordances, and the proto-affordances of its foundation technologies (i.e. mechanical, electrical, digital). As I suggest in Chapter Two, this holds that the foundation technologies of the machine and electricity also spawned periods of new mediums. This revised interpretation of the historical evolution of mediums will contribute to existing perspectives by recognising that an understanding of the computer as a digital meta-medium is not an
indicator that no more mediums are to follow; quite the opposite, for new
digital mediums will emerge that remediate existing mechanical and electrical
mediums in different ways. The third chapter will analyse one of these new
digital mediums—YouTube—as a Web 2.0 platform derived from the proto-
affordance of computability, while remediating both traditional cinema and
television.
CHAPTER ONE: Defining the Medium and Related Concepts
Introduction

This chapter examines the medium as a technologically-supported process of human communication to reveal how it works within Western society. I situate this examination within the perspective of medium theory and its various champions, as this will assist in identifying how mediums are viewed as specific from each other, and how the technological substrates of mediums contribute to their respective affordances. Borrowing from Ryan (Introduction, 2004), mediums can be theoretically separated into two often interrelated categories, being those of expression and those of communication. Expressive mediums are entrenched in processes of message creation, while communicative mediums primarily involve the distribution and reception of messages.

I also explore the contemporary theoretical understanding of the medium in this chapter. This includes delving into the history of how mediums have historically been understood, and following the trajectory forward to understand what has shaped the term ‘medium’ thus far. In doing this, I will define particular significant theories, concepts, and ideas associated with the medium, and how they interrelate. This includes technological determinism and social determinism, medium specificity and medium essentialism, intermediality, and the process of medium evolution. Key to this last concept are both Gaudreault and Marion’s (2005) theory of medium rebirth and Bolter and Gruisin’s (2000) theory of remediation.

The theory of medium rebirth positions an emerging medium as an expressive and/or communicative technology that combines the concepts and/or technologies of two or more existing mediums. This new technology initially utilises the sign systems of existing mediums, as its developers and users explore the expressive or communicative potential of its unique
affordances. As new social uses and cultural practices specific to this technology are devised and implemented, the new medium is constituted and an institutionalisation of the medium occurs by way of the establishment of economic, political, legal, and cultural infrastructures that support and regulate it. Remediation is embedded within this process of new medium emergence and rebirth, as traces of old mediums exist within it. The specificities of these old mediums, however, have been augmented by the new mediums to include original and novel expressive or communicative affordances.

From the above investigation of medium-related concepts, I define how I will use the term ‘medium’ in the context of digital platforms of communication. I also establish a position from which to analyse singular digital technologies in their relation to attaining the status of medium (Chapter Two). This then allows me to demonstrate why it is justifiable to call YouTube a digital medium in Chapter Three, and support my argument that the term ‘medium’ does continue to have relevance in new media theory.

Medium Theory

Medium theory was first identified as a useful tool of analysis by communication theorist Meyrowitz (1985), though he regularly heralds earlier pioneers in this field, including Innis (1951/1991) and McLuhan (1964). For Meyrowitz, who demonstrates in No Sense of Place (1985) that electronic media have eroded the importance of physical presence, medium theory focuses on “the particular characteristics of each individual medium or of each general type of media” (1997, p. 59). This indicates an aspiration for identifying both specificities within mediums and their over-arching modalities. Meyrowitz notes that “the overwhelming majority of studies about ‘media’ have tended to focus primarily on message content and the social forces that shape the content” (1997, p. 59). Conversely, medium theorists ask: “how do the particular
characteristics of a medium make it physically, psychologically, and socially different from other media and from face-to-face interaction, regardless of the particular messages that are communicated through it?” (1997, p. 61). The answers to these questions help define the expressive and communicative affordances of a medium, and appropriately frame the position of new media theorists who attempt to determine the ‘newness’ of new media in relation to its large-scale social uses and effects. It also provides a solid and relevant foundation from which I can analyse YouTube as a digital medium.

McLuhan (1964) was a key media-theory intellectual, whose works provided much of the foundation for future media discourse. Perhaps often controversial, in that he is well-known for his extreme and generalising perspectives, McLuhan is also frequently taken as being representative of the philosophies of medium theory (Schut, 2003, p. 4). In this, McLuhan is famous for his axiom ‘the medium is the message’, an understanding I adopt in that content cannot be interpreted adequately without understanding the medium’s form (1964, pp. 7-21). As such, mediums are more than just ‘channels’ or ‘platforms’ through which messages are distributed; but cultural interfaces that shape, or mediate, the overall communication of a society. Further, mediums do this by both encouraging and denying various “forms of interaction and social identities” (Meyrowitz, 1997, p. 61); that is, each individual medium offers specific affordances.

Innis (1951/1991) was an influential colleague of McLuhan, and although perhaps not the first theorist to think in terms of mediums as a foundation for communication, one of the earliest in modern times to rewrite human history in light of communication technologies (Meyrowitz, 1994, p. 52). For Innis, the dialectic (or action of opposing social forces) is a powerful way of understanding the logic of the mediated world. An example of this is his well-
known concept, the ‘bias of communication’, which describes the tension between mediums that favour human interaction through either time or space—depending on their specific physical properties (Innis, 1951/1991). Innis respectively calls these two parts to the dialectic, ‘time-binding’ and ‘space-binding’, and promotes the need for nurturing an ongoing process of negotiating balance, but also for retaining the tension between these two organising principles of society (Babe, 2008, p. 14). With his theories based very much on the critique of social effects of mediated communication, though, Innis was always careful to stress the importance of “the social-economic context of [its] use” (Comor, 1994, p. 112). This denotes that his ideas regarding the power of mediation are not those of ‘determination’, but more of ‘emphasis’. That is, mediums do not dictate social power relations, but rather offer some affordances while denying others.

The writings of eminent German literary scholar and media theorist, Friedrich Kittler, also subordinate medium content to form (2002/2010). Kittler undertakes much of the thinking of Innis and McLuhan, by basing his concerns on the mediums over the messages—giving us “media studies without the people” (Peters, 2002/2010, p. 5). His focus on the physical properties of mediums often disregards any human experiential aspects. To reinforce this, Kittler refers to ‘optical’ and ‘acoustic’ media, in order to extend his analysis to the field of physics instead of limiting it to physiology. It is thus, for Kittler and traditional medium theorists such as Innis and McLuhan, the ruptures and turning points of technological history that are more important than “the long state of play in between the drama” (Peters, 2002/2010, p. 5). As I will discuss in Chapter Two, these ruptures or shifts in technological evolution can be described in terms of foundation technologies.
Medium theory does not concern itself with the content of the messages that are shared through a medium, but instead focuses on the potential for expressive and communicative use of specific technologies. This, in turn, allows us to study social change based on fluctuations in the dominant forms of communication. Of course, as Meyrowitz notes however, “media content is important, especially in the short term. Political, economic, and religious elites have always attempted to maintain control by shaping the content of media” (1997, p. 60). Though available books on YouTube often suggest a leaning towards content studies, the posited theories within these also directly connect with the technological substrate of YouTube itself. For example, though the Video Vortex series—two collections of work edited by Geert Lovink (the first with Sabine Niederer, and the second with Rachel Somers Miles) (2008; 2011)—emphasises aspects of YouTube culture and examines issues of aesthetics, politics, and economics in relation to these, YouTube’s unique expressive and communicative affordances are often the basis for motivating such critique. Medium content and form are thus relational.

Expressive and Communicative Mediums

The definition of the term ‘medium’, as used in media theory, is far from clear, and has seen a plethora of incarnations and applications over many years of use. For example, it has 19th century roots in the world of art, and that of communication, both of which today still take slightly different perspectives on this “intentional instrument of modern action” (Jensen K. B., 2007, pp. 8-9). Its connection with the arts still leans towards the medium as a material means of expression, while as a method of communication it is usually examined as a channel or system of information/entertainment transmission and reception (Ryan, Introduction, 2004, p. 16). Ryan’s examples of expressive mediums are painting and sculpture, while instances of transmissive or communicative
mediums include radio and television. Her primary distinction is that the former are fundamentally mediums of meaning creation, and the latter are mediums that possess the ability to encode a ready-made message in a particular way and send it over an existing channel for it to be decoded at the other end (Ryan, Introduction, 2004, p. 16).

Messages realised by Ryan’s understanding of expressive mediums can often be transmitted by communicative mediums after a secondary re-encoding. Her example of this is that “a painting must be done in oil before it can be digitised and sent over the Internet” (Ryan, Introduction, 2004, p. 16). It is important to recognise here that this ‘secondary re-encoding’ is equivalent to the existence of an expressive component embedded within the communicative medium, which Ryan calls “the configuring action of the medium” (Introduction, 2004, p. 17). A communicative medium (in this case, the Internet) is thus not a mere conduit for transference of the original message (in this case, that of the painting), and often adds its own encoding in the form of expression. In fact, meaning should be regarded as inextricable from the communicative medium.

It is true, of course, that artistic and communicative ends are somewhat divergent, though each could typically be said to be rooted in the conveyance of ideas, thoughts, and feelings. German philosopher Georg Wilhelm Friedrich Hegel saw the work of art as introducing ideas to consciousness, but accentuated the fact that art must be free in its aims and means (1835/1975, p. 7). Thus, in some ways, the artist freely explores the boundaries of the expressive medium, finding new ways to challenge the aesthetics of message creation. A communicator, conversely, will more often strive for message transmission efficiency and accuracy: “in a ‘successful’ communication, messages sent from sender to receiver are as little degraded as possible, physically and
“semiotically” (Couchot, 2002, p. 26). Nevertheless, it is clear that all artistic and communicative mediums (and those, such as film, which traverse both fields) are about meaningful connections between people.

It is also apparent that what Ryan calls ‘expressive mediums’ employ specific modes of dissemination in order to satisfy this goal. Indeed, Walter Benjamin effectively suggests that a painting is not meaningful without the distribution (and hence experiential) part of the complete medium process (1969), as this is central to his famous argument regarding the loss of aura due to the mechanical reproduction of art. The aura Benjamin speaks of is very much based on a unique painting’s known history and socially-recognised artistic value as an original piece. This comes at least partly from the specific context of its viewing, which is inherent in the distribution/reception component of the medium. In many cases this specific context includes it being viewed in a place where the history, esteem, and originality of the unique piece can be implicitly relayed to the viewer; such as a respected art gallery. Conversely, viewing an original painting in the home, or in the workplace, brings different meaning to it as a medium object through the altered context of its viewing. For example, a painting hanging in a home might indicate a more personal connection with the home-owner themselves, instead of it being an expensive and significant historical work of art. I will illustrate the impact of distribution context further using the medium of cinema.

Once a film has been created through mechanical recording and subsequent manipulation, it must in some way be experienced by a viewer or audience to complete the process of communication. The social and technical process of this is a constituent part of the traditional cinematic medium itself, and includes particular transportation processes and personnel, insurers of transported film-reels, cinema owners, projection staff, ushers, advertising
channels, and more. If an aeroplane is the transport technology used to distribute the film, it affords the film specific distribution potential; for example, the film can now be viewed overseas. Of course, a boat or ship can also furnish this distributive affordance, but the overseas distribution process would then take considerably longer. So, if the recorded, processed, and edited film has been cycled, driven, delivered by train, or flown, to its new location, and then screened in a public cinema, private home, or school, these variables affect how (and where) viewers engage with the message itself. The institution of cinema is, hence, the communicative medium that supports the expressive medium of film.

As a more complex example of my understanding of the relation between expressive and communicative mediums, a movie shot and finished on celluloid can be filmed by a television camera and screened on broadcast television instead of in a cinema, but then it becomes television—and the way a culture engages with this content will be altered by this fact. This is an example of Ryan’s ‘configuring action of the communicative medium’, and can be seen by the fact that the classical cinematic viewing experience is vastly different from that of the traditionally televisual. The variation in size of the physical watching environments, and screens themselves, is obviously apparent, as are the respective public and private social environments that one usually finds oneself in when engaging with each medium. The latter affects the viewer’s ability to discuss aspects of the movie with others present while it is screening—impacting on their understanding of the content. As such, it is clear that the final distributed content of a communicative medium does not exist independently of the medium itself. To avoid confusion, however, I will continue to call the receptive mode of medium one of ‘communication’, as its purpose is deeply embedded in mediated human interaction. The potential for
initial expression (or the ‘configuring action’) within a communicative medium, however, will always be apparent and implied.

Also noteworthy is that as the original message in the above example (being the movie) was created using celluloid film, it will usually look as if it has been. That is, the footage for the movie was originally shot using a film camera—the affordances of which influence the film-making process in any number of ways. That professional film cameras usually have less depth-of-field (DOF) than television cameras is an example of this, and such a difference in aesthetic means that more of the scene is perceivable by the viewer when shooting a movie with a television camera. Seeing more of the detail within each scene, in turn, can affect what meaning a viewer derives from certain shots, and hence from the movie overall. Besides this, a difference in depth-of-field impacts on the feel of the movie itself—something that film-makers take very seriously. So because the movie was shot on film in the first instance, even though it has been reconfigured via television to be broadcast to people’s television sets, distinct traces of the original expressive medium of film remain.

I should note at this point that when discussing traditional moving-image mediums I primarily refer to film, cinema, video, and television in their classical analogue forms. This is not to suggest that these are the only moving-image mediums that exist, or have ever existed. Other moving-image mediums have influenced cultures over the years since early attempts to represent motion for the purpose of communication, Thomas Edison’s kinetoscope being just one example (Singer, 1988). Sound is of course incorporated in all of these mediums, but it is often (perhaps incorrectly) implied when discussing moving-images (Mitchell, 2005). They are called visual mediums because the representation of movement is the unique function that these mediums serve, that others do not; as Kittler says, “since its inception, cinema has been the manipulation of optic
nerves and their time” (1999, p. 115). Further, without possessing a moving-image aspect, cinema and television would be considered sonic or text-based mediums. As such, even though I recognise that they all often rely heavily on aural aspects of communication, for the simplification of the arguments within this thesis I will identify film, cinema, video, and television as ‘moving image mediums’.

It is the analogue forms of film, cinema, video, and television which can be said to be the expressive and communicative champions of their time. The reason for this is that their dominance as moving-image mediums conceivably had the greatest effect on the cultures within which they existed. I choose to contrast these particular moving-image mediums to YouTube in Chapter Three, as YouTube is significant in terms of contemporary visual culture. Also important is that I define how I view the moving-image mediums of film, cinema, video, and television in relation to my understanding of expressive and communicative mediums. In particular, I will demonstrate how the pairs of film and cinema, and video and television, can each be considered to exist as interrelated expressive and communicative mediums.

**Film/Cinema and Video/Television**

Traditional film is the celluloid substrate that supports the mechanical acquisition and manipulation of variations in light. Through this it represents movement as a sequence of individual photographic images. Film allows the mechanical recording of movement, and thus technically qualifies as, what Kittler calls, a ‘storage medium’ (1997/2012, p. 132). As film advanced as a potential singular medium, film-makers developed editing functions and filmic codes of production to allow the manipulation and reconfiguring of the message. At the same time, its symbols and conventions of communication
evolved, and the institution of cinema with its traditional distribution and transmission processes emerged.

In terms of nomenclature, it is perhaps more appropriate to refer to classical cinema as ‘film-based cinema’, particularly because digital cinema also now exists. Hence, it is important to note that when I refer to the ‘medium of cinema’, I am referring to the distribution and reception capacities of film-based cinema. The classical cinematic communicative medium usually begins with the expressive medium of film acquisition and manipulation, and yet also brings its own elements of expression. This traditionally includes the experience of viewing the film as an audience on the big screen in a public movie theatre. Conversely, when discussing the digital acquisition, storage, manipulation, and distribution moving-image medium that evolved from film-based cinema, I will directly refer to it as ‘digital cinema’.

So as not to appear to suggest a dichotomy between artistic and communicative mediums, and to respect the fact that expressive mediums also have their traditional modes of distribution and reception, I adopt a slightly different understanding of Ryan’s concept of expressive and communicative mediums—one that is closer to what Gaudreault and Marion call ‘the two poles of communication’ (2005, p. 3). That is, expressive mediums embody creativity and the opportunity for self-expression, and can be seen as mediums of ‘production’, while communicative mediums reflect a specific social use and, in some ways, a personality of ‘reception’ (Gaudreault & Marion, 2005, p. 3). Elsaesser frames this same concept slightly differently, in saying that a film can be considered the ‘text and work’, while cinema is reflective of the ‘event and experience’ (Elsaesser, 2013, p. 25). In this way the mediums of film and cinema can, in some ways, be treated as being theoretically distinct.
However, cinema is the institution which facilitates the distribution/transmission and reception stages of filmic content, and thus it would be incorrect to view these two as totally separate mediums. One often considers the communication medium when creating expressive medium content, in framing a camera shot to suit the size of the final screened image, as a filmic example. Also, in the Hollywood studio system of commercial filmmaking and distribution the overarching institution of cinema includes the production process, and here the medium of film and that of cinema are closely bound. Though evidence of overlap and tension between the two processes can appear to suggest that they are two parts to a whole, this is not necessarily so. Indeed the notion of a ‘film’ does not directly indicate the presence of a particular distribution process, and filmic content may be disseminated by means other than through cinema, such as within the context of a gallery exhibition. Instead, both film and cinema respectively represent my understanding of associated expressive and communicative mediums. That is, these two modes of medium are generally considered relational, but can be separated for the purpose of discussing various technologies and their social uses.

Further, when I use the terms ‘video’ and ‘television’ I am referring to their analogue forms, though I will make it clear when discussing their digital incarnations by calling them ‘digital video’ and ‘digital television’. On the surface analogue television appears to be purely a transmission and reception medium. Most people know that a free-to-air television signal is broadcast from the transmission tower of a television station or a satellite broadcast centre, manifesting in our homes as moving images on an electronic device we call a television set. Before this transmission though, reflected light must pass through the optics of the television camera and then be converted to a video
signal as an electrical representation of the scene. In fact, the terms ‘video’ and ‘television’ were practically synonymous in the early days of live television broadcasting (Newman, 2014, p. 7). Once a scene exists as a video signal, it can then be broadcast via the television transmitter and almost immediately seen in people’s homes on their television set.

From the above, analogue video can be understood as the electrical recording of movement, but as such this transcription exists as a signal and is in motion. With the introduction of magnetic video recording mechanisms in the mid-1950s, however, this electrical signal could be stored on videotape. Subsequently the word ‘video’ then became used to describe the material tape-recording made of an electrical moving-image signal (Newman, 2014, p. 7), which could then be broadcast at a later date. The term ‘video’ also then set it apart culturally from the medium of television. Once encoded as video, the moving-image content can be further manipulated using signal processing technologies, and often is. This can be done by transferring the electrical video signal from one videotape storage device to another, and modifying the signal during this procedure. Alternately, a video signal can be processed directly between the television camera and the broadcast transmitter.

Thus, when discussing analogue video, it is the electrical moving image acquisition and manipulation technology that is a precursor to transmitting the message to synchronous viewers through broadcast television. Further to being purely a pre-broadcast form of electrical expression, however, video can also be seen as the reception and storage device at the viewers’ end—should they wish to transcribe their television’s electrical signal flow. Video capture, storage, and manipulation can then, in some ways, be considered an expressive part of the televisual communication medium, just as film can be considered the same for
cinema. Video cameras that store the video signal directly to an analogue magnetic tape located inside the camera itself are also indicative of this.

Hence, for the purpose of analysis, both film/cinema and video/television are independent corresponding groupings of expressive and communicative mediums that have their own comprehensive processes of storage, manipulation, production, and distribution. This is further indicated by the fact that filmic content ideally suits distribution by traditional cinema, as it is already in the appropriate content form—and the same applies to video and television. To phrase this in Ryan’s terms, the message of each expressive medium is encoded in the mode specific to the communicative medium (Introduction, 2004, p. 16). Thus, because of the special relationship between film and cinema, and also video and television, I will continue to treat them as theoretically discrete but consider them matching pairs of expressive and communicative mediums.

I have raised the issue of ‘medium content’ in this discussion of expressive and communicative mediums. Content can be described as the message created within a medium, and is also sometimes colloquially referred to by simply using the term ‘media’. Hence, in the example above, a film as distributed by television can be called ‘media’, ‘medium content’, or even just ‘content’; while the physical, edited, filmstrip could also be called a ‘medium object’ (though only media theorists would likely do this). Other mediums that incorporate the creation of tangible content are phonography and handwriting. These can be seen in Manovich’s terms as ‘representational technologies’ (2001, p. 162)—where some form of inscription of information or meaning takes place; and as such they also fit analogously with the concept of ‘expressive’ mediums. Of course, the content of these expressive mediums can later be shared over distance by physical transportation, which is in effect a communicative act.
Although expressive mediums such as newspapers and film can be seen as storage technologies that are reliant on physical transportation to facilitate the communication of their medium content, other mediums exhibit different processes. For example, mediums such as the telephone exist as an immediate communication network through which people can engage in person-to-person information and idea-sharing over great distances. These types of mediums “transmit or broadcast messages without (in the first instance) creating or storing them as media objects” (Clarke, 2010, p. 136) and are sometimes called a ‘channel’. Note that this is slightly different to Ryan’s understanding of the term ‘channel’, which includes cultural institutions and channels such as the gramophone and the Press.

Another medium of person-to-person communication is the mail, or postal, system. This cultural process allows individuals to share text-based letters and visual content between each other via various physical transport methods. Individuals that converse on the telephone, or create and mail personal letters to each other, do not share ‘broadcast media content’ as such, but the process of their communication can be said to be mediated by technology just the same. Historically, person-to-person communication has been culturally and technologically separate from the process of cultural media-content creation and distribution—the latter of which can be exemplified by what we know as the ‘mass media’.

The evolutionary technological trajectory of online networks, however, blurs the lines between communication networks and media-content technologies. This is because information and computing technologies (ICTs), communications networks, and digitised medium and information content converge to form the foundation of ‘new media’ as we now know it (Flew, 2008, pp. 2-3). Medium content was once created by specific industries and broadcast
in a one-to-many fashion, but can now also be produced and published by individuals and shared over the Internet in a many-to-many mode using existing communication networks such as the telephone system. Also, as “digital platforms typically transmit and store simultaneously” (Clarke, 2010, p. 136), medium content and person-to-person communication both become binary data of storage and transmission; converging into one, online, cultural space.

As demonstrated using the example of showing a film-based movie on television, a message can be created within an expressive medium, and distributed and received within a communicative one. This complex process can be seen as one of the modes of ‘remediation’; in this case, the remediation of content. The concept of ‘remediation’ is fundamental to my argument that YouTube is a medium, and will be examined in depth later in this chapter. Further, it is important to recognise that YouTube, as a digital platform, does indeed call for the encoding of previously created moving-image content within its interface for later transmission and decoding. It also allows users to engage in personal (yet often public) text-based conversations about such content in the same environment. This will become apparent in my examination of YouTube as a medium in Chapter Three, as I describe its specific preliminary expressive component and examine its potential for new modes of communication. Due to its support of both of these processes, I see YouTube as a communicative medium with an expressive configuring action.

**Breaking Down the Medium**

To explore how the term ‘medium’ can be translated into the digital environment it is imperative that I clarify our traditional understanding of a medium’s process, and the variety of existing theories that support this understanding. I will begin this task of dissecting the medium process by
scrutinising one of our earlier, simpler, experiences of a medium: inscribing meaningful signs and symbols onto a physical surface using an appropriate hand-held tool in order to communicate. I use this specific example of scribal communication, as it can be called, as it will allow analysis of the medium at a conceptual level—without the complications of clarity that may arise by using a more complex medium; such as cinema. Cinema’s complexity as a medium stems from its composite and aggregative technological structure, and the fact that it can incorporate image, sound and text into the one message.

Scribal communication depicts my understanding of an expressive medium, as I have noted above. In this it begins with a form of creation, as the handwritten message is created by engaging with the medium itself. At this point the medium content need not be shared with others at all, and yet maintains the potential for doing such. In light of the latter, the handwritten content can be physically distributed to another person by various means. This entire process prefaces the creation of a message, or the act of expressing oneself, within the scribal medium as a precursor to sharing it as communication.

In the example of scribal communication, the Oxford Dictionary suggests that the medium content created by a ‘writer’ (Writer [Def. 1]) can be called a ‘text’ (Text [Def. 1.1]), and the receiver of such communication called a ‘reader’ (Reader [Def. 1]). Perhaps confusingly, the symbols written by the writer are also often called ‘text’, in reference to the fact that they are written words as opposed to diagrams or illustrations (Text [Def. 1.2]). My medium analysis will begin with an investigation into the material support of the act of scribal communication between the writer and the reader. That is, I will examine a variety of physical objects that can be employed within this specific medium of writing with one’s hand, and how certain affordances of those physical objects
affect the communication process itself. Conceptual results from this analysis will then apply to understanding fundamental principles of all mediums.

There are two obvious, particular, material objects necessarily involved in the scribal communication process. One is that which is used for writing with, and the other that is used for writing on. At this point of expression there are already a wide variety of choices here that a writer must make in terms of engaging with the medium. In turn, each will impact on the affordances offered by the scribal medium. For instance, a writer could use a pencil to write with, instead of a pen. This would enable the writer to more easily remove what has been written, should they wish, but may also inadvertently make what is written less permanent. Alternatively, the writer could use a paint roller, which would in turn affect the size of the written text—as one could not write very small text with such a large writing implement. From these examples it can be seen that the technological choices made, even before the writing process has begun, will have an impact on the way the message is expressed. Indeed, it can also impact on what is actually written, as the affordances of each technological arrangement influence the writer themselves. In effect, the chosen technologies of writing contribute to the mediation of the message.

This concept, that the underlying technology can affect the resulting communication, also applies to what physical surface is chosen to be written on. White paper springs to mind as an ideal writing surface, but one could also choose to write by inscribing marks into clay with a reed stylus. The properties of each of these writing surfaces changes what can be written, but also how it can be used by the writer and experienced by the reader. For example, if the text is inscribed on a clay tablet, the resulting medium object will not be as portable as paper, and may take more time to produce. Innis says that in Ancient Egypt, by escaping the heavy medium of stone, "thought gained
lightness” (1950/2007, pp. 36-37). As such, the increase in eloquence promoted by writing on papyrus endorsed a shift from writing being used primarily for governmental and religious purposes, to that of secularity. In comparing the two modes of scribal communication—writing on paper or inscribing a clay tablet—I am using an extreme example, but mainly to show that the early stage of engaging with the medium of writing includes a personal interaction with technology. In some ways, these technologies will enable and restrict the way they that the writer can use writing to express themselves and/or communicate. These affordances as action potentials, possibilities, and limitations, are dependent on what can be called the ‘technological support’ of the writing process.

In light of this statement, using the term ‘technology’ is not without its complications, and hence my definition requires clarification. Here, I reference engineer and economist, W. Brian Arthur (2009), as his book explores the evolution of systems of technology and how they have increased in complexity over time. This idea is central to my understanding of the way that mediums evolve—which I will explore later in this chapter. Arthur notes three uses of the term ‘technology’: “a means to fulfil a human purpose”, “an assemblage of practices and components”, and “the entire collection of devices and engineering practices available to a culture” (2009, p. 28). The first is essentially a method, a process, or a device that assists humans in reaching a specific goal. That is, oil refineries refine oil, and speech recognition algorithms convert speech to text. The second is a plural meaning, in that it is a collection of individual technologies and practices that “covers technologies such as electronics or biotechnology” (Arthur, 2009, p. 28). Arthur’s third meaning, as in “technology will save the starving millions”, is the one that is used when referring to technology as a whole (2009, p. 28).
In this thesis I wish to use the term ‘technology’ to refer primarily to devices and apparatuses that are the means to fulfilling human purposes. This definition will include simple technologies, such as the pencil, and complex technologies, such as a television camera. It will also cover both material and immaterial technologies, such as a phonograph and non-linear audio-editing software, respectively. It should be understood, however, that computer hardware is also imperative for the latter to function. In this sense computer software can be seen as part of the technological device or apparatus; though, of course, not without its own special characteristics. For example, devices built of software and computer hardware (such as online virtual worlds) do not need to comply with the laws of the natural world (gravity, for example).

Arthur suggests that processes and methods can be viewed as integral to devices (2009, pp. 31-32), and as such my use of the term ‘technology’ is distinct from his in some ways. That is, I wish to remove the appearance of intention from the technology itself. In my use of the term ‘technology’ the ‘human purpose’ that Arthur speaks of is not pre-determined. Instead, the device or apparatus should be seen as also having potential for use, or affordances, which may not yet be discovered. If I were to speak of the telephone, for example, I would be referring to the device that fulfils the human purpose of two people talking to each other over distance. This would not imply that this is the way that I think the device should be used, or the only way that it could be used. That is, a telephone can be adapted by its users to fulfil other purposes, such as allowing one person to listen to a gramophone from a remote location. The affordances of a technology, to be clear, are not embedded within it; instead they are a product of the relationship between a specific user and that technology.
It may be pertinent to note that, in the eyes of most media theorists, a technology is not analogous to a medium. Indeed, David Black suggests that it is more complicated than this: “‘medium’ and ‘technology’ are hardly synonyms: the matter of mapping technologies to mediums is extremely complicated, to say the least. Certainly, the development or propagation of a new technology, in the sense of a new machine, does not equate to the emergence of a new medium” (2001, p. 398). Davis Foulger suggests that a communicative medium requires a language to enact human communication (2005), and thus there are many technologies that do not currently directly exhibit this social use. Take, for example, a bowling ball. Though a bowling ball can communicate that someone enjoys bowling, there has been no language system established to communicate this in a formal way. It can be said, however, that technology is at the root of every medium. In fact, a medium is human communication via technology.

My use of the term ‘technological support’, in relation to the scribal process, borrows from art historian, Rosalind Krauss (1999). Krauss suggests that a medium’s ‘technical support’ is an accumulation of the material conditions that constitute an expressive medium, from which artistic conventions can further be derived (1999, p. 296). The ‘technological support’ of a medium then, in my understanding, is the collection of physical elements that, when combined, provide a foundation for potential expression or communication. I use ‘technological’ instead of Krauss’s term, ‘technical’, in an attempt to more strongly imply the substrate of applied usage, more-so than the knowledge of its use and associated procedures. That is, using Arthur’s (2009) terms, I see the word ‘technological’ more closely linked to devices and

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4 McLuhan suggests, however, that every technology is a medium. In terms of all technologies communicating something, I would agree; but as I explore shortly, my view is that a true communicative medium should support a language.
apparatuses, where the term ‘technical’ (in its relation to the term ‘technique’) might include processes and methods.

The technological support of a specific medium is never fixed in time, and not necessarily completely standardised across cultures. Thus, when discussing the particular technological support of a medium, it needs defining historically and culturally. One may also need to clarify which particular technological support of a medium they are referring to. For example, as I have shown above, writing with pencil on paper can be considered to have a different technological support from writing by making inscriptions onto a clay tablet. Some generalisation with regard to technological support can be made, however, and this can be seen when identifying technological consistencies within scribal mediums. For example, at a bare minimum, there must be a writing implement and a surface to write on. One can also say that the general technological support of mechanical mediums of writing (such as the printing press) facilitate the efficient replication of texts; and electrical writing mediums (such as the telegraph)—the near-immediate transmission of textually encoded communication signals.

**The Biases of Communication**

It is also important to remember that, once a handwritten text has been completed by the writer, it must be shared with another person to become communication. This sharing can be done by compressing time and/or space; the former by sending the letter, or tablet, to a new location on the planet, and the latter by preserving it until the reader can later be allowed to see it. As such, “writing was not merely literature, but always mail as well” (Peters, 2002/2010, p. 47). As briefly mentioned earlier, Innis suggests that each medium has its own bias towards time or space, in that some have long lasting temporal properties (e.g. a clay tablet) and some are more easily transported over
distance (e.g. paper) (1951/1991, p. 33). It should be noted in this that, being a ‘bias’, mediums do not exhibit one trait or the other in a mutually exclusive fashion, but instead possess mixed and varying degrees of each. For example, a clay tablet can be transported over distance, just not as easily as paper. Conversely, paper will last through time, but perhaps not for as long as a clay tablet.

Other distinguishing properties of mediums and their respective expressive and communicative affordances which may reflect a time/space bias exist (Jensen & Helles, 2011, p. 519). Examples of these include the relation to any obvious time lapse between sending and receiving messages, the number of senders and receivers in a communicative system, and the potential for interpersonal cues and/or abstract communication. The first is the difference between synchronous communication (e.g. talking on the telephone) and asynchronous communication (e.g. listening to a cassette tape), and depends on whether the parties involved in communication are participating at the same time, or in any length of temporal delay (Jensen & Helles, 2011, p. 519). In this way, it can also be seen as a communication practice afforded through a particular technology, in that synchronicity, or lack thereof, is present during communication and dependant on a medium’s technological support.

The second communicative affordance I have indicated above relates to “the number of participants in a given communication and the nature of their interaction” (Jensen & Helles, 2011, p. 520). For example, traditionally television is a ‘one-to-many’ medium, as there is one point where the homogenised message is ‘broadcast’ out to many watchers of television sets. Communicating via the medium of the landline telephone is usually a ‘one-to-one’ process, though multiple participants in a telephone conversation can exist (in a ‘local loop circuit’, for example). The latter case, given a small number of participants,
may be seen as ‘few-to-few’ communication, where each person has equal potential to communicate with several others at once. ‘Many-to-many’ communications networks are rarely afforded amongst analogue mediums, particularly in a global sense, but can easily be realised online in digital environments such as YouTube. Once again, it is the technological support of the medium that determines the availability, or lack thereof, of each of these communicative affordances.

It is also relevant to note that mediums often afford different modes of communication. For example, scribal communication affords the sharing of written text, while television affords the transmission of moving images and sound as well as text. One of the biases prevalent here is the degree to which each medium affords various ‘interpersonal cues’ as indicators of meaning. Interpersonal cues that accompany the use of spoken words to communicate are often called ‘non-verbal’, and include body language, proximity, facial expression, vocal qualities, tone, and inflections. Interpersonal cues of communication are frequently unintentional in nature—as opposed to the intentional expression of speech (Goffman, 1959, p. 4). As such, they provide a more personal (and sometimes more genuine) context from which the receiver of a message can construct meaning.

Stig Hjarvard has suggested that “non-verbal communication is in some ways universally intelligible”, and hence not really a language at all in the traditional Sassaurean sense, i.e. languages are specific to a society (Hjarvard, 2002, p. 228). In any sense, they make up to 65% of our signals during communication (Forsdale, 1974, p. 8), and hence can dramatically alter the meaning that any receiver constructs of spoken signs we may emit. A classic example is when someone yells “I am NOT angry!” angrily at you. Somewhat conversely, abstract, or non-figurative, communication forms (such as
alphabetic writing) are not representational in a semiotic sense, but instead the connection between the word and its meaning are learned. Thus, written and spoken words can convey complex ideas and concepts between people; as in that we learn what the word ‘philosophy’ means within our culture. It would be quite complicated, however, to explain the meaning of ‘philosophy’ to someone without using more words.

An example of the correlation and medium specificity between the biases of interpersonal cues and abstraction can be seen in the decreasing presence of interpersonal indicators of communication as the written word evolved from the scribal-age to being typewritten. For example, the handwritten word can, indeed, possess interpersonal cues of communication. That is, the speed and care put into writing, the pressure of the pen, and such, can indicate further personal meaning to the receiver of the message. The introduction of the typewriter then, with its impeccably formed, perfectly replicated, and evenly-spaced characters, displaced the more personal nature of written communication found in handwritten script.

The medium of the printing press also exhibited a lesser interpersonal mode of abstract communication, in that it favoured mechanically-formed text over body language and vocal inflection. Meyrowitz signals a return to the interpersonal, or non-verbal, after the introduction of electricity, in that “while written and printed words emphasise ideas, most electronic media emphasise feeling, appearance, [and] mood” (1994, p. 58). The mediums responsible for this were the telephone, radio, and television, and it is notable that all three strongly implicate aural and/or visual interpersonal communication cues.

The point with regard to mediums and their respective biases here is not that any permutation of communicative practices and biases is preferable, but that mediums exist within a continuum of options to satisfy a variety of desired
social relations and outcomes. As I have also implied, these practices and biases can be attributed to the characteristics of mediums in direct relation to their affordances and specificity. In fact, it is more likely that people would wish to have access to as much variety in terms of practices and modes of communication as possible—to provide them with maximum flexibility in their respective communications. Indeed it would be desirable to connect with as many people as one wishes, with any temporal delay that one wants, through any preferred combination of time and/or space compression, in any combination of abstract symbols and non-verbal communication cues. Recognising the complex arrangement and biases of various affordances that mediums have will become important in Chapter Two, as I analyse the evolution of the moving-image mediums of cinema and television.

With regard to synchronicity of communication, which relates to Innis’s concept of ‘time-binding’, the scribal medium varies greatly depending on the distance of the reader(s) from the writer. For example, when writing, another person can engage with the message the instant it is written. Of course, this is only true if they are in reasonable proximity—assuming that no other space-binding technology is involved (such as television, which can transmit a moving image of one person writing across great distances almost immediately). Writing in the presence of a reader is then as if the writer and the reader were experiencing the scribal medium synchronously. However, as the receiver increases in distance from the writer, and hence the destination of the writer’s message becomes further away, this synchronous advantage of writing becomes lost and it only affords asynchronous communication. Writing, however, also affords asynchronous one-to-many communication within the same location, in that a written message can be left for any number of readers to see when they choose to engage with it.
Communication, in this latter case, occurs at the same place, but is essentially ‘time-shifted’ at the receiver’s discretion. Further, scribal communication potentially enables others to contribute to the message. This potential can afford asynchronous few-to-few communication, where several people or more can contribute to an ongoing written conversation over time. This can occur within one setting of time (synchronous), or continue at the participants’ leisure over several years (asynchronous); as such, the users engage with the system as desired. The point here is that, though the practice of a medium’s use is directly related to a medium’s supporting technology, it is not the only contributing factor. In this it is clear that socially-influenced factors, such as the chosen physical location(s) and communicative intent of the writer(s) and reader(s), also have bearing. It is also clear from the above examples that a medium’s specific affordances are mutable depending on the context.

These descriptions of the scribal medium’s various practices and biases show the physical components of it as a complex assemblage that can be used to create, transfer, and receive a message—but what will be written, and who can engage with the message, will often be affected by the chosen medium’s technological properties. In terms of influencing my understanding of the definition of the term ‘medium’, this is in some ways analogous with the synonyms ‘conduit’ or ‘channel’, but it has been useful to clearly demonstrate how the message is inextricable from the medium. A medium can thus be defined as not just something that transfers a pre-made message, in the way that a pipe can carry water from one place to another. More accurately, it is the state and process of message creation and transference, one that can include many variable and varying defining affordances. Indeed, a medium comprises the material ground of the message, how it is transferred, and how it is received—
more than just a container that carries a message. As Raymond Williams suggests, the term ‘medium’ refers to “an intermediate communicative substance” (1977, p. 159).

McLuhan (1964) would also appreciate this description of the term ‘medium’. This is because, as my above examination of scribal communication suggests, the technological aspects of a medium have much bearing on how the message is to be experienced by the receiver, and indeed which receiver can experience which message. McLuhan was often misunderstood to mean that the content of the message had no meaning itself. However, as Paul Levinson explains, McLuhan intended to call attention to the proposition that mere use of a medium is more profound in impact on society than what individuals may do specifically with the medium—the world successively changed when people began talking on the phone, listening to radio, watching television, logging on to the Web, not usually because of what they said, heard, and saw (2001, p. 4).

In this way, McLuhan would not deny the importance of the meaning of the words on the page, only that they have less impact on large-scale social structures and collective cultural practices than the very existence and action possibilities of the print medium itself. The ability for print to easily disseminate a single perspective or knowledge across space is an example of this.

Of course, as is embedded in the concept of affordances, technology and society are relational when it comes to defining the term ‘medium’, in that the two construct and define each other. In order to understand this relation, though, it is useful to consider the concepts of technological determinism and social determinism. These indicate opposing theoretical perspectives of this
balance between the technology that influences what a specific medium is and does, and the relationship that society has with that technology for the same effect. As will become clear, recognising technological determinism and social determinism can be indicative of a false dichotomy, where the material and cultural aspects of mediums are identified as separate. Within the concept of affordances, however, this separation is acknowledged as not possible.

**Technological Determinism**

Paul Levinson accuses McLuhan of being a ‘media determinist’ in that he has a “tendency to cast humans as the effect of technology, rather than vice versa” (2001, p. 40). With a proliferation of statements throughout McLuhan’s books such as, “man becomes, as it were, the sex organs of the machine world...enabling it to fecundate and to evolve ever new forms” (1964, p. 56), one could easily be excused for doing the same. In the realm of mediums, the stance of media determinism is akin to technological determinism, which is a theory that describes the relationship between technology and society. Williams calls it an immensely powerful and now largely orthodox view of the nature of social change. New technologies are discovered, by an essentially internal process of research and development, which then sets the conditions for social change and progress. Progress, in particular, is the history of these inventions, which ‘created the modern world’ (1972/1992, p. 7).

This implies that technologies are the determining factor of the social and cultural position of human beings, or that *technologies are the cause of social effects*. This perspective is not uncommon in contemporary discourse concerning technology and the world, as in; “nuclear energy is bad for the environment”. This colloquial phrase appears harmless until one analyses the power
relationship it implies between technology and culture; namely, that technology is the driving force with no one at the wheel.

Brian Winston suggests that technological determinism is used by politicians and captains of industry as a scapegoat: “Politicians of all persuasions profess a belief in it. It allows them, elegantly, to disguise their own agendas; to pretend that they are in the grip of forces both elemental and unnatural. Man-made the forces might be, but they are not of the politicians’ making” (1996, p. 2). Indeed, within Western society, it may seem easier to convince ourselves that we are ‘riding with the flow of technology’ more so than having a large degree of personal or social control over it in some way. This attributes us with less responsibility as to the future effects of technological evolution—should they manifest as less than ideal. Another aspect of the technological determinist argument is that the direction of technological advancement is pre-determined (Williams & Edge, 1996, p. 868). That is, as a society, the Western world merely stumbles blindly down an imagined inevitable pathway of technological evolution.

Williams argues that the perspectives of technological determinism are “so deeply established, in modern social thought, that it is very difficult to think beyond them” (1974/2008, p. 6). His suggestion, as a reprisal to this ideological position, was to “restore intention to the process of research and development [emphasis in original]” by way of deliberate and on-going social awareness (1974/2008, p. 7). He suggests that consciously and deliberately shifting the focus of control from technology to society will alter the way we view and use mediums. This will result in the creation of technologies that address “known
social needs, purposes and practices to which the technology is not marginal but central” (Williams R., 1974/2008).

However, this classic understanding of technological determinism—that technology drives social and cultural concerns—is not prevalent in the thinking of contemporary media theorists. It is often called ‘hard determinism’, and is an impossible position to argue for within contemporary perspectives on the mutual relationship between technology and society. The less contentious perspective of ‘soft determinism’, however, can be said to view technology as a significant but not sole factor in its influence on social effects and cultural practices. In this, technology influences a particular society’s evolution, but the perspective also accepts that there exist other causal factors. One of these is that society has the chance to effect the impact of change that technology has on, and within, a culture.

A good example in this case is the creators of Napster’s attempt to usurp the existing modes of music distribution in the year 2000 by providing a method of peer-to-peer online music sharing using the MP3 audio-compression protocol. The Big Five record companies reacted badly to this move, and Napster was eventually convicted in court of copyright infringement (Burkart & McCourt, 2003). This indicates the effect that social intention can have on technology, in that Napster’s novel technological platform of music sharing was declared illegal and shut down. The reason for this was that it effectively caused the existing entities of commercial music distribution to lose revenue, due to its promotion of an increase in digital music piracy. Social intention is

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3 Interestingly, in the final few pages of his book *Digital McLuhan*, Levinson suggests that, in appearing to be medium determinist, perhaps McLuhan was actually deliberately instigating cultural change in the form of a reversal of the very technological determinism that seems to pervade our thinking (2001, pp. 201-203).
not always a factor in defining a society’s relationship with a technology, though, as will become apparent when I discuss social determinism shortly.

Besides being a strong adversary of technological determinism, Williams was also a staunch and vocal critic of McLuhan. McLuhan viewed mediums as extensions of the human senses; radio, an extension of the ear, television, an extension of the sense of touch, and so on (1964, p. 333). Williams viewed this theory as denying the social process of “the medium as a practice” (1977, p. 159). He showed that, in the 18th century, the artistic notion of a medium evolved from meaning “the specific material with which a particular artist worked”, to being the practice of working with that particular material (1977, pp. 159-160). Thus, working with the medium of oil paints became working within the medium of painting; working with the medium of clay became working within the medium of sculpture; and so on. This process of extending the means to the practice, and the subsequent reification of the medium’s nomenclature, allows for the absence of social intention and interaction that Williams sees as typical of technological determinism.

Applying the process of “projection and reification of work on the material” (that Williams notes occurred in the 18th century (1977, p. 160)) to scribal communication, the medium can be defined as “working within the medium of the handwritten word”. In this iteration of the analysis, writing is the expressive act of working with a writing implement and respective surface to construct organised symbols. However, human communication is not simply about inscribing symbols that can be transferred to another person, it is about sending and receiving meaning (Foulger, 2005).

American sociologist Charles Cooley defined human communication as “the mechanism through which human relations exist and develop—all the symbols of the mind, together with the means of conveying them through space
and preserving them in time” (1909, p. 61). I draw on this somewhat dated definition from Cooley as it concisely covers all the elements of communication that I wish to discuss in this thesis. Besides this, it is also still contemporarily relevant, as implied by John Durham Peters’ quotation of the same definition (1999, p. 9). It is true that humans can draw marks on a page that others can receive that carry no deliberate thoughts, ideas, or feelings, but for successful communication between two parties (in Couchot’s sense (2002, p. 26)), a common language is needed. That is, following Cooley’s definition of communication, the meaning of the symbols must be socially shared.

If I refer back to my analysis of the medium of handwriting, it can be appreciated that members of a society are very much a part of shaping the shared meaning of symbols that they use to communicate. Hence, technology cannot be seen as the sole determinant of social relations. The medium of writing, of course, includes a language system that we develop, maintain, and evolve within society. In using the term ‘language’ in this context, I am not just referring to natural languages, such as speaking or signing. Instead I am referring to a semiotic perspective of language as an organised set of often complex signs (a sign is basically something that stands for something else) that is commonly accepted between users within any modality (Chandler, 2009).

A language system such as this can be related to a variety of stimuli, such as the auditory, tactile, or visual; respective examples of such are Morse code, braille, and flag semaphore. Further, Foulger shows that “messages are created and consumed using languages”, and “languages occur within the context of media” (2004). This means that for any medium to support the sharing of information it must incorporate a language system. Thus, if we accept that all mediums communicate via a shared set of signs, we can talk of examples such as the ‘cinematic language’, which includes cinematographic
codes, temporal montage codes, narrative codes, etc. (Metz, 1974/1991). As such, when a film-maker uses certain techniques in creating a film, the resulting production makes sense to the general audience. At other times, film-makers may choose to resist the use of these codes in an effort to conflict or challenge the audience, or merely in preference for exploring new filming and editing practices that affect audiences in the desired way.

Important here is the concept that humans cannot create a language system individually, as it must be shared to allow the representations of meaning to also be shared. Language systems also evolve within a society over time to better suit social needs and purposes, and this can be seen in the way that new words, such as ‘vlog’, enter our vernacular (Vlog [Def. 1]). In this way, it is not possible for mediums to be purely technologically determined, as the language systems which are a necessary part of a communicative medium are socially constructed and shaped.

I should clarify that Cooley’s ‘symbols of the mind’ are not to be seen as being ‘carried through’ a medium, in the way that water can be distributed via a pipe. These mental symbols are contrived and derived by people in conjunction with the medium itself, and are hence inseparable from it. That is, the very conception and construction of the symbols is inextricably embedded within the process of mediation itself, in the same way that words on a page are not merely spoken words transcribed onto paper. Those who strive to create meaning engage with a new language system, adopt new potentials and limitations, and communicate within a new social, cultural, and political structure.

From the above it is clear that it is problematic to adopt the theory of technological determinism in its ‘hard’ version as a perspective from which to understand the process of the emergence and evolution of mediums. This
version includes the concept that technology is discovered by humans along a
pre-determined pathway of invention, as well as that technology is ultimately
the cause of social effects. ‘Soft’ technological determinism goes some way to
addressing these issues, in its acceptance that society does have a role to play in
the way that technologies affect culture. To extend this critique of the hard
technological determinism approach, though, I will examine theories that are
derived from a perspective of social determinism.

Social Determinism

The theory of technological determinism has been called “the single most
influential theory of the relationship between technology and society”
(MacKenzie & Wajcman, 1999, p. 4), as is demonstrated by my previous
discussion of its apparent pervasiveness. In their book, The Social Shaping of
Technology, Donald MacKenzie and feminist theorist Judy Wajcman (1999)
specifically address this perversion of perspective. As such, their central tenet
is, as contributor Langdon Winner phrases it, “what matters is not the
technology itself, but the social or economic system in which it is embedded”
(1999, p. 26). It is thus social forces that determine and shape technology.

The theory of the social shaping of technology was developed by
Mackenzie and Wajcman in the mid-1980s as a challenge to the hard
technological determinism prevalent of the time, and has subsequently been
embraced by many other theorists, such as feminist Cynthia Cockburn (1999). It
is the theory that technology cannot be separated from its engagement with the
world, as it has no pre-determined use or purpose; in fact, technologies literally
embody social relations. For MacKenzie and Wajcman, there are two
fundamental aspects to the staunchest theories of technological determinism
that deserve criticism: that of technological change being autonomous, and that
of technological change as the cause of social change (1999, pp. 4-5).
Forms and technologies that are invented for human communication are, of course, invented by humans. On the face of it, however, this process could be perceived as technologically determined (or at the very least, lacking in social direction and influence) in light of our learned history of inventors and inventions. That is, our educational experience of society’s timeline of technological advancement is littered with dates and names heralding ‘discoveries’. As Winston argues, though, in his extensive and comprehensive historical book, *Media Technology and Society*, the actual case is that technologists operate within a social agenda, and are guided by social necessity and their own social context (1998). Thus, the mediums people invent are often a result of an evolution in social needs, and reside within the existing and evolving capabilities of scientific and technical knowledge at the time. MacKenzie and Wajcman’s theory of the social shaping of technology takes this further to suggest that politics, economics, and even organisational issues also affect the social implementation and subsequent use of technology (1999).

Another element of techno-social interaction worth inspection that the social shaping of technology theory does not directly address is what Hughie Mackay and Gareth Gillespie call ‘the social appropriation of technologies’ (1992). This extension of the theory of the social shaping of technology considers not just the social forces responsible for technological development and production, but “the way technologies come to be actively appropriated by users” (Mackay & Gillespie, 1992, p. 698). This theory reminds us that the users of technologies do not necessarily interact with them in the way that their creators or designers intended. They may redesign, redefine, or even completely reject the technology.

Thus, mediums sometimes emerge as technologies with intentional trajectories that are taken up for unexpectedly different purposes by the agency
of specific individuals. As an example, Thomas Edison designed his phonograph for the purpose of recording business dictation. Users of this technology, however, adopted it to record music instead—an act which inspired the creation of the phonograph industry (Belton, 2014, p. 463). Thus, though sometimes technology is indeed created with a specific intended social effect in mind, the uptake of the technology and its eventual social implementation as a medium is driven by a different human agency. New and unexpected mediums can result, denying a pre-determined or intended pathway or timeline of technological invention and use.

Another case in point is the wireless. Initially invented by Guglielmo Marconi as a replacement for the telegraph, which was reliant on connection by wire, the primary application of the wireless was in providing transmission of Morse code from point to point between one ship, the shore, and other ships (Barnouw, 1990, p. 9). Though the capability for broadcasting was present within the technology, even when Reginald Aubrey Fessenden perfected the wireless transmission of voice in 1906, and soon after Lee de Forest integrated the Audion tube (which allowed the detection, amplification, and generation of radio waves), there was still no apparent social or economic desire for radio to be a commercially-focussed broadcast medium—such as we currently experience it (Barnouw, 1990, pp. 15-17).

Amateur radio at this time, however, was rife to the point where in 1912 the U.S. government saw fit to licence the transmission of radio waves, to little effect (Barnouw, 1990, p. 17). Wireless telephone ‘hams’ conversed with each other and provided ‘air concerts’ to the tune of 8,562 licences in 1917; just before they were ruled off the air as the United States entered the First World War (Barnouw, 1990, pp. 9-21). At this juncture, the medium of radio could have experienced a divergent social appropriation of the technology. This
hypothetically may have consisted of a network of wireless telephones connecting individuals, rather than the commercial broadcasting model of radio we now know. The U.S. navy put an end to that possibility, though, as a monopoly was proposed that created a chain of events from which the ham-operator amateurs never fully recovered (Barnouw, 1990). This example demonstrates that the social use of a technology is not directed solely by the technology itself, and, in this case, political and military forces had much to do with it.

In challenging the notions that technology is autonomous and is the cause that affects society, and instead emphasising the perspective that society influences the creation, implementation, and appropriation of technology and reconfigures its processes and use, I perhaps appear to have then painted the technology itself as passive in their relation. MacKenzie and Wajcman argue that, in regard to the possibility of technologies appearing neutral, one “would be terribly mistaken, however, to jump from the conclusion that technology’s effects are not simple to the conclusion that technology has no effects” (1999, p. 7). Rather, as is clear in my understanding of the concept of affordances, all technologies that support human expression and communication furnish action possibilities and constraints that are inherent to their design and materials of construction. In turn, a medium’s affordances shape and guide its use.

For example, the medium of writing cannot be used for any purpose that a society wishes. I might choose to employ a pencil and paper to communicate handwritten text across space, but I could not use the same to communicate the very sound of my own voice. The combined technologies of pencil and paper realise particular objectives within human communication, and simply do not support the replication, or simulation, of one’s personal sound waves. Mackay and Gillespie support this in their view that “a technology’s social
appropriation is shaped, or constrained, by its physical nature” (1992, p. 700). In essence, as described in the introduction to this thesis, particular technologies—and hence the mediums that they support—offer and deny specific expressive and/or communicative affordances. These affordances are an inseparable relation between materiality and culture.

### Medium Affordances

The concept of affordances renders debates regarding technology and society, and their specific relation to the medium, as redundant. That is, it would be inaccurate to think of technology and society as mutually exclusive entities that operate separately, and yet affect each other. Lynette Khong calls this a form of object/subject dichotomy, where artefacts are conceived as either being acted upon by humans, or acting upon humans (Khong, 2003, p. 697). Indeed, social relations cannot be separated from technology, and technology cannot be separated from social relations. In fact, it seems that not recognising the mutually associative nature of technology and society is core to the mistake of reverting to a technological determinist, or a social determinist, position when considering techno-social evolution. To complicate matters, Khong suggests that the object/subject dichotomy plagues Western thinking, and that our “subject-centred view of the world” (2003, p. 698), in turn, encourages the persistence of the opposing views of technological determinism and social determinism.

Khong recognises that the elimination of this traditional distinction between object and subject is difficult to attain, but necessary in rethinking our relationship to technology (2003, pp. 703-704). One thing is clear, however: the definition of what a medium is should be a rejection of both the technological and social determinist positions. Indeed, Gibson’s (1977) very notion of affordances denies the binary separation of both, as it relies on the direct
relation between objects, environments, and individuals. Thus, perhaps a more appropriate understanding of a medium is as a fundamentally integrated product of both its technological affordances, and social acquisition and integration (Hutchby, 2001, pp. 13-33).

A medium’s communicative biases and practices are directly related to its available affordances. For example, the underpinning technological support of scribal communication necessitates that people who wish to communicate with each other by handwriting may need to live close together, especially if they cannot economically afford otherwise. Of course, this is only true until an electrical extension of scribal communication is applied, such as transmitting the written text by telegraph, or texting via a mobile phone. Introducing new technologies such as these, in turn, brings new affordances to the communication process. In fact, they introduce new mediums of writing—as electrical forms of immediate text-based expression and communication over distance.

The new expressive and communicative affordances offered by an electrical-writing medium subsequently affect communication practices and social relations, through writing, quite differently. That is, due to the instantaneous nature of electrical transmission, distance between the sender and receiver of the written text is effectively compressed. Hence, through its electrification, people who want to keep in touch with each other through writing can do so at greater distances. This communication practice was used by American newspapers in the mid-19th century to keep their content current, subsequently rendering news useless if delayed (Winston, 1998, p. 28).

Technically, an electrical signal is not completely instantaneous in its transmission, and is merely so rapid that it exhibits a ‘pseudo instantaneity’. However, it is near enough for the purposes of theoretical discussion.
I have attributed the affordances offered by a technology to its practical potentials, but also to its limitations and restrictions. It is clear that the many possible affordances offered by the technological support of a medium are crucial in determining what a medium can facilitate in terms of human expression and communication. Of equal importance, however, is what a medium’s supporting technology cannot afford, or what Gibson calls its ‘negative affordances’ (1979/2014, p. 59). That is, what the medium cannot be used to do. Hutchby calls this the ‘constraining materiality of artefacts’ (2001, p. 14), as opposed to their enabling functionality, while Norman calls the same concept an ‘anti-affordance’ (2013, p. 11).

For example, both the cinematic and televisual mediums can support the presentation of moving images, but when television was introduced it became more apparent (and relevant) that cinema could not present them as ‘live’ content. Thus, ‘liveness’ is one of cinema’s anti-affordances. The immediate representation of movement is simply not one of traditional analogue cinema’s affordances, and as such only exhibits support for asynchronous communicative practice over large distances. Thus, cinema’s necessary temporal delay, from moving image acquisition to display, is one of its limitations and restrictions that serve to define the communicative potential of the medium in addition to its potentialities. This is very much a part of a medium’s specificity, and hence definition, in relation to other mediums.

The early theories of ‘media ecology’, which share much in common with medium theory, also remind us that mediums do not operate alone, but instead exist as complex environments where mediums play against each other and in dynamic engagement with culture (Media Ecology Association, 1999). Thus, mediums should not be thought of as purely solitary, fixed-material technologies, as much as “environments in which we discover, fashion, and
express humanity in particular ways” (Postman, 1979). A more recent version of media ecology has been introduced by Matthew Fuller (2005), which focuses on mediums as ‘complex dynamic systems’. It is a materialist perspective, and in tune with mediums being “an explosion, a passion or capacity settled temporarily into what passes for a stable state” (Fuller, 2005, p. 1). Mediums as aggregative technologies interact with organic beings as political and poetic objects—with varying dimensions of relationality. To Fuller, the affordances offered by a medium are subject to unpredictable capacities of thought and action, and the irregular dynamic nature of machinic combinations, which produce “something that is in virulent excess of the sum of its parts” (2005, p. 173). The significance of a medium’s materiality in relation to its potential for expressive and communicative use, however, is as ever-present in both variations of the theory of media ecology as it is with that of medium theory.

The place of medium theory in the above-mentioned object/subject debate is, as Potts (2008) explains, one which signifies apparent technological determinism. Indeed the essence of medium theory espouses that “the most significant cultural and social effects of media derive from the intrinsic properties of the media themselves” (Potts, 2008), which leaves it open to criticism regarding lack of social intention. Medium theory, however, does not preclude that new technologies are invented by humans with specific social needs and desires. Nor does it deny that individuals can engage with technology in new ways, and devise new methods and processes of use. What medium theory does do, is suggest that once a technology has been designed and invented its further social uses are enabled and restrained by the affordances offered by its technological support.

That is, the potential for human expression and communication is directly related to the affordances offered by a technology. Hutchby states: “The
affordances of an artefact are not things which impose themselves upon humans’ actions with, around or via that artefact. But they do set limits on what it is possible to do with, around or via the artefact [emphasis in original]” (2001, p. 33). In this, a medium is a socially embedded communication technology, which is appropriated, shaped, and used by humans within the potentials, limitations, and restrictions of its affordances in direct relation to its underlying technological support. This engagement between technology and society results in what are called ‘medium specificities’.

**Medium Specificity and Medium Essentialism**

The much-debated artistic concept of ‘medium specificity’ is not always accepted by media theorists. It does hold relevance, however, as some mediums can be seen as both artistic and communicative, film being a case in point. Also, media and cultural theorists, such as McLuhan (1964) and Williams (1974/2008), apply a very similar concept of analysis within their work; in short, that specific mediums have specific social effects. A theory popularised by art critic Clement Greenberg (1940/1986) in the early 1940s, the artistic principle of medium specificity is somewhat prescriptive in “that a work of art can be said to be successful if it fulfils the promise contained in the medium used to bring the artwork into existence” (Schram, 2009). This emphasis on quality in relation to the ‘appropriate’ use of mediums to produce artworks has proven to be controversial. In relation to cinema, for example, Noel Carroll has debated the worth of the concept of ‘medium specificity’ in that he sees it as curtailing the freedom of the artist to explore the potential of the heterogeneous assemblage of this medium (2008).

The discordant roots of the theory of medium specificity stretch at least as far back as 1766. In that year Gotthold Ephraim Lessing wrote contemptuously of his contemporaries, as they dared to correlate the plastic art
of painting with that of poetry, in what is now considered his seminal work in medium specificity, *Laocoon* (2009). Lessing held that particular art forms were instructed by the properties of their medium as to the types of art they should produce. Even further, artists not respecting these inherent specificities would fail in producing high quality works. As an example, Lessing’s view was that poetry, by virtue of its raw material, is best at portraying events that have an on-going temporal nature. As such, an artist working within the medium of poetry would fail if they tried to depict, for example, a single moment in time.

Lessing’s position can be said to be based on his understanding of each medium’s affordances. That is, his view is that each artistic medium has, as a foundation, material properties and characteristics that support certain areas of competence and quality in the production of art-work. For traditional poetry it is writing words on paper, and for traditional painting it is applying paint, pigment, or colour to a support base. Of course, the affordances of an artistic medium are subjective and manifold and, in some ways, as I have noted, it is the individual artist’s role to explore new potentialities and the boundaries of its limitations due to its particular technological support. This creates a tension as to what the socially-accepted specificity of an artistic medium actually is, and whether one should comply with it when creating art, or challenge it. Because of this, it is perhaps more valuable to think of medium specificity as what a medium is usually used for as distinct from other mediums, subject to its affordances and anti-affordances. In this, the described specificity of a medium is not directly related to a quality judgment of its content, and is often evolving and mutable.

In 1940 Greenberg (1940/1986) popularised the notion of medium specificity in artistic circles, and addressed it in (what is now considered) an extreme sense. He explained in his essay *Towards a Newer Laocoon* how the arts
in the modern age had been “hunted back to their mediums” (Greenberg, 1940/1986, p. 32) and proposed purist definitions of the essential characteristics in popular visual mediums of the era. This perspective reduced a medium “to nothing but its manifest physical properties”; even to the extent of ignoring subject matter within the art piece (Bernstein, 2004). The reductive nature of this view relies on the willing standardisation of appropriation of each art form’s affordances and anti-affordances, and emphasises the opacity, or obviousness, of the medium itself.

This ‘essentialist’ view of medium specificity seems to be the artistic parallel of a technological determinist position, in that it denies the inclusion of social shaping or influence as to what a medium is. I have already established from my critique of the theory of technological determinism that a technology that supports a medium is developed within a framework of socio-cultural practices, and can also be appropriated by society in unintended ways. This suggests that Greenberg’s notion of each medium having specificities that are purely reliant on physical properties, seeks to undermine any artistic appropriation or control. There is no scope for artists to interpret the medium, or adapt it to new ends, as the manifest physical properties determine how the artist should approach the act of creating the artwork. Once these are discovered and designated, presumably, there is little choice in the attempt to produce high quality works of art than to follow their lead. Yet the anti-affordances offered by a medium’s underlying technology also impose limitations and restrictions upon the artist as to its eventual use. In combination, I suggest that the affordances and anti-affordances of a medium define not so much what the medium should be used for, as what it can and cannot be used for. The rest is up to the artist.
In this description of mutable ‘medium specificity’, a medium (in relation with social forces) can strive to hold its place in between other mediums. As such, the medium can defy obsolescence by maintaining individuality through manipulating and modifying the original conventions of expression and communication afforded by the various elements of its technological support. For example, cinema supports image, sound, and text, and, as a composite and aggregative technology, consists of (at least) a film camera, a place for viewing, a film projector, a screen, speakers, film-editing technology, and film-processing technology. As an institution it comprises a range of personnel, such as production studio executives, scriptwriters, production cast and crew, cinema-owners, cinema-reel delivery drivers, media-based film critics, and media lawyers. Through amalgamation and permutation of these technological and social facets, cinema manages to find its distinctive place amongst other existing and possible moving-image mediums. The fact that cinema continued to exist after the introduction of television in the 1950’s is testimony to this.

In the same vein, Gaudreault and Marion introduce the concept of a ‘weak medium’ or one that is “absorbed by its intermedial use” (2005, p. 7), acknowledging the term ‘intermedial’ as the place between mediums. Dick Higgins introduced this term to art theory in 1965 and described it as a collision of mediums; the place where the artist consciously overlaps them (2001). An example of this would be a painting where the visual element is constituted by written words, or photographs presented in a temporal slideshow format with music. As a blend of images and the written word, comic books could be classified as intermedial, or they could be considered a genre of either literature or drawing. As a matter of classification they could even be considered a
medium in their own right—depending on the respective cultural understanding and use of the term.

The intermedial is thus a place of medium uncertainty, of exploring hidden affordances and examining the potentials of new methods of expression or ways of communicating within the world. This also applies to mediums that are potentially reaching a dilution of specificity that precludes them from maintaining their status as a medium. In Gaudreault and Marion’s view, television is a potential candidate in this regard, as it increases its transmission and display scope to DVDs, the Internet, video games, and the like. In essence, they suggest that television may lose its place as a distinct medium in its increasing diversity of technological constitution and social use.

Michael Strangelove has also suggested that in a highly fragmented media culture, “television could lose its special status in the mind of the audience” (2015, p. 13). Television is evolving into the online space, where existing understandings of what it entails are being disrupted. This stems from television being orphaned from its traditional singular device, the television set, and as a consequence we can now see television everywhere in its new incarnation as ‘video’. This concept will be discussed further in Chapter Two, as I explore the evolution of television’s technological support through the introduction of the Internet.

In terms of a medium’s longevity, it is imperative that differentiation of specificity is maintained, no matter what evolution or metamorphosis of the existing array of mediums is experienced. If two mediums offered exactly the same affordances, and as a result possessed identical specificities, one would likely be dissolved. Similarly, the intermedial space is where two existing mediums can potentially combine to develop a new specificity, and hence inspire the development of an entirely new medium. An example of this is that
television, in some ways, reflects the conflation of the mediums of radio and cinema. This is also indicative that mediums undergo an evolutionary process.

**Medium Evolution**

‘Medium evolution’ is the sense that the metaphor of biological evolution can be used to describe the process of conception, emergence, and continuing existence of technologies (Basalla, 1988). Thus, “every new medium incorporates elements of previous media (physical and/or functional)” (Lehman-Wilzig & Cohen-Avigdor, 2004). This can be seen by unpacking cinema as a blend of the concepts and constituent technologies of, at the very least, photography, theatre, and hand-drawn animation techniques of the late 19th century. The process of combining the concepts and technologies that support existing mediums can eventually result in a new medium, one which can negotiate its own specified place within human expression and communication.

Gaudreault and Marion concur with this notion, and also offer a valuable theory of medium evolution in their article: “A Medium is Always Born Twice” (2005). They conceptualise the birth of a medium as being when a “new medium finds its place, its identity, and its acceptance by going through three stages – appearance, emergence, and constitution” (2005, p. 12). This theory identifies the stages of an early technology as a ‘crypto-medium’ (before it can be known as a singular medium), as at first introduction it adopts the nature of existing practices of mediums in an unstable and ‘intermedial’ state. Then, through maturity, it offers itself as a new platform for exploration in expression and/or communication. Finally, through institutionalisation, the medium defines itself as a medium in its own right, with its own socially constructed and shaped language. This final stage of medium emergence is seen by Gaudreault and Marion as a medium’s ‘rebirth’ (2005).
In relation to cinema, Gaudreault and Marion locate the first stage of its ‘appearance’ where “the cinématographe was seen, above all, as a new way of presenting already well-established entertainment ‘genres’: magic and fairy shows, farce, plays and other kinds of stage performances” (2005). This made cinema an extension of earlier communication practices, from where early filmmakers began to explore the affordances of the emerging medium. As specificities of cinema, and its expressive medium of film, began to materialise, and artistic conventions were developed, its institutionalisation also began to take shape. The constitution of cinema as a singular medium followed.

Though the process of medium emergence and rebirth described above may, in some ways, seem technologically determinist, one should note that the three stages are deeply rooted in social experimentation and appropriation. Gaudreault and Marion (2005) link the whole process closely to a medium’s ‘institutionalisation’. In their view, “it is part of a process wherein an institution assumes control of the medium, establishes its internal consensus, and regulates it. At the same time, this institution is created by, for and around the medium” (2005, p. 3). The institution in this case is the network of cultural, economic, and political structures that a society creates to accept, shape, standardise, evolve, and govern a new medium.

During the institutionalisation phase of a medium’s emergence, a society not only explores that medium’s unique affordances, but “develops new economic models … [and creates] a new political framework and a new legal order” to monetise, regulate, and support a new medium (Stober, 2004, p. 485). At the advent of cinema, this included the creation of jobs and industries associated with producing and distributing films, the building of infrastructure such as cinemas for screenings, the establishment of government bodies to regulate production and funding, and the growth of a culture of public
cinematic consumption. Thus, the ‘institution’ can be seen as a larger part of a medium’s existence within a society. Indeed, the technological developments of a medium cannot be entirely separated from the larger institutional picture that includes its political, social, economic, and cultural aspects (Stober, 2004, p. 501). All of these work to make a medium what it is.

Gaudreault and Marion’s theory of medium rebirth implies a negotiation of a particular medium’s specificity in terms of its affordances. That is, it provokes a jostling for position within the existing subset of medium specialty. They also state that “a good understanding of a medium thus derives from its relationship to other media; it is through intermediality, through concern with the intermedial, that a medium is understood” (Gaudreault & Marion, 2005, p. 7). At the same time, existing mediums will also be subject to the re-negotiation of their social use, as they are threatened with potential dissolution by the emergence of new, similar, mediums (Lehman-Wilzig & Cohen-Avigdor, 2004, pp. 716-719). This can be seen in the ways that the institution of cinema has reacted to the emergence of new moving-image mediums, particularly in addressing the potential threat of television in the early 1950s.

When the new moving-image medium of television emerged, the existing institution of cinema strove to avoid intermediality by evolving its technological support—hence altering its offered affordances. In this light, the cinematic screen ratio was increased from 4:3 to a widescreen 2.39:1, multiple-channel stereo audio was introduced, and alternative methods of presentation were explored in multi-projector Cinerama and 3D Cinemascope (Hilmes, 1990, pp. 123-124). This, in turn, subsequently impacted upon its stylistic and grammatical conventions and audience experience. Interestingly, as threats to cinema’s existence as a narrative, moving-image medium are currently posed by digital television, home cinema, and Internet video, we see various new
stereo-visual technologies emerging on the cinematic front, as the institution of cinema seeks to redefine itself and maintain traditional theatrical cinema’s status as a singular medium. Television has of course followed suit, with its own experimentation in stereoscopic vision, widescreen format, and surround sound.

In addition to this, as more ‘off-the-shelf’ new home packages come with a room designed specifically to function as a home ‘theatre’, we can further appreciate the jostling for position within the subset of medium specificity in relation to the future evolution of traditional cinema. Producers of consumer electronics, Phillips, have released a screen which they market specifically for home cinemas that they actually call ‘Cinema 21:9’ (Figure 1). The screen was marketed as “the world’s first ultra-wide TV that perfectly matches the original 2.39:1 movie format used by directors” (Koninklijke Philips Electronics N.V., 2009), and, as most television and video screens are 16:9 in aspect ratio, it was an obvious attempt to capture the movie-theatre going audience by more closely simulating the experience of watching a movie in a cinema. Philips stated in their website marketing blurb: “we don’t just watch films at the

Figure 1: The Philips Cinema 21:9 HDTV with ambilight (Murph, 2009)
cinema, we experience them. The big screen. The booming sounds. A special night out. It is a treat for all the senses. The Philips 2009 range of televisions take you as close to the experience that you enjoy at the cinema as you can get without buying a ticket” (Koninklijke Philips Electronics N.V., 2009). The only thing missing from Philips’s simulation of cinema is the ‘special night out’.

Philips even invented a technology to work in conjunction with their new ‘cinematic’ screen called ‘ambilight’, which projects a blurred light reflection of the visuals seen on the screen on the wall behind the perimeter of the screen itself. This is an obvious emulation of one of the technological characteristics of a traditionally projected cinematic experience, and aims to offer the aesthetics of its technological support to the home cinema viewing public. Thus, as home and traditional cinema grow more similar, whether the latter will dissolve through decrease in social use and intermediality is yet to be seen, and economics may ultimately be the determining factor. Conversely, their respective enduring classical specificities of private and public viewing may foster the survival of both as separate mediums. This is a clear example of the complex array of tensions that mediums are subject to as their supporting institutions strive for their singularity. The process of home cinema borrowing modes of presentation from traditional cinema is also one example of what Bolter and Gruisin call ‘remediation’.

**Remediation**

Bolter and Gruisin coined the term ‘remediation’ in their book of the same name in which they define it as “the formal logic by which new media refashion prior media forms” (2000, p. 273). That is, new mediums build on old mediums, at the same time adding scope for new methods of expression or communication. Another example of remediation is the adaptation of a Jane Austen novel into a Hollywood movie (2000, p. 44), yet Bolter and Gruisin also
define remediation as “the representation of one medium in another medium” (2000, p. 45), which implies a more complex mode of remediation.

The first example is the remediation of an existing medium’s content, while the second description implies that the medium itself is remediated, such as when the introduction of television challenged the continuation of cinema as a valuable medium of the moving image. Television did this by adopting cinema’s socio-cultural uses, in the presentation of moving-image content, but added to that the instantaneity of distribution and private consumption as new communicative affordances. Of course, if the institution of cinema had dissolved entirely due to the emergence of television, various cinematic affordances would also have been lost. One instance of this is cinema’s propensity for presenting moving images as public exhibition, another is the uninterrupted, larger-than-life, feature-film format. From the above it can be seen that there are potentially multiple uses of the term ‘remediation’, and thus the term requires clarification.

Lars Qvortrup also recognises the multiple modes of the term ‘remediation’:

In some cases, remediation means ‘refashioning’ (Bolter and Gruisin 2000: 14). A new medium ‘refashions’ a predecessor in the sense that it improves a predecessor. Digital visual media improve and thus refashion analogue media. In other cases, remediation means ‘representing’ (Bolter and Gruisin 2000: 45). Web sites offer pictures or text for users to download. Thus they ‘represent’ the older medium within the context of the new one. A third definition is that new media ‘borrow’ from older media such as a painting that incorporates an older painting in it or re-interprets the former painting (Bolter and Gruisin 2000: 49). In this respect for instance
Picasso’s art practice was one of remediation. Finally, ‘repurposing’ is also defined (cf. p. 50) \(stet\), the idea being that a new medium borrows from an older one to fulfil a purpose (2007, p. 23) \(stet\).

As a refinement of the different modes of remediation identified in Bolter and Gruisin’s (2000) book and loosely outlined by Qvortrup, I would suggest that they reflect the elements of Foulger’s (2005) ecological model of communication. That is, Foulger sees communication as messages, embedded within language, embedded within a medium. Hence, the various modes of remediation can be described as remediating the message; remediating the language, aesthetics or grammatical elements; and finally, remediating the medium itself. Of course, in this, the many modes of remediation are not mutually exclusive, and more than one may be present at any one time.

The remediation of the message can be seen, to use Bolter and Gruisin’s own example, “when a film borrows from an earlier film” (2000, p. 49). Note that in this instance the two texts are within the same medium. However, it can also happen between different mediums of the same modality, such as when a particular film gets made into a television series with the same story and characters; film and television both being mediums of the moving-image. The feature film Fargo (1996), by the Coen brothers, is an example of this, as it was turned into a series of ten episodes based on the film itself. In fact, remediation of the message can even be seen to occur between mediums across modalities, as when a book is turned into an audiobook by recording a narrator reading it aloud. This type of remediation is the crux of Ryan’s (2004) book, Narratives Across Media: The Languages of Storytelling, as she points out that when the medium changes, it affects the narration, the text, and even the story. It can also be experienced between disparate mediums; such as when a painting is used as
part of the background within a movie. In this the film re-contextualises the painting, and yet the painting also creates context within the film.

The remediation of language, grammar, and aesthetics can be realised when a feature film borrows production techniques from a music video (which began as a televisual genre) to depict a certain feel within a scene. Andrew Dominik’s film *Chopper* (2000), does this when it portrays lead character, Mark ‘Chopper’ Read, after having taken amphetamines in Neville Bartos’s private bar. The technique in play here is based on manipulation of the film recording and playback speeds, and is traditionally used in music videos to create a frantic, rushed, effect. A television program can also remediate the language of film in its use of certain styles of temporal montage; the ‘jump-cut’, for example. This cinematic technique was arguably first used by Jean-Luc Godard in his feature film, *Breathless* (1960). This mode of remediation is also usually between two similar mediums; in this case film and television are both mediums of the moving image.

Finally, a medium can remediate another medium; which Bolter and Gruisin define as “a more complex kind of borrowing in which one medium is itself incorporated or represented in another medium” (2000, p. 45). An example of this is in television remediating its ancestral moving-image medium of cinema. Television resembles and reflects cinema, in that both represent the world using similar visual language through manipulating moving images shot with a camera, and yet the newer medium of television brings novel specificities to moving-image communication. As such, television can fulfil the same communicative functions as cinema, only that its distinct technological support also maintains its specificity.

Television affords the near-immediate and simultaneous display of moving images in distant locations. This is something that traditional analogue
cinema cannot afford, due to the limitations of its technological support and the fact that its medium content is a material object; namely, a reel of film. Thus, though similarities between the moving-image mediums of cinema and television exist, television offers a new mode of instantaneous communication to its moving images. Indeed, television also applies this affordance to feature films made initially for cinematic presentation, which television readily includes within its daily screening schedule.

Further, this new affordance of instantaneity offers the creators and users of television a new communicative practice—that of synchronous communication through moving images over distance. This stimulates new experiences in the engagement of cultural texts of the moving image, in the form of ‘live’ representations—such as news broadcasts. An expressive example of television’s remediation of film is that, due to the former’s electrical nature, multiple video cameras can be live-switched and broadcast while filming a singular event. This affordance promoted the existence of live game shows in early television programming, and fostered a new genre of the moving image. Such examples of new affordances are key to identifying television’s remediation of cinema.

Bolter and Grusin also signal the concept of ‘reciprocal remediation’, where an older medium is seen to borrow from a younger one (2000, p. 105). They use digital photography and computer graphics as an example, where the first is an evolution of the existing medium of analogue photography, and the second is a new medium emerging from advances in digital computer technology. This new medium consists of images created with a computer program that remediate traditional photography, in the sense that they are images, and yet have no causal connection between the image and the world. Traditional photography, in turn, remediates computer graphics in adopting
digital recording and processing, which results in images that can be digitally manipulated with ease. In the process of reciprocal remediation, Bolter and Gruisin identify the old medium of analogue photography as evolving to avoid being overcome completely (and presumably, being dissolved), which further implies a constant tension between these two mediums (2000, pp. 105-106). The process of reciprocal remediation is thus crucial to the ongoing negotiation and renegotiation of technological and cultural positioning that both old and new mediums engage in to establish and maintain their place within the expressive and communicative practices of a particular society.

It is evident from this discussion that the remediation of a medium is a complex process that requires deeper exploration. This is particularly true in the example above of television’s remediation of cinema, as it does not begin to take into account the transition of both mediums into the digital age. I shall undertake this exploration in Chapter Two, as I work towards establishing an understanding of the complex evolution of existing mediums through radical technological invention, such as cinema has done with the introduction of electricity, and both cinema and television have experienced through digitisation. I should note that it is primarily the remediation of the medium itself which I will discuss in this thesis, as I wish to show that YouTube is a moving-image medium which remediates cinema and television. Other modes of remediation may at times, however, be noted as relevant.

Remediation is not entirely a new theory, and as such Bolter and Gruisin defer to McLuhan who (perhaps controversially) suggested in the opening pages of Understanding Media: The Extension of Man that “the ‘content’ of any medium is always another medium. The content of writing is speech, just as the written word is the content of print, and print is the content of the telegraph” (1964, p. 8). Directly after their homage to McLuhan in their book, Remediation:
Understanding New Media, Bolter and Gruisin argue that “remediation is a defining characteristic of new digital media” (2000, p. 45), which appears somewhat contradictory to McLuhan—in that the latter can be read as suggesting that all mediums have remediation as a defining characteristic. Indeed, shortly after, Bolter and Gruisin also agree that “a medium is that which remediates” (2000, p. 65), demonstrating a conundrum that brings into question the special type of remediation that seems to exist with, what is often currently called, ‘the digital medium’. Klauss Bruhn Jensen recognises this conflict regarding the meaning of remediation, in light of Bolter and Gruisin’s comment, in saying that “it is not clear what old media used to do” (2007). This problem of how remediation differs between traditional analogue mediums and ‘the new digital medium’ is something that will be discussed further in Chapter Two when I examine the digital computer’s status as a meta-medium.

If all mediums do indeed exhibit the defining characteristic of remediation, the question could be asked as to why. Bolter and Gruisin do not appear to address this in a concrete way, but they do touch on what I believe is the answer in the introduction to their first chapter: “the process of remediation makes us aware that all media are at one level a ‘play of signs’” (2000, p. 19). This concept aids in understanding how remediation works, in particular, as an explanation of Gaudreault and Marion’s (2005) concept of medium rebirth. During the initial phase of a new medium, the sign system (or what is fundamentally, the language of the specific medium) used to communicate is borrowed from its existing ancestral mediums. This appropriation of the existing shared language allows receivers of messages within the new medium to work with established systems of signs when constructing meaning. That is, if theatre is already a functioning social and cultural communicative system of signs, then the emerging medium of film can first work within that known
system to support continued communication between the senders and the receivers. True to this, the first incarnations of narrative cinema were purely filmed theatrical performances (Rozik, 2005), and cinemas have since been known as ‘movie theatres’.

Remediation can also be seen to be embedded within the concept of medium evolution, whereby the technology and concepts underpinning existing mediums combine to form a new one (e.g. television can be seen as a hybrid of the concepts of, at least, radio and cinema). In the early stages of its social introduction, a new communication technology will borrow the sign system of the existing mediums from which it spawned. Eventually then, as it becomes habituated within social practices and institutions, it will enter into what Gaudreault and Marion call a ‘rebirth’ (2005). From here it is constituted as a medium in its own right; with its own evolving language system that is extended from those of its ancestral mediums.

Television’s multi-camera aesthetic stems from the offered affordances gained due to its electrification of the moving-image, and is an example of this ‘rebirth’. In this, television still shows resonance with the traditional cinematic signs of moving-image representation, such as temporal montage and cinematography. However, the live-switching of multiple television cameras that supports the broadcast genres of the talk show, live sport programs, and the news program, are something that traditional film-based cinema cannot afford. Thus, multi-camera live-switched television has its own system of signs and conventions of expression and communication. Further, these have been widely adopted by television networks to create content for eager armchair-audiences that is expressly televisual.

Referring to the emergence of new mediums, Stephen Holtzman states that “repurposing [by which he means the borrowing of old mediums’
language systems] is a transitional step that allows us to get a secure footing on unfamiliar terrain. But it isn’t where we’ll find the entirely new dimensions of digital worlds. We need to transcend the old to discover completely new worlds of expression” (1997, p. 15). The ‘new worlds of expression’ that Holtzman refers to are the entirely new conventions and sign systems that emerge upon the second birth of the medium, particularly one that stems from a medium of similar modality (e.g. both being mediums of the moving image). As noted in the multi-camera television example above, this new language exhibits characteristics that are not directly related to the mediums from which they descend. This is because new mediums are born from a new technological support, and hence offer new affordances that facilitate unique processes and practices of expression and communication.

The above is an example of new mediums remediating existing mediums. As television emerged as a singular new medium in its own right, it developed a language, a social process of engagement, and an institution of its own, based on the affordances of its unique technological support and its social construction, adoption, and shaping. Of course television also still holds traces of other sign systems of the mediums from which it was originally born, such as those of cinema and radio. These are transformed, blended, and embedded within television as a newly-emerged electrical moving-image medium, though. Remediation is an integral part of the evolution of mediums, and I will demonstrate in Chapter Three that YouTube remediates the traditional mediums of cinema and television.

**Conclusion**

Key to this chapter is establishing the perspective of analysis that I wish to take throughout this thesis: that of medium theory. Medium theory recognises that social and cultural effects of mediums stem from the inherent
characteristics of the technology that supports the medium itself. It is the latter from which a medium’s affordances emerge. McLuhan was a key advocate of this style of thinking, and his famous axiom ‘the medium is the message’ functions as a catchphrase for many medium theorists (1964, pp. 7-21). The medium’s expressive and communicative affordances have a greater effect on large scale social structures and relations than its content. Further, one should look to the properties of a medium to determine what makes it specific from other mediums in terms of its cultural and social use.

As adapted from Ryan’s (Introduction, 2004) perspective, mediums can be separated for the purposes of analysis into two categories: expressive mediums and communicative mediums. The former are about the creation of meaning within a medium, and the latter are concerned with delivering meaning to someone else who shares an understanding of the medium’s language system. As people communicate with mediums, as opposed to simply sending independently created messages through them, the message is inextricable from the medium itself. It can be appreciated that communication mediums begin with some form of expression or configuring. Traditional cinema can be said to begin with the expressive medium of film, and broadcast analogue television can be said to begin with the expressive medium of video. I call these two groups of mediums matching pairs of expressive and communicative mediums.

Two extremes in perspective relate to theories regarding mediums: technological determinism and social determinism. Respectively, they debate whether technology or society has more effect on techno-social evolution. In reality, these two perspectives imply an object/subject dichotomy that should be precluded when thinking about the relationship between society and technology—as these do not exist as separate entities that impact upon each
other. Instead, the affordances offered by a technology, and hence a medium, are the result of a mutual relationship between the subject and the object; in being what an object allows or denies in terms of a particular subject’s action potential. Thus, it can be seen that the most appropriate way to think about technology and society is that they are intrinsically linked, and cannot be separated for the purposes of determining techno-social evolution. Further to this, all mediums exist in an ecological system in relation to each other and human beings.

Perhaps the most important aspect of this chapter has been the examination of how mediums emerge, evolve, and combine to form new mediums. Mediums are processes of technologically supported human communication. The first step in the evolution of any medium is the emergence of a new technology of communication, which usually stems from merging the technology and concepts of two or more existing mediums. In this sense, cinema can be seen to be the conceptual blending of stills-photography, theatre, and hand drawn animation, at the very least. This is an example of one of the modes of remediation, as the emerging medium borrows the sign systems of communication from its ancestors. This allows audiences to engage with the new medium by recognising and understanding the language system, as shared symbols of representation, of old mediums.

As a new technology of expression and/or communication emerges it undergoes social adoption, shaping, and appropriation. During this time, creators and users of the technology determine its possible communicative uses and foster its evolution. These are sometimes different from that supposed by the developers of its technological support, though it also must be remembered that a medium’s affordances and anti-affordances are relative to any underpinning technological support. Through social adoption, shaping, and
appropriation a new language emerges along with specific social conventions and cultural practices.

At the time of its constitution the medium can be understood as undergoing what Gaudreault and Marion (2005) call a ‘rebirth’, and will evolve with its own specificity of use, or that which defines it as different from other mediums. If it is a complex medium that consists of many technological parts, such as film, the medium’s specific industry will manipulate this heterogeneous set of technological supports to resist intermediality; that is, to maintain differentiation from other mediums, as new mediums emerge and existing mediums evolve. Mediums then exist over time as evolving entities with shifting specificities. The constitution of a unique singular new medium is embedded within its institutionalisation. That is, in a wider sense, a society develops political, economic, legal, and cultural support for the new medium. I will use this understanding of the emergence of a medium to describe YouTube’s emergence and rebirth in Chapter Three.

In comprehending medium evolution it is crucial to understand that the process of remediation is where new mediums begin; as Bolter and Gruisin say, “a medium is that which remediates” (2000, p. 65). Remediation is essentially “the formal logic by which new media refashion prior media forms” (Bolter & Gruisin, 2000, p. 273), and as Qvortrup (2007) points out, can manifest in various modes. The mode that I wish to focus on in this thesis is the remediation of one medium by another. This can be seen in television’s remediation of cinema, as both are mediums of the moving image, but television adds a new property to the moving image that cinema did not possess. The property I mention is television’s characteristic of delivering the moving-image instantaneously to people’s homes across space. I will discuss this property of television further in Chapter Two. In Chapter Three I will then
examine YouTube for instances of remediation in demonstrating that it is a digital medium.

With a thorough understanding of how I will use the term ‘medium’ in this thesis, in Chapter Two I will discuss how this term is deployed in new media theory; specifically, that the networked digital computer is the medium to end all mediums. In relation to this I will show that, from one perspective, the history of medium technologies demonstrates periods of foundation technologies. These foundation technologies exhibit unique proto-affordances which inspire periods of new medium emergence. The proto-affordance of each foundation technology influences the way that mediums spawned from the new epochs can affect a society within which they exist. I will also propose a redefinition of the position that the computer is a medium to end all mediums. The key to this is that digitisation can be seen as another foundation technology from which new mediums emerge.

In Chapter Two I will also explore the evolution of moving-image mediums from the magic lantern and the telegraph to cinema and television. Crucial to this examination is how mediums that emerged from the introduction of historical foundation technologies transition through newer ones. Following this history demonstrates that old mediums often retain traces of their original proto-affordances as they evolve by adapting and converging with new mediums. Further, these old mediums can be remediated by emerging mediums due to the new foundation technology’s offering of a new proto-affordance. Recognition of the theories and concepts in Chapter Two will enable me to examine, in Chapter Three, the potential for YouTube, as a platform of digital moving image communication, to be acknowledged as a medium in its own right.
CHAPTER TWO: An Alternative Perspective of Medium Evolution
Introduction

I have examined the concept of the medium from a historical and theoretical perspective, and explored its processes of emergence, constitution, expression, and communication. This thesis sets out to show that the concept of the medium persists within the online environment, and that YouTube can be considered a moving-image medium, just as cinema and television are. It is clear, however, that many theorists already consider YouTube a medium. Such research focusses on disparate fields of knowledge such as sport (Stauff, 2009), dentistry (Knosel, Jung, & Bleckmann, 2011), cancer research (Chou, Hunt, Folkers, & Augustson, 2011), and relate to diverse topics such as juvenile fire-setting (Thoman, MacKay, & Salsbury, 2012), US presidential elections (Savoie, 2009), and tobacco control (Freeman & Chapman, 2007).

The authors of many of these articles appear to take for granted the medium status of YouTube, and likely carry this use of the term over from their understanding of television and other ‘mass media’. Burgess and Green, however, as creative industries and media studies theorists, are well aware of the significance of the ‘medium’ label, and refer to YouTube as an ‘emerging medium’ while questioning “just what kind of medium is it?” (2009, p. 52 & 36). Communication theorist, Jin Kim, takes it one step further in his discussion of the institutionalisation of YouTube after its Google purchase, and refers to it as “a convergence medium between the Internet and TV” (2012, p. 53). Ryan also treats the medium in the digital age as such, suggesting that employing different digital authoring software results in medium-specific forms and modes of narrative (Will New Media Produce New Narratives?, 2004).

Though media theorists continue to use the term ‘medium’ in reference to online technologies of expression or communication, it is not clear that this use is appropriate. Alan Kay and Adele Goldberg first called the computer a
‘meta-medium’ that can “be all other media” (1977, p. 31), which Jensen identifies as allowing for a “recombination of previously separate print and electronic media” (2010, p. 45). It is the concept of the digital computer being a technology that simulates all existing mediums that threatens to erase the very notion of the medium, in that it is the final medium and no further new ones are to exist (Kittler F. A., 1999, pp. 1-2). To explore this notion, I will discuss an alternative perspective from which to view the digital computer in light of medium theory.

In this chapter, my analysis of its proposed status as a meta-medium will show that the digital computer’s power for simulation, which is the basis for its potential to ‘be all other mediums’, is not identical to remediation. Instead, remediation concerns the creation of new mediums—and, as I have shown in Chapter One, is the root of all medium evolution. It is digitisation which, through remediation, offers the same new affordance of computability to all existing mediums, which in turn facilitates the emergence of mediums with new expressive and communicative potential. However, our current understanding of digital ‘new media’ also relies heavily on electricity, in its instantaneous transmission of digital signals through the Internet. Indeed, the existence of the Internet is not possible without electricity, which indicates that electricity, too, holds a special place in our history of medium evolution. In fact, I suggest that electricity also had its historical role in remediating old mediums to foster the emergence of new mediums, of which television, radio, and the telephone are examples.

Using this line of thought, in this chapter I extend Innis’s theory of historically dominant medium epochs and identify past periods of ‘new media’. Two of these are, namely, the periods of the machine and electricity, both of which can be called ‘foundation technologies’. Identifying previous foundation
technologies is important, because it shows that from the ‘proto-affordance’ invoked by the introduction of an original foundation technology, existing mediums are remediated to offer new potential. That is, from a new foundation technology a multitude of new mediums with new expressive and communicative possibilities are spawned, offering a culture new practices and biases of communication. The term ‘proto-affordance’ describes a new relationship between a mediating technology and a society—one that facilitates a radical shift in the way that the people of that society can communicate with each other. For example, the introduction of electricity for the first time afforded individuals the ability to communicate over great distances with negligible time delay. This promoted a fundamental shift in communicative affordances, which in turn impacted on social relations and structures.

As this thesis is focussed on showing that the term ‘medium’ can persist in the digital age, and that YouTube is a singular digital moving-image medium, this chapter also analyses the mediums of cinema and television from the viewpoint of their respective foundation technologies of the machine and electricity. I explain the evolution of these mediums as they transition through the introduction of newer foundation technologies. In this, new foundation technologies undergo a process of social exploration, as they influence the evolution of existing mediums in complex adaptive and convergent ways. Digital cinema and digital television are what have become of the traditional mediums of analogue cinema and analogue television, and are both discussed in depth from this perspective. The process of reciprocal remediation in relation to the transitioning of mediums is also examined, resulting in a deeper understanding of how remediation works within the process of medium evolution. Finally, the distinction between existing moving-image mediums that have become digital, such as cinema and television, is compared to the
innately digital Internet, from which I suggest a plethora of new mediums emerge. It is from this position that Chapter Three can focus on analysing YouTube as a singular digital medium, using perthbands.tv as a case study.

**The Computer as Meta-medium**

As previously mentioned, one significant idea challenges the continuing validity of the term ‘medium’, and hence the idea that YouTube can be considered in this way. This idea is the notion that the digital computer is a single technology that can simulate all existing mediums through digitisation, and thus is the medium to end all future mediums. The progenitors of laptop computing, Kay and Goldberg, were perhaps the first to identify this, and subsequently called the computer the first ‘meta-medium’ (1977, p. 31). Coy takes this one step further, and suggests that “all written, optical, and electric media with the use of microelectronics and computer techniques finally will merge into one universal medium” (1995). Kittler makes a bolder claim still, and predicts the death of the medium in his book *Gramophone, Film, Typewriter*: “The general digitisation of channels and information erases the differences among individual media ... a total media link on a digital base will erase the very concept of medium” (1999, pp. 1-2). More recently, Stefan Heidenreich paints the picture that we are in a “post media situation...as media have ceased to exist, at least in their plurality. There are not many media left, but only one medium, as different media have converged and fallen prey to a single network of computers” (2011, p. 16). For these theorists it seems that the term ‘medium’ is all but redundant in future theoretical discourse, as it is suggested that all existing mediums will eventually converge into one—the networked digital computer.

Computers simulate—the ability to model or imitate complex real-world systems is an affordance of any computer. Even analogue computers can
simulate complex systems, though they are usually constructed for a specific task. An example of this is the slide rule, which is a hand-operated basic analogue computer for modelling the calculations of multiplication and division—though this evolved to include other functions. The main difference between analogue and digital computers, is that a digital computer works symbolically by representing any input numerically in a state such as binary, decimal, hexadecimal, etc. A digital computer uses discrete data, while an analogue computer’s data is continuous—as the latter’s process of calculation uses variations in physical phenomena.

The discrete nature of the digital computer provides it with special affordances over an analogue computer; for one, it theoretically allows the computer “to simulate the details of any descriptive model [emphasis added]” (Kay & Goldberg, 1977, p. 31). The father of digital computing, Alan Turing, showed that “a number is computable if its decimal can be written down by a machine” (1936-37). This, in turn, demonstrates that anything that can be numerically represented (i.e. digitised into binary, decimal, etc.) can also be computed. Kay and Goldberg recognised the power of this:

Although digital computers were originally designed to do arithmetic computation, the ability to simulate the details of any descriptive model means that the computer, viewed as a medium itself, can be all other media if the embedding and viewing methods are sufficiently well provided [emphasis in original] (1977, p. 31). Hence, a digital computer can theoretically digitise, and thus numerically represent and simulate, every other existing medium.

However, it is clear in their Dynabook article that Kay and Goldberg (1977) are not simply interested in the way that digital computers can simulate every other existing medium. Their focus points to unique digital adaptations
of existing analogue creative techniques, such as using peace symbols as a paint-brush, and drawing musical choruses using pointing devices (1977, p. 34 & 38). Even the simulation of a book “need not be treated as a simulated paper book since this is a new medium with new properties. A dynamic search may be made for particular context. The non-sequential nature of the file medium and the use of dynamic manipulation allows a story to have many accessible points of view” (Kay & Goldberg, 1977, p. 33). These new ways of expressing oneself come under the rubric of what Kay and Goldberg call in their conclusion, “not-yet-invented media” (1977, p. 40), not simulations of already-existing mediums. Manovich supports this by pointing out that once prior physical media have been digitally simulated, their characteristics change, and they can derive new properties (2013, p. 329). It is the capacity of the digital computer to remediate that enables this.

Expanding Medium Theory

In the previous chapter I emphasised the confusion that arises when conflating two statements by Bolter and Gruisin. That is, “a medium is that which remediates” (2000, p. 65), and “remediation is the defining characteristic of the new digital media” (2000, p. 45). That is, if remediation is supposedly a characteristic of all mediums, it is not clear how it can be a defining characteristic of digitisation as distinct from that of analogue mediums. The tension between these two statements implies that there is something special about the digital medium. This lies in the fact that, in general, new mediums remediate old ones by borrowing from them—but also by embodying at least one new affordance that adds the potential for new expression and communication practices. Digitisation however, introduces all mediums to the same, new underpinning affordance. That is, following Manovich, all “new
media objects” are “subject to algorithmic manipulation…in short, media becomes programmable [emphasis in original]” (2001, p. 27).

Programmability, digital processing, or digital computability, is the unique affordance of digital mediums. Algorithms can be applied to manipulate all things that are numerically simulated, and thus ‘new media’ are distinct from ‘old mediums’ due to this. Using moving-image mediums as an example, analogue video is distinct from digital video due to the latter’s digital processing involved in the creation, manipulation, and distribution stages of content production. Analogue video is electronic, and relies on electrical technology to record, copy, and broadcast moving images. This, itself, manifests specific affordances in its relation to its users—the instantaneous transmission of moving images being a significant example. Digital video possesses the same electrically-based affordance of instantaneity, except it does so with a digital electrical signal. This digital signal can then be subject to programming operations, such as non-linear editing or 3D modelling, animating, and complex spatial compositing.

Here, I should clarify why I choose to use the term ‘electrical’ to broadly categorise these instantaneous technologies, while sometimes the term ‘electronic’ is also relevant. Though all devices that operate using electricity are ‘electrical’, the latter term ‘electronic’ refers more specifically to a device “having or operating with components such as microchips and transistors that control and direct electric currents” (Electronic [Def. 1]). Thus, though perhaps ‘electronic’ more precisely defines mediums such as television and radio, it does not define the medium of the telegraph. This is because the supporting technology of the telegraph has no direct need for mechanisms of current control, such as transistors or valves.
The term ‘electrical’ then, with its more general meaning of being concerned with, or operating by, electricity, serves to encompass any medium that uses the transmission of an electrical signal in any way to facilitate human communication. It should be noted, though, that electronic mediums are often mediums which afford interpersonal communication cues. For example, while watching television a viewer can frequently see a person’s facial expression or hear the tone of their voice, and while listening to radio or talking on the telephone hearing a voice is also usual. When communicating using the telegraph, however, the electrical circuitry is only complex enough to transmit basic signals, which are typically stripped of interpersonal meaning (besides the meaning of the words themselves). Because of the similarity of, and yet subtle difference between, these terms, I will primarily defer to using ‘electrical’ when referring to relevant technologies or mediums, but will reference ‘electronic’ when this term’s more specific meaning is pertinent.

By nature, the moving-image medium of analogue, celluloid-based film does not afford the instantaneity of distribution. This places traditional film as less similar to analogue video than digital video—at least from the perspective of instantaneous delivery. Thus, there are distinct differences between the technological supports of film, analogue video, and digital video that dramatically affects the expressive and communicative affordances of each moving-image medium. This realisation brings into question whether there is not another categorical perspective from which to view these three moving image technologies of expression—besides the traditional analogue/digital dichotomy, which groups film and analogue video together.

That is, if digital video is distinct from analogue video, and analogue video is distinct from film, it holds that they can perhaps each be assigned their own classification of medium. This in turn would respect the distinction in
significant affordances between the two analogue mediums. Further, if
digitisation introduced a period of ‘new media’ due to the digital remediation
of all analogue mediums, it can perhaps be suggested that electrification
introduced a period of new electrical mediums due to the remediation of
existing mediums of the time also. In the case of moving-image mediums, this
can be affirmed by recognising that analogue video remediates film. As such,
the medium of film is conceptually represented within analogue video, in the
replication of moving-image production techniques such as temporal montage,
but analogue video also brings the new affordance of instantaneity to the
moving image. The latter is seen in analogue video’s potential for instantaneous
transmission through television.

As Kittler says, “the development of optical media closely parallels the
development of acoustic media, and in some cases they even developed in
conjunction with each other” (2002/2010, p. 33). Thus, it seems feasible to apply
the above theory to aural mediums to determine if the results are similar.
Digital aural communication exists in many guises, such as digital mobile
phones, compact discs, etc. For this example, however, I will choose digital
broadcast radio, as it demonstrates a direct and obvious remediation of
analogue broadcast radio. Thus, the digitisation of analogue radio (which is by
nature, broadcast) manifests the new affordance of digital computability—this
is what brings new characteristics of expression and communication to the
remediation of analogue radio. An example of these is that text-based
information about the received audio can be accessed by the listener
simultaneously with the digitally broadcast audio signal itself. The potential for
this is because, as binary data, digital text and digital audio exist as the same
technological format, and the computer at the receiver’s end can decode these
into the appropriate experiential mode using information embedded within the broadcast digital signal itself.

However, analogue radio can be said to remediate the phonograph, which is an aural medium that preceded it. This is because, like analogue radio, the phonograph also permits the sharing of sound over distance, though in this case it is by transporting cylinders as physical medium objects. The phonograph belongs to a pre-electrical category of mediums, in a similar way that film does. This is exemplified by the fact that the phonograph cannot facilitate aural communication over great distances immediately, as analogue and digital broadcast radio can. It is apparent then, from this aural example and the moving-image one before, that the introduction of electricity to technological invention offered, for the first time, a common unique affordance. That affordance is one of communicative instantaneity over distance. Furthering this perspective, I suggest that digitality is not the first ‘new media’ technology, and that other foundational technologies exist. One of these is electricity—and with its emergence and social appropriation came the new affordance of instantaneous communication.

As further indication of the communicative potential of this affordance of electricity, in 1833 Charles Babbage devised the concept of a programmable computer—but his plans were for a purely mechanical digital computer called ‘the Analytical Engine’ (Manovich, 2001, pp. 21-23). This fully-fledged general-purpose computer was designed to be powered by hand, and functioned using barrels, gears wheels, and punched cards (Dalakov, 2015). Unfortunately, Babbage never completed construction of this innovative decimal digital machine, but much later a fully functioning example of his earlier design, ‘the Difference Engine’ (as Babbage called it), was constructed by following his original plans. Though the Difference Engine was strictly a calculating machine,
the design for the Analytical Engine indicated that it was Turing-complete, in that it could complete every Turing-computable function (James, 2015). In simple terms, this indicates that if made it would have been what we understand as a ‘proper’ computer, in that it could execute any algorithm it was given. An important distinction between Babbage’s design and modern digital electronic computers, though, is that it did not incorporate “the idea of storing programs in the same form as data and intermediate working” (Hodges, 1995). Of course, being purely mechanical digital computers, Babbage’s designs did not rely on electricity at all to function—unlike the ubiquitous digital computers of today (Hodges, 1995).

As Babbage’s plans for the Analytical Engine have been validated as functional and Turing-complete, it is quite possible that the mass-production and social adoption of this technology could eventually have been achieved. Without an “internally stored modifiable program”, though, it is quite unlikely that the Analytical Engine would ever have resembled the modern computers that we use today (Hodges, 1995). Further, imperative to our contemporary understanding of computers as communication interfaces is their interconnection via the Internet, which relies on electrical technologies to complete its designed purpose as a networking solution over distance. It is thus the electrical nature of the Internet that offers us the affordance of sharing video, audio, and text instantaneously between networked digital computers. Conversely, one could never engage in immediate video communication over the Internet using a mechanical digital computer that comprised no electrical component.

This demonstrates that digitality is not the sole precursor to our current understanding of new media. Without the availability of electricity, the digital era as we know it—where the Internet now dominates our digital
communication—would not exist. As such, it is not purely digitality that has influenced the current period of new media; it is instead a combination of (at least) electrical and digital technologies. This indicates that the particular proto-affordances of underpinning foundation technologies can accumulate over time for new communicative potential. Further, this discussion implies the historical existence of what I have previously identified as individual foundation technologies, and that there exists others besides the digital.

**Foundation Technologies and their Proto-Affordances**

McLuhan indicated the existence of distinct underpinning technologies in the 1960s, when he noted that we live with both mechanical and electrical technologies at the same time. His view was that the gradual, overlapping, technological evolution from mechanisation to electrification created social disruption:

> Literacy remains even now the base and model of all programs of industrial mechanization; but, at the same time, it locks the minds and senses of its users in the mechanical and fragmentary matrix that is so necessary to the maintenance of mechanized society. That is why the transition from mechanical to electric technology is so very traumatic and severe for us all. The mechanical techniques, with their limited powers, we have long used as weapons. The electric techniques cannot be used aggressively except to end all life at once, like turning off a light. To live with both of these technologies at the same time is the peculiar drama of the twentieth century (1964, p. 342).

In this description, McLuhan is outlining the social tension between old (mechanical) and new (electrical) technologies, which is identical to the
‘peculiar drama’ that we now experience between these previous foundation technologies, and emergent digital technologies.

I should note here that when I use the singular word ‘electrical’ to describe a medium, I am referring to those electrical mediums that do not offer the digital proto-affordance of computability. That is, I am talking about electrical mediums that emerged and existed prior to digital technologies becoming widespread, such as analogue television. Similarly, when I discuss ‘machines’ as belonging to a particular foundation technology, I will be referring to machines that are not also electrical. The early mechanical printing press is an example of such. This is a categorisation of mediums into groups that reflect their highest level proto-affordance. This is turn indicates the foundation technology that they belong to.

Like McLuhan, Innis also identified historical social disruptions due to the introduction of radical new mediums. In *The Bias of Communication* (Innis, 1951/1991), he explored the prevailing mediums that existed throughout history and came to conclude that one could categorise them into several ‘epochs’, or temporal periods of civilisational impact: oral, scribal, print, and electronic. This list reflects the “dominant forms of media that absorb, record, and transform information into systems of knowledge consonant with the institutional power structure of the society in question” (1951/1991, p. xvi), and it has been generally accepted, and is widely used, amongst media and communications scholars (Meyrowitz, 1985).

In discussing his understanding of Innis’s medium epochs, Meyrowitz argues that “all electronic media, for example, share some characteristics that make them different from all print media” (1997, p. 61)—which is itself an indicator that he recognised the existence of proto-affordances. That is, Innis’s list aims to categorise media within an overarching technological support (as in,
what I call ‘electrical media’), presumably from which similar affordances are offered. At the same time it reflects the position that ‘digital media’, as Bolter and Gruisin (2000) imply, share characteristics that make them different from all previously existing mediums. Innis’s term ‘print media’, however, indicates not an entirely general type of medium, as ‘electronic media’ does, but a specific typographic category of medium, which includes books, newspapers, magazines, etc. Of course, this does not imply that Innis is wrong in his assessment, but merely that his aim was to identify historical epochs of dominant mediums that significantly affected Western civilisation. Conversely, my aim is to group mediums that emerged from the same foundation technology.

Other theorists have also indicated interest in analysing periods of previous techno-social upheaval; Carolyn Marvin (1988), Friedrich Kittler (1999), and Klauss Bruhn Jensen (2010), among them. Marvin focuses on the cultural reception of what she calls ‘electric media’ technologies. A strong sense of epochal differentiation is present as she introduces “the invention of the telegraph, the first of the electrical communications machines, as significant a break from the past as printing before it” (1988, p. 3). Marvin also references “the industrial shift from steam to electricity” (1988, p. 9), signalling the relevance of the change in method of powering machines, as well as the communicative shift from transportation to transmission.

In his book Gramophone, Film, Typewriter, Kittler analyses the three (what he calls) sonic, optical, and textual mediums from the very perspective of their mechanisation as storage media, through their subsequent amplification and transmission as electrical signals, and on to their convergence within a digital state (1999). In discussing film and the gramophone in particular, he says:
Prior to the electrification of media, and well before their electronic end, there were modest, merely mechanical apparatuses. Unable to amplify or transmit, they nevertheless were the first to store sensory data: silent movies stored sights, and Edison’s phonograph (which, unlike Berliner’s later gramophone, was capable both of recording and reproducing) stored sounds (1999, p. 3).

For Kittler, these mechanical and electrical categories of technologies each have specific underpinning affordances, or proto-affordances, in that mechanical mediums typically record sensory data, and electrical mediums amplify or transmit them.

Similarly, Jensen (2010) talks of three “degrees of media”, in a context which also reflects an association of mediums that share the same affordances. His media of the first degree are “biologically based, socially formed resources that enable human beings to articulate an understanding of reality, and to engage in communication about it with others” (2010, p. 45). Within this rubric come mediums such as speech, painting, dance, musical instruments, and writing. Media of the second degree are technologies of technical reproduction, and “radically extended possibilities of dissemination across time and space” (Jensen K. B., 2007, p. 19). Under this heading Jensen groups mechanical mediums such as film, radio, printed books, as well as electrical mediums such as television and video (2010, p. 45). Finally, Jensen suggests that media of the third degree are the recombination of media of the first and second degree, but remediated within the digital meta-medium (2010, p. 45).

Though the above categorisations of mediums by individual theorists all reflect a strong leaning towards clusters of analogous communicative affordances through technological support, the purpose of my analysis is different to theirs. I seek to show the historical existence of foundation
technologies that supported past eras of new mediums through the offering of a new proto-affordance. In this light, the current period of digital mediums is thus a continuation of the existing epochs. This adaptation of existing epochal theories allows me to suggest that the term ‘medium’ remains valid in the digital environment, and that specific online platforms, such as YouTube, can be called such.

Because of this, it makes more sense for me to recognise Innis’s historically dominant medium of printing as an indicator of the over-arching ‘mechanical’ foundation technology, as print media rely implicitly on machinery to enable their revolutionary practice of easily and rapidly replicating text. It can be said, then, that Innis’s theory of dominant mediums demonstrates the historical introduction of new eras of over-arching technologies and the respective unique proto-affordances that they offer. In what follows, I will examine and expand on the more recent of these foundation technologies.

The Artefactual Foundation Technology

The temporal period of civilisational impact that Innis labels specifically as the ‘scribal epoch’, can also be interpreted as referring to one significant type of medium that exists within a more general category. I call this, the ‘artefactual’ foundation technology, because it afforded, for the first time, the temporal and spatial separation of a person from their thoughts in the creation of meaningful objects. This foundation technology emerged to support the creation of medium content made by the human body and its engagement with early technologies. These were the first mediums, and this period can be seen as the precursor of expressive and communicative technologies. Mediums in this epoch include writing, painting, and pottery. The creation of these artefacts often involves the use of technologies as tools, such as pens, paintbrushes, and
chisels, but can also be created purely by physical means, as in the manual shaping of clay pots. The proto-affordance of the artefactual foundation technology is one of ‘separation’, as the mediums that come under this rubric all allowed the message to be detached from the body that created them.

The artefactual foundation technology also speaks of the distribution of its medium content by purely physical means; for example, walking. It is true that walking is not a technology, but it is the technology of the artefact, and perhaps the tool that was used in creating it, that allows it to be moved away from the message creator to another place or person. One can thus see that physically created and distributed artefacts, in many ways, respectively reflect what I understand as expressive and communicative mediums. That is, a person can express themselves by drawing an image on a scroll of parchment, and subsequently communicate with that hand-drawn content by having someone carry the scroll to another person, perhaps a considerable distance away. This is an indication of the communicative bias of compressing space. Conversely, the message creator could put it safely away for someone else to view at a much later date, which involves the compression of time.

The Mechanical Foundation Technology

When discussing mechanical technologies, I am referring to devices for applying power or changing their direction for a specific purpose (Shigley & Uicker, 1981, p. 5). A mechanical technology can be a simple machine (such as a lever, or a pulley) or a complex/compound machine (such as a car engine, or a printing press), which is a collection and combination of smaller machines. Machines can be powered by the harnessing of natural forces such as the movement of water, the combustion of compressed air and fuel, an electrical charge, or human effort, but ultimately they all automatically modify
mechanical energy to meet some pre-determined human need. Examples of early machines as mediums are the printing press, film, and the phonograph.

All of these mediums convert an applied force to a repeatable mechanical motion that creates an intended action in order to support human communication. In this way machines are distinct from the previous foundation technology epoch, the artefactual (which includes mediums such as scribal communication), in that they can automate functions that were previously done manually. For example, photography can be seen as the automatic recording of a scene that might previously have been painted by hand. Further, the mediums belonging to the artefactual epoch (whose implements of communication can only be classified as tools) did not easily support automatic replication. Evidence of this is that manuscripts were required to be individually and laboriously copied by hand, which took much time and often incurred transcriptive errors.

Electrical mediums, such as television and radio, can often also be considered machines, in that they use energy to perform an intended action. Further, as I have indicated earlier, contemporary digital computers and the Internet can be described as having electrical properties. These are examples of the cumulative potential of foundation technologies, as previously mentioned. Foundation technologies can build on each other in an evolutionary way, much like mediums remediating each other. Mediums emerging within new foundation technology epochs also have the potential to adopt the proto-affordances of existing ones, and often do. Because of this accumulation of foundation technologies and their proto-affordances, new mediums can increase in terms of the complexity of proto-affordances and, hence, communication practices or biases. Thus, mediums of the digital foundation technology can be seen as ‘digital electrical machines’, and possess the proto-
affordances of at least three foundation technologies; computability, instantaneity, and reproducibility.

The mechanical foundation technology is the category which first afforded mass replication and distribution, and hence sowed the seeds of broadcast culture. Indeed, the distinctive reproductive proto-affordance of the mechanical epoch is what Benjamin speaks of in his article, “The Work of Art in the Age of Mechanical Reproduction” (1969), in lamenting the mass production of notable visual artistic pieces. The power of the machine is not in the replication of human techniques, as Kittler points out, in that “machines are not just simple copies of human abilities” (2002/2010, p. 119). Instead, they should be seen as new scientific media technologies, which insist on the re-evaluation of the practices and values of expression and communication. It is this mechanical reproduction—of work, and of the world itself in moving images and sounds—which is the proto-affordance of the mechanical foundation technology.

In the mid-15th century the printing press allowed the mechanical mass replication of written words, but no technology was introduced at the time that could directly record and replicate what we hear or what we see. That is, sound and sight could not be mechanically transcribed and copied to support playback and mass distribution until many years after the uptake of the printing press (though hand-created images and graphics could be replicated with this device). The mechanical representation of sound was invented in the 9th century (Fowler, 1967, p. 45), but was only musical and mimetic in nature, and it wasn’t until 1877 (with the invention of the phonograph—which is also often called ‘the gramophone’, though strictly speaking the latter does not support recording) that live human vocal sounds, such as singing or speech, could actually be recorded and then reproduced.
Around 50 years before this time, the invention of photography as a mechanical method for transcribing and copying sight, was also in its infant stages. The result of these timings gave print more than four hundred years to independently influence culture and ways of thinking. This fact is what inspired Innis (1950/2007) to rightfully nominate it as the dominant medium that greatly affected the civilisations of its time. Other new mediums that emerged from the mechanical epoch of foundation technologies are film and cinema (as what can be seen as, respectively, expressive and communicative mechanical mediums of the moving image) and the typewriter (which mechanically transcribes the word). This latter achievement was something which the printing press could not do as easily. This is because the printing press was slow to set up by its very design, and hence it was not used for transcribing ideas directly into text. It was more effective to write out the text to be printed by hand, before setting up the machine to rapidly make multiple copies.

During the 400-plus years of its communication domination, the efficient reproducibility of the word through mechanical printing enabled us to “share the same knowledge across wide areas” (Meyrowitz, 1994, p. 57). This affordance of sharing accurate copies of printed knowledge promoted scientific advancement and discovery, and was a catalyst for the Scientific Revolution that commenced in the mid-16th century. From this rapid influx of scientific knowledge, then, came great advances in the understanding of electricity (Kuhn, 1970, p. 21). Meyrowitz, following the lead from McLuhan, suggests that electrical mediums are “like extensions of our sensory apparatus that reach around the planet. Electronic sensors return us to seemingly ‘direct’ encounters,

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7 Interestingly, the nomenclature for both photography (literally meaning ‘light-writing’ (Prosser, 2005, p. 2)) and phonography (meaning ‘sound-writing’ (Laing, 1991, p. 3)) are reflective of the dominant medium at the time: writing.
but on a global scale” (1994, p. 58). To rephrase this in the spirit of Gibson: instantaneity of communication is one of electricity’s intrinsic affordances. In fact it is electricity’s proto-affordance, as the instantaneously transmitted characteristic of the electrical foundation technology belongs to all mediums that use electricity as a signal. This means that any respective communication can be conveyed across vast distances with only nominal time displacement. Electrical mediums are the epitome of Innis’s (1951/1991) spatial bias of communication, and support synchronous communication over large distances; in essence, technologically bridging space.

The Electrical Foundation Technology

Invented in the mid-1700s, but not made commercial until well into the 1800s, the electrical telegraph was arguably the first electrical medium. It functioned by two points of communication being connected by one or more wires. Electrical current was then instantaneously transmitted through the wire(s), and various methods were employed in signalling between these two points. Essentially, the early telegraph was a point-to-point method of remote writing, in that a mutually understood set of symbols allowed messages to be immediately transferred across two fixed positions in space. This provided the telegraph the affordance of one-to-one synchronous communication. The telephone was also first developed as a fixed point-to-point technology, but extended this by the implementation of manual (and later automatic) exchange systems. These allowed the caller to select which other telephone owner that they wished to be connected to. There were even special ‘local loop circuits’ set up (colloquially called ‘party lines’) that afforded more than two callers to engage in few-to-few audio communication. For most of its existence though, the traditional landline telephone system has relied on wired connections between two or more points to connect two people in conversation.
Conversely, electromagnetic radiation (EMR) is a technology that needs no physical connection between the sender and the receiver in order to transmit a communicative signal, and is the phenomenon by which radio and television operate. Though the creation of EMR for communication transmission is dependent on electrical energy, the signal is actually a combination of both electrical and magnetic fields. In this it is actually a form of light, though not in the sense of visible light, as we usually understand the term. In some ways, this may signify it as distinct from the electrical foundation technology—or even a subset of such—though many media theorists classify communicative devices that employ EMR as ‘electrical’ or ‘electronic’ (McLuhan M., 1964; Marvin, 1988; Kittler F. A., 1999). In the same way, I will include radio and television under the electrical foundation technology rubric with wired devices such as the telegraph and the telephone. The difference between the two is that wired technologies (such as the telegraph and telephone) tend to offer one-to-one, two-way, communicative affordances, and those that use EMR to transmit (such as radio and television) largely furnish one-to-many, one-way communicative affordances.

The proto-affordance of instantaneous communication is present and operative in the electrical mediums of radio and the telephone, as they transmit sound in a near-immediate way. Also, moving images, sound, and text are conveyed directly to viewers’ homes by television, and the telegraph and fax machine are mediums that achieve the instantaneous electrical transmission of the word. The electrical foundation technology fostered a return in dominance of visual and aural communication, but this time it was over great distances, instead of face-to-face. It supported a greater conveyance of interpersonal cues of communication, such as facial expressions, voice-tone, and gestures. This

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8 The fax machine, though, can also transmit low quality images if needed.
potential for the synchronous representation of interpersonal cues of communication across space is an affordance that is prominent with the electrical mediums of the telephone, radio, and television.

**The Digital Foundation Technology**

Digital technology is exceptional not only because the digital computer can add further values to existing mediums to create new ones, but also that the digital state affords programming. Programming allows medium objects to be subject to algorithmic manipulation, and hence for completely new digital technologies to be created. Manovich describes this specificity of digital computers as being “meta-generative” in that “a computer can be used to create new tools for working with the media types it already provides as well as to develop new not-yet-invented media” (2013, p. 103). There is thus much scope for the creation of new digital electrical machines with new computational processes. For example, Wikipedia can support “collaborative authoring by large, dispersed groups” (Wardrip-Fruin, 2009, p. 1). This particular platform is an indication of one of the digital foundation technology’s potential communicative practices, in that it affords a many-to-many asynchronous mode of human engagement through a network of digital computers. I will discuss this distinctive communicative affordance of digital computer networks later in this chapter.

Mechanical, electrical, and digital are the foundation technologies specifically relevant to this thesis, because these periods have connections to moving images through film, analogue video, and digital video. In turn, the proto-affordances associated with each of these foundation technologies are, respectively, reproducibility, instantaneity, and computability. Film, analogue video, and digital video are all moving image mediums that caused paradigm shifts of moving-image expression and communication in the culture within
which they emerged. In terms of communication, film is the matching pair of classical cinema, and analogue video is the matching pair of traditional broadcast television, as previously discussed. The theory of foundation technologies and associated proto-affordances then permits me to suggest that there is a matching communicative medium to the expressive medium of digital video, and in Chapter Three I will show that YouTube can be considered in this way.

**Foundation Technologies and New Media**

The appearance of a new foundation technology is a unique occurrence, as already noted, and the underpinning affordance offered by this technology has never been present in the relationship between people and objects/environments in exactly the same way. In terms of expression and communication, it is also less a product of an individual’s relationship with a singular object than it is a key technology’s relationship with an entire culture. This is because a society that engages the unique intrinsic affordance of a new foundation technology has the potential to undergo major shifts in the way it creates and communicate messages; this, in turn, can fundamentally reshape the cultural and communicative practices of that society. As already precluded, due to its power to introduce radical new possibilities for human expression and communication, I call such an affordance a ‘proto-affordance’.

The proto-affordance is fundamental to the workings of the new foundation technology. For example, de Sola Pool would nominate communicative instantaneity as one of electricity’s key attractions for scientists during the late 18th century (1990, pp. 8-9). This is because electricity is immediate by nature, and thus provides itself as an affordance for all inventors and users. Similarly, the primary human use of a machine is to transform energy into an intended, repeatable, action, in many ways this is what machines
‘do’. A machine can also be seen as a simplification, or automation, of repetitive work. In terms of digitisation, its inherent dependence on numerical simulation means that every digital technology relies on computerisation, as shown earlier. Hence, all things that are digitised are computable. Proto-affordances define a foundation technology, in that they are what makes a foundation technology unique and powerful to a culture.

The introduction of a foundation technology, offering its new proto-affordance, spawns an abundance of new expressive and communicative mediums that only function because of that fundamental technology. From the telegraph, through the telephone, to radio, television, and video—the new foundation technology of electricity remediated and multiplied the existing mediums with its unique proto-affordance of instantaneity. Likewise, as artefactual methods of expressing oneself and communicating, such as writing, sculpture, and painting, were remediated by the replication processes of the machine, the printing press, the typewriter, photography, the phonograph, film, and so on, were introduced. This process seems a familiar model of ‘new media, remediating old media’ as distinctive new mediums emerge. That is, a convergence of existing mediums into a new foundation technology, and then a divergence and proliferation of newly-developed mediums following that foundation technology’s social integration.

As Jenkins suggests, instead of technological convergence causing all medium content to eventually flow through one black box, there will be many black boxes as “specialised media appliances” (2006, pp. 14-15). I agree that with the digital we should expect this technological ‘divergence from convergence’ in what we define as a medium. That is, as the power of the distinguishing nature of digital technology fully materialises, we can expect new mediums to emerge to mediate culture and facilitate the sharing of new
conventions and languages to support communication— mediums whose foundation technology’s unique proto-affordance is computability. Manovich agrees with this, in that instead of the computer meta-medium being a ‘monomedium’ into which all mediums converge, he suggests that the mediums multiply in an evolutionary sense (2013, pp. 233-236). It is the aim of this thesis to show that YouTube is one of these emergent digital mediums.

A foundation technology, then, is an original technological substrate from which new specific and singular mediums are developed. The term ‘foundation technology’ is not necessarily analogous with the term ‘meta-medium’, as foundation technologies in general do not exist with one remediating device as their underlying technological structure. Instead, the power of numerical simulation only exists with the computer in being digital—and each foundation technology’s proto-affordance has its own potential for social change. New proto-affordances allow the remediation of existing mediums of a similar mode, in the way that the emergent medium of television remediated cinema, both being mediums of the moving image. As such, television often adopted the codes, techniques, aesthetics, and even content of cinema, but added the proto-affordance of instantaneity of communication over distance. A new proto-affordance often also inspires the development of radical new mediums, such as the phonograph, which was the first ever medium to support the mechanical recording of human vocal sounds.

In light of the above, I suggest a variation in perspective of new media analysis, in that our sense of new media can be seen as a reflection of an emerging and unique foundation technology. The machine and electricity, as foundation technologies, have both been past instigators of periods of new media. Just as the networked computer remediates (rather than purely simulates) existing mediums—when electricity was introduced, existing
mediums (including mechanical ones) were remediated by the electrical foundation technology. In fact, de Sola Pool wrote in 1983:

> The key technological change, at the root of the social changes, is that communication … is becoming overwhelmingly electronic. Not only is electronic communication growing faster than traditional media of publishing, but also the convergence of modes of delivery is bringing the press, journals, and books into the electronic world (1983, p. 6).

Following de Sola Pool’s observation, I suggest that the convergence effected by electricity can be seen as analogous to that resulting from digitisation.

True to this, Pavlik and McIntosh state that one understanding of “technological convergence refers to specific types of media, such as print, audio, and video, all converging into digital media forms” (2011, p. 8).

Following de Sola Pool, above, it can also be said that a similar process was associated with the introduction of electrical mediums. For example, the telegraph is the process of writing instantaneously over distance, and the radio remediates the gramophone but compresses space. Similarly, television remediates cinema in the same way but for moving images, sound, and text.

During the advent of electrical ‘new media’, separate mechanical mediums of text, sound, and moving images all converged into electrical ‘media forms’ (to use Pavlik and McIntosh’s (2011) phrase), and even often travelled the same electrical pathways as each other. Text and audio both travelled along telephone lines as the fax machine and the telephone (Rouse, 2006), and television and radio both travelled the airways via electromagnetic radiation, or what we commonly call radio waves (Kittler F., 2002/2010, p. 45). Analogue cellular phones followed suit with audio and their version of text communication: SMS, or Short Message Service (ACMA, 2013). Electrical mediums also evolved to persist in time by devising ways to store content to
various devices, such as magnetic tape. From there it could be copied, manipulated, and even physically distributed as medium objects; what Kittler would call an example of “a very slow broadcast medium” (2002/2010, p. 47).

Using the term ‘new media’ to apply to the emergence of new mechanical and electrical mediums is not the sense in which it is usually employed. That is, the current theoretical understanding of ‘new media’ is deeply rooted in the artefacts, practices, ideas, and social arrangements that stem from digitisation. Manovich (2003) offers no less than eight propositions for distinguishing new media, most of which indicate a break from existing cultural objects and practices due to computerisation and/or the introduction of software as the basis for cultural change. In essentially describing how digital computers function as media creation and distribution technologies, it can be said that these accounts of new media stem from the unique proto-affordance of digital computability. Yet the existence of previous epochs of foundation technologies also instigated new mediums and cultural and technological upheaval. Thus, I take the term ‘new media’ to more generally refer to similar revolutionary changes in the forms of human expression and communication particular to each foundation technology.

In identifying foundation technologies, by no means do I consider my list as complete. That is, it is quite likely that other foundation technologies not recognised in this thesis contribute to the evolutionary pathway of mediums. It is also relevant that a prevailing foundation technology does not necessarily

9 Manovich’s eight propositions for distinguishing new media are 1) as concern for cultural objects and paradigms enabled by all forms of computing, 2) as computer technology used as a distribution platform, 3) as digital data controlled by software, 4) as the mix between existing cultural conventions and the conventions of software, 5) as the aesthetics that accompanies the early stage of every new modern media and communication technology, 6) as the faster execution of algorithms previously executed manually or through other technologies, 7) as the encoding of modernist avant-garde; as metamedia, and 8) as parallel articulation of similar ideas in post-WWII art and modern computing (2003, pp. 16-23).
end with the introduction of a new one. As Bolter states in the introduction to his book, *Turing’s Man: Western Culture in the Computer Age*: “In the past, even a major new technology of materials or power has seldom done away with its predecessor entirely. Instead one technology relegates another to subservience, to tasks at which the new technology is either inappropriate or uneconomical” (1991, p. 36). Thus, room is usually found for new and old mediums to co-exist, despite the potential for mediums to become dissolved through lack of specificity—if they enter an unstable and intermedial position.

Hence, as electrical mediums emerged, mechanical mediums did not cease to exist. Instead, existing foundation technologies continue, as more alternatives and advancements to the various methods of human communication are added. It could be said that this is (at least) partly because of the well-established social institutions of the existing mediums, and also their potential for Bolter and Gruisin’s concept of ‘reciprocal remediation’, where existing mediums remediate emerging mediums (2000, p. 105). The digital manipulation of cinematic and televisual images are examples of the latter, and thus it is not surprising to see both classical cinema and broadcast television continue to exist as digital mediums. After all, as previously discussed in Chapter One, the introduction of television in the mid-20th century only saw the institutions of cinema evolve the medium to persevere for economic reasons, to resist intermediality and dissolution by redefining its specificity to something that, at the time, television could not easily emulate.

Old mediums continue complex paths of evolution with the introduction of new foundation technologies and their unique proto-affordances. They borrow from new foundation technologies, transform, and yet often maintain traces of their original expression and communication. Because my thesis suggests that YouTube is a digital moving-image medium that has remediated
the traditional mediums of cinema and television, it is relevant that I explore cinema and television in their relation to this. That is, I must demonstrate how cinema and television both transition from their introductory foundation technologies, of respectively the machine and electricity, into digital cinema and digital television.

Analysis of the evolution of traditional cinematic and televisual mediums will demonstrate a variety of issues regarding their position in relation to YouTube as a new digital medium. Firstly, it will indicate some ways that old mediums transition through new foundation technologies, as they adopt new technologies into their traditional structures. Secondly, it will allow me to position digital cinema and digital television as distinct from YouTube, as these old mediums strive to maintain their specificity and avoid dissolution. Thirdly, identifying the general evolution of moving image mediums over the last few hundred years permits me to position YouTube as an evolutionary extension of this, with its roots in the digital foundation technology. Last, but not least, these old mediums of the moving image have had a formative effect on the traditions of visual culture, and thus affect our interpretation of YouTube within the historical and cultural moving image environment. It is thus useful to map and analyse this history of the moving image to gain an understanding of how YouTube is situated within contemporary visual culture.

The Origins of Film and Cinema

Of course, though they may have emerged from the respective foundation technologies of the machine and electricity, cinema and television of today are not solely mechanical and electrical mediums. As such, cinema has adopted electrical characteristics over the years, and both cinema and television are very much now digital mediums in their own right. The latter is clear in that analogue television is no longer broadcast at all in Australia, while Hollywood
feature films have been digitally manipulated for more than twenty years (Prince, 2012) and are now often digitally screened. As I have already noted, the evolution of mediums as they transition through the emergence of subsequent foundation technologies is a complex affair, and thus it is unlikely to be identical across all mediums.

The roots of communication through moving images reaches much further back in history than the introduction of the telegraph in 1823 (as the first electrical medium), or the development of the fixed photographic image around the same time. Indeed, it is likely that the allegory of Plato’s cave is not far from the truth, and that dancing shadows graced prehistoric cave walls as representation of everyday life and mythology. Of course, it is impossible to recount and draw the trajectories of all the techniques and technologies that have participated in the evolution of early moving-image mediums, but it will be useful to recognise and briefly analyse some of the more prominent among them. The list of these in relation to film and cinema is inevitably prone to contestation, but I have chosen the magic lantern, the phenakistoscope, the

Figure 2: A Child’s Magic Lantern (Scammell Auctions, 2013)
camera obscura, and the kinetoscope, as these can be recognised as pivotal contributors to the emergence of film and cinema.

The magic lantern was arguably the first device created specifically to project moving images to an audience. It appeared in the 1600s, and remained mainly unchanged until the emergence of film-based cinematic projection in the late 19th century:

It was an optical box made of wood, sheet metal, copper, or cardboard; it was cubic, spherical, or cylindrical in shape; and in a darkened room it projected images painted on a glass slide onto a white screen (fabric, a whitewashed wall, even white leather, in the eighteenth century) (Mannoni, 2000, p. 33).

Operators of the magic lantern created a form of moving images by engaging with often more than one painted slide at a time, and moving the separate slides in relation to each other in front of the illumination source. In terms of my theoretical delineation of expressive and communicative mediums, the magic lantern’s process is not unlike that of dramatic theatre. That is, they both consist of a blend of live performance, and predetermined narrative and physical content. The expressive component of the magic lantern is thus the creation of the slides and prospective story-lines, and its communicative component is in transporting these and presenting them in a certain way to the live audience.

It is also relevant that the live audience of a magic lantern were usually separated from the point of content creation by distance and time. The magic lantern afforded manually-created and physically-presented communication with (or entertainment for) a small group of onlookers, though this group grew larger as projection technology improved. Thus, the magic lantern can be considered a synchronous, one-to-many medium, at least in terms of the
audience in close proximity. In another way it can be seen as asynchronous, in
that the lantern and slides themselves were created well before the magic
lantern show. Further, these objects of mediation must be physically
transported from the place of creation to the place of presentation, during
which time elapses.

The visual content of magic lantern shows support figurative slides,
which lent towards offering the affordance of an interpersonal mode of
communication. In this they inherently portrayed character-driven narratives or
situations where facial expression, body language, and voice tone were central.
An important aspect to note about the magic lantern in relation to this thesis is
that it was primarily a tool, and the images it projected were hand-animated
representations. Thus, as it consisted of parts that were manually created and
manipulated, it belongs to the artefactual foundation technology. The magic
lantern did rely on projected light, and though this light was non-electrical in
nature for at least the early centuries of its use, electrical light sources were used
in large-scale presentations when electricity became available and was
accessible.

To examine this last notion in relation to the magic lantern, the magic
lantern’s technology relied on casting light over distance, effectively shrinking
the distance between the sender and the receiver(s). The signal lamp (as used by
navies) and the heliograph (a wireless solar telegraph that reflects the sun via a
mirror) also both afforded broadcast-style (or one-to-many) immediate (or
synchronous) communication over distance through light projection. Important,
however, is that even when late incarnations of the magic lantern incorporated
electricity to project performances by way of electric arc lamp, this did not
dramatically change the essence of the magic lantern’s expressive or communicative
affordances. Indeed, electricity did not provide the magic lantern with the new
proto-affordance of instantaneity over great distances as described earlier in this chapter. In fact, it only served to enhance or amplify its existing illumination source as the foundation for its otherwise well-known communicative use. Thus, what the audience experienced, and the social relations between the sender and receiver(s) of the communication, remained mostly unchanged throughout the magic lantern’s period of use (Mannoni, 2000, p. 33).

This is a crucial concept in the transition of a singular medium that emerged within a particular foundation technology epoch, through newer foundation technologies. That is, the technological support of expression or communication may come to be augmented by newly invented foundation technologies, such as electricity, but often that new technology only offers minor improvements to the functioning of mediums in relation to their existing cultural practices and processes. The old technology retains traces of its specificities when absorbing a new foundation technology into its traditional structure, or reciprocally remediating new mediums. This is because of the deeply ingrained relationship that a society has with its technology, and that a medium’s language and cultural conventions are intertwined with its original technological support. Further, to fully implicate a new proto-affordance into an existing medium, its technological support must be drastically overhauled. Using the magic lantern as an example of this, an electrically-distributed magic lantern (however it would work) would be a significantly different medium than the original—a new medium that would need a completely revised technological support that offers the proto-affordance of instantaneous communication over distance.
As a new moving-image device, the phenakistoscope was based on previous experiments in hand-drawn animation. This included Faraday’s wheel and the thaumatrope, both of which relied on spinning discs to illustrate the persistence of impressions of light (Mannoni, 2000, pp. 201-222). What is special about the phenakistoscope within the history of cinema is that, at the time of its invention in 1832, it was one of the first hand drawn animation mediums that created the experience of visual movement by representation via an animated sequence of images. As such it consisted of a spinning disc with a short series of slightly dissimilar drawings on it, and an arrangement of slits through which a single viewer would look (Faden, 2011). A precisely-placed mirror improved the effect of the rapid succession of images—appearing to the viewer as a single moving image. Soon after its uptake related devices emerged, each working in a similar fashion but with slightly different technological supports, and hence affordances. For example, the zoetrope was a device built around a drum.

10 Though Faraday’s wheel and the thaumatrope employ the concept of ‘persistence of vision’ to combine two, previously distinct, images, Anderson and Anderson have demonstrated the experience of visual movement from the animated still frames in cinema to be an example of ‘short range apparent motion’ (1993).
design and a paper strip, rather than a disc, and supported more than one viewer (Williams A., 1992).

An interesting aspect of the phenakistoscope, and its later variations, is that the discs or strips of paper that contained the animated series of drawings could be mass replicated by a machine, the printing press. This meant that phenakistoscopes could be made and distributed to the public (at a cost, of course) and the paper discs and strips sold separately by various manufacturers as new ones were created and mass replicated (Mannoni, 2000, p. 222). Thus, the spread of moving images (hand-drawn, converted to a lithograph, and mass-printed as they were) finally emulated the mass replication of the written word by machine, which had greatly affected the spread of knowledge and the structure of societies for nearly four centuries beforehand. Indeed, this dissemination of printed knowledge influenced the invention and evolution of various moving-image devices. The reader of a printed book, of course, does not require a specific machine at the receiver’s end to allow engagement with the media object—but the mechanical mass replication of phenakistoscope content by the printing press still made it the dominant moving-image medium of its day (Mannoni, 2000, pp. 219-223). From its invention until well into the late 1800s, its figurative, flickering, moving images thus infiltrated countless houses (Mannoni, 2000, p. 222), and the minds of many who could financially afford to engage in its visual representations of movement and culture.

The combination of animated and projected moving images is the technological merging of the concepts behind the magic lantern and the phenakistoscope. It is an example of the hybridisation from which new technologies of mediation emerge, and with these come new expressive and communicative affordances. In turn, members of the culture into which these new technologies emerge possess the potential to explore new modes of
mediated expression and communication. Several machines were invented that could achieve the effect of an audience simultaneously viewing animated moving images. Notably, this included incarnations of the praxinoscope, later variations of the zoetrope, and the zoopraxiscope (Mannoni, 2000). The last of these used glass-painted copies of actual photographs as a basis for its animation. The age of animated photography, as the mechanical transcription and representation of movement, was very near.

A camera obscura is a box (or room) with a hole in one side that allows the reflected light from a scene to be projected (inverted 180 degrees) on the opposite side (Fink, 1971). It can be said to be implicated in the beginnings of the film camera in its representation of visual perspective, and also aided construction of the scenes of 17th century painters, such as Johannes Vermeer, in their efforts to accurately record the natural reflection of light (Fink, 1971). The mechanical process of capturing movement subsequently evolved from a multitude of pathways—pushed forwards by inventors such as Étienne-Jules Marey, Eadweard Muybridge, George Eastman, and Thomas Edison (Mannoni, 2000). This trajectory included experimentation with photographically capturing animal motion, using zoetropes to view a series of human-movement images as animation, and the development and introduction of the photographic paper strip.

The latter was, of course, one of the forerunners to the celluloid filmstrip, as the basis for Marey’s chronophotographic gun and Edison’s kinetoscope (Mannoni, 2000). These were mediums that afforded, respectively, the mechanical transcription and representation of movement, and were effectively among the first film cameras and projectors. In respect to this, André Bazin notes that “for the first time, between the originating object and its reproduction there intervenes only the instrumentality of a non-living agent.
For the first time an image of the world is formed automatically, without the creative intervention of man” (1967/1980, p. 241). This ‘non-living agent’ was the film camera, as a machine that offered reproducibility as a proto-affordance, and the late 1800s was the dawn of moving photographic images in the mechanical epoch.

Edison’s kinetoscope, a large wooden box with a peephole window to look through, was arguably the first machine of moving-image distribution and reception to find commercial success (Winston, 1996, p. 14). It was released publicly in kinetoscope parlours in 1894 and relied on “sequential photographic images on a strip of flexible celluloid with sprocket holes down the side to hold it in position” (Winston, 1996, p. 14). The photographic image sequence in question was captured by the kinetoscope’s companion technology, the kinetograph. The kinetoscope had all the facets of traditional cinema as we now know it, except the inclusion of a magic-lantern-style projection unit. Because of its lack of projection technology, Edison’s kinetoscope was for individual use—
where one person at a time would pay to look through a small hole and watch the looped film-strip. This did not necessarily make it a one-to-one communication technology, as the same film-strip was still viewed by many people discretely.

The above meant that, though the kinetoscope is still to be considered a one-to-many technology of mediated communication, it dictated an individual experiential mode as cultural practice. That is, it offered the communicative affordance of private viewing. Winston sees the kinetoscope’s reliance on the personal presentation format as an oversight by Edison, as “sitting in the darkened seats of the auditorium watching highly professional entertainments” was what the producers and consumers of moving images at the time were all waiting for (Winston, 1996, p. 31). This was because the communities of the time were accustomed to engaging with theatre, vaudeville, and orchestras as public audiences.

The emergence of cinema itself is a multifaceted history of prototypes, designs, and competing patents (Mannoni, 2000). In the end, however, systems of recording moving images to celluloid, and subsequently projecting them to an audience, were perfected and commercialised—the Lumiere’s cinématographe arguably being the most well-known of these (Mannoni, 2000, pp. 462-467). Traditional film offered the affordance of being readily mechanically copied and stored over time, as well as the potential for post-production manipulation as further expression, but it did not support the potential action of synchronous communication. Filmic acquisition and manipulation created cinematic content that was material, in the form of large rolls of celluloid film, and thus it needed to be physically moved from place to place in order for communication over distance to occur. Thus, instantaneity was its anti-affordance. The filmic medium itself included the potential for
interpersonal cues of communication, in its representation of faces, bodies, and voices, but it also afforded the use of text, as an abstract form of expression. These are some of the various affordances of traditional film and cinema that, in their emergence, defined them as moving-image mediums of the mechanical foundation technology epoch. The proto-affordance that laid the foundation for all of these was, of course, reproducibility.

Most early optical-capture processes for film, such as that used for the Lumieres’ cinématographe, were purely mechanical. In this, the camera itself was wound by hand and the complex mechanics inside it conveyed the single frames, one-by-one, in front of the lens for individual exposure. The projector component of the cinématographe, like later magic lanterns, did often use electricity to power its lamp. It is important to note however, that—like the magic lantern—this did not significantly change the creation of cinématographe content or the way that viewers received cinématographic messages. The electric lamp merely improved on the original processes of illumination, which increased the potential size of the audience but otherwise did not greatly affect the medium’s expressive or communication practices. The affordances of electricity that were being capitalised on, in the case of the cinématographe, was as an alternative for illumination, not the proto-affordance of instantaneous distribution of moving images across great distances. It is, though, still an aspect of cinema’s transition through the epoch of the electrical foundation technology and an indicator of reciprocal remediation.

As the supporting technologies of cinema evolved, more affordances of electricity were provided by its upgraded technological assemblage. For example, electric motors powered cameras and projectors (which allowed for more consistent film-speeds and thus more realistic representations of movement), and early attempts at mechanical sound synchronisation gave way
to electronic recording, synchronisation, and subsequent amplification. The accompanying soundtrack has played through various historical stages of embedding music onto the film-strip itself, synchronising voices to the moving image, and introducing spatial audio in the way of stereo and surround sound. Colour was also injected into the image as a variety of stereoscopic technologies came and went. Besides all these technological transformations, however, cinema can still easily be recognised in terms of a historical consistency of cultural experience.

To accentuate this point, Tom Durley explains that

The concept of watching a film in a cinema is something which over the years has changed very little. For decades the public has queued up and bought a ticket to sit in a darkened room, in a fixed spot to watch a piece of film from beginning to end, on a screen of a particular size and dimension. Even from the very early cinemas at the advent of film’s popularity right up until modern day, the format remains the same and people occupy the space in the same way (2005).

From this, one can recognise that although the traditional medium of film-based cinema has evolved over the many years of its existence to incorporate elements and properties of electrical invention, these changes in its technological support were not incorporated in such a way to radically change its communicative affordances. The familiar model of cinema experience that Durley describes includes the one-to-many one-way dissemination and linear public reception of movies.

It is worth noting, though, that technological advancement through electrification has affected the production of films more than it has the audience’s experiential aspect in the cinema. As such, electricity can be said to
have had a greater impact on the expressive affordances furnished by mechanical moving images than on the communicative. As an example, electric motors and synchronised electric sound anchored cameras within heavily-insulated blimps that limited the freedom of the actors and camera itself for many years (Bordwell, 1977). Inventions and evolutions in technology for electric lighting also affected what could be shot, when, and how. All this, in turn, did significantly alter the way that movies were made, and hence the resulting cinematic messages. Electricity did not, however, penetrate the expressive processes of film-making in the same way that it did that of video or television. That is, films were still shot on film: a mechanical transcription, storage, and manipulation format that only afforded the use of certain creative conventions—which, as I will suggest, are definitely not identical to those of video.

There was a period of time, between 1939 and 1953, when it looked as if cinema might convert wholly to the electrical foundation technology and its proto-affordance of instantaneity (Winston, 1998, p. 123). During this period large-screen televisions for theatres were devised and built, and even installed in more than a hundred cinemas (Winston, 1998, p. 123). The implementation of video this early in cinema’s history was not to be, however, and various social and technological effects combined to switch off progress on the electrification of cinema. Among these were the denial of Hollywood’s access to a broadcast spectrum, the boom of domestic television, and the development of new cinematic spectacles such as Cinemascope and 3-D (Winston, 1998, p. 123).

Cinema was, in essence, denied the action potential of the proto-affordance of instantaneous transmission. Whether a form of cinema in the 1950s that became entrenched in electrical distribution would have survived intermediality in competition with television is impossible to determine. In
remaining a primarily mechanically created and distributed medium with some electrical augmentation, cinema of course did survive. Further, it transformed its specificity to become increasingly distinct from television, maintaining an audience and commercial viability. This leads me to a discussion on the pre-history of the electrical moving-image medium of television.

**The Origins of Video and Television**

One of the origins of the televisual medium, of course, stems from experimentation with the affordance of synchronous communication over great distances through electrical transmission, which resulted in the commercial introduction of the telegraph in 1823. Video and television were not developed because of the existence of film and cinema, as successive forms of moving-image mediums (although film and cinema most definitely influenced their final forms and social uses). Instead, the technologies already discussed in relation to the pre-history of film and cinema should be recognised as also contributing to the advancement of televisual technologies. This becomes apparent in an investigation of the emergence of video and television as somewhat parallel to that of film and cinema, instead of being consecutive.

![Figure 5: The Pantelegraph (Rensen)](image)
Indeed, for much of their history they have been mediums remediating each other, in a relationship of constant tension.

Introduced in 1861 by Giovanni Caselli, the pantelegraph was the first commercial machine that could transmit illustrations directly over telegraph wires (Johnson, 2006, p. 21). In its scanning and transmission of printed materials (both text and images) it can be considered the equivalent of a fax machine, and a pre-cursor to the medium we now know as television. It emerged about the same time as the telephone, and in the late 1800s prompted many public conceptualisations of future telecommunications technologies (Winston, 1998, p. 91). The telephonscope was one of these, and it promised that one day people would see each other on a large screen on the wall and simultaneously converse via the telephone (Winston, 1998, p. 91). Of course, the proliferation of mechanical moving-image devices such as the praxinoscope, and the burst of experimentation with animated photography at the time, also contributed towards creating a means of instantaneous moving-image communication.

Interestingly, early experimentation with televisual technologies used mechanical scanning processes instead of electrical (Winston, 1998, pp. 88-99). This is perhaps not surprising, as in the early 1900s electrical technologies were still in their infant form—but developing rapidly. Film and cinema were culturally-embedded in Western societies well before television’s vast array of inventors managed to demonstrate working systems by the mid-1920s, so the task of creating asynchronous moving images had already been achieved. The aim of television research, was transmitting the moving image instantaneously over distance (Winston, 1998, p. 108). The quest for the immediate transmission of moving images, which television pioneer Alan Archibald Campbell Swinton called “distant electric vision” (1908), thus defined the foundation of television’s
technological support from conception. The synchronous communication that the telephone, and later radio, afforded (albeit through sound only) was inspiration for television’s originators (Winston, 1998, pp. 88-111), and it was from the proto-affordance of electricity, being instantaneity, that this potential was recognised.

The development of electromagnetic radiation (EMR) by scientists such as James Clerk Maxwell and Heinrich Hertz towards the end of the 19th century (Sarkar, et al., 2006) was also a crucial element in the lead up to the invention of analogue television. This is because without EMR, television would be dependent on wires to transmit its electrical moving-images. One could argue that EMR is the very reason that radio and television are so effortlessly broadcast, as the public does not need to be physically connected to the source of the signal to receive its radiating signal. This makes its affordance of one-to-many communication easy to adopt and implement.

Marconi was debatably the first to use EMR technology to transmit signals, in the form of a wireless telegraph, but at the time some found it difficult to perceive the social use of this affordance—due to the fact that anyone at all could intercept and engage with the signal (Winston, 1998, pp. 75-76). As such, Marconi had to take his invention to Britain before it was considered useful (Barnouw, 1990, pp. 8-9). Here the British navy found this affordance of one-to-many communication quite valuable indeed, and the subsequent popularity of radio encouraged various future communicative uses, including the addition of voice transmission. The latter is what we call ‘radio’ today, and it is being electrical technologies that affords the instantaneous broadcasting of radio and television.

The expressive affordances of moving images are also affected by their being in an electrical state. As an example, the flow of electrons that is the
electrical signal that carries moving-image content can be further manipulated by video signal processing. The concept of ‘video signal processing’ is the act of applying an operation to the moving video signal itself to alter it for a desired effect and use (Spielmann, 2006, p. 56). Spielmann says that “due to its unstable and incoherent characteristics, it is more precise to emphasise the transformative capacities of the video image, anchored in signal processes that differ from the spatial-temporal unity of a ‘tableau’ or ‘frame’ image” (2006, p. 58). Here, Spielmann is noting the potential for electronic signal processing as an affordance of video that film does not provide.

It is also video’s flow of electrons as a signal that affords multi-camera, real-time editing, as seen in talk-show television programs. In this practice, one video signal is being live-switched with another video source—such as another television camera shooting a live presenter, or a stream from a videotape player. The multi-camera form of live moving-image editing as achieved using television cameras (which are also called video cameras, as their ‘sight channel’ functions via video signal (Newman, 2014, pp. 7-10)) is not identical to the traditional ‘continuity editing’ technique that is often exemplified in cinematic productions. Instead, it is the actual live-switching of several cameras that are trained on the same event, or subject, down to one video-signal output. The aesthetics of this live-switching process was used for constructing some of the perthbands.tv scenes in which the viewer sees the band playing live on stage. Due to the necessary temporal displacement between shooting and viewing, film cameras cannot afford the instantaneity that is required for this task. Instead, the film must first be processed, and only then can the multiple camera streams be physically (and laboriously) edited together. Hence, true multi-camera editing is not generally considered a filmic aesthetic, as it is with video
and television. This expressive aesthetic is afforded by the proto-affordance of instantaneity.

Of course, due to film/cinema and video/television being mediums of the moving image, they also exhibit consistencies in expressive and communicative affordances. This can be seen by the fact that televisual productions still employ many of the same elements of the moving-image language as cinema does. For example, camera codes and temporal montage techniques are included as production variables in both. Each medium also represents movement as a series of animated still images. Even at a more fundamental level, as mediums of the moving image they both allow people to communicate using facial expressions, body movement, voice tone, etc. It is clear, then, that television has similarities to cinema in its mode and social use, though it adds a new dimension to the moving image’s expression and communication due to the proto-affordance of the electrical foundation technology. This proto-affordance is one of instantaneity, and it exhibits support for synchronous communication through the compression of space. Due to the fact that television is similar to cinema—and yet rivals it with the new proto-affordance of instantaneity—it can be said to remediate cinema.

**Videotape as Technological Support**

While film is a transcription, manipulation and storage medium, I see its communicative matching pair as traditional cinema; and, combined, as the collective process of film creation, distribution, and viewer experience. From the outset it may seem that television is purely a distribution, or communicative, medium. In this, its potential for synchronous communication appears to ignore any storage capabilities. As previously noted, however, video can be seen as the storage and expressive medium for television, as it provides the electrical acquisition and manipulation technology that is a precursor to
transmitting the televisual message. The term ‘video’, besides indicating a moving image that is converted to an electrical signal, is also synonymous with the associated storage medium of ‘videotape’ (Newman, 2014, pp. 17-19), where this electrical signal is stored on magnetic tape.

The pre-history of videotape’s emergence is as long and complex as that of cinema or television, and is also intertwined with both, but among its earliest incarnations were experiments in recording mechanical television signals to (what was effectively) a gramophone disc in the late 1920s (Rapid Intelligence, 2003). After these attempts were found to be less than successful, for many years the televisual image was converted to film for storage using the kinescope/telerecording process (Winston, 1998, pp. 267-268). This is a procedure for converting television to film, from where it can be stored, transported to another location, and then later broadcast again through a television camera. This recording of television to film was an intermediate step before the invention of videotape, and is an example of reciprocal remediation.

Recording television to celluloid film for storage and distribution raises an interesting and relevant issue. This is in regard to what effect transposing electrical moving-image medium content to a mechanical moving-image medium has. From the outset, it is obvious in this case that the medium content being transferred is stripped of its proto-affordance of instantaneity, as I have already established that film does not afford the practice of synchronous communication over distance. The point could be raised, though, that the mid-1950s introduction of analogue magnetic videotape also, as similar to film, did not support synchronous communication over distance. In this sense it should be remembered that both film and videotape are primarily storage technologies and expressive mediums with communicative potential through physical transportation. As such, their communicative affordance does not include
connecting people instantaneously over distance, but instead storing messages through time—the medium content of both can then be physically transported over distance/space, if desired.

The process of communication using film and a video signal stored on tape, as such, is quite similar, in that both rely on physical transportation. It is more easily seen, however, that the expressive affordances of these storage mediums distinguishes the two. In shooting the footage for perthbands.tv episodes, I experienced an expressive affordance of the video capture method that I recognised as distinct from that of capturing film. Film cameras rely on the refraction and reflection of actual light from the scene to allow the camera operator to view what is truly being captured to the film strip. Further mechanisms are also often involved to control these processes, such as spinning mirrors and/or shutters. Conversely, the video camera duplicates the electronic signal that is a video representation of the original scene. It then sends this duplicated video signal instantaneously to a large, bright liquid crystal display (LCD) positioned on the side of the camera. This screen is in addition to the normal electronic viewfinder (EVF) that is usually positioned at the back of a video camera in emulation of the standard filmic setup.

The side-mounted LCD on a video camera can be extensively tilted and pivoted, which allows the videographer to view, frame, and compose a shot with the camera at arms-length in a wide variety of positions. This electronic monitoring technology afforded perthbands.tv camera operators to shoot with either the left or the right arm in nearly fully extended position. This was instead of holding the camera up to the eye, or at least close to the body—as one is required to do with heavy film cameras that have small view-finders and function via refracted/reflected light. Thus, by shooting on a video camera, one perthbands.tv framing could be from down low near the singer’s feet, and the
next could suddenly be up at their head height. Conversely, when shooting with film, the variety of available shot framings is less, due to the lack of flexibility of camera position. The first uses the ‘camera as an extension of the arm’, while the second uses the ‘camera as an extension of the eye’.

As can be seen in much of the *perthbands.tv* live content, this constant ‘reframing to new perspectives’ while the camera operators are shooting, provides the editor with much more usable footage as scene coverage when cutting the rushes together. To explain, a moving-image editor’s role is often to control the pace and rhythm of temporal montage. Editing together rushes shot by a video camera in the aesthetic as used by the *perthbands.tv* camera operators, the editor finds themselves with more new framings of the scene than they would with film. This is because the video camera operators, with the camera as an extension of the arm, rather than the eye, have more opportunities to alter the framing of the shot while shooting. The editor can thus provide the audience with a much greater range of perspectives throughout the live clip. This works positively to maintain the audience’s interest, as well as in increasing their feeling of engagement, as they watch. This variation in the shooting and editing processes of both the moving-image mediums of film and video is an example of their expressive differences. Further, video moving-image acquisition remediates film, in that the process of shooting video is similar to that of film, and yet video adds increased potential due to its differing technological support.

The remote video signal displayed on the LCD arrives electronically (and hence the signal is instantaneous), which affords video this shooting style. This became a strong aesthetic within many of the *perthbands.tv* episodes. No film camera has this ability to act as an extension of the arm, and still provide adequate shot monitoring for framing and focus, without support from some
form of supplementary video technology. Further, the addition of a video LCD screen to a film camera, often called a ‘video-tap’, adds an electrical expressive affordance to a mechanical medium assemblage. This, in some ways, creates a hybrid film/video camera—as film supplements its monitoring affordances using electricity. This is an example of film remediating video, as it adopts video technology within its original technological support, and thus also adopts video’s paradigm of moving-image expression.

The above discussion shows that as existing expressive mediums transition through a new foundation technology, their expressive affordances evolve in a variety of complex ways. In the example of film transitioning through the electrical foundation technology, electricity can be applied to the filmic medium to power the camera motor, which leads to alterations in shooting practices and increases the potential shot length. A video-tap can also provide increased flexibility for shooting with the film camera away from one’s eye. One advantage this offers is the capture of a greater variety of usable footage in ‘live event’ style shooting conditions—such as the perthbands.tv performance environments. These implications of electricity augmenting film production can be seen as the electrical technological support impacting on the expressive affordances of the filmic medium.

The Shift Towards Digital Storage Technologies

The introduction of digitality to existing video storage and playback mediums, such as analogue videotape, demonstrates an important aspect of the transitioning of mediums through newer foundation technologies. This can be seen by analysing the distinctions between digital videotape and digital video disc (DVD). To begin with, digital videotape is a direct evolution of analogue videotape, in that it plays linearly but stores a digital video signal to its magnetic tape instead of an analogue one. The process of storing moving
images on a digital videotape begins with light from the scene travelling through the optics of the digital video camera, where it affects the image sensor. The image sensor converts this refracted light into an electrical charge—or what is essentially an electrical signal (Weise & Weynand, 2013, pp. 10-13). Then, an analogue-to-digital converter converts this signal to digital data, and finally the data is laid down on the moving magnetic tape for later playback.

As a long material strip that runs past an electronic play-head, videotape is a linear moving-image storage technology, just as film is. That is, moving-image information is stored on the tape in sequential fashion, be it analogue or digital. Thus, if one wants to watch content near the end of the tape they need to move the play head to that position on the tape to access the relevant video. This entails the linear, time-consuming process of physically winding the tape from one small reel inside the cassette to the other. Conversely, even though a DVD stores its moving images as very similar binary data to digital videotape (in some cases, it is actually identical), and stores it in a sequential fashion, this data can be easily accessed in a non-sequential fashion. This is because stored digital information about the digital video data on the disc (or ‘subcode data’) allows the computer that reads it to rapidly access any section of the binary disc-content with identical ease (Brain, 2000). This non-sequential form of data access is called random, or direct, access.

The affordance of random access alters the way that a user of the medium engages with the digital moving-image content of a DVD, in that the viewer can easily access (and thus experience) the moving images in a non-linear, or non-sequential, fashion. Further, random access is an element of digital computers and their devices due to their foundation technology of digitality offering the proto-affordance of computability. The most recent moving-image storage technology, the solid-state flash memory card, also has
the further advantage over DVD and hard-disk formats by having no moving parts at all (Harris, 2012). As a digital device, random access of the data on a solid-state memory is, of course, implied.

As I noticed when shooting *perthbands.tv* footage, the differences between the affordances furnished by digital videotape and digital memory cards manifested in specific ways. For example, any of the digital footage on a memory card can be easily reviewed during a shoot at any time. With analogue or digital videotape, the process of reviewing footage on the tape takes considerably longer, and, not being optically-read, wears the tape out a small amount each time it is played, rewound, or fast-forwarded. Because of this wearing characteristic (and hence potential for tape damage), reviewing the footage is not generally done when shooting on videotape, unless absolutely necessary. A further reason for this is that reviewing the linear videotape can take considerable time, while also increasing the possibility of recording over footage you have previously captured.

Conversely, the freedom to be able to review memory-card-based digital video footage via random access during a shoot promotes creativity, as past footage can be examined and learned from without fear of damaging or recording over existing footage. It also allows one to be sure that one has captured exactly what one needs before leaving a particular location and moving on to the next. Thus, the random-access nature of digital memory cards provides the film-maker with expressive affordances that linear tape cannot—be it analogue or digital. Thus, it is notable that though digital videotape does incorporate some elements of the digital foundation technology, it is still also limited in affordances by the analogue technological support from which it emerged. The old medium, as such, holds traces of its original technological support and social practices through its evolution.
Another affordance of digital video is that the digital camera can store metadata, or information about the specifics of camera settings and light from the scene, together with the relevant moving images—to be accessed later for creative purposes. However, though this and the above tend to suggest that memory cards are an improvement on linear video storage technologies (analogue and digital), negative aspects of recording video to memory cards are also present. One example of this is that it is easier to lose all of the recorded footage on a memory card than it is a magnetic tape. This loss of digital data can be due to file corruption, or other card stability or formatting issues. Conversely, when magnetic tape gets damaged it is usually only that specific section of the tape, and hence footage, that gets lost forever. The rest is usually salvageable at full quality. As such, the affordances provided by new technologies are not always positive, and can sometimes incorporate risk potential, such as the greater potential for footage loss in this case.

Early digital video cameras were designed and constructed to use the same magnetic tape process of storage that analogue video cameras used, only the stored video signal itself was digitised. Over time, designers and makers of digital video cameras abandoned this tape format in favour of random access methods, such as recording directly to DVD or hard disk drive (of which the latter itself is an electro-mechanical technology made up of randomly-accessible spinning discs). Finally, then, they migrated to the smaller, quieter, and more robust, solid-state flash memory cards that consist of no moving parts. These later digital storage technologies can be seen as intrinsically digital, in that they were specifically designed in regard to, and could not even function without, the digital proto-affordance of computability. Digital videotape, conversely, is not intrinsically digital—it is a direct digital adaptation of existing analogue videotape technology, and thus its affordances are limited in this regard. In
some ways, then, the entire technological support of video slowly became more and more inherently digital, as it passed through several evolutionary steps over the period of a decade or so.

In relation to medium evolution, Sam Lehman-Wilzig and Nava Cohen-Avigdor ask the questions:

When a medium undergoes metamorphosis, does it thereby become a ‘new’ medium? Is the modern, multi-function 3G mobile phone the same medium as Bell’s telephone, or a new medium altogether? Is an interactive, multi-media e-book version of the Old Testament the same medium as Gutenberg’s Bible? Is Internet TV the same medium or different from regular television, given its increased functional possibilities? (2004, p. 720).

Their answer is that existing mediums that undergo such a dramatic stage of evolution are usually what they call ‘adapted’ or ‘converged’ mediums, being old mediums that are resisting dissolution from the threat of a new medium (Lehman-Wilzig & Cohen-Avigdor, 2004, p. 720). Lehman-Wilzig and Cohen-Avigdor’s example of an ‘adapted’ medium is how newspapers reacted to the success of network television news. This moved the papers to add much more colour and visuals to the printed page (i.e. functional equivalence and mimicry) as well as offering much more news commentary and background that television news could not, or would not, offer (i.e. functional differentiation and complementarity) (Lehman-Wilzig & Cohen-Avigdor, 2004, p. 718).

Old mediums that ‘adapt’ in this way are focussing mainly on refining and upgrading their content.
Another tactic of medium adaptation employs “technical upgrade and multi-functionality” to survive the threat from a new medium (Lehman-Wilzig & Cohen-Avigdor, 2004, p. 718). As such, “the telephone hardly changed for a century, but after deregulation and particularly in the last two decades it has undergone a wholesale makeover—first, becoming mobile-wireless, then adding text and now video” (Lehman-Wilzig & Cohen-Avigdor, 2004, p. 718). This is the mode of medium evolution that is aligned with the changes in technological support in relation to cinema in its 1950s challenge from the introduction of television, as discussed in Chapter One. It indicates the old medium’s absorption of new technologies into its original structure to increase its affordances and improve its functionality. The core of the old medium often persists, as in that projected moving images were still shown in cinemas to a seated public audience, but it also evolves in relation to its new technological support to show evidence of its new expressive and/or communicative practices. In the case of analogue cinema, this evidence included adaptation to embrace a widescreen format, surround sound, and stereoscopic vision.

Lehman-Wilzig and Cohen-Avigdor’s concept of a ‘converged’ medium is one that declines competition with the new medium, and instead adopts it entirely as, what they call, a ‘parallel medium’ (2004, p. 719). That mobile phones have become digital, and thus also support the functions of the Internet, is their example of this. In terms of moving images, this specific tactic of convergence can be identified in television during the introduction of magnetic videotape. Instead of videotape remaining purely a professional medium, it migrated to the home and became an ancillary technological component to television itself (Murphy, 2011, p. 7). Some later models of television had this analogue video storage device integrated directly within the television set; a move that became even more popular with the advent of personal video
recorders (PVRs). Time-shifting essentially became an affordance of the increasingly complex televisual medium.

A more extreme case of medium convergence through evolution, however, is what Lehman-Wilzig and Cohen Avigdor call medium ‘sublimation’, where “the technology disappears while the communication service survives” (2004, p. 719). That the content of the printed book will survive within the form of e-book readers, such as the Amazon Kindle, exemplifies this, in what is described in Chapter One as the remediation of a medium. Differently to Lehman-Wilzig and Cohen-Avigdor, I would call digital reading devices new mediums. This is because remediation of the printing press is present in the primarily text-based content, but the way that content is distributed, accessed, stored, manipulated, and engaged with, are embedded within the new digital foundation technology. This is just as the printing press was a new medium, in its remediation of scribal communication. The technological support of the new medium has been designed and constructed with the proto-affordance of the new foundation technology firmly in mind, which brings with it new social practices and uses.

In their book, *The End of Cinema: A Medium in Crisis in the Digital Age*, Gaudreault and Marion employ a useful metaphor to critique this evolutionary trajectory of existing mediums as they shift to being digital (2015, p. 5). They ask what a car would be called if it were suddenly able to fly: would it be a ‘flying car’, or an ‘airplane’? In my view, as a car is not an airplane already, it must be thoroughly technologically re-invented in order to do the work of an airplane as well as one. Framing this in light of the terminology I have used thus far to discuss medium evolution, its technological support would need to be reconfigured from the ground up. Only then could it actually be called an
airplane. Until then, a car that is made to fly would be an adapted or converged car.

In light of Lehman-Wilzig and Cohen-Avigdor’s understanding of adapted and converged mediums, I would suggest that a single old medium under threat of obsolescence from a new one can actually exhibit more than one of the survival tactics described above, and to varying degrees—in a complex play of various technological supports and offered affordances. Television is a case in point here, as it evolved from being a medium for transmitting live moving images as a remediation of the medium of cinema, to include the remediation of cinematic content in the way of showing films, to having its flow subjected to time-shifting by new mediums such as videocassette recorders (VCRs) and PVRs, to becoming a screen on which to play video games, watch movies on DVD or Blu-ray, or even interact with a computer, into being digital television in its even more numerous guises. Variously remediating and being remediated, and adapting and converging over the years, television is (as Gaudreault and Marion (2005) attest) in an intermedial state, and yet still it survives while more recently reaching out to embrace both WebTV and Internet TV. I shall now explore the transition of both cinema and television in their engagement with the digital foundation technology.

Digital Cinema

Digital cinema, complete with digital video acquisition, digital editing and manipulation, and digital distribution, was itself not introduced as a complete singular medium. Instead, cinema’s transition into the digital arena began in the late 1980s with 35mm film frames being digitised as still images and manipulated inside a computer (Prince, 2012, p. 59). With the current trend of cinemas incorporating digital projection, and the improvement and industry acceptance of digital cinema cameras, this practice of digitising film purely and
solely for computer-aided manipulation is slowly, but steadily, disappearing in favour of a comprehensive digital pipeline of production. However, it is a good indication of how cinema, as a mechanical medium, transitioned incrementally into the digital foundation technology. The same process of digital image manipulation also applies to the electrical medium of television, in that digital computer editing and manipulation of video for television production was introduced well before the digital transmission of the television signal was. To make my point regarding the incremental changes in cinema clear, I will demonstrate, in more detail, the process involved when using digital computers to create cinematic content.

Manipulating the mechanical medium of cinema using a computer starts with digitising the exposed and processed film—which, of course, also incorporates converting it to an electrical signal. That is, the sequence of animated, analogue, celluloid images that represent movement is converted to a numerical simulation. Once these moving images have been digitised, they become digital data—which can then be computed. This processing often takes the form of adding post-production digital effects, non-linear editing, colour grading for mood, and/or inserting graphic animations, titles, and credits. The completed sequence of digital images is then often transferred from the computer back to film in its new, digitally-manipulated guise, to be screened in a traditional cinema via an analogue, opto-mechanical projector. Increasingly these days, the manipulated movie remains as digital video and is screened via a cinema-quality digital projector. As mentioned, analogue television incorporated early digital technology in the same way—in the digital manipulation of televsual images for later analogue broadcast. Analogue television did, however, often also include digital video acquisition as part of its technological support.
The result in the example of traditional film and cinema’s adoption of early forms of digital and electrical expression still comprised mainly the acquisition and distribution processes, and hence the affordances, of the mechanical mediums of film and cinema. Thus, for cinema’s early adoption of the digital computer, the latter could be said to be working in an expressive way within the complex heterogeneous interplay of various technological supports, numerous socially-contrived creative conventions, and language, of the traditional mechanical medium of cinema. This is an example of traditional film and cinema’s transition through the digital foundation technology, where the storage capabilities, aesthetics, and expressive nature of digital moving-image technology could be recognised, but digitality was not fully integrated into the mechanical mediums to aid in acquisition and communication. This is also reflective of reciprocal remediation, and Lehman-Wilzig and Cohen-Avigdor’s concept of an old medium that converges with new technological aspects in an attempt to avoid dissolution. It is with the subsequent introduction of digital video cameras and digital distribution and projection that we arrive at contemporary digital cinema.

Digital video acquisition, of course, impacts on the expressive nature of the moving image. That is, the affordances of a digital video camera are different than that of a film camera, and stem from the underlying digital proto-affordance of computability as well as the electrical proto-affordance of instantaneity and the mechanical proto-affordance of reproducibility. For example, I could not have shot perthbands.tv content on 35mm film. This is because the ability to easily hand-hold a heavy 35mm camera in confined spaces, and accurately and quickly frame and focus in low light while shooting up to half an hour of footage, with the camera as an extension of the hand, is an unrealistic expectation. The ability to do this was imperative for perthbands.tv
live band shoots, and a digital video camera provided this instead. Further new affordances of digital video acquisition have already been discussed, including the random access of data on solid-state memory cards.

Digitising cinema’s process of communication, as opposed to expression, affects the medium in quite a different way. With most contemporary digital cinema, a digital file of the movie is streamed from a local computer and screened via a digital projector. However, this is not altogether a different process from projecting a film-strip from the cinema’s projection booth (or ‘bio-box’), especially in terms of audience experience (Belton, 2002, p. 104). As noted, in both cases, the audience sits collectively in a darkened room as plays of light and colour represent people and places larger than life in front of their eyes. It is true that the aesthetic qualities of film and digital video production and projection are distinct, and several prominent film-makers have made a point of contesting the latter’s use. These include Christopher Nolan, who declares that film is “far better looking” (Merchan, 2012), and Quentin Tarantino, who calls digital projection “just television in public” (Reynolds, 2012). Regardless of aesthetics though, feature films as digital video files on hard disk drives are often still transported physically from the source of production to the movie theatre, just as film reels have always been (though the cost of digital copies is much cheaper).

The potential for digital cinema content to be delivered via satellite or fibre-optic cable, and to include the live broadcast of events or performances, or simultaneous international release of a movie, does exist—but in all of this it still affords a one-to-many communication practice, and people still primarily engage with the medium of cinema by watching traditional long-form
cinematic productions with dramatic narratives on a big screen in public.\footnote{Of course, home cinema is not publicly viewed, as indicated by its nomenclature, ‘home cinema’, in distinction to the traditional cinematic medium.} In fact, there is not much here in the way of audience experience that a form of cinema based on analogue video could not afford; that is, instantaneous widespread transmission of moving-image content over distance to an audience of spectators. The consistency of viewer experience into the digital age is why John Belton calls digital cinema a ‘false revolution’ (2002), and Gaudreault and Marion propose that “film’s ‘digital fingerprint’ is not easily perceived by moviegoers” (2015, p. 5). It is an example of the classical social practices and uses of cinema prevailing through its adoption of digital technological supports. In this way digital cinema is not a new medium, but an evolving medium that has been renewed through adaptation.

**Digital Television**

An examination of broadcast digital television reveals a similar set of circumstances, in that its fundamental communicative affordances include those very similar to broadcast analogue television. These days, though, television viewing often exhibits less social synchronisation, due to the adoption of time-shifting technologies such as the VCR and PVR. It is true that digital video editing, digital compositing, digital video acquisition, etc., all contribute enormously to the expressive nature of the televisual moving image itself. Electronic program guides, remote controls, time-shifted viewing, and Internet connectivity are examples of how people can now interact with their digital television and its digitised content. However, the digital broadcast distribution process through EMR does not show radical changes to the fundamental one-to-many, one-way, synchronous affordances of communication offered by its analogue ancestor. It is the addition of new
higher-level affordances due to the adaptation and convergence with new technologies over the years that has shifted television’s social practices and uses.

Though it has dramatically increased in complexity over its history and can now refer to many things, including “a set of connected ideas, beliefs, and technologies” (Murphy, 2011, p. 5), broadcast digital television is still a medium that affords the instantaneous mass-transmission of moving-images—the underlying structure of communication via television was built on this. Traditionally its fundamental social and technological structures also deny the affordance of many-to-many, two-way communication—just as those of cinema do. Thus, though cinema and broadcast television can now be recognised as digitally evolved mediums, as is indicated by their new formal titles of ‘digital cinema’ and ‘digital television’, they also remain locked into past expressive and communicative practices by their original foundation technologies, due to the legacy of their technological supports. In some ways, they are also restrained from becoming entirely new mediums by their cultural institutions, which have legal, economic, political, and infrastructural foundations in place that restrict rapid change. In this, signs of digital evolution work within the existing cultural practices of these old mediums, and improve or augment them without reconfiguring them entirely. Digital cinema and digital television are thus, in Lehman-Wilzig and Cohen-Avigdor’s terms, adapted and converged mediums.

As implied, mediums are assigned new names to indicate their offering of new affordances as incurred by their transition through a new foundation technology. This is often in recognition of a technological augmentation of an existing medium, though, and, as noted, does not necessarily indicate the emergence of a new medium. Thus, digital television, as a broadcast medium, is
a jump in the evolution of television as a distinct shift from analogue television. Digital cinema, also, as an evolution of traditional cinema, is a distinct technological and cultural shift, but not a radical reinvention (Belton, 2002). The change in nomenclature for each indicates the addition of new technological support, and hence new expressive and communicative affordances. Members of Western culture understand the ramifications of applying computability to the established and institutionalised old medium implicitly, in recognising them not as entirely new mediums, but as adapted or converged mediums. Thus, the general public often continue to call them by their traditional names: cinema and television.

For these moving-image mediums that respectively emerged from the mechanical and electrical foundation technology epochs to transcend the limitations of their technologically and culturally ingrained practices and biases, they must be remediated. That is, cinema and television can be (in Lehman-Wilzig and Cohen-Avigdor’s terms) ‘absorbed’ or ‘sublimated’ into the global network of digital computers itself, so that the Internet becomes the foundation of technological support for the communication of cinematic and televisual content. Through remediation, the essences of these classical mediums can go beyond their old technological supports and inspire the emergence of new mediums. Further, the Internet can support new modes and practices of moving-image expression and communication that radically expand on the traditional cultural understanding of cinema and television.

**The Internet as Digital Communication Technology**

Returning to Kay and Goldberg’s presentation of their personal digital computer, the Dynabook, they concentrate on it being a “medium of expression”, and a “dynamic medium for creative thought” (1977, p. 31). This is instead of discussing the potential for many Dynabooks to be joined in a
network of computer-mediated communication. In their introductory article, it is not actually clear what method of transmission from sender to receiver the Dynabook, as a medium, possesses. Thus, their discussion in this preliminary article regarding this digital medium does not value its unique communicative properties:

Suppose it had enough power to outtrace your senses of sight and hearing, enough capacity to store for later retrieval thousands of page-equivalents of reference materials, poems, letters, recipes, records, drawings, animations, musical scores, waveforms, dynamic simulations, and anything else you would like to remember and change (Kay & Goldberg, 1977, p. 31).

It is apparent that Kay and Goldberg see the meta-medium as primarily a storage, retrieval, and manipulation device. Their emphasis is on it being a new digital mode of expression and representation. This is the aspect of computability that was first readily adopted by traditional cinema and broadcast television in their transition to the digital.

Janet Murray also identifies the digital computer as an ‘expressive medium’ in the first paragraph of her introduction to Noah Wardrip-Fruin and Nick Montfort’s book The New Media Reader (2003, p. 3). Though Murray also occasionally engages with the connected nature of digital online mediums, the focus on the expressive, creative, and authoring aspects of what she calls “a single new medium, the digital medium” prevails in her work (2012, p. 23). Jensen also notes this leaning in two fundamental new media texts, specifically Manovich’s (2001), The Language of New Media, and Bolter and Gruisin’s (2000), Remediation: Understanding New Media, and is dissatisfied that they approach mediums primarily as modes of representing reality, instead of “at the level of meaning as received and interpreted” (2007, p. 8). Indeed these key texts do
tend to approach digital mediums primarily in terms of aesthetics and creation; or what I call, ‘expression’ (following Ryan’s (Introduction, 2004) usage). However, as Jensen further suggests: “First, while media show and tell, they also enable their users to do things in the world. All media, new and old, are vehicles of information, channels of communication, and means of both interpersonal and institutionally organised action [emphasis in original]” (2007, p. 8). Jensen’s view implies that for a medium to be considered communicative, a receiver of the message must also engage with it.

In support of this, Kittler adds a transmission element to his description of the all-encompassing medium of mediums, the digital computer, in the realisation that there will be “optical fibre networks” and data flowing “into a standardised series of digitised numbers” (1999, pp. 1-2). Instead of holding a stand-alone digital computer responsible for erasing the very concept of ‘the medium’, he attributes this notion to “a total media link on a digital base” (1999, p. 2). Kittler’s position indicates that he sees the digital nature of the computer as key to its remediating potential, but also that, alone, its power is not fully realised. To thus complete both the expressive and communicative digital affordances, a computer requires the addition of a new technological support from which to connect to other computers and employ its unique communicative proto-affordance, and it must be a distinctively digital transmission device. Further, it must afford the storage of digital messages through time, as well as that of sending them across space. This reflects the global system of interconnected computer networks that we currently call the Internet.

Though it emerged remediating the existing infrastructural network of telephone lines, the Internet cannot exist without digitality, as it was ‘born digital’ and thus the proto-affordance of computability is essential to its
communicative function. It was specifically designed to foster the connection of existing digital networks on a small scale, but has since developed to be an “information, service and networking infrastructure providing the mechanisms for the digital society at large to function as an integrated entity” (Tselentis, et al., 2009, p. ix). The Internet is not an augmented existing channel of communication evolved from a previous foundation technology, and it is not an existing medium that has been adapted or converged. It is an innately digital technological support that affords the digital connection of digital computers. This is just as the technological infrastructure of the televisual medium was devised and implemented with respect to the implementation of the foundation technology of electricity, and as such it cannot be used to distribute celluloid film without first converting such to an electrical video signal.

With the cumulative proto-affordances of computability, instantaneity, and reproducibility, the Internet introduces a wide range of communication affordances to a society that engages with it. These reflect the interconnectedness of each and every person who has access to the Internet, in an “integrated infrastructure for the distribution of one-to-one, one-to-many, as well as many-to-many communications” (Jensen & Helles, 2011, p. 518). The Internet also supports all of these practices in both asynchronous and synchronous modes—that is, both as storage and immediate transmission—and allows users to engage in text, audio, and video, as easily as each other.

Jensen and Helles note that it is not the first time that humans have had the opportunity for many-to-many communications, with community noticeboards and a sports stadium being offline examples, but it is true that

12 Early Internet connectivity did often rely on analogue modems to convert a computer’s digital signal to tones for carrying over a telephone line (PC Mag), but the Internet is much more than just the physical connection between computers. Imperative to the Internet’s functionality are the digital protocols and packet switching that facilitate communication between digital computers on the network (Castells, 2001, pp. 10-11).
“such practices have had few institutional precedents” (2011, p. 520). It is also true that this is the first time that many-to-many communication is possible between people scattered throughout the entire globe, wherever there is Internet access and a computer. If anything, the way in which the Internet supports a wide variety of communication practices, particularly in the mode of many-to-many social engagement, offers a wealth of new affordances to those with access to it. It is my perspective that YouTube is an institutionalised medium of the digital moving image that capitalises on this, and I will explore this claim further in Chapter Three.

As Kim reminds us, “[old media] networks do not die; instead the old broadcasting institutions transform themselves by adopting web-friendly technologies” (2012, p. 62). Similarly, Lehman-Wilzig and Cohen-Avigdor suggest that when threatened by a new technology, old media take a “defensive resistance posture” (2004, p. 722). Indeed, the traditional institutions of cinema and television—that were built on analogue foundations—have begun to explore the new communicative potential of distribution via the Internet in varied and complex ways. This has caused what some theorists refer to as a ‘digital disruption’ (Palmer, 2006; Iordanova & Cunningham, 2012; Strangelove, 2015), as the Internet changes the way that people experience cinema and television, and indeed even understand the meaning of these terms.

Just as the cinema industry eventually permitted television networks to transmit feature films to home-viewing audiences in the 1950s (at a cost, of course), the Internet has inspired the decoupling of cinematic and televisual content from the technological supports from which they emerged—being the cinema theatre and the television set, respectively (Gibs, 2009). Gubbins suggests that “in a couple of decades most of the developed world has gone from controlled and scheduled access to film, music, and television to a multi-
channel multi-linear and mobile access, increasingly on demand” (Gubbins, 2012, p. 67). Further, the remediation of the content of cinema and television by alternative distribution platforms such as Netflix, Hulu, Amazon, iTunes, and even YouTube threatens to negate the importance of these mediums in deference to their content.

As the technological support of the Internet began to more easily facilitate live video streaming earlier this century, Lehman-Wilzig and Cohen-Avigdor noted the ‘titanic struggle’ that began between traditional broadcast television and, what can perhaps be called, ‘online television’ (which includes all television content accessed through the Internet) (2004, p. 724). Strangelove says that we now exist in a ‘post-TV’ age, where the ‘post’ “does not indicate the end of television itself, but it does refer to the end of a particular way in which broadcast television structured viewing and the beginning of new ways of participating in television” (2015, p. 6). That the television screen adopts the use of the Internet, while television programming is simultaneously absorbed by the networked computer screen, brings into question the very concept of television itself. This includes the new devices on which it is viewed, original modes of production, and novel distribution systems (Strangelove, 2015, p. 9).

Louise Barkhuus notes that the idea of television is re-conceptualised depending on the framing of the particular discussion—at least to early adopters of technology (2009). In one instance it can imply the flow of pre-programmed content broadcast to their television set, and yet in another context can indicate the content that is made by television networks accessed via various means on the Internet. This reflects that there is a distinction between television content as a result of expression, and the reception of that content as communication through the traditional broadcast moving image experience. Both, though, can be described by using the term ‘television’.
With cinema, Kristen M. Daly discerns that the Internet has spawned new relationships between filmmakers and their audiences, and that the latter are now much more involved in the pre-production stages of movie creation (2010, p. 135). Cunningham and Silver indicate the advent of “crowdsourced financing and storylining, storyboarding and even actual on-line production” (2012, p. 59), while Dina Iordanova notes that the traditional film distributor becomes obsolete in the online space—a concept that is called ‘disintermediation’ (2012, pp. 3-7). New opportunities for non-Hollywood filmmakers have also emerged in light of niche audiences that can be much more easily accessed online. Further, platforms such as Netflix and YouTube allow the streaming of full-length movies from their catalogue, while other services make movies downloadable for offline consumption, such as iTunes and Amazon.

There is indeed no doubt that digital distribution will “eventually dominate both formal exhibition and household consumption” in the circulation of cinematic and televisual content (Cunningham & Silver, 2012, p. 36). This online move by the institutions of existing mediums aims to ‘sublimate’ them into the Internet (in Lehman-Wilzig and Cohen-Avigdor’s terms), by capitalising on the unique affordances only it offers, as the expressive and communicative infrastructure designed to suit the foundation technology of the time. This can be recognised in its potential for intrinsically supporting access on demand and a many-to-many asynchronous communication practice, affordances that traditional cinema and broadcast television cannot furnish—even in their digitally-evolved guises.

The key to understanding the current perplexing position of cinema and television is in acknowledgement of the intentional use of distinct medium
terminology, such as that which separates ‘broadcast digital television’ from ‘Internet TV’, or differentiates a full-length movie shown in a cinema from one downloaded through iTunes to watch on one’s mobile device. The deliberate medium classification of these various perspectives reflects the fact that all offer and deny diverse communicative affordances. For example, one cannot generally pause a feature film at the cinema. Nor can one fully experience the majesty of a cinematically-shot feature film on an iPhone. As such, when content is remediated the affordances of engagement integral to that specific remediating technology become relevant, and they allow and limit certain expressive and communicative actions, activities, and experiences.

Ways of engaging with and perceiving media content and technologies change, but these will always be subject to the affordances of the technologies that are created to support mediation. In terms of cinema and television’s relation to the online environment, Lehman-Wilzig and Cohen-Avigdor suggest that “most of the older media will continue to exist, albeit within the Internet’s underlying meta-medium infrastructure. While content and functions will remain recognisable, their modes of transmission/distribution will change drastically” (2004, p. 724). Thus, online platforms of moving image distribution, such as Netflix and Hulu, offer different communicative affordances than digital cinema and broadcast digital television while their content may remain fundamentally comparable—or even, in many cases, identical. This is particularly true if the specific platform has been designed to fully capitalise on the digital foundation technology’s proto-affordance of computability (e.g. by including a many-to-many communication practice). In any case, it is clear that the cinema industry and television networks will continue to explore the affordances of the Internet as a supplementary means of content distribution.
with new opportunities for reaching audiences (Gunter, 2010), and I will examine YouTube’s position in regard to this exploration in Chapter Three.

**Conclusion**

In this chapter I have explored the status of the digital computer as a ‘meta-medium’, due to its potential to simulate all existing mediums. Theorists such as Coy (1995), Kittler (1999), and Heidenreich (2011) suggest that this ability for the digital computer to be all old mediums denies the emergence of new singular digital mediums, and even questions the continuing validity of the term ‘medium’ within media theory discourse. In light of this, I have shown that computer simulation does not necessarily implicate remediation, or that any new expressive or communicative potential is added, and thus its power for simulation is not what makes the computer a ‘digital medium’. Instead, I have suggested that digitality can be considered, what I call, a ‘foundation technology’, and the new affordance it offers all digital technologies is one of computability. I call this fundamental affordance a ‘proto-affordance’, and it is the catalyst for inspiring our current understanding of new media.

As critical to a period of paradigmatic technological shift in expression and communication, our present understanding of how digital technologies impact on a society through ‘new media’ is analogous to the historical introduction of machinery and electricity. The introduction of both these technologies also brought about periods of new media, due to their respective proto-affordances of reproducibility and instantaneity. From these historical positions new mechanical and electrical media were developed that dramatically altered cultural practices of expression and communication of the time. The machine afforded the automatic recording and the mass replication of images, sound, and text, and electricity afforded the instantaneous transmission of these over distance. The unique proto-affordance that the digital foundation
technology offers, in computability, is one that the previous foundation
technology epochs of the machine and electricity could not provide, due to the
limitations of their technological support. New digital technologies accumulate
the proto-affordances of previous foundation technologies in conjunction with
their new proto-affordance, becoming what can be considered ‘digital electrical
machines’.

Theorists such as Innis (1950/2007), McLuhan (1964), Marvin (1988),
Kittler (1999), and Jensen (2007) hypothesised periods of mediums as,
essentially, categorised by their fundamental affordances. I have extended this
work, and suggested that mediums can be categorised by the foundation
technology from which they emerged. The mediums within each category all
furnish the same proto-affordance, and often remediate mediums from
foundation technologies before them. Thus, television remediates cinema, and
videotape remediates film. This adaptation of medium theory suggests that
digital mediums can exist as an evolution of mechanical and electrical
mediums, and thus allows the application of the term ‘medium’ to specific
digital technologies of expression and communication. Similarly, it indicates
that it is possible to perceive that YouTube remediates traditional cinema and
broadcast television, and is hence a digital descendant of these two moving-
image mediums.

As I see YouTube as a remediation of both traditional cinema and
broadcast television, in this chapter it was necessary that I explore both these
mediums and their evolution into the digital foundation technology. I must also
reveal the relationship between the digital incarnations of these mediums and
moving images as supported by the Internet. This begins with examining the
roots of moving images, in devices such as the magic lantern, the camera
obscura, and the phenakistoscope, and demonstrating their expressive and
communicative biases and specificities. It also brings into focus the way that existing mediums evolve to persist by reciprocally remediating new expressive and communicative technologies.

Lehman-Wilzig and Cohen-Avigdor (2004) explain that when threatened by a novel emerging technology, existing mediums will adopt one of a range of tactics that increase their chance of survival. These tactics include adaptation, convergence, and absorption/sublimation (which, in Lehman-Wilzig and Cohen-Avigdor’s view, is an extreme mode of convergence). In short, adaptation indicates that the old medium evolves in an effort to retain its cultural position by either honing its offerings to retain its core audience, upgrading its technology to increase its functionality, or tapping into the newer medium’s market in various ways. Convergence indicates that an old medium blends itself with the new one by either offering their audience a parallel medium, or by becoming absorbed completely within the new medium so that its founding technology disappears while the service continues.

I abridge Lehman-Wilzig and Cohen-Avigdor’s understanding of medium evolution slightly, in recognising that an old medium can adopt more than one of these tactics in their effort to avoid intermediality and potential dissolution. Television is an example of this, in that over time it has adapted and converged with multiple new technologies such as videotape, DVD, the PVR, videogames, and even personal computers. It can even perhaps be said to become a different medium, such as when game console or computer technologies appropriate its screen to offer new affordances.

More so than cinema, television’s evolution has resulted in it becoming a multifaceted medium that, in some ways, denies a singular specificity. Lehman-Wilzig and Cohen-Avigdor suggest that this potential for technological upgrade is integral to electronic modern mediums—and even more so with digital ones.
(2004, p. 719). Scrutinising the intricate history of visual culture, of which traditional cinema and broadcast television feature, helps us to understand YouTube in its complexity, as well as demonstrate the process of change that old mediums undergo in the wake of new foundation technologies and their unique proto-affordances.

My demonstration of cinema and television’s incremental transition into being digital adds confusion as to their place as moving-image mediums. It is apparent that digital cinema and digital television are not entirely new mediums, but adapted and converged mediums that retain traces of their original technological supports and historical cultural uses. The legacy of their respective historical foundation technologies and proto-affordances prevent them from truly displaying new communicative potential, and hence becoming new mediums. The expressive content of cinema and television, though, can transcend this position by being remediated by, and distributed via, the global network of digital computers that we call the Internet.

As a technology that was conceived and constructed as inherently digital, the Internet is the communication aspect of the digital computer; in that, by itself, the digital computer does not possess a mode of transmission over distance. With facilitation from the Internet, computers enable many different biases and modes of communication, including ones that are not supported by broadcast technologies. Examples of these are many-to-many, two-way communication biases, and the ability to easily store and/or transmit all of audio, video, and text. Borrowing from Lehman-Wilzig and Cohen-Avigdor (2004), then, I suggest that it is in the process of a new foundation technology absorbing the content of existing mediums where new mediums emerge. Thus, the sublimation of cinema and television to the online space shows them being remediated by new digital mediums, such as YouTube.
Having positioned digital cinema and digital television in relation to the Internet, Chapter Three is where I analyse YouTube, itself, as a singular moving-image medium. I begin by identifying the emergence of Web 2.0 and exploring its potential for complex forms of human interaction through the uniquely digital proto-affordance of computability. I then demonstrate that the history of YouTube reflects Gaudreault and Marion’s (2005) theory of medium rebirth: from its emergence as an online technology for sharing personal digital video, through the appropriation and shaping by its users and programmers, to its purchase and commercialisation by Google, which resulted in its constitution and institutionalisation. Ultimately, YouTube has become embedded within a global community, but remains in constant tension with traditional media networks due to its potential to support piracy.

After establishing YouTube as a participatory culture (Jenkins, 2009), and it’s position and value within contemporary visual culture, I examine the perthbands.tv webpage in relation to its lack of potential for interactivity. I demonstrate that it is quite similar to broadcast television, in this regard—or at least an archived form of broadcast television content. The perthbands.tv YouTube channel that feeds into this webpage, however, is quite different, as it exists as a platform of social interaction. Preparing the YouTube channel, and uploading digital video content, reveals the configuring action of YouTube. This manifests in attending to activities such as defining settings, writing titles and descriptions, and assigning tags—all which affect who in turn can watch the videos, and indeed how they experience them.

Most importantly in Chapter Three, however, I show that uploading a video for other users to view is not the end result in YouTube content creation. In an action that Bruns (2006) calls ‘produsage’, other YouTube users can comment on the videos they watch and contribute to its meaning. This, together
with the potential for viewer rating of videos and the linking of response videos, results in an ‘ongoing media conversation’ (Manovich, 2008) that is not possible with cinema or television. Further, YouTube’s programmed interface provides a personalised viewing experience in the ‘suggested videos’ offered to each user as influenced by their past viewing habits. All of the above indicates that YouTube remediates cinema and television, affording new potential for moving image communication.

Finally, in Chapter Three I show that YouTube supports the new moving-image genre of video blogging, which capitalises on the computability that is afforded by its digital technological support. The video blogging genre endorses the collaboration between YouTube video producers and video watchers, as the latter are encouraged to contribute to the evolving media object by commenting on the videos. Video blog viewers who do not contribute actively are also often doing so regardless, by inadvertently contributing usage statistics that can subsequently be used by the channel owner to shape future vlog episodes. This new moving-image genre’s technologically-specific characteristics and conventions imply the support and existence of a new medium. Together with the knowledge that it remediates cinema and television, it is clear that YouTube is this new medium.
CHAPTER THREE: YouTube in Rebirth, and as Remediation
Introduction

So far I have defined my understanding of the term ‘medium’, and discussed relevant theories and concepts. These include remediation, and Gaudreault and Marion’s (2005) theory of medium rebirth. The latter is of prime importance, as it is a description of the process of the emergence of a new medium. That is, it describes a medium from its release as a technology that supports public communication, through social appropriation and adoption, to finally being considered a new medium in its own right; complete with its own affordances and ensuing conventions of expression or communication. Particularly relevant to this process of new medium emergence is how the social adoption and appropriation ties in with a medium’s institutionalisation. Also integral to my study of the medium is the idea that “a medium is that which remediates” (Bolter & Gruisin, 2000, p. 65), indicating that a new medium will represent an existing medium within, but at the same time add new expressive or communicative potential to it. In this I have suggested that this original potential is based on the unique affordances of a new technological support.

I have also shown that it is the introduction of a new foundation technology that inspires a period of ‘new media’, such as we have recently experienced with digital forms. A new foundation technology embodies at least one proto-affordance that facilitates new possible practices of human expression and/or communication. This proto-affordance fosters the potential for the remediation of existing mediums, and hence new mediums that build on this proto-affordance emerge—each with their individual new specific affordances. For the digital foundation technology this proto-affordance is one of computability.
The history of mediums also shows previous epochs of ‘new media’, in the introduction of the foundation technologies of the machine and electricity. Each of these also presented a unique proto-affordance; respectively, reproducibility and instantaneity. From these, new mechanical and electrical mediums were spawned, each remediating existing mediums of the time. In relation to moving-image technologies, traditional film and cinema are mechanical, while analogue video and analogue television are electrical. I call these matching pairs of mediums, of which the former of each is the expressive medium and the latter is the communicative. The mediums in each of these two pairs are interdependent, and yet separable for the purpose of analysis.

The digital incarnations of cinema and television are what Lehman-Wilzig and Cohen-Avidgor (2004) call ‘adapted’ and ‘converged’ mediums— as evolutions of their founding technologies. Though inevitably restrained by the legacy of their original technological supports, these mediums currently include many new affordances, such as computer-assisted compositing during content production. The simultaneous absorption of the content of these old mediums by the Internet, though, is a way that their institutions explore inherently digital expressive and communicative affordances, such as many-to-many two-way communication. I argue that YouTube is part of cinema and television’s foray into the online mediascape, and as such remediates both these mediums, which in turn indicates that it is a new singular digital medium.

In this chapter, I will continue the task of demonstrating this by examining in depth the emergence, and rebirth (in Gaudreault and Marion’s (2005) sense), of YouTube, as that which is much more than simply an online platform on which to share videos. Though it began as a ‘video repository’, promoted as a place to share videos with loved ones or the world, it was rapidly adopted and shaped by existing participatory cultures that explored the
potential of YouTube’s programmed communicative affordances (Jenkins, et al., 2009). A community of user-generated content creators emerged, thriving on sharing videos and text communication in a way never supported by analogue technologies. It wasn’t long before a large multi-national corporation, in this case Google itself, recognised the potential of this rapidly expanding attentive community and acquired ownership of YouTube.

In this chapter I will also describe how the ensuing years showed the playing out of the institutionalisation of YouTube, as it adopted a revenue model based on its flourishing attention economy (Lanham, 2006), and addressed the legal issues regarding copyright that inevitably arose with its commercialisation. This involved the negotiation of its relationship with traditional moving-image media networks, which resulted in YouTube effectively becoming, in part, an extension of ‘big media’. This was not well received by its core users who, arguably, were often responsible for the early negotiation of YouTube’s distinctive rules and conventions of communication. In turn, this helped establish the original moving-image specificities of YouTube; or indeed, contributed to the shaping of what it was.

As I have explained, I created perthbands.tv for the purpose of analysing the creation and distribution of YouTube content. Specifically, the same perthbands.tv content is distributed through the perthbands.tv webpage and its related YouTube channel, but has been created with a traditional television aesthetic. That is, perthbands.tv content is aimed at audiences who experience it as spectators, rather than participants. One of the main aims of this chapter then is to show that, when compared to traditional cinema and broadcast television as the dominant cultural moving-image mediums of the 21st century, YouTube can be seen to remediate them both. In remediating both cinema and television, YouTube brings new potential to modes and practices of human
communication via the moving image, or new communicative affordances. I will explore the implications of this as I examine the communicative process of perthbands.tv. This includes identifying YouTube as a site of digital culture facilitating on-going media conversations (Manovich, 2008), a concept that incorporates a variation of Bruns’s (2006) concept of ‘produsage’—where users openly negotiate the meaning of YouTube videos through public comments.

As a further demonstration that YouTube deserves to be called a new medium, I will show that while the perthbands.tv YouTube channel may reflect the remediation of traditional televi
csual content, video blogging (or ‘vlogging’) on YouTube indicates the emergence of a new genre of the moving image—one that has been facilitated by the introduction of the digital foundation technology. Vlogging exhibits communicative conventions that stem from the unique affordances of the Internet, communicative conventions of the moving image that cannot be imposed on traditional cinema or broadcast television. Much of this has to do with the many-to-many two-way practice of multi-modal conversation that vlogging inspires, due to YouTube’s technological support of a global participatory culture. In light of all this, it is clear that perthbands.tv as YouTube content is not actually television—but instead exists within a new digital moving-image medium. This medium is YouTube.

The Advent of Web 2.0

As a product of the evolution of moving-image technologies, the emergence of YouTube (and other online video platforms like it) was not entirely unanticipated. For film-makers, like myself, who transitioned from the acquisition and manipulation of analogue video to that of digital video in the mid-1990s, there was a decade where it seemed that there should be more to the ‘digital video revolution’. After all, with the low cost and high quality of digital video cameras, in comparison to economically comparable analogue
technology, and the ease and creative freedom presented by non-linear digital video editing, it seemed odd that the opportunities for screening content were still restricted to the distribution bottleneck of the respectively mechanical and electrical analogue mediums of cinema and television. At the same time, more moving-image content was being produced by the everyday content consumers, making them what Bruns (2006) calls ‘produsers’. As Marc Davis has said, it took the Internet to link the means of production with a many-to-many participatory distribution channel (1997, p. 46).

Digital moving-image technologies hence began as primarily expressive in nature, in affording the acquisition and editing of digital video, and the creation of digital effects, for analogue feature films and television shows. This was the way that the computer was employed in digital moving-image production before the Internet was able to easily and reliably support the public reception and produsage of digital moving images as communication. Yet even when the latter did eventuate, early incarnations of the World Wide Web did not foster the proto-affordance of computability (as the unique affordance of digitality) in the same way that online platforms, such as YouTube, do today. In fact, early viewer experience of online moving images remained, in many ways, embedded in the broadcast-era practice of spectatorship.

This focus on the audience as primarily receivers of content was even reflected in the discrepancy between the maximum download and upload broadband speeds initially provided to people’s homes by Internet service providers (ISPs). For example, if one could download data at a maximum bandwidth of 512kb/s, they were often limited to a maximum upload speed of 128kb/s. Video is particularly high in bandwidth needs in comparison to text and audio, so these speeds made it largely impractical as Web content at all in
the 1990s—let alone in offering independent digital video-makers an opportunity to publish their own works.

This imbalance between download and upload speed of online content was constructed and implemented by the systems of computer hardware creation and the network providers. This was because providing the majority of Internet users with the ability to upload their own digital content was not seen as a priority. In essence, the early incarnation of the Internet was a new digital foundation technology providing a new communicative proto-affordance, but the social potential of this was not fully realised by its programmers, content creators, or users. As such, it did not widely engage participants in a global many-to-many mode of communication, and persisted primarily within a broadcast model of content distribution.

The World Wide Web is often known as simply ‘the Web’, and is a system of interlinking hypertext documents as one of the main services that uses the Internet as its technological foundation. Its milieu of interconnected web pages and supporting search engines is, for many, the primary interface for communication via the Internet. Over time, programmers of the Web began to appropriate the digital technological support of the Internet in new ways, and enable user participation via platforms that truly capitalise on their digital potential as interactive spaces. The Web’s theoretical rebirth as a substrate for social networks hence became apparent. It was then even given a name to reflect this paradigm shift: ‘Web 2.0’. Subsequently, the first emergence of the World Wide Web was given the retronym ‘Web 1.0’.

The introduction of the term ‘Web 2.0’ is often associated with O’Reilly Media (2005), who hosted the first conferences on Web 2.0 in 2004 (Flew, 2008, p. 16). For Tim O’Reilly, the renaming marks the conceptual change from the World Wide Web being viewed by most users primarily as a place for the
retrieval of information and entertainment, to incorporating platforms that encourage participation. The term ‘social networking’ is closely linked to the concept of ‘Web 2.0’ (Obee, 2012, p. 8), and it is the enabling of the social-platform function of the Internet that saw both the proliferation of user-generated content (UGC) and a dramatic increase in many-to-many online interactivity. As confirmed by Mark Stephen Meadows in his explanation of interactive systems, “the most unpredictable, independent, and captivating [interactive system] of all is other people” (Meadows, 2003, p. 43). It is the new modes of engagement fostered by Web 2.0, afforded by the digital foundation technology, which became the footing from which new social media platforms such as YouTube began to emerge, connecting social groups of people online.

For theorists such as Trebor Scholz (2008), however, any newness of the supposed particular characteristics of Web 2.0 is overstated. Scholz demonstrates that the identification of the emergence of Web 2.0 in 2004 was predominantly an ideological framing device devised by professional elites to control the public discourse around the Internet. This move intended to create a new enthusiasm for the Web, particularly in attracting new investors. Scholz supports this argument by showing that instead of indicating a significant leap in technological advancement, the concept of Web 2.0 was merely part of a “steady upward-moving line” illustrating the “historical development of social life online” (2008). This includes the fact that many of the technological components of Web 2.0 have existed since near inception of the Web itself, such as wikis (WikiWikiWeb in 1994), social networking sites (Classmates.com in 1995), and Justin Hall’s 1994 weblog posts. In fact, the Web has always been social, right back to the e-mail program that supported online conversations between ARPANET users in 1973.
Indeed, computer-mediated communication (CMC) supported many-to-many functionality long before 21st century Web designers and programmers caught on to users’ desires to interact through a globally-interconnected social network. Very early digital computer users demonstrated the potential for many-to-many communication within digitally-networked virtual communities without Web support, such as with the WELL (Whole Earth ‘Lectronic Link). Still existing today, albeit now in Web-supported form, the WELL began in 1985 as a “computer conferencing system that enable[d] people around the world to carry on public conversations and exchange private electronic mail (e-mail)” (Rheingold, 1993). It functioned through the adoption of the existing analogue telephone infrastructure to support a dial-up bulletin board system (BBS), which afforded open and ongoing textual discussions between its digitally-networked members. Other early examples of many-to-many asynchronous CMC include discussion groups such as Usenet and Listserv, while many-to-many synchronous CMC was also evident in text-based multi-player role playing games such as MUDs (Multi-User Dungeons) (Morris & Ogan, 1996).

Digital networks of computers, such as the Internet, explicitly provide the proto-affordance of computability. As such the potential is there for users to engage in two-way, synchronous or asynchronous communication, with any number of specific individuals within the network. Indeed, as Morris and Ogan note, “how does it [the Internet] do this? Through its very nature. The Internet plays with the source-message-receiver features of the traditional mass communication model, sometimes putting them into traditional patterns, sometimes putting them into entirely new configurations” (1996). Besides identifying a unique affordance of the Internet, this comment by Morris and Ogan indicates the 20th century dominance of the Shannon-Weaver (1964) model of communication. As this was derived from electrical transmission in
the mid-20th century, it does not explicitly reference the “seemingly fundamental and necessary function of storage” within communication (Peters, 2002/2010, p. 46). Conversely, the Internet does overtly offer the affordance of content storage, in that in essence it is an easily searchable and accessible, endlessly branching, database (Lovink, 2008, pp. 9-12). This, in itself suggests the need for a revision of Shannon and Weaver’s model of communication.

Embedded within this model, also, are the roots of broadcast technologies, such as analogue radio and television. The one-to-many communicative use of both these mediums was influenced by the four century dominance of mechanically-printed and mass-distributed messages, but was also afforded by their very technological supports; that is, broadcast technologies inherently deny global many-to-many asynchronous communication. As such, digital networks herald a return to Carey’s (1989/1992) ‘ritual model’ of communication, albeit in the guise of global virtual communities. The ritual model is “a symbolic process whereby reality is produced, maintained, repaired, and transformed” (1989/1992, p. 23). This occurs through the social construction and sharing of symbols that form an understanding of the world.

Perhaps prophetically then, Morris and Organ signal the shift to an audience of contributors by suggesting that when communicating using the Internet “the receivers, or audiences, of these messages can also number from one to potentially millions, and may or may not move fluidly from their role as audience members to producers of messages [emphasis added]” (1996). This digital reconstruction of online audiences as potential producers aptly foregrounds one of the main differences between the traditional moving-image mediums of cinema and television, and the online platform YouTube. That is, the potential for users to self-publish moving-image content.
Axel Bruns calls the actions of a society that is evolving from the position of primarily consuming (or ‘using’) medium content, to that of similarly being empowered to produce it, ‘produsage’, and the participants who do so, ‘produsers’ (2006). In his book *Blogs, Wikipedia, Second Life and Beyond* (2008), Bruns refers specifically to the increase in public participation through the creation and distribution of software and information, such as Wikipedia and the Linux open source operating system, though social networking platforms, such as YouTube, also fit into this category. There is no actual end product to produsage. Instead, it is a “process of perpetual, ceaseless, continuous update, extension and revision which operates not according to a predetermined blueprint or design, but is driven by the vagaries of user-producer interest in and enthusiasm for fixing specific problems or extending particular aspects of the project” (Bruns, 2008, pp. 22-23). This description aptly reflects the ongoing, user-driven way that we currently experience YouTube, through which “various forms of cultural, social, and economic values are collectively produced by users *en masse*, via their consumption, evaluation, and entrepreneurial activities” (Burgess & Green, 2009, p. 5).

It is relevant to point out though, as Elizabeth Bird (2011) does, that produsers in the digital age are not as common as one might suspect. Indeed, “we should not lose sight of the more mundane, internalised, even passive articulation with media that characterises a great deal of media consumption” (Bird, 2011, p. 504). In fact, van Dijck suggests that the volume of passive recipients of content may well be over 80% of the total users of user-generated content (UGC) sites (2009, p. 44). Bird also suspects that the implication of power that comes from being a produser, in terms of influencing the global industries of cultural production, may also be overstated. In this she notes that “media industries are becoming very adept at disciplining produsage” (2011, p. 504).
such as when the work of a fan is used to help market the product itself, or a user’s usage statistics are employed for the purpose of target marketing. It is worth noting that Bruns (2008) talks of produsage being an ‘empowerment to produce’, instead of a necessary action, and it is this potential that is essence of this new model of audience participation.

In line with moving-image creatives recognising the need for new forms of digital moving-image distribution in the 1990s, Jenkins concurs that “many groups were ready for something like YouTube; they already had communities of practice that supported the production of DIY media, already evolved video genres and built social networks through which such video could flow” (2009, p. 110). Thus, ‘participatory cultures’ had already formed long before YouTube’s introduction, and potential ‘produsers’ were only waiting for the appropriate technological conditions to be met to begin sharing their video content. These conditions occurred around 2005, and included the improvement, and combination, of existing key technologies. Specifically, computer hard-drives became inexpensive enough, Internet bandwidth speeds to the home became fast enough, and video compression formats became efficient enough, to support the emergence of online video repositories, such as YouTube, Vimeo, and Google Video. These digital platforms for video sharing can also be understood (in the sense of technological evolution) as an amalgamation of the computer, television, and the video cassette recorder, in that they are global archival spaces where video can be published, stored, and accessed by the networked public.

**Introducing YouTube**

Initially touted as ‘Your Digital Video Repository’, YouTube began its ‘first birth’ in public beta form early in 2005 showing influence from the popular ‘Hot-or-Not’ websites of the time that supported viewer engagement
and publishing of content (Peneberg, 2009, p. 190). A ‘Hot-or-Not’ website is where users post images of people that they know, and viewers subsequently vote on how they perceive the attractiveness of the people in the photographs. In YouTube’s case it was viewed as a variation of a dating service, and it is even said that at one point attempts to popularise the website “included offering $100 to attractive girls who posted ten or more videos” (Burgess & Green, 2009, p. 2). At this stage of its public release, YouTube resembled the first part of Gaudreault and Marion’s (2005) model of medium emergence.

Gaudreault and Marion describe this state as a novelty technology that “becomes engaged with the range of relatively legitimate types of existing media, practices and genres that form the context into which the technology is thrust” (2002). Hence, as its founders began by considering YouTube as an online space where users could potentially share Hot-or-Not, and later auction, videos online (Cloud, 2006), YouTube was defined in terms of a familiar cultural practice—but not necessarily one that promoted novel ways of communicating. That is, it emerged adopting the nature of existing communicative practices, and had not yet developed a new social communicative use, innovative conventions of communication, or original and unique symbolic modes of representation. In short, YouTube was not yet a fully-fledged singular medium in its own right, and in Gaudreault and Marion’s (2005) terms its ‘rebirth’ was yet to come.

Besides the ease with which the average user could upload videos, according to co-founder, Jawed Karim, it was the adoption and implementation of social networking functionality that spurred YouTube to success (Burgess & Green, 2009, p. 2). This included the addition of the “related video recommendations, one-click emailing to spam a friend about a video, more social networking and user interaction tools like video comments, and an
external video player”, increasing YouTube’s public acceptance and subsequent global popularity (Gannes, 2006). The paradigm shift in affordances that these additions incurred placed YouTube firmly in the realm of (what are now called) Web 2.0 platforms and services. As such, it facilitated social interaction in the global sharing of digital moving images, and offered YouTube users the opportunity to explore the potentials of communicating with each other with and through creative content.

Thus, the social groups already in place rapidly adopted and began to shape YouTube for new and diverse communication practices. From there, the sub-cultures that were once “ephemeral, transient, unmappable, and invisible became permanent, mappable, and viewable. Social media platforms give users unlimited space for storage and plenty of tools to organise, promote, and broadcast their thoughts, opinions, behaviour, and media to others” (Manovich, 2008, p. 38). This was the technological substrate whose affordances upon which a new global digital moving-image culture was formed.

In its early incarnations though, YouTube was very different from the way we experience it now. One of its early uses was in sharing home movies (Strangelove, Watching YouTube: Extraordinary Video by Ordinary People, 2010, pp. 22-40), and it can be seen from the website creators’ own charter in August 2005 that they considered this its primary function:

Show off your favourite videos to the world
Take video of your dogs, cats, and other pets
Blog the videos you take with your digital camera or cell phone
Securely and privately show videos to your friends and family around the world
…and much, much more! (Burgess & Green, 2009, p. 3)
As mentioned, when it was first introduced to the public YouTube did not exhibit strong signs of Web 2.0 functionality—and hence did not stand out from other emerging online video repositories. Even after the creators of YouTube improved its popularity by programming the support for increased social interaction between viewers, its purpose for everyday users was not particularly clear.

Burgess and Green explain that “while attention from early adopters and the mainstream press certainly moved the service forward, YouTube’s ascendency has occurred amid a fog of uncertainty and contradiction around what it is actually for [emphasis in original]” (Burgess & Green, 2009, p. 3). They demonstrate this by showing that “YouTube’s apparent or stated mission has continuously morphed as a result of both corporate practice and audience use” (Burgess & Green, 2009, p. 3), indicating a process of institutional and social adoption and shaping. One thing is clear though, YouTube rapidly shifted from its initial incarnation as a personal video-storage facility to a global moving-image communication platform where you could ‘Broadcast Yourself’.  

In his book, *Confronting the Challenges of Participatory Culture* (2009), Jenkins defines the primary focus of a participatory media culture as the public creation and sharing of medium content—which can be said to reflect YouTube and its burgeoning community (Chan, 2010). This also indicates a significant difference between YouTube and the mediums of traditional cinema and broadcast television, as neither of the latter prioritise viewer contributions in their everyday programming. Indeed, Andrew Tolson suggests that “watching YouTube is not like watching television”, and that YouTube throws new light on the hierarchical and constraining mode of engagement of broadcast television (2010, p. 287) where a small number of select people create the

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13 YouTube’s slogan was ‘Broadcast Yourself’ before it was removed in 2012 (Tufnell, 2013).
majority of publicly available content. Conversely, on YouTube “fans and other consumers are invited to actively participate in the creation and circulation of new content” (Jenkins, 2006, p. 290), and often do.

Indeed, as Manovich points out, the “new media universe [is] not simply a scaled up version of 20th century media culture. Instead we moved from media to social media. Accordingly we can also say that we are graduated from 20th century video/film to early 21st century social video [emphasis in original]” (2008, p. 33). I suggest that this paradigm shift in our experience and understanding of the contemporary ‘media universe’ is similar to that which was experienced when electrical mediums were introduced. Meyrowitz’s suggestion that modern electronic mediums in the 20th century, such as analogue television, undermined existing cultural understandings of place through immediate communication over distance, is indicative of this (1985). Both conditions are indeed suggestive of the introduction of a new foundation technology with a new proto-affordance.

Besides being widely accepted as a cultural phenomenon, YouTube is different things to different people. Not all people use YouTube to intentionally engage with a specific participatory culture, or even see themselves as part of the larger YouTube community. In fact, the majority do not register as official users at all, and just watch videos that have been recommended to them by a friend, or casually surf the archive when they have a free moment (Snickars & Vonderau, 2009, p. 12). Though these participants of YouTube do also essentially contribute to what is called its ‘attention economy’ (Lanham, 2006) through ‘implicit participation’ (Schafer, 2011, p. 52) (in that they create a statistical trail by their very use), they also engage with YouTube as a mediated cultural system. Here, Anandam Kavoori notes that the significant component of this ‘catalogue culture’ mode of YouTube use, where users pick and choose
what appeals to them from a wide range of available content, is the act of consumption itself—“the taking in of a mediated experience” (2011, p. 8). YouTube thus functions culturally as a process of mediation, in that it contributes to people’s understanding of the world and is embedded in their everyday practices.

Snickars and Vonderau suggest that there are many metaphors that seek to “stress YouTube’s social, economic, and technological importance”; including the notions of ‘platform’, ‘library’, ‘archive’, ‘laboratory’, and ‘medium’ (2009, p. 13). Each of these reflects a specific context of use, but their diversity also speaks of the “uncontrolled process of a new media phenomenon fitting into an existing culture” (Snickars & Vonderau, 2009, p. 13). Hartley suggests that perhaps YouTube is “a ‘bottom-up’ (all-singing, all-dancing) model of a ‘bardic’ system” in a “technologically enabled culture”, where it “speaks[s] to and on behalf of us all in mass anonymous cultures” (2009, pp. 132-133). The difference between this representation of YouTube and traditional mass media is that, in the latter, a small number of like-minded professionals speak for us all; whereas with YouTube, the opportunity at least is there for us to speak for ourselves. Kavoori urges that we “see YouTube as much more than a website—it is a key element in the way we think about our online experience and (shared) digital culture” (2011, p. 3). Strangelove even paints a picture of YouTube as a “battlefield, a contested ground where amateur videographers try to influence how events are represented and interpreted” (2010, p. 4). From all this it is clear that YouTube is more than just a site on which to share videos.

Indeed, Patricia Lange warns that we shouldn’t underestimate the reality of YouTube by defining it by the term ‘site’, in that this “risks effacing the reach of forces that influence the ‘site’ as well as ignoring how the ‘site’ is not socially self-contained” (2008, p. 88). This asserts that YouTube is much more than a
technology and the video content supported by it, while also recognising that YouTube “connects with surrounding social and cultural networks, and the users embedded within these networks move their content and their identities back and forth between multiple sites” (Burgess & Green, 2008, p. 5). YouTube invites a variety of theoretical perspectives, which respectively provide alternative positions from which to engage with and theorise about YouTube. As Burgess and Green indicate, each will construct YouTube as a different cultural object, and hence offer “a different understanding of what YouTube actually is” (2009, pp. 6-7). Indeed, as it collided with broadcast television not long after inception, YouTube demonstrated its potential to facilitate the piracy of old medium content, as well as the viral spread of videos.

**New Media meets Old Media**

It has been suggested that the short satirical music video, ‘Lazy Sunday’—conceived and created by American comedy troupe, The Lonely Island—was responsible for shooting YouTube to global fame in early 2006 (Anderson N., 2008). Broadcast on NBC’s late-night American comedy and variety show, ‘Saturday Night Live’ (SNL), on December 17th, 2005, the comic video-sketch parodies gangster rap videos by using the particularly ‘non-hardcore’ activities of eating cupcakes and watching the family-friendly movie, *The Chronicles of Narnia*, as lyrical content. Embracing the low-quality production values and authentic delivery that we now perceive as customary of YouTube’s large collection of user-generated content, the clip was quickly uploaded by YouTube users and subsequently ‘went viral’. It attracted over 7 million views on the site before NBC called for YouTube to pull it down in February 2006 due to a breach of copyright regulations (Pollack, 2006). By that stage, though, traditional media outlets had already brought the viral
phenomenon of ‘Lazy Sunday’, and in turn the cultural phenomenon of YouTube, to the interest of the general public (Itzkoff, 2005).

Nate Anderson reports that because of the above events, NBC claim that it was their content, and hence their network, that made YouTube the video-sharing goliath that it now is (2008). There is another side to this coin, however, as it has also been said that it was the mass media’s interest in, and reporting of, the online viral success of ‘Lazy Sunday’ that regenerated interest in NBC’s stagnant series, Saturday Night Live, by introducing it to a new generation of viewers (Pollack, 2006). Indeed, Burgess and Green explain that “‘Lazy Sunday’ demonstrated the potential of YouTube as an outlet for established media to reach out to the elusive but much-desired youth audience” (2009, p. 3). In fact, in this discussion it also needs to be pointed out that Andy Samberg, one of the creators of ‘Lazy Sunday’, was a young film-maker who was posting similarly styled clips he created with his childhood friends on The Lonely Island’s website around 2001 (Kesner, 2005). That is, Samberg was already part of a participatory culture who were exploring the self-publishing affordances of the Internet well before Saturday Night Live gave him the spot that boosted him to national star-status via YouTube.

The tension within these two conflicting perspectives, one from the top down, and one from the bottom up, neatly demonstrates the fraught nature of YouTube’s ongoing relationship with ‘big media’. It can be safely said though, that the imbroglio brought about by the posting of the ‘Lazy Sunday’ clip on YouTube caught the attention of the global community. Burgess and Green (2009) would suggest that it was also an indication of the co-evolution of the ‘old’ and ‘new’ media industries. After the ‘Lazy Sunday’ incident, both broadcast television and YouTube engaged in modes of, what Lehman-Wilzig and Cohen-Avigdor call, adaptation and convergence, as they each explored
their potential future relationship with the other medium. For the institutions of television, this process was one of tapping into YouTube’s marketing potential and minimising its threat to their existing media networks. For those with vested interest in YouTube (including its users), it was part of exploring its communicative potential and remediating television content to suit their own means.

In November 2006, the multinational corporation Google bought YouTube for US$1.65 billion, and the video-sharing website now operates as an independent Google subsidiary. Burgess and Green note that “YouTube’s role is that of platform-provider rather than producer”, in that they are “no longer only in the ‘media’ business; they are now also in the social network business” (2008, p. 2 & 15). That is, though video content is the primary means of communication and social connection, it has never been YouTube’s goal to create content. Instead, they elicit video content from the general public (and these days, from professional institutions of media) and provide the affordances through which people can access and share that content, and engage with other users of the platform.

Further, “YouTube’s value, meanings and possibilities—that we mean in general conversation when we say ‘YouTube’—are produced out of the collective play-work of its users” (Burgess & Green, 2008, pp. 2-3). This indicates the importance of user-generated content to the success of the site, and indeed its reliance on the ‘economics of attention’ (Lanham, 2006)—as the eyes and ears of YouTube users are effectively sold to corporations through advertising material. Media companies fast began to view YouTube “not as a rival, but as a new channel to re-transmit their programs and a new source of advertising revenue” (Kim J., 2012, p. 57). The commercialisation of YouTube
thus followed its purchase, through embedded advertising and traditional media network promotion.

Snickars and Vonderau suggest that “arguably, YouTube’s management knew that the platform’s ‘community value’ derived from the exponentially growing number of videos generated by amateurs, but it also knew that professionally produced entertainment would increase traffic and solidify the binary rule that on the Web, money tends to follow users” (2009, p. 11). This is evidenced by the fact that YouTube entered into a partnership with NBC in June 2006—with the (then) chief marketing officer at NBC Universal Television Group saying: “The YouTube and NBC partnership symbolises what can happen when traditional media companies and new media companies find common ground” (Wharton University, 2006). Following the Google acquisition, agreements were also eventually reached with MGM, Lions Gate Entertainment, and CBS. However, as user-generated content makes up the lion’s share of YouTube’s video content (Strangelove, Watching YouTube: Extraordinary Video by Ordinary People, 2010), it is hardly surprising that these partnerships have incurred ire from the more invested members of the YouTube community.

Among this number are the ‘YouTubers’, a self-acknowledged term that indicates a person’s “more intense engagement with YouTube in terms of the amount and type of their participation” (Lange, 2007, p. 4). These participants “collectively identify and exploit opportunities to improve the way YouTube works” and “are important drivers of the attention economy of YouTube” (Burgess & Green, 2008, p. 3). The evolution of YouTube is also partly evidence of the ongoing social adoption, appropriation, and even reshaping of its technological support by active members, such as YouTubers. They do this by uploading videos that stimulate and engage in debates and discussion about
YouTube, as a form of ‘meta-YouTube video’ (Burgess & Green, 2008, p. 7), providing feedback to Google via the YouTube Forum, or even augmenting its affordances through soft forms of hacking or merging it with other social networking sites (Burgess & Green, 2008, pp. 3-6).

In being so invested in YouTube, many YouTubers have vigorously contested the increasing commercial appropriation of YouTube within the content of their user-generated videos. Concurrently, traditional media institutions, such as NBC, capitalise on what can, in many ways, be seen as free labour—both unpaid and freely given (Andrejevic, 2009, p. 416). That is, many YouTube users readily create new content to maintain an audience that YouTube can sell to marketers, while all user behaviour on the site also creates detailed statistical information to assist marketers in targeting consumers.

Burgess and Green discuss these issues in depth in their article “Agency and Controversy in the YouTube Community” (2008), concluding that YouTube needs to be cautious when managing the fine balance between their support for both corporations and user-communities. In the early period of YouTube’s emergence, Lanham also noted that its designers and programmers needed to exercise careful consideration in the ongoing design of their platform (2006, pp. 16-18). This is because it is evident that the specifics of the programmed YouTube interface define the technological foundation for the affordances that the company offers their core community. Even today, it must be remembered that while YouTube does affect the community that engages with it, this community also affects YouTube itself. In fact, the YouTube community is intrinsic to YouTube as a medium, and Google acknowledges this is by requesting feedback from YouTube users on the relevant help forum (Google, 2011).
The Maturation of YouTube

The above history of YouTube’s evolution describes its institutionalisation as a medium, as discussed in Chapter One in regard to Gaudreault and Marion’s (2005) concept of medium rebirth. In this case, the multi-national corporation Google worked to refine and cement its place within a global context where “no new medium (since Gutenberg) would have ever succeeded without having offered an opportunity for making money” (Stober, 2004, p. 500). Indeed, “when media conglomerates invest in a rising medium, institutionalisation begins in the form of commercialisation and legalisation” (Kim J., 2012, p. 65). This has diluted any prospect for a user-driven revolution of the moving-image mediascape into an evolution that necessarily includes a relationship with old media, and the rigid legal and economic structures that this unavoidably brings.

Implicated in this is an e-commerce model of in-video and banner advertising, strict application of existing copyright legislation, and greater reliance on professionally-generated content (PGC). A deliberate separation of UGC from PGC is demonstrated by YouTube’s 2009 introduction of the popular associated channels, ‘Movies’, ‘Music’, and ‘Show’; each for the exclusive distribution of broadcast-style content from existing media networks. Kim suggests that this commercial shift in YouTube’s focus will not dissolve UGC completely—but does perhaps herald its impending marginalisation (2012, p. 62). Advertisers are simply less than comfortable about running expensive brand campaigns alongside “grainy, unprofessional home videos” (Reuters, 2008), and so professionally created content aligns itself much more obviously with YouTube’s economic success.

Regardless of the technological innovations that YouTube has implemented to limit and manage copyright violations within its content, illegal
uploads from users persist in what is a form of content ‘piracy’. This action continues to incur threats of legal action from specific ‘big media’ entities, such as music rights management company Global Music Rights requesting in late 2014 that YouTube remove 20,000 videos belonging to their clients—who include Pharrell, The Eagles, and John Lennon (Beaumont-Thomas, 2014). To Mark Andrejevic, this reflects the ongoing “hegemonic tension between an amateur-led, individual-driven alternative to the mediascape and a professional-led, institution-driven traditional mediascape” (in Kim J., 2012, p. 54). The continuing piracy currently takes two main forms, what Kavoori (2011) calls ‘highlighting’ and the concept of ‘remix’. The first, ‘highlighting’, is “the posting of the most important parts of a TV show, personal video, a movie—in other words a media event or text” (Kavoori, 2011, p. 12). This can be seen as contributing to YouTube’s ‘culture of the clip’ (Hilderbrand, 2007, p. 49), and even what Lovink calls “snack culture: watch a clip and move on” (2008, p. 10). That is, on YouTube one can often find that specific broadcast video moment that one wants to view, exactly when one wants to view it.

The second concept of ‘remix’ is where “millions of people with inexpensive computers copy and paste elements from digital mass culture and assemble them into new works” (Fagerjord, 2010, p. 190). It describes the manipulation and re-contextualisation of existing work to produce new meaning, or in the case of YouTube: a ‘mashup’ of a variety of existing video content, or simply a re-working of one particular piece. Though the practices of highlighting and remixing both often use broadcast content, the difference between the two is in the remixer’s act of wilfully manipulating the meaning of the original text.

It is relevant, though, that the original meaning of the appropriated broadcast content in both highlighting and remixing is often less significant
than its purpose in initiating or continuing a cultural conversation, which leads some to claim a ‘fair use’ exception to copyright law (Walker, 2012). Manovich calls this type of online cultural discussion regarding broadcast content ‘media conversations’, and suggests that “web infrastructure and software allow such conversations to become distributed in space and time—people can respond to each other regardless of their location and the conversation can in theory go on indefinitely” (2008, pp. 40-41). These types of ongoing media conversations can exist as image, sound, text—or a mix of all of these.

Both highlighting and remixing traditional broadcast content are examples of remediation, in the sense that the borrowed content has been placed into a new context; the first by merely selecting a specific clip from a larger piece and republishing that on YouTube, and the second by modifying and/or combining any number of works into a new work. These processes impact on the way audiences engage with the original works, often transforming their original meaning. Also, the ‘old’ content can be engaged with in ‘new’ and different ways by the YouTube audience. For example, with traditional medium content one rarely has the opportunity to globally discuss or critique the content, whereas on YouTube, commenting in text or video format about another video is very much part of the cultural activity.

The desire for members of a culture to highlight, discuss, and re-interpret cultural texts is not new. Indeed, it can even be seen as the very basis for the construction of a culture; in the sharing and negotiation of understandings regarding the world. As van Dijck notes though, “what is different in the digital era is that users have better access to networked media, enabling them to ‘talk back’ in the same multi-modal language that frames cultural products formerly made exclusively in studios” (2009, p. 43). In this, the global YouTube audience can not only communicate with each other using high quality video and audio
production techniques, but also, by employing easily accessible digital technology, they can appropriate traditional medium content to create new meaning and publish their own cultural interpretation. Further, as Manovich describes above, this process of ‘talking back’ is also archived for a global participatory audience to engage with in a dynamic and open ended way.

Highlighting and remixing traditional medium content on YouTube are reflective of Mark Deuze’s (2006) principle components of digital culture: participation, remediation, and bricolage. In short, these respectively relate to the members of a culture “being active agents in the process of meaning-making”; aiming to “adopt, but at the same time modify, manipulate, and thus reform consensual ways of understanding reality”; and finally, striving to “reflexively assemble our own particular versions of such reality” (Deuze, 2006, p. 66). In this, Deuze notes the enduring cultural desire to invest time into these practices: “None of this is ‘new’, yet the contemporary condition of participation, bricolage, and remediation in the way people use and make news media can be seen as a supercharged version of that which came before” (2006, p. 72). The ease of participation in, and proliferation of, these online, ongoing, multi-modal conversations, then, contributes to the construction of a unique digital practice. It is the affordances of YouTube that enable this potential. Further, it is a potential that communication technologies born of the digital era all offer—as a result of the digital foundation technology’s proto-affordance of computability.

It is notable that when traditional media networks take their professionally-generated content online, their ‘platform’ looks more like a ‘site’, as they choose not to adopt the same digital affordances as YouTube. That is, they place more emphasis on distribution and consumption than user-participation or creation (Kim J., 2012, p. 60), reflecting what can be seen as
Web 1.0 content for spectators. Hulu is a good example of this, as an ad-based subscription video service that started in 2007 as a joint venture between several traditional media networks—including NBC and FOX. Here, as a form of ‘Internet TV’, the quality and choice of programs is high, and thus much more appealing to advertisers who prefer to align their brand with high quality content. As such, revenue for distribution channels such as Hulu is substantial in relation to their clip or traffic volume, in comparison to YouTube (Snickars & Vonderau, 2009, p. 10). However, there is no real community in these online incarnations of broadcast television, as they replicate the one-to-many, one-way, synchronous delivery and reception of traditional linear content.

In 2011 the YouTube site interface was redesigned to better support the access and viewing of “more premium, professionally produced content that will draw audiences and advertisers” (Strangelove, 2015, p. 162). Aimed at making it “easier for people to find stuff they like while also luring them into spending more time on the site” (Lyons, 2011), the redesign came shortly after YouTube’s announcement to spend $100 million on a campaign to entice professional content producers to establish and run a new set of ‘premium’ YouTube channels (Strangelove, 2015, p. 161). This move encouraged YouTube users to engage with the platform much more like they would with traditional television; that is, as consumers of content with favourite ‘channels’.

It is clear that in its push away from relying primarily on user-generated content, YouTube has decided to pay for the creation of exclusive high-quality content—instead of attempting to acquire existing content from established television networks at an exorbitant cost. Together with offering thousands of movies to its substantial user base on a pay-per-download model as YouTube Movies, and “investing heavily in developing its live broadcasting platform, YouTube Live” (Cunningham & Silver, 2013, p. 69), YouTube is quite definitely
in the process of redefining our traditional understanding of television and cinema.

It is perhaps relevant to note that YouTube is but one of many online digital video repositories that have emerged since researchers pre-empted the technological possibility of such around the year 2000 (Geisler & Marchionini, 2000, p. 258). In fact, Google commenced Google Video in January 2005—one month before YouTube was founded—only to purchase its more successful competitor less than two years later. Though this acquisition slowly led to Google Video’s official shut down in 2012, the list of websites and online services that currently support the uploading and sharing of user-created videos is long, and includes Vimeo, Dailymotion, Vevo, Metacafe, Break, and Vine. Now more commonly called ‘social video platforms’ (Kopf, Wilk, & Effelsberg, 2012) or ‘video-sharing websites’ (Cha, 2014) as a better reflection of their cultural significance, YouTube is by far the most popular of them all.

The fact that there are a substantial number of websites and online services that essentially achieve what YouTube does (at least in terms of supporting video sharing) may indicate that YouTube is but one example of a larger ‘social video’ medium. Thus YouTube’s place within this array of social video platforms might reflect that of a specific television channel, or an individual movie theatre. On the surface, however, it is fairly straightforward to demonstrate that the affordances of these other mediums often differ from YouTube due to distinctions between their individual technological supports. As examples, Vine is a ‘short-form’ video sharing service that only supports six-second-long looping clips, and Vimeo does not display advertisements (Martinez, 2013). Even employing a distinct ‘suggested video’ algorithm can be said to create a diverse user experience on a particular site.
As Steven Martinez suggests, “if a website were to simply copy YouTube's features and not improve or change them in any way, it wouldn’t really have a reason to exist”, and thus “competitors persist by targeting and filling specific needs of users” (2013). Though this targeting often takes forms such as careful site moderation and curation, or the adoption of a relaxed attitude to adult content—as much it does a distinct technological support—the views of Martinez reflect those of Gaudreault and Marion (2005) as explored in Chapter One. That is, two mediums that are identical are both unlikely to survive for long within the same culture. As it stands, each of YouTube, Vine, Metacafe, and Vimeo all indicate the existence of their own specificity by maintaining their unique place within online visual culture. Though a detailed exploration of YouTube’s position amongst other social video platforms is perhaps warranted, it is unfortunately outside the scope of this thesis. In any case, there is still much value in demonstrating that YouTube itself can be seen as a medium—even if it is understood as an example of the larger ‘social video’ medium.

Another important point, and one that van Dijck eloquently teases out in her book *The Culture of Connectivity: A critical history of social media* (2013), is that online platforms do not occur as independent sites of social media. As such, YouTube exists within “a larger context of interpenetrating platforms” that constitute an “ecosystem of connective media”—a system that nourishes and, in turn, is nourished by social and cultural norms that simultaneously evolve in our everyday world [emphasis in original]” (van Dijck, 2013, p. 21). The changes to social media microsystems, such as Facebook or Twitter, inevitably affect the other microsystems within the ecosystem, such as YouTube or Wikipedia. The entire online ecosystem of platforms is itself then in a constant state of flux, and is “embedded in a larger sociocultural and political-economic
context where it is inevitably moulded by historical circumstances” (van Dijck, 2013, p. 9). It is from this position that we can form a contemporary understanding of sociality and creativity in the Western world.

This normative online sociality has been created by the owners of platforms in conjunction with the users of the entire ecosystem over the past decade or so. What began entrenched in the egalitarian principle of democratic socialisation, however, has “become co-opted by the logic of connectivity imbued in the commercial drives and coercive formats of many platforms” (van Dijck, 2013, p. 155). The interconnected platforms in question do not merely facilitate social acts, but instead engineer sociality through mediation. Van Dijck suggests that, although all platforms are different, they each operate from ideological tenets that appear remarkably compatible and complementary and yet difficult to recognise as a cogent system of principles: the principles of popularity and neutrality, connectedness and connectivity, quick turnovers and constant data flows, winner-takes-all and interoperability, a user-ranking ecosystem and a star-ranking Hollywood (2013, p. 174).

YouTube is very much a part of this system, as seen by its late-2011 metamorphosis into a key constituent of the media entertainment industry. It has introduced personalised advertising messages, its uploaders have become more professional (Jakobsson & Stiernstedt, 2010), and its users ‘pay’ through their attention, and their profiling and behavioural data. The ecosystem of online social platforms is a system that van Dijck says is virtually impossible to leave without opting out of society altogether, because these days it quite literally defines sociality.

It is also clear that mobile new media technologies, such as smartphones, tablets, and wearable computers, are now the preferred mode of accessing the
Internet (Perez, 2014). They increase the scope of YouTube user access to anywhere at any time—with YouTube now the main contributor of multimedia content as mobile traffic (Shafiq, Ji, Liu, & Wang, 2011). Not only does mobile access increase the potential for video viewing, but it means that anyone owning a smartphone can create video content and upload it to YouTube in minutes, or stream any live event or occurrence they wish. As Strangelove indicates, mobile computer devices “are responsible for widespread transformation of social life and are generating political and economic consequences” (2015, p. 5). Unfortunately, a full examination of this phenomenon is outside the scope of this thesis, but from the above statistics it is clear that the growth in mobile access to media will only increase YouTube’s influence on social video practices.

Today, YouTube is a mix of professional and amateur content, including television clips and shows, music videos, complete feature films, user-generated video blogs, and what Lange calls ‘videos of affinity’, or videos whose purpose is to facilitate “feelings of connection between people” (2009, p. 71). The institutionalisation of YouTube described above is indeed an indication of Gaudreault and Marion’s (2005) concept of medium ‘rebirth’. YouTube was released as a public online video repository, adopted by everyday users, and subsequently acquired by a multi-national company, Google, who manage and regulate it. It has been subject to copyright lawsuits that have necessitated that its owners invent new technological ways of detecting and managing breaches, been appropriated as a site of distribution and promotion for traditional moving-image media networks, adopted an economic model of embedded corporate advertising, and spawned many new genres of the moving image (Kavoori, 2011, p. 14). Though it is clear that YouTube supports a wide range of social practices, I will discuss one of its new moving-image genres, video
blogging, in more depth in my analysis of the perthbands.tv YouTube channel. In this I will specifically suggest that vlogging is a clear indication of the new communicative conventions and language that validate YouTube as a new digital moving-image medium.

Conceiving perthbands.tv

I have shown that mediums can be separated into two categories for the purposes of analysis: mediums of expression and mediums of communication. Further, some messages are realised through an expressive medium before they are communicated. I did initially create perthbands.tv in order to examine the expression of digital video and its subsequent communication through YouTube, and this is reflected in the process of production that I undertook, from creation to distribution. This is similar to the way that film and cinema work: where filmic content is made via capturing the movement of light and assembling the resulting footage into a movie, and is subsequently distributed for viewing via the institutionalised medium of cinema. Traditional analogue television broadcasting, also, begins with its message being produced via analogue video.

At the time I created perthbands.tv, it was my assumption that the medium as expression and the medium as communication were not just interrelated, but completely inextricable from each other. From this perspective, my investigation of YouTube as a medium was intended as a study of the expressive conventions and creative aspects of digital video. I have since recognised, however, that my analysis of digital video as a separate expressive medium is not warranted. This is because digital video and YouTube are related as mediums, but not entirely integral to each other. That is, they act as a matching pair of, respectively, expressive and communicative mediums, the
concept of which I discussed earlier in relation to film/cinema and analogue video/broadcast television. As such, though they easily integrate, digital video content can be created and disseminated through means other than YouTube, and YouTube content does not necessarily need to be produced using digital video.

In further explanation of this, it is true that I could have shot _perthbands.tv_ episodes on film before uploading them to YouTube. Of course, before uploading an episode made using film, I would have to digitise the film first, and I will discuss the implications of this shortly. For now, though, it is important to recognise that the final product made using film would not _necessarily_ be identical to the result I did eventually create using digital video. This is because digital video affords expressive conventions that film does not. That is, while exhibiting specific expressive conventions derived from its own affordances, such as the camera cues and editing techniques that are a part of much moving image representation, the potential of film as an expressive medium denies certain digital aesthetic and grammatical options. One of the more obvious of these is that the moving-image shot on film cannot be subject to what Manovich calls ‘deep remixability’ (2006). This term refers to the virtual three-dimensional digital compositing space, where synthetic 2D image planes or 3D objects can be created and manipulated in time and space and mixed with other animated, synthetic, or live moving images. Music videos with complex 3D motion graphics and obviously-visible digital effects, mixed with live footage composited in virtual 3D space, are examples of this truly digital moving-image aesthetic.

In the _perthbands.tv_ episodes this aesthetic is not overly prevalent, but strong examples can be seen in the opening credits and closing logo of each episode. These segments of the _perthbands.tv_ videos contain motion graphics, or
“designed, non-narrative, non-figurative based visuals that change over time” (Frantz, 2003). In the opening credits, the cassette/band-name graphic animates away from the viewer in three dimensional space—overlaying the moving images of the band playing (Figure 6). Digitally-created realistic motion-blur follows this animated graphic, but there is no effort to conceal the artifice of such a technique, such as one would find in the “single illusionistic space” of the cinematic (Manovich, 2006, p. 13). The second obvious example of motion graphics within all of the perthbands.tv videos is at the end, where a stencil peels off the page (also in three dimensional space) to reveal the perthbands.tv logo. The ‘deep remixability’ of this digital mode of expression hence produces moving images that cannot be created using the medium of film in its purely analogue form. Thus, at least some parts of the perthbands.tv content could not have been created using this mechanical expressive medium of the moving image.

I will further demonstrate the potential for the theoretical separation of digital video production as expression, and YouTube distribution as communication, by continuing the hypothetical process of creating perthbands.tv content using film instead of digital video. To begin with, film will not upload

Figure 6: The Animated perthbands.tv Cassette Graphic
to YouTube in its traditional, physical, analogue form. This is because in order to upload moving-image content to YouTube, it needs to be in the format of digital video. It also cannot be in just any format of digital video, it must be one of a range of specific digital compression formats. Further, the final edited video must be of a certain maximum file-size, to ensure that uploading does not take an impractical amount of time, or consume an unreasonable amount of bandwidth. These limitations are indicative of the affordances and anti-affordances of the technological support of YouTube, but they also reveal a change in the original filmic content’s potential for expression. Changing the format of moving-image content creation from analogue film to digital video, as such, changes its foundation technology from mechanical to digital.

To expand on this further, once the finished, edited, film is converted to digital video, it is not ‘film’ anymore. Of course, if the initial moving-image content is created using the expressive potential of the mechanical medium of analogue film, there is no doubt that the final product reflects this fact. That is, the aesthetics and grammatical functions of film will remain apparent in the final video. An example of this is that 35mm film has limited potential for capturing shots of extended duration. That is, traditional 35mm film magazines can support a maximum film strip length of 400ft, which equates to an optimistic maximum of 11 minutes of uninterrupted screen time. This is the reason that Alfred Hitchcock’s long-take feature film experiment, *Rope* (1948), consists of ten separate shots, instead of being one continuous shot as he would have preferred.14

The mechanical (and material) nature of film made it perhaps not technologically impossible, but highly impractical, for Hitchcock to achieve

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14 Hitchcock did attempt to disguise many of the cuts in the film to give the illusion of it being without montage, but was not successful in every case.
shooting the entire film with one 80 minute length of 35mm film-stock. This task, however, would have been easily achievable had he access to a high-quality digital video camera that recorded moving-image data directly to a hard-drive; such as the Thomson Viper FilmStream (Thomson MultiMedia Broadcast Solutions, 2006). Thus, one is more likely to incorporate the aesthetics of the long take in moving-image productions shot using video, more than they are in ones shot on film. It is the restrictions and limitations of the technological support of a medium in the production phase, in this case 35mm film, which affects the aesthetics and grammar of the resulting message.

Nevertheless, the digitisation of filmic content need not dramatically change its appearance, if the content author does not deliberately choose to do so. That is, digitised filmic content can remain recognisable in its original expressive capacity. Once the content is digitised, however, this digital video remediates film and, as such, acquires the new proto-affordances of instantaneity and computability. Digitisation provides the author with new expressive potential during content creation, and the digitised filmic content could be further manipulated to reflect this, if desired. An example of this would be to add new elements of computer-generated graphics, indicative of the new digital moving-image content’s potential for deep remixability.

The above discussion demonstrates my perspective of the matching expressive/communicative pair of digital video/YouTube. Digital video (compressed with the appropriate format and codec) does not require re-encoding in order for it to be used as communicative content for YouTube. Indeed, it can remain as digital video to be uploaded and distributed. The three pairs of interrelated expressive/communicative mediums, film/cinema, analogue video/broadcast television, and digital video/YouTube, can then be seen to reflect the evolution of moving-image communication manifest in the
mechanical, electrical, and digital foundation technologies respectively. Further, the transition of moving-image content from one foundation technology to another incurs the process of remediation. This is because when the content of an expressive medium of one mode (e.g. moving-images) is transcribed to a new expressive medium of the same mode, new expressive affordances are acquired by that content. The example of film content gaining the affordance of computability when converted to digital video, as detailed above, is indicative of this.

I should note, however, that despite my theoretical separation of the production and distribution stages of digital moving-image content, in no way do I consider them as distinct in practice. This is because one often creates medium content with the distribution medium in mind. That is, expressive elements such as narrative, aesthetics, stylistics, and grammar are often shaped by the author’s anticipated communication medium. Though the digital videos that I created for perthbands.tv were made with a broadcast aesthetic in mind—as content to be consumed by an audience of spectators—they were also constructed with consideration for YouTube distribution. For example, at the time that I created perthbands.tv content for YouTube, there was a 10 minute maximum time limit that applied to uploaded videos. Knowing this in turn restricted my moving-image expression to this duration.

Similarly, the spatial resolution of YouTube videos was quite poor during the time that the perthbands.tv channel commenced—at 360x240 pixels. Because of this, I needed to ensure that I often framed for close-ups while shooting, as the final video on YouTube was quite small in size and low in resolution and quality. The technological support of the communicative medium thus affected grammatical choices and production variables during content creation, choices that shaped my communication within the language of
the moving image. From this discussion it is clear that the creation/expressions and distribution/communication processes of moving image content are often fundamentally intertwined, and yet they are not fully integrated. It is with this in mind that I put my analysis of digital video as an expressive medium aside, and embark on an examination of YouTube as a communicative medium of the digital moving image. I will begin this task by describing the perthbands.tv webpage, as the primary online portal of perthbands.tv content distribution.

**The perthbands.tv Webpage**

The perthbands.tv webpage is situated within a hierarchy of webpages that is the perthbands.com website, which is in turn part of the World Wide Web. It is the first website link that I offer all potential perthbands.tv viewers. This link is provided on the perthbands.tv business cards, within social media marketing such as forums and emails, and embedded within perthbands.tv videos as a watermark. The perthbands.com website itself is a portal for local music news and events, and also the gateway to the perthbands.com discussion forum—a space for members of the Perth community to debate issues and share information about the local music scene.

The perthbands.tv webpage is essentially an online archive of accumulated episodes. Whoever views the webpage can see all the videos listed with thumbnail images, ordered from most recent down to oldest. When an episode is chosen and clicked on, a window pops up to play that particular band’s video. As it is experienced by the casual viewer, the perthbands.tv webpage is reminiscent of ‘big media’ Internet TV sites such as that of NBC (www.nbc.com) or Hulu (www.hulu.com), as discussed earlier in this chapter. That is, the form and function of perthbands.tv is that of an “online video hub” where “users cannot give comments or post videos” (Kim J., 2012, pp. 59-60).
This is due to the affordance for social interaction simply not being furnished by the designed software interface.

Further, in some ways, the *perthbands.tv* webpage is quite similar to traditional broadcast mediums, such as television. Not that it is broadcast at a certain scheduled day of the week and time, as the release of *perthbands.tv* episodes has definitely not been structured to this extent—and the channel may lie dormant for months without the appearance of any new content. The *perthbands.tv* webpage, though, is more like a series of television episodes that have been captured to a remote hard drive by a PVR, to later be watched over the network at the viewers’ leisure. In this vein, a viewer can play, stop, and review any of the chosen episodes from the archived collection at will. This is what Clarke is referring to when he says that “digital platforms typically transmit and store simultaneously” (2010, p. 136). As such, digital content spaces are a conglomeration of a communication channel and a site for transcriptive and expressive media.

The crucial way that the *perthbands.tv* webpage itself is analogous to traditional television as a *broadcast* medium, however, is that the one-to-many video content is fundamentally constructed and presented to be experienced by viewers as spectators. This is also indicative of many network-based Internet TV websites, which in general do not focus on audience participation (Kim J., 2012, p. 60). As such, a spectator watches, and cannot directly interact with, the medium content. That is: playing, stopping, and changing choice of content is about as engaging as it gets.

Drawing on Mark Stephen Meadows, three principles of interactivity can be defined as input/output, inside/outside, and open/closed (2003, p. 39). These principles can be applied to an interactive system to determine how engaging, consuming, and complex it is. For example, an input must motivate an output;
and the shorter the response time, the more likely the participant is to feel engaged. Also, a proportionate mix between thinking (or what Meadows calls ‘inside-the-skull’) and experiencing (what Meadows calls ‘outside-the-skull’) while interacting is more likely to compel a participant to continue interacting. Finally, a closed system, or one that has limited results from interactivity, will encourage less user interaction than an open system that can get more complicated and less predictable the more it is used (e.g. interacting with a person).

In relation to the quality of interactivity that a single episode of perthbands.tv offers, in being a linear presentation of moving images constructed as a narrative, it can be seen as low. That is, one cannot change the system itself at all, and the content is primarily watched as a spectator. In terms of interactivity this is quite similar to watching television content—either in offline broadcast form or on an Internet TV website such as Hulu. The obvious exception to this is that a user of the perthbands.tv webpage or Hulu is not limited to accessing the content as a scheduled flow, as one might find when engaging with broadcast television. This is because of the archival nature of the World Wide Web.

In a networked computer environment, content can be stored and retrieved quickly at a later date through the unique computational proto-affordance of the digital foundation technology. This is because online digital information is stored on hard drives as numerical data, and information about this data (or ‘metadata’) can be stored along with it. The numerical state of this data in database form makes it searchable, and thus randomly accessible on demand. As such, the Web can be seen as a “boundless information world in which all items have a reference by which they can be retrieved” (Cailliau et al., 1994). It should be recognised, however, that electricity is also integral to the
Web’s archival potential—at least on a global scale. That is, Web users could not access information on-demand from distant servers should electricity not make possible the affordances of the Internet. Further, the Internet is also a mechanical technology that affords reproducibility of its digital content. It is the accumulation of the unique proto-affordances of the mechanical, electrical, and digital foundation technologies that enables the World Wide Web this global archival potential. Electrical analogue mediums such as analogue broadcast television, then, possess the potential for content replication and instantaneity of access, but not the particular ‘search and retrieve’ archival potential derived from computability.

A lack of potential for the viewer to change the content is commonly seen as a trait of analogue mediums. Pavlik and McIntosh evidence this as follows:

In the past, the audience has been limited largely to the role of passive recipient of news and entertainment by the media (2011, p. 212).

Conversely, digital mediums are often thought to support different modes of content engagement:

Today, the audience can choose not only the type of content and the media source it comes from, but in many cases, how to experience it (Pavlik & McIntosh, 2011, p. 212).

One of the ways that the digital audience can choose to experience their content is by interacting with it. The concept of analogue mediums promoting passivity, and digital ones encouraging interactivity, is chiefly why television and cinema are called ‘lean-back’ mediums and the networked computer a ‘lean-forward’ medium (Fagerjord & Storsul, 2007, pp. 22-23). Despite being a form of digital
archive, it is more the sit-back style of medium-content engagement that I suggest a viewer of the *perthbands.tv* webpage experiences; that is, they are only able to interact with it in the most elementary of ways. Further, much of their engagement with the page will consist of ‘watching’, as opposed to ‘doing’, and this also directly relates to most Internet TV websites. Conversely, Web 2.0 platforms such as YouTube increase the motivation for users to lean forward, as they seek to engage with other users.

**YouTube as a Platform**

As evidenced by the ubiquitous YouTube watermark within the *perthbands.tv* video episodes, the digital video content is actually hosted by the *perthbands.tv* YouTube channel. A ‘channel’, here, is one person’s homepage for their account, where their uploaded videos and supplied information is stored. From the *perthbands.tv* YouTube channel, the videos are automatically, and transparently, embedded within the *perthbands.tv* webpage using the appropriate HTML code. As such, the *perthbands.tv* webpage directly reflects the video content that is in the YouTube channel. However, in contrast to the restricted level of interactivity offered to viewers of the *perthbands.tv* webpage, YouTube is a Web 2.0 ‘platform’ which encourages social interaction between its members. Also, as previously noted, the content of YouTube does not consist merely of videos, but also includes the capacity for commentary and voting positively or negatively.

The specific theoretical meaning of the term ‘platform’ is currently under debate in the literature. Bogost and Montfort define it within the reasonably recent field of ‘platform studies’ as a standardised foundation for

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15 Note that YouTube did not support full stops in channel names at the time of setting up the *perthbands.tv* YouTube channel, and so its name is actually ‘perthbandstv’. For simplicity’s sake, however, I will continue to call both the website and the YouTube channel by the name ‘*perthbands.tv*’.
further programming (2009). That is, a platform is a system of hardware and software that supports further creation—be it the creation of digital art, virtual worlds, video games, or other software programs. Gillespie, however, demonstrates that it is finding purchase as a colloquial term for the “online services of content intermediaries”, such as YouTube (2010, p. 348). This can be seen throughout Snickars and Vonderau’s *The YouTube Reader* (2009) and the *Video Vortex Reader* series (Lovink and Niederer, 2008; Lovink and Somers Miles, 2011). Jeff Jarvis specifically states that “a platform enables. It helps others build value” (2009, p. 32); in YouTube’s case, that could mean through connecting to other like-minded individuals, or attempting to make money through an attention economy.

The first issue I should note in regard to YouTube’s identity as a platform is that the terms ‘platform’ and ‘medium’ are not mutually exclusive. Though YouTube can surely be seen as a platform that can “afford an opportunity to communicate, interact or sell” (Gillespie, 2010, p. 351) or as something “for users to build on” (Manovich, 2013, p. 36), this does not necessarily negate it from also being a medium. That is, as a platform of social interaction YouTube consists of a technological support upon which users can create new genres of communication and interact using shared expressive and communicative conventions. This indicates that YouTube can be considered a platform as well as a medium. Similarly, as indicated earlier, YouTube can also simultaneously exist as an ‘online video repository’ and a ‘social-media space/service’.

Manovich supports the idea that YouTube is a platform, and says that the early 2000s saw a theoretical shift in the model of communication, from the sharing of messages to user-participation in constantly-evolving online platforms such as Google Earth and Facebook (2013, pp. 34-36). Concurrent
with my previous suggestion, Manovich submits that the transmission model no longer appears relevant in relation to online platforms (Manovich, 2013, pp. 35-37). This is because, when engaging with online platforms such as these, audience engagement with a complete medium object is not the usual case, as it was with broadcast-medium content. That is, spectators of the broadcast paradigm are more likely to engage with a medium object from start to finish; as in watching a movie, or a television show. Conversely, in the context of Web 2.0, medium content is not necessarily experienced this way.

Using Manovich’s example, a user experiences the platform of Google Earth differently each time, as it grows in content and changes software version. Users can also add their own content, or modify the perspective of the content they engage with, by turning filters on or off, or varying the chosen location. YouTube is similar to this, in that as an amorphous and evolving platform the actions and choices of a user contribute to their own experience of it—as well as the experiences of others. This model of communication aligns itself much more closely with Carey’s (1989/1992) ‘ritual view’, which I have discussed previously. That is, communication is not solely involved with transmitting information as messages from senders to receivers, though YouTube itself can certainly do this too. For Carey, communication is also about individuals connecting to other individuals through technology to generate social groups, and construct their understanding of the world through shared symbolic meaning. In particular, Web 2.0 platforms allow this to occur in a global context through the many-to-many asynchronous sharing of sound, vision, and text.

As previously discussed, the Web 2.0 platform of YouTube is inherently software that connects people and allows them to share videos and perspectives via the support of a network of digital computers. Its community consists of senders and receivers engaging with digital moving-image messages in a
different way than they might with cinema and television. In fact, Tolson suspects that YouTube’s reference to traditional forms of broadcasting, and yet novel implications for communicative practices, may indicate that YouTube is a form of ‘post-television’ (2010). Further to this, if YouTube, as a process of moving-image communication, is to be seen as the remediation of the mediums of cinema and television, it must add a new communicative affordance to both of these. In alignment with Tolson, I propose that YouTube does do this, and it is due to the unique proto-affordance of computability and the resulting higher level affordances. It is thus relevant that I examine what this ‘newness’ actually is in terms of YouTube’s communication through the moving image. This process begins with how I, as author of the digital video content for perthbands.tv, prepare that content for potential viewing on YouTube.

**Configuring the perthbands.tv content**

Interestingly, the creation of content for the perthbands.tv YouTube channel did not stop with exporting the compressed digital video from the non-linear editor. Ryan indicates the reason for this in her explanation of ‘the configuring action of the medium’, as what is effectively an initial expressive component of a communicative medium (Introduction, 2004, pp. 17-18). It is the act of encoding meaning within the medium itself—though the former should also be considered inextricable from the latter. That is, setting up the YouTube channel implicates further scope for shaping the message within what can be seen as a communicative medium. This becomes apparent during analysis of the process of setting up the YouTube channel and uploading the digital video files to it. When doing this, one is asked to select from a number of potential distribution and audience engagement options, as well as provide specific information about the video itself. The options include deciding whether to allow viewers to make comments about the video, who is permitted to watch
the video, whether to show the viewer when and where the video was produced, or the video’s respective ratings and statistics, and more.

These are selections that offer the video creator control over how their content is presented to the prospective YouTube audience, and subsequently how the prescribed viewers can interact with it. It is an indicator of the configuring action of YouTube as a communicative medium, and means that the YouTube channel author can modify the context of viewing their videos. Allowing a viewer to see the statistics of a video, or details of where and when it was uploaded, can affect the meaning they derive from it. For example, the fact that a video has very few ‘views’ may indicate to a prospective viewer that it is not considered very engaging by other YouTube users. In turn, this may negatively frame the context of viewing for that new viewer. Similarly, choosing to permit viewers to freely comment on one’s videos, or deciding to restrict or remove that ability, also changes the context within which other YouTube users will frame their experience and understanding of the medium and content.

To clarify this important point further, to communicate via YouTube the digital video must be constituted within it, as YouTube is not a mere conduit for delivering a mechanically-, electrically-, or digitally-created moving-image message. As Ryan says, “in this conception of a medium [i.e. the communicative sense], ready-made messages are encoded in a particular way, sent over the channel, and decoded on the other end” (Introduction, 2004, p. 16). The ‘encoding’ of which Ryan speaks essentially includes a further sense of expression which affects the content as experienced by YouTube users. This includes the video uploading process, the configuring of the channel settings, and even the software-defined user interface and pre-programmed functionality that a viewer experiences when engaging with the video. Included
in the latter are suggested videos, user comments, and the YouTube search function. YouTube’s potential for contextualising content, thus, is determined by both its software designers and the content author.

As previously noted, while uploading a digital video to YouTube one is also asked to include certain information. This comprises giving it a title, providing a full description, and assigning ‘tags’ or keywords that better facilitate the video being found when using search functions (O’Reilly, 2005). The first two frame the video and provide a certain authorial context of viewing. William Mitchell notes that, without being aware of the discourse surrounding the paintings of Jackson Pollock, the ‘uninstructed viewer’ could view them as “nothing but wallpaper” (2005, p. 258). I agree with Mitchell’s associated view that the accompanying text, or title, of a painting can also influence the viewer’s interpretation and appreciation of it immensely. Hence, supplying the viewer with additional contextual information can do the same for digital video content within YouTube.

Roland Barthes describes text that accompanies the image as ‘the linguistic message’ and suggests that, because writing and speech remain as the “full terms of informational structure”, we are still very much in a “civilization of writing” (1985, p. 26). That is, with many images we experience there is text to explain it, in the way of title, caption, article, etc. Though Barthes was writing some time ago, I would posit that today we still use the text accompanying an image to restrict the limits of our perceptive interpretations. That is, we seek what Barthes calls ‘anchorage’ as to its denotative meaning; anchorage being an attempt to fix what Barthes calls ‘the floating chain of signifieds’ of an image (1985, p. 26). By this he means that with any image comes the choice of many interpretations, and a fair degree of uncertainty about what the signs are intended to mean. Text that is associated with an image can be used by its
creator or perceiver to narrow and refine these choices. Thus, the uploaded content on YouTube should not be considered as merely videos, as they also include the titles and descriptions as accessible references to its videos. These two added elements work to allow us to further circumscribe the meaning of the video when viewed within the YouTube video-page.

The process of anchorage also occurs for cinematic and televisual content, in that a title and description likewise often exist for the content of these mediums. The availability and accessibility of these linguistic messages are, of course, different from that of YouTube. This is because a YouTube user can more easily access this contextual information while watching the video itself—as it is readily available in close proximity to the video. Also, a much richer degree of text can be supplied within the YouTube video page, as compared to cinema and television, including multiple hyperlinks to external webpages or other videos. All of this can add further controlled context as authored by the YouTube channel owner as video creator and uploader.

During the process of completing the information sections while uploading a video to YouTube, the supplied title and description also serve the same purpose as the user-suggested ‘tags’. That is, they all contribute to the metadata that enables the video to be found amongst the millions of others that exist on YouTube. This metadata allows certain users to find a thematic set of videos that relate to certain search words. Thus, the searchability of a video (directly related to the accuracy and magnitude of its metadata) is quite important to the viewing context. Similarly, this metadata contributes to the potential for the video to appear as a ‘suggested video’. Suggested videos are displayed to the right of every YouTube video page, and are direct links to other videos that are chosen from the entire video archive by a proprietary algorithm. The suggested videos are also perceived by the viewer as, not just
random, but related to the video currently being watched. That is, the metadata defines these as more closely associated to the currently-watched video than other videos that exist in YouTube’s enormous archive.

YouTube’s suggested videos are software-chosen using the metadata of video name, information, and user-defined tags, but the algorithm also takes into account the specific “user’s unique tastes and preferences” based on their previous viewing, favourite videos, ‘liked’ videos, and more (Schwartz, 2011). It is the construction of this personally-oriented metadata and algorithm that is also integral to the construction of each viewer’s individual video-watching context. That is, videos on YouTube that are watched in succession frame each other, and this collision of specific videos works to influence derived meaning in an intertextual way. This, once again, can be seen as part of the underlying programmable technological support of YouTube shaping the content experience for the viewer, in conjunction with their participation.

This automatic, personalised, hypertextual, co-location of relevant videos is also something that separates YouTube from the mediums of traditional cinema and broadcast television. The technological support of the latter mediums cannot afford this computation-oriented functionality of individualised viewing experience. Hence, the moving images that contextualise their content are necessarily chosen consciously by either oneself (from a known pool of options) or other parties—such as television network content programmers (who are not aware of one’s personal tastes). This has much to do with traditional cinema and broadcast television being one-to-many moving-image mediums, and YouTube exhibiting a more personal and individual form of viewer engagement through the proto-affordance of computability.
Further potential for reshaping the message presents itself to the YouTube channel owner once the video has been successfully uploaded, in an array of alternative video-editing options within YouTube’s ‘Creator Studio’. The number of these is quite large, and so I will not describe each in depth here, but it is relevant to note that each offers a new programmed affordance that can contribute to the meaning of the video itself. This includes the ability to adjust the colour or contrast of a video, stabilise any shaky camera motion, add copyright free audio, and assign in-video annotations—the latter of which are clickable text overlays that can aid in user navigation, provide a user with more information, and increase user subscription and general engagement (YouTube, 2014).

Annotations are perhaps the most powerful of the YouTube channel-owner’s configuring tools, as they include the potential for setting in-video clickable hotspots. These can be used to directly link the audience to another specific YouTube video, or even to an off-site webpage (an option only available to members who are designated as YouTube ‘partners’), as a suggested follow-on to the one video they are currently watching. A channel-owner may thus use annotations to encourage the user to stay within their channel, through linking them to more of their own videos. Besides prospectively increasing a channel’s total number of video views, though, this practice also affords the channel owner some degree of control in contextualising their videos. That is, by setting specific video links as annotations, channel owners can encourage users to frame their video watching with the owner’s suggested video choices—which in turn will contribute to the users’ construction of meaning when engaging with the content. Placing text annotations within a video that provide further information about its content also contributes to this by way of anchoring the meaning of the image, as described above.
Once the information sections of YouTube have been completed, the video has finished uploading, and any desired YouTube editing functions applied to it, it becomes available for YouTube users to view on demand. This is where the communicative potential of the content comes into play, after it has been realised by the configuring aspects of YouTube as a communicative medium. Of note here, is the ability for YouTube users to ‘subscribe’ to a specific channel. Subscription can be seen as a reflection of that user’s appreciation of the channel’s content, and thus when a new video is uploaded to that channel the subscriber gets automatically alerted. Hector Postigo sees the subscription system as “an important feature for getting consistent views on a video”, and this turns subscribers themselves into a “basic unit of exchange” in a form of currency system (Postigo, 2014, p. 7). Hence, subscribers are highly valued by YouTube channel owners, and sometimes even ‘traded’, which is when two collaborating channel owners promote each other’s channels and content to their own set of subscribers.

YouTube’s affordance of offering channel subscribers the ability to seek automatic alerts when new videos are uploaded, is a higher level affordance derived from the computable proto-affordance as furnished by networked digital computers. Significantly, it is also specific to online communicative practices, as traditional cinema and broadcast television do not possess the technological support to offer the affordance of this kind of subscription (as automated email alerts when new content is available for viewing on demand). I have shown previously that the affordances of a communicative medium are inherently dependent on its technological support, and in particular that a medium’s foundation technology will allow it to remediate mediums of a similar mode from a previous foundation technology. To revisit a historical example, the emerging electrical medium of television remediated the existing
mechanical medium of cinema. Both are mediums of the moving image, and as such share aspects of communicative conventions and language. At its introduction though, television remediated cinema by bringing the communicative affordance of instantaneity to moving-image content for the first time.

The paradigmatic shift in the evolution of mediums due to the introduction of a new foundation technology ushers in a period of new media, as a new wave of mediums emerge with new affordances. This shift is fostered by the introduction of new communication practices, such as television’s facilitation of synchronous moving-image communication over large distances compared to cinema’s lack of such. In light of this, the above discussion regarding YouTube indicates the existence of new modes of moving-image communication that traditional cinema and broadcast television cannot afford. This includes a personalised viewing experience, the potential to subscribe to automatic alerts about new content, and provision for in-video annotations. In remediating the existing moving-image mediums of cinema and television, YouTube emerges as a new medium of the moving image. The digital foundation technology’s proto-affordance of computability is key to the new mediated experiences of both the channel owner and the YouTube user.

At this point I should note that the perthbands.tv videos in some ways can be considered ‘professionally-generated content’. That is, perthbands.tv content is reasonably high-quality and intended for broadcast-style spectatorship, and could thus easily be screened on television—either in broadcast or Internet TV form, such as Hulu. Prior to creating perthbands.tv, my experience with moving-image production focussed on the traditional moving-image mediums of cinema and television. The majority of content I had created was linear narrative dramatic and documentary works for screening on large cinema
screens or television sets in people’s homes. The audience’s ability to interact with this kind of work is limited, in Meadows’s (2003) sense, in that the viewer cannot easily alter or contribute to the content.

Thus, creating this type of moving-image content for distribution through both the perthbands.tv webpage and its YouTube channel, allowed me to explore what was distinct about YouTube in terms of moving-image affordances of mediation. That is, the ways in which the digital moving-image medium of YouTube remediated the electrical moving-image medium of television became apparent. This is already evident from my exploration of the preliminary expressive potential of YouTube, but analysis of the way receivers of the perthbands.tv videos engaged with them provides an even more significant example—one that is intrinsically linked to YouTube’s communicative affordances.

The Episode 19 Imbroglio

I noted above that when starting a YouTube channel and uploading videos there are several choices to make as to whether viewers are able, or not, to watch, comment on, rate, and externally embed the videos. For the perthbands.tv channel, I hypothesised that allowing the audience these affordances would be integral to promoting interaction—which, as noted above, is a fundamental part of Web 2.0 functionality. For this reason I left these options at their default settings, which then allowed any YouTube user to participate in any of the aforementioned actions. From this potential, a few members of the YouTube community began to make comments on the videos; which, even in 2008 when I started perthbands.tv, was not new to YouTube. Indeed, the Web 2.0 functionality of user participation and interaction could easily be said to be one of the key elements that distinguishes YouTube from cinema and television. An event did occur, however, which indicates exactly
how integral viewer comments are to YouTube content. This event was instigated by a particularly controversial perthbands.tv video.

The incident occurred in relation to perthbands.tv Episode 19. Having designed and produced perthbands.tv content for spectatorship instead of interactivity, I did not receive a high number of viewer comments on most of the videos. The bands in perthbands.tv episodes were also emerging local bands, and thus did not have a large following of fans to support them in the online space. I did, however, incur a flurry of comment and rating activity on the video page for Episode 19 shortly after it was uploaded. In fact, the video received over 30 comments in the space of 2 months, when most of the perthbands.tv episodes still have less than five comments more than five years after their publication. My experience in viewing other videos on YouTube, and reading their associated comments, alerted me to the fact that usually an extraordinary amount of comments meant that some heated discussion was taking place. Upon closer inspection of the content of the comments made in regards to Episode 19, this indeed proved to be the case. A full transcript of the comments attributed to perthbands.tv Episode 19 can be found in Appendix B.

Many of the comments made on the (now hidden) video page for Episode 19 are derogatory, insulting, and defamatory. These were made by ‘haters’, which is a term for a person who doesn’t appear to have an obvious reason for posting a negative comment in an online space, and offers no constructive or helpful criticism (Lange, 2007, p. 6). I personally did not perceive the content of the episode as comprising of anything but a band of young passionate musicians full of bravado—trying to present a confident and competent persona. Further to this, the band, themselves, had seen the video prior to its release and given full authorisation to publish it. Thus, at first it was unclear as to how this episode could evoke so much ‘hate’ from some perthbands.tv
viewers. Embedded within the pages of negative comments though, were some positive ones. In fact, six people had also given the thumbs-up to the episode (a YouTube method of quickly registering one’s positive reaction to a video) while thirteen had given it the thumbs-down.

Walther et al. describe the act of name-calling, insulting others, and generally being negatively hostile in an online environment as ‘flaming’ (1994, p. 462), and suggest that it occurs as a result of the lack of interpersonal communication cues within computer-mediated communication (CMC). That is, human interaction through the Internet is perceived as less personal than face-to-face interaction, and hence inhibitions that would normally be present during face-to-face communication can be easily dropped. Baym elaborates on this point by saying that “these messages occur predictably in online group interactions and often lead to ‘flame wars’ in which flames are met with hostile retorts. The hostilities escalate, drawing in more participants” (2010, p. 58). There is no doubt that perthbands.tv Episode 19 had inspired a ‘flame war’ between YouTube users, with some denigrating the band and others trying to defend them.

The video itself was typical of the format and content of many of the perthbands.tv episodes, which mainly work towards introducing the emerging bands with group interviews cut together with multi-camera footage of them playing a live gig. The point is to help the viewing audience to get to know the members of the band, and to reflect the band’s musical style and personality in the aesthetics and grammar of the video itself. Something had gone wrong with Episode 19 in doing this though, as it was clear that quite a number of YouTube users who watched it felt affronted enough to post a scathing comment. To put it in perspective, the perthbands.tv YouTube channel has been active for over five years, and currently has almost 150 subscribers and over 60,000 views.
(admittedly, almost half of these views belong to a band which became very popular after we uploaded their *perthbands.tv* episode: Tame Impala). The total number of thumbs-down across all the 29 videos is 28, and *Episode 19* received thirteen of those during the 2 months immediately after it was published.

After some investigation it became clear that it was not necessarily that the episode itself made the band look bad—but that the band themselves had allegedly previously upset quite a few people in the local music industry with their “cocky and over-confident attitude” (Personal Conversation, 2009). Consequently, whether justified or not, the band represented in *Episode 19* were not well liked by a small, but passionate, number of vocal locals, most of whom were also musicians in other Perth bands. These can be seen as part of the band’s offline community; that is, local Perth musicians who partake in a creative community network of individuals with similar artistic interests and goals. This group of individuals exists as a community that often supports each other, but in this case an existing conflict negatively affected the porting of that offline participatory culture to the online space. Hence, the YouTube comments section was being used as a tool for semi-anonymously venting an existing adverse attitude towards the band in *Episode 19*. As such, within the written comments section, the haters derided the episode’s band members for unacceptable personal and professional character traits. Their accusations were globally visible on YouTube, and would stay that way for as long as I let them. Shortly after I recognised the root of the conflict I made *Episode 19* private, so that the general public could no longer access it.

The effect of the haters’ comments about *Episode 19* is to influence the way that other YouTube users may perceive the video content, and hence the band members themselves. It was an attempt by haters to control the meaning of the video by way of Barthes’s (1985) concept of ‘anchorage’. In essence, the
haters were contributing to the content of YouTube through its many-to-many asynchronous communicative affordance. It should be recognised that, as a viewer, suggesting an alternative interpretation of a moving-image production to all future viewers is not possible through the mediums of traditional cinema and broadcast television. This is because they do not consist of the appropriate technological support to allow this prospect. It is, as such, a definite indicator of what digital computability adds to these mediums as they are remediated by YouTube; that is, the potential for individuals to negotiate their interpretation of the video content itself with the entire YouTube community.

Interestingly, two defenders of the band participating in the flame war made comments about the editing of the video’s interview component:

I know them too, and the interview was edited hard, they didn’t control that (mikkittease8170, 2009).

and

Rough interview, but rekon its [sic] been edited rough. Great live band though (silversteed01, 2009).

The implication here, is that the ‘hard’ or ‘rough editing’ misrepresented the band in the video through the temporal montage techniques used in its construction. In making these comments, the supporters of the band are trying to shift the locus of meaning onto the mediation process. This not only makes it clear that the writers of such comments are aware that digital video mediates communication (in that they suggest the video-editing process changed the band’s appearance), but, through their commentary they also demonstrate their understanding that YouTube mediates content. Further, they appear aware that YouTube’s mediation includes the commentary that is associated with the video. That is, they are using the comments section of the medium of YouTube
to negotiate the anchorage of the specific video’s meaning with other commenters.

As previously discussed, Bruns’s (2006) concept of ‘produsage’ is where users become produsers who create, as well as consume, content. In his brief examination of public video content creation and distribution via YouTube, however, Bruns focuses primarily on the remixing of existing video content as produsage (Bruns, 2008, pp. 238-239). Though immensely valuable in a discussion of YouTube and video remixing, the concept of ‘produsage’ can also be extended to the very manufacture and negotiation of meaning by YouTube users. The accumulated viewer comments on YouTube video pages, as discussed above, are, in fact, part of the complex assemblage of YouTube content. The YouTube functionality of facilitating the rating of videos with either a ‘thumbs-up’ or ‘thumbs-down’ also works similarly in this respect, as this ratio of likes to dislikes is shown numerically directly beneath each video. The possibility to hyperlink response videos within the comments section provides a further contextual framing for the constructed meaning within the original video. As such, the meaning attributed to comment-enabled videos published on YouTube is constantly under discussion and revision.

This exemplifies the existence of a many-to-many asynchronous communicative affordance, one where the video itself is not necessarily the end point of communication, but instead just a starting point for an ‘ongoing media conversation’ (Manovich, 2008, pp. 40-41). Thus, YouTube’s communicative content is an accumulation of its complex assemblage, which includes the original video, viewer comments, channel settings, annotations, etc. This creates evolving medium content in the form of what Jenkin’s calls a ‘participatory

16 YouTube removed the original function of publishing direct video responses in 2013, but users have since reinstated this functionality by pasting the link to their uploaded video response in the original video’s comments section (The YouTube Team, 2013).
In line with Bruns (2008) concept of ‘produsage’, there is no closure or end product to a comment-enabled YouTube video. These higher level affordances of posting related text as comments, rating, and hyperlinking response videos, are founded on the proto-affordance of computability.

Pierre Levy’s (1997) views on (what is effectively) the affordances of digital technologies are quite relevant in the case of YouTube viewers contributing to its content through comments and votes. Levy coins the term ‘cosmopedia’ to refer to the online computing space that he suggests is the new digital model for representing, and dynamically managing, knowledge. It emerges from the ‘commodity space’ that is reflected in the cyclical encyclopaedic process of knowledge and instruction (Levy, 1997, pp. 215-216). The cosmopedia promotes the breaking down of barriers to accessing knowledge, and blends areas of knowledge specialisation. In essence, it is the epitome of collective intelligence, and thus it not only makes “available to the collective intellect all of the pertinent knowledge available to it at any given moment, but it also serves as a site of collective discussion, negotiation, and development” (Levy, 1997, p. 217). This describes the function of the audience comments, votes, and videos uploaded, as direct response to published YouTube videos, as users actively construct the cultural meaning of the content that they engage with.

That is not to say that people engaging with traditional analogue mediums have never had the avenue, or desire, for questioning or shaping the meaning of cultural texts. For example, readers, listeners, and viewers throughout the mechanical and electrical foundation technology epochs have been able to give feedback on newspaper, radio, and television content. This

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17 Levy uses the term ‘computer technology’ instead of ‘digital’, but in essence he means the same thing.
usually took the form of physically mailing a letter or telephoning the respective station or network. The general public have also been part of television programs as audiences or participants, as well as having contributed to community radio programs as DJs and interviewees. Even the very act of discussing a topical newspaper article with another person in the workplace exemplifies the cultural negotiation of meaning.

However, authorial control enters into the equation with most of these examples; specifically, whose ‘letter to the editor’ gets published, and which caller gets the opportunity to put forward their view to the talk-back radio DJ. The return channels of analogue mediums are also often fleeting, in that many public submissions made are soon dissolved in the impermanent and transient mediums of broadcast sound and vision. Even for hardcopy mediums such as newspapers, magazines, and archived videotapes of television programs, finding and accessing past audience feedback and/or participation is often a cumbersome and lengthy undertaking due to their analogue nature.

Manovich also notes that “conversations around a piece of media” are present in analogue form (2008, p. 235). For example, families watching television in their lounge-room can discuss an element of the news, in the form of few-to-few communication. However, as previously discussed, this is very different from an online trans-national dialogue, where social platform users can communicate asynchronously in video, audio, or text, with archival permanence and continuation. Pavlik and McIntosh concur with this view, and call the traditional broadcast model of media ‘monologic’ and the digital, ‘dialogic’ (2011, p. 254). This is because the latter affords dynamic and on-going conversations in a way that analogue mediums never could. There most certainly has never been a more accessible space in which to publish one’s own opinion of moving images than on YouTube, as this was impossible with
traditional cinema and broadcast television for a member of the ordinary public. Further, a YouTube video viewer’s contribution to its meaning by way of comment will be there for all to read as long as it remains published, whenever anyone cares to access and perhaps even engage with it.

**YouTube Users and Produsage through Statistics**

Besides participating in ongoing textual or visual/aural conversations about videos, there is a further important way that the YouTube viewing audience affects its content. That is, one which is directly related to the content’s digital moving-image state, and correspondingly indicates another distinction between *perthbands.tv* and traditional cinema and broadcast television. This is in the statistical data regarding YouTube users’ viewing habits that is accumulated and reported to the channel owner in the form of ‘video metrics’. The tool within YouTube that assists with this is called ‘Analytics’ and YouTube describes it as such:

> A free tool that enables anyone with a YouTube account to view detailed statistics about the videos that they upload to the site. For example, uploaders can see how often their videos are viewed in different geographic regions, as well as how popular they are relative to all videos in that market over a given period of time. You can also delve deeper into the lifecycle of your videos, like how long it takes for a video to become popular, and what happens to video views as popularity peaks (The YouTube Team, 2008).

This affordance of intricate data collection as feedback from user engagement is a direct result of the technological support of the digital social network. Harnessing this type of information “to produce useful insights or goods and services of significant value”, is called ‘big data’ (Mayer-Schonberger & Cukier,
2013, p. 2), where the aim is for the extraction of value from a large and complex data-set.

Of course, audience statistical analysis is not unique to digital medium content. Traditionally, audience feedback has been sought by analogue medium-content producers to help them appreciate the wants and needs of their public. Hugh Beville Jr says that

It is difficult to imagine a successful system of free commercial broadcasting without audience rating as feedback. The ratings report the size and composition of the audience that is reached by a given program, station, or schedule of commercial announcements. These data are crucial to the activities of broadcasting management, sales representatives, program producers, advertisers and their agencies, writers, performers, and their agents (1988, p. xi).

It is the complexity, magnitude, and accuracy of YouTube’s statistical information, as well as its ease of access, that makes it so powerful in the digital content environment. It is also this which makes it distinct from the process of accumulating statistics regarding cinema-going or television-watching.

As an example, besides data detailing the number of viewers that have watched a YouTube video, and from what geographical location they watched it, video publishers can access what YouTube calls an ‘audience retention report’. This data graphically demonstrates the attention (or lack thereof) that every frame of a video receives from its viewers. There are two types of audience retention:

*Absolute audience retention* shows the views of every moment of the video as a percentage of the number of video views.

*Relative audience retention* shows your video’s ability to retain viewers during playback in comparison to all YouTube videos of similar
length. The higher the graph at any given moment, the proportionately more viewers kept watching your video over the preceding seconds of playback versus other videos at that same moment in their playbacks (YouTube Support, 2014).

Using this audience retention data, YouTube channel owners can tailor their future content with respect to the past attention and appreciation of their videos by the audience. They can cease their use of words, or engagement in themes, that appear to cause viewers to tune out and leave the video page, or they can restructure their video to capitalise on the qualities that statistically appear to interest their audience.

This is yet another way that the users of YouTube can be seen to be produsers of content, even those who simply browse and watch videos in an inadvertent form of user participation, or (as previously noted) what Schafer calls ‘implicit participation’ (2011, p. 52). As Bruns says, “Indeed, the very act of usage itself may also make an active contribution to the ongoing produsage project, for example where access statistics are gathered and evaluated in order to draw automatic connections between related content items” (2008, p. 3). In essence, through the statistics of their engagement, the YouTube audience is actively modifying future content.

So, although the concept of content creators seeking and using audience statistics to help them shape future content is not unique to online digital moving images, the power with which YouTube can produce and wield this data on-the-fly, and the effect it has on future moving-image content on YouTube, is distinct from that of traditional cinema and broadcast television. This is due to the specific software and algorithms that the designers and programmers of YouTube develop and implement, as a manifestation of the proto-affordance of computability. The programming of YouTube then
translates into the higher level affordances of ‘big data’ collection through user activity, and the meaningful conveyance of this data to the channel author. From here, the YouTube channel author acts on usage statistics to tailor their medium content, which in turn impacts on its popularity amongst YouTube users.

**YouTube’s Affordances in Practice**

The social practices of YouTube users are directly related to its affordance of many-to-many asynchronous communication within its context as an online video repository. From a medium theory perspective, it is useful to offer an example of exactly how this manifests within Western society—or, in other words, what overarching large-scale social impact this new communicative potential shows above and beyond the technological limits of traditional cinema and broadcast television. As such, I will examine the YouTube phenomenon of Crowd Accelerated Innovation (CAI).

To begin by defining how YouTube functions, being a moving-image medium it exhibits support for the storage and subsequent transmission of the figurative image—or images that are derived from real object or subject sources. That is, digital video content on YouTube can be causally connected to a particular point in time and space, having been formed by light in nature affecting a digital image sensor.\(^\text{18}\) Further, a digitally photographic image is iconic, in that it resembles whatever was in front of the lens during the time of shooting, unless production processing has altered this. The result is that one can video themselves doing something and, as a ‘produser’, share it with the

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\(^{18}\) There is some conjecture that digital images are not causally connected to nature, or what can be called ‘indexical’. For an in-depth discussion as to why they are at least as indexical as the filmic image, see McMullan’s “The Digital Moving Image: Revising Indexicality and Transparency” (2011b).
world; or at least, everyone who possesses a digital computer that can connect to the Internet at a reasonable bandwidth.

The digitally-networked extension of this practice on YouTube means that any member of the global YouTube community can start, and enter into, an ongoing media conversation about the video. This conversation can include text as comments and links to other YouTube videos as responses to the video. The social potential of this cumulative media practice is what Chris Anderson, founding editor of *Wired* Magazine, calls Crowd Accelerated Innovation (CAI). Through CAI, “ideas spawn from earlier ideas, bouncing from person to person and being reshaped as they go” (Anderson C., 2011, p. 115). It is the rapid growth of knowledge and or/skill due to the ease and speed that YouTube users can share video and text-based content.

The underlying process of CAI, in principle, is reflective of how the communicative practices afforded by the printing press encouraged the Scientific Revolution almost 500 years earlier. The difference in the case of YouTube, though, is that the focus of CAI is on moving-image content, and the collective audience potentially includes every digitally-connected individual on the globe, instead of a limited number of textually-literate members of the scientific society, as was the case with printing during the Scientific Revolution. The electrification and digitisation of YouTube conversation also amplifies the speed of many-to-many participant interaction; as compared to the slower cyclical process of reading, writing, and publishing in the course of furthering scientific development through mechanically-printed texts. Thus, the revolution that CAI promises has the potential for faster rates of growth in areas that are not just knowledge-based, but also action- and/or skill-based.

Anderson’s oft-cited example of CAI in practice is the now famous Legion of Extraordinary Dancers (LXD) (thelxd.com), a group of ‘internet
‘taught’ young dancers who pull off dance moves that even experienced adults are yet to master (2010). The youngsters’ rapid mastery of their craft is due to their “dancing evolving in Internet time. A series of challenge videos by rival groups of street dancers had created an upward spiral of invention as they strove to outdo one another” (Anderson C., 2010). Further examples of the many instances of CAI on YouTube include cake-baking, costume makeup art, film-making, and music making. Jonathon Martin explains that Anderson’s CAI mantra is ‘Don’t write me. Tell me. Show me’ (2011), and its making its way into the 21st century school system under the moniker of ‘participatory pedagogy’ (Carter & Arroyo, 2011). This is an example of a large-scale social impact brought about by users appropriating YouTube’s proto-affordance of digital computability. It is an ongoing many-to-many asynchronous social function that is a distinct break from the communicative practices afforded by traditional cinema or broadcast television—even in their present digital states.

It is also relevant in this discussion that the ongoing YouTube conversation can exist as video, audio, and text—as a mix of interpersonal and abstract modes of communication. I prefaced the difference between these modes of communication earlier in Chapter One, in defining one of the biases of communication that indicates a medium’s specific affordances. In short, video and audio affords the expression of interpersonal communication cues such as facial expression, voice tone, gestures, and body language. Besides satisfying Anderson’s call to ‘tell me, show me’, this emphasis on a more interpersonal mode of communication allows the video creator to better convey their emotional state (Carter K. A., 2003), as well as contextualise their speech to achieve more successful communication with the video’s prospective audience (Kruger, et al., 2005, p. 926).
The more abstract mode of textual communication in the video-creator’s title and description, and as comments made by the viewing audience, contrasts with the interpersonal, as the former promotes the sharing and negotiation of complex ideas, as well as the anchorage of Barthes’ (1985) floating chain of signifiers that make up the associated image. While the combination of video, audio, and text from the video creator promotes an extremely rich (and therefore effective) form of mediation (Daft & Lengel, 1986), the pure text in the video’s comments section provides much fewer visual or aural interpersonal cues. Hence, misperception of the commenter’s emotional state, and even meaning, sometimes occurs. This potential for misinterpretation is one of the possible reasons for the large amounts of flaming that seems to plague the YouTube community (Moor, Heuvelman, & Verleur, 2010).

Though *perthbands.tv* video content did attract some vigorous flaming by online ‘haters’, and even possibly influenced some young aspiring musician in the way they choose to perform on stage or play their instrument, these were not goals that I set out to achieve when I commenced the YouTube channel. These are modes of engagement that other YouTube users can attribute to my content, but my purpose was to simply create entertaining linear moving-image content for spectators to watch—not to interact with. Indeed, the *perthbands.tv* video content was designed to reflect traditional broadcast moving-image content, and thus is relatively high in production values and carries a distinctly professional aesthetic. Further, as previously mentioned, no attempt is made to invite audience interaction or participation within these videos. As I will suggest below, this is distinctly different to the video blog, which, as YouTube user-generated content, aspires to be realised as a site for participatory culture. In fact, I see video blogs as a distinctly digital moving-image genre, and as such
it is relevant to describe how these are situated within YouTube as a moving-image medium.

The Video Blog as a New Digital Moving-Image Genre

The roots of video blogging (or ‘vlogging’) can be found in the practice of writing an ongoing ‘weblog’, or what is otherwise called ‘blogging’. Evolving from forms of early autobiographical writing and diary writing, blogs exist to “let everybody share their thoughts and discoveries online”, and were ‘social media’ before the term was actually coined (Walker Rettberg, 2014, p. 14). Blogs emerged from the Internet’s affordance of many-to-many communication, and exist as various genres or sub-genres. These include diary-style, filter, or topic-driven blogs, though all comprise discrete entries of discussion or information displayed in reverse chronological order (Walker Rettberg, 2014, p. 32). Online platforms such as Twitter, Facebook, and even Pinterest, can be seen as forms of blogging, in their sharing of personal thoughts and experiences, with Twitter also sometimes referred to as a form of ‘micro-blogging’ due to the maximum post limitation of 140 characters (Walker Rettberg, 2014, p. 14).

Similarly incorporating a personal nature, video blogging is a moving-image communication that addresses the audience directly, and usually involves one person talking into the camera (Frobenius, 2011, p. 815). Because of this, video blogs may initially appear monologic, but instead, “direct response, through comment and via video, is central to this mode of engagement” (Burgess & Green, 2009, p. 54). The influence that the ensuing comments, votes, and response videos have on the content of the vlog video page, is part of the cumulative YouTube text, as discussed above. Effectively, the distributed moving-image content of the video blog itself, unlike perthbands.tv content, is not intended to be the final YouTube product, as it is continuously shaped, affirmed, and challenged by the text and comments (and other vlog episodes
from the channel) that frame it. As an extension of my previous discussion, the creation of a specific vlog episode can also be influenced by statistical data derived from user engagement with video blogs that have been published before it.

The interaction of YouTube users with video blogs is encouraged by the personal stories or political themes and opinions that are often the basis of vlog content, as well as overt calls for audience engagement by the vlog presenter themselves. Video blogs are considered to be user-generated, in the sense that they evolved from a mode originally adopted by amateur YouTube video-makers, as opposed to professionals working for a broadcast network. Early YouTube video blogs may or may not have been edited, were often unscripted, and exhibited an authenticity that was more crucial to audience engagement than high production values or sophisticated narratives (Strangelove, 2010, pp. 64-65).

One of the earliest YouTube vloggers to reach YouTube fame was Paul Robinett, who went by the YouTube channel name of ‘Renetto’ (Tufnell, 2013). Originally starting out mid-2006 doing strange, yet comic, reviews of other people’s YouTube videos while wearing weird costumes, Robinett’s style was one of direct address to a low quality video camera in close-up framing with no editing (Robinett, 2006). Once he had gathered a substantial amount of viewers and subscribers, though, his presentation shifted to one of authenticity of personality, and his content took on a more personal, engaging, and reflective mode (Tufnell, 2013). It was the early days of video blogging, and no-one really knew what they were doing, but Robinett was convinced that they were all “part of a new medium that would change the face of media” (Tufnell, 2013). Though Robinett drifted from the YouTube vlogging scene over time, it turns out that his forecast was accurate, and YouTube was just one of the Web 2.0
platforms to enact this change; with Facebook, Twitter, and Tumblr, of course, being others.

Californian, Philip Franchini, Jr., better known as Philip DeFranco or by his early YouTube channel name of ‘sxephil’, was another 2006 YouTube vlogger, who has since continued his early fame to be estimated as YouTube’s 25th highest annual earner in 2014 with 1.27 billion views (Warner, 2014). In comparison to Robinett’s oft-rambling accounts of his personal life and thoughts, Franchini’s early content was similarly direct in its address and low in video quality, but his clips were well-planned, laced with clever humour, and took advantage of a rapid jump-cut editing style to keep the show dynamic (Franchini, 2006). In less than a year from commencement, Franchini had begun to introduce humorous political commentary and comical attacks on other YouTube celebrities into his videos. Franchini currently uploads several new videos a week, and though his video production values have improved enormously and often include brazen product endorsement, he retains the witty, dry, rapid interpretation of news and current affairs that has been his style for over seven years (Franchini, 2015). Indeed, there is no doubt that this style is directly reflective of Franchini’s personality.

The ‘authenticity’ of vlogging, says Tolson, “is located in its excessive direct address, in its transparent amateurishness and in the sheer volume and immediacy of ‘conversational’ responses, by comparison with and relative to the constraints of traditional broadcasting” (2010, p. 286). Of course, the term ‘authenticity’ is entirely relative, though with vlogging it is likely a consequence derived from sharing one’s personal thoughts and experiences—as similar to the practice of blogging. Being located in the realm of user-generated content, vlogging can also be seen as an act of produsage, which stems from YouTube’s affordance of many-to-many communication.
A vlogger’s apparent authenticity is perhaps also influenced by what Michael Wesch suggests is an example of ‘context collapse’, which is where amateur video bloggers find themselves faced with the crisis of “address[ing] anybody, everybody, and maybe even nobody all at once” (2009, p. 23). This predicament leaves the vlogger unable to position their self-presentation in the face of millions of possible unknown ‘others’. Also trapped between what is often an intensely private space, such as their bedroom, and YouTube as a global public space, the result of context collapse can often encourage the vlogger to be ‘more’ themselves (Wesch, 2009, pp. 25-26). As such, authenticity is an important feature of the practice of video blogging, and a sense of this is more or less expected by viewers of vlogs.

Since its purchase by Google in 2006, and subsequent embrace of commercialisation, the practice of many of YouTube’s video bloggers has begun to enter the realm of professionalism in an effort to maximise monetisation (Tufnell, 2013). This is perhaps not surprising, as in reality there is no binary distinction between user-generated content and professionally-generated content. Instead, Lange (following Stebbins, 1977) describes it as a “continuum based not only on income derived from the activity, but also on the numerous cultural and social criteria that include external reputation, knowledge of specialised techniques, and interaction within particular social networks” (2012, p. 2). Thus, contributors of YouTube video content include amateurs who know (or care) little about video-making practices, video-making enthusiasts who are aware of their current video-making skill level (or lack thereof) and wish to improve them, semi-professionals who strive to adopt video-making as their main focus of employment, professionals who make high-quality video content for commercial companies, and many variations in between.
Buckingham, Pini, and Willett also point out that being a ‘serious amateur’ involves a learning process, in that they frequently wish to improve their video-making skills and techniques while also refining their understanding and usage of ‘film grammar’ (2009, pp. 63-64). Improving one’s video-making techniques, skills, and grasp of the language of the moving image, often indicates an aspiration to reflect traditional professional practice (Buckingham, Pini, & Willett, 2009, pp. 58-65). It can also be said that, given the more creative, less prescriptive realm of the non-professional video-maker, compared to the “formulaic approach of commercial cinema or television”, there is also much scope “to develop an aesthetic style that goes beyond it” (Buckingham, Pini, & Willett, 2009, p. 67). That is, amateur film-makers can more easily embrace a freedom of creativity that professionals are denied, due to the latter’s rigid procedures and protocols of production. In this, I suggest that early YouTube users have done just this very thing—in their adoption, appropriation, and shaping of YouTube they have derived new moving-image aesthetics from the technological support and communicative affordances of this emerging medium. One of these new aesthetics is the cultural practice of video blogging.

While presenting itself as a site for participatory culture, one must also remember that YouTube has also become an arm of traditional media in its domination by commercialised, professional videos—and as such YouTube management is always trying to improve the quality and appeal of its content to increase or maintain viewer attention (Morreale, 2014, p. 114). Sharing advertising revenue with channel owners is also very much a part of this push. Thus, though the essence of the fundamental conventions of traditional vlogging still exist, in their direct audience address and elicitation of audience responses, today’s professional YouTube vloggers often publish well-rehearsed,
yet authentic and personal, addresses with attention also paid to achieving a slick and professional look (Tufnell, 2013). The increase in professionalism of contemporary vlogs includes more attention to the quality of camera technology, better lighting techniques, and more control over any editing or digital compositing in the production. This increase in production values is exemplified in the long vlogging history of Philip Franchini in his guise as Philip DeFranco, as previously described, in his gradual transition over the years to a more professional aesthetic.

The evolved moving-image genre of contemporary YouTube vlogging is often still clearly comparable with its traditional form, though, as it continues to invite audiences to interact with the videos in a way that contributes to their overall cultural text. Of course, now the ongoing participation of a growing YouTube audience serves to provide an economic return for the professional vlogger, as YouTube shares advertising revenue with those producers who nominate to ‘monetise’ their videos. A vlogger’s share of the revenue due to in-video, in-stream, or overlay advertising is directly related to the number of views their video gets. Put simply, the more popular a vlogger becomes, the more money they stand to make. Because of this, the authenticity of the contemporary vlogger in more commercial forms of YouTube video blogging is inevitably compromised, as it becomes a performance aspect of self-promotion within the attention economy (Hearn, 2008, p. 201).

Again, the vlogs of Philip Franchini exemplify this, as in early episodes he presents at various times of day or night wearing stylistic accessories such as sunglasses and caps, and from several different private locations in (what is presumably) his house, such as his bathroom and bedroom. His latest videos, however, each invariably show Franchini lit identically and seated at the same white desk, with the same red couch in the background. Only his shirt and the
pictures hanging in the background show signs of change across episodes. A professionalism and consistency has crept into Franchini’s vlogging aesthetic over the years, which belies the spontaneity and authenticity of place, space, and performance that his early episodes displayed. Authenticity in contemporary YouTube vlogging has thus often become an expressive convention to be intentionally adopted when creating vlog content—particularly if one seeks a large audience and, in turn, a healthy financial return for their efforts. This is in opposition to the authenticity of early YouTube vloggers being a natural result of un-scripted and un-planned self-presentation.

Strangelove reminds us that “the point is not that online diaries [i.e. blogs and video blogs] are utterly new, as they are clearly a digital version of an ancient practice” (2010, p. 70). Vlogs are indicative of what John Dovey calls “first person media”, or “subjective, autobiographical and confessional modes of expression” (2000, p. 1), which includes reality television and television talk-shows. The desire for producers of medium content to elicit responses from, or engage with, audiences, is also not new. It can be seen in letters-to-the-editor, radio talk-back, and reality television programs. The similarities between analogue and digital forms of video confession are thus clear, but there is also something different about the representational features of YouTube video blogs. Here, Strangelove notes that “the combination of features such as global distribution, mass involvement (as diarists and audiences), malleability, and audience interaction within online diaries is unprecedented” (2010, p. 70). The introduction of the Internet as a digital technology fostered a paradigm “where communication tools enabled group conversation” (Shirky, 2010, p. 239), and it is this affordance that is the distinct foundation of video-blogging, where YouTube users can also contribute to vlog content as co-authors.
YouTube’s ‘group conversation’ is due to what Robert Gehl calls its ‘archival’ nature (2009), which can be seen as analogous to the archival affordance of the World Wide Web that I discussed earlier in this chapter. With YouTube there are “central servers at the same Web address” which users can access from wherever they have a high speed internet connection (Gehl, 2009, p. 45). Though devices that manipulate viewing time, such as DVD recorders or PVRs, are plentiful, with digital television the act of guaranteeing capture of the live broadcast stream of each episode is still deliberate and pre-determined. That is, the choice to watch an episode of a television series at a date later than the scheduled weekly broadcast time (without the use of the Internet) cannot be made after that episode has broadcast.19 Further, recording a program as it is being broadcast, or programming a device to do this before the fact, is like creating a personal archive from the flow of broadcast content. Compiling a large archive of broadcast television content in this way, though, would take an immense amount of time.

Conversely, YouTube users have the ability to access all of YouTube’s content in their own time, at their own pace, and for their own purposes (Gehl, 2009, pp. 45-46). The same can be said in relation to Internet TV, in that these websites often exist as an online video archive of network broadcast content—although many offer a customised experience due to their accumulation of one’s personal data and viewing history. The archival nature of YouTube is an indication of the technological support that facilitates the foundational conventions of the video blog, as the video content is there for access when anyone wishes to engage with it. The difference, then, between the Internet TV archive and the YouTube archive is that, through the commentary affordances

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19 These days, a computer can determine the viewing habits of the audience and record television shows that are likely to be desired by their owner—but this is hardly comparable in accuracy to the viewer deliberately recording a pre-determined show from the many available streams.
of the latter, it is possible for amateur video creators to seek and nurture ongoing conversations with their audience. As was shown regarding the YouTube archive of perthbands.tv videos, even broadcast-style content on YouTube can attract an ongoing conversation, if the channel owner offers viewers permission to comment, of course.

Thus, from the above discussion it is apparent that vlogging conventions include, at the least, offering a personal form of direct audience address, striving to instigate and nurture audience engagement in ongoing global video/audio/text conversations, building a participatory culture of loyal and returning viewers, and presenting an ‘authentic’ self. Burgess and Green note that, with its roots in webcam culture and personal blogging, “vlogging itself is not necessarily new or unique to YouTube, but it is an emblematic form of YouTube participation” (2009, p. 53). I would further suggest that the practices and aesthetics of YouTube vlogging as described above are distinct in relation to traditional broadcast moving-image mediums, such as cinema or television. Vlogging is a new genre of the moving image, a specifically digital genre. In addition to this, video blogs are another indication of YouTube’s remediation of cinema and television.

Indeed, if vlogging is to be deemed a genre of the moving image, it is important to clearly define what the term ‘genre’ means and how it fits in with the concepts of a medium’s technological support and related affordances. As I am dealing primarily with moving images, I will favour the cinematic understanding of the term. That is, that a genre is essentially a constructed category within the overarching medium. Texts within genre categories usually show consistency of convention in either, or all, of style, form, content, narrative, or other textual property (Chandler, 1997). This creates an intertextual relationship between all texts of the same genre, and thus an
existing basis from which audiences can begin to understand texts that share conventions.

The television talk-show is a good example of a moving-image genre, in that its form and style usually include being shot by multiple video cameras that are simultaneously trained on a live discussion that is regulated and moderated by a host. The resulting video signals are also often live-switched to create a seamless portrayal of the event, which is an affordance of video cameras that film cameras do not furnish. Further, and different to most cinematic genres, during a talk-show it is not considered problematic if the shot from one television camera captures the existence of another camera. Recognition of the generic conventions of talk shows, such as these, allows viewers to watch any new television talk-show with an inherent understanding of how they work. Important to note is that this talk-show genre aesthetic emerged from the instantaneous affordance of electricity, as distinct from the various filmic genres that had gone before it.

Ryan notes that “the constraints and possibilities offered by media are dictated by their material substance and mode of encoding” (Introduction, 2004, p. 19), but as indicated in the above example, the affordances of a medium’s technological support can also inspire the emergence of new genres. That is, a medium is specific due to the particular components and arrangement of its technological support. It follows then that a genre is also subject to the technological affordances of the medium within which it exists. Each genre, however, is further characterised by specific conventions that are negotiated and constructed by those who engage with it.

All genres within the same medium will, therefore, bear the same technological support and resulting affordances. The distinction between them is that they may simply incorporate these affordances into their specific process
of communication in a different way. As such, some genre conventions may be derived directly from the unique foundation technology of its medium, while others may not. As an example of this, the television talk-show relies on the electrical foundation technology’s affordance of instantaneity, and its support for live-switching of video cameras, as the stylistic and aesthetic root of the genre. Further genre conventions of the talk show have then emerged from this beginning, with some being related to the technology of production, and some not. The existence of a regular ‘host’ to instigate and control discussion on talk-shows exemplifies the latter.

Where film cannot be live-switched to emulate the televisual genre of the talk-show, similarly, neither cinema nor analogue television can support the ongoing media conversation that is intrinsic to YouTube vlogging. These moving-image genre conventions are clearly only afforded by certain foundation technologies. YouTube vloggers actually invite viewer responses, in video or text form, from within their presentation in the videos: this is very much a part of what a vlog is. This potential is perhaps not unique to YouTube, as it may exist with other online video repositories, but it is unique to internet-based forms of moving-image communication—as opposed to their broadcast counterparts.

Accordingly, new foundation technologies can evoke new genres based on their unique proto-affordance. In turn, a new genre such as video blogging, being technologically driven, implies the existence of a new medium. It can also be said that YouTube affords the new digital moving-image genre of video blogging, which remediates existing medium genres such as letters-to-the-editor or radio talk-back shows. Thus, video blogging is an example of the new “expressive specificity in the realms of communication, aesthetics, genres etc.”
that Gaudreault and Marion ascribe as partly indicative of a medium’s rebirth (2005, p. 13); in this case, YouTube’s rebirth.

Conclusion

With due consideration to the concepts and theories regarding the medium as outlined in Chapter One, and the theory of foundation technologies and their associated proto-affordances as discussed in Chapter Two, in this chapter I have shown that YouTube can be considered an emergent singular medium in its own right. I have outlined YouTube as a communicative medium with its own configuring qualities, in Ryan’s (Introduction, 2004) sense, and further that digital video is the default digital expressive medium of the moving image. This is in the same way that film is the default mechanical expressive medium, and analogue video is the default electrical expressive medium. By this I mean that content created by the expressive medium can be directly communicated via the communicative medium respective to that foundation technology. Pairs of expressive/communicative mediums for the mechanical, electrical, and digital foundation technologies can be seen as film/cinema, analogue video/analogue television, and digital video/YouTube. Of course, other communicative mediums of digital video may well exist, but it is YouTube that is the primary concern of this thesis.

As a global network of digital computers, the Internet is at the core of communication as supported by the digital foundation technology. It is the Internet as a uniquely digital technology that facilitates the complex social interaction via software platforms that is pivotal to the emergence of the concept (and unique practices) of Web 2.0. Though the perthbands.tv webpage was created to publish and distribute video content via the Internet, the way that an audience experiences this streamed content is not dramatically different to the way they would experience the same content on broadcast analogue
television. Of course, the archival nature of the Internet provides a viewer with the power to watch past episodes from the entire collection of perthbands.tv content at will, but within the webpage itself there is little opportunity to modify or interact directly with its video content. In contrast, the perthbands.tv YouTube channel provides a vastly different audience experience.

Before I elaborate on the specifics of this new moving-image experience, I should emphasise that YouTube can be seen to have followed the process of medium emergence and rebirth as described by Gaudreault and Marion (2005). It began as a novel moving-image technology that allowed people to share videos of each other and vote on levels of perceived attractiveness. YouTube’s creators also encouraged early users to share home movies securely with their friends and family, but the platform soon came to be adopted by its growing community for other purposes. Among these was to publicly share, and comment on, clips from traditional cinema and broadcast television, as well as blog about their personal thoughts and opinions in video form. Thus, new modes of communicating via moving images were starting to emerge, and YouTube’s remediation of existing mediums, such as cinema and television, was becoming apparent. This preceded the commercialisation and institutionalisation of YouTube, and its rebirth as a medium in its own right; with unique communicative conventions and genres.

To exhibit remediation, a new medium must refashion prior mediums (Bolter & Gruisin, 2000). There are at least several modes of remediation, but one medium remediating another of the same mode directly has been of primary focus within this chapter. As an example of this, television can be seen to be a remediation of cinema; both being mediums of the moving image. In this, television borrows from the communicative conventions of cinema, and yet adds to them the new electrical proto-affordance of instantaneity. New
practices of communication are thus, effectively, introduced, including the instantaneous transmission of moving images over distance. YouTube applies a similar process of remediation to both cinema and television, though its new proto-affordance is one of computability.

The new communicative potential derived from YouTube’s remediation of cinema and television includes the ability for viewers to comment and vote on existing videos; thus contributing to the potential meaning of those videos. This is evidence of YouTube’s support for a participatory culture, as each user who comments on a video strives to ‘anchor’ its meaning (in Barthes (1985) sense). Users who participate in this way can be seen as exhibiting a form of Bruns’s (2006) concept of ‘produsage’—not in that they are publishing actual video content themselves, but instead that they are affecting the communicative context as experienced by other YouTube users. The complex statistics that YouTube users (perhaps unwittingly) contribute to through their site activities also can be seen as a form of produsage, in that they may influence the production of future video content by channel owners. In essence, these statistics alert a channel owner to what YouTube users find appealing or interesting in their content; as well as that which does not hold their attention.

In these ways, YouTube users engage in what Manovich (2008) calls ‘ongoing media conversations’, which exist as part of the overall text of YouTube itself. The potential for YouTube to facilitate these ongoing media conversations also enabled the appearance of a new genre of the moving image; that of the video blog—a genre that consciously evokes participation and interaction with the YouTube community. These new practices of moving-image communication, and this new moving-image genre, could not exist within the mediums of traditional cinema or broadcast television—though YouTube does exhibit traces of these moving-image mediums. Thus, in its remediation of
cinema and television, together with its aforementioned attainment of “institutional recognition and a decisive improvement in the economic resources devoted to its production” (Gaudreault & Marion, 2005, p. 13), I suggest that YouTube can be considered a singular medium in its own right.
CONCLUSION: YouTube as a Digital Moving-Image Medium
As the most popular online video repository, over 6 billion hours of YouTube video are currently watched each month (YouTube, 2014). This statistic is heavily weighted towards 18-34 year olds, who are indicative of the watching public of the future. This leaves no doubt that communication via moving images in the Western, developed, world has changed dramatically since the inception of YouTube in 2005. As part of the Web 2.0 phenomenon which has seen the emergence of online platforms of social interaction, YouTube’s affordances include asynchronous, many-to-many communication using video, audio, and text.

It is for this reason that the statistics of video watching do not tell YouTube’s full story. As is seen by the activity on the perthbands.tv YouTube channel, watchers of YouTube videos can also engage with each other and contribute to the overall content of YouTube. Modes of this interaction offered by YouTube’s software interface include comments, rating, and response videos, as well as through the statistics created by one’s site usage. As this is a cultural process of moving-image communication that was not possible with the mediums of classical cinema and broadcast television, I suggest that YouTube can be considered a new moving-image medium.

It is for this reason that in Chapter One I examine the medium as a process of human communication through technology, and indicate that the perspective from which I have chosen to analyse YouTube as a new singular medium is called ‘medium theory’. For medium theorists such as Innis (1951/1991), McLuhan (1964), Meyrowitz (1985), and Kittler (1999), the key to determining the large-scale impact that a medium can have on a particular society is through analysing its specific technological characteristics. Medium theory is not greatly concerned about the content of mediums, a stance which is the basis for McLuhan’s famous axiom ‘the medium is the message’. To borrow
a term from Gibson (1977), it is the ‘affordances’ of each medium that are relevant to its communicative use. Further, the potential social practices that are the result of our individual and collective relationship with a medium, are encouraged or denied by the specific underlying technological support of its cultural interface.

The ‘technological support’ of a medium refers to devices and apparatuses, as hardware and software, that comprise the collection of practical elements that, when combined, provide the platform for potential human expression or communication. This definition of a medium’s relationship with technology should not be seen as technologically determinist, as it does not deny human engagement in the invention, construction, adoption, social appropriation, and shaping of the medium itself. Nor does it pre-prescribe the expressive and communicative conventions that artists and communicators eventually associate with particular mediums—though it does limit, restrict, and provide the potential for, whatever these may be. Thus, perhaps a more appropriate understanding of a medium is as a relation between its technological affordances, and social acquisition and integration (Hutchby, 2001, pp. 13-33). Indeed, this also reflects Gibson’s (1977) original intention for the use of the term ‘affordances’: as an action possibility relationship between an environment and an organic being/animal.

Ryan notes that there are two types of mediums, one that can be used to create a message through personal expression, and one that can be used to distribute a message across time or space as a communications channel (Introduction, 2004, p. 16). Gaudreault and Marion call these ‘the two poles of communication’, in that the first embodies creativity and the second reflects the mode of dissemination and reception (2005, p. 3). Of course, in practice these two modes are rarely considered distinct. This is because not only does one
often consider the process of dissemination while creating a message, but also that some mediums fundamentally incorporate both aspects. It is useful to separate expressive and communicative mediums for the sake of analysis, though, as it allows us to recognise the different social functions of each.

As an example of the interconnectedness of expressive and communicative mediums, film is an expressive medium, and cinema is the medium of communication that is its matching pair. These mediums are a ‘matching pair’ because cinema is the institution which emerged to facilitate the distribution and reception of the expressive medium of film. Analogue video and traditional television are also a matching pair of expressive and communication mediums for similar reason. In fact, many mediums of expression require their content to be embedded in a medium of communication to allow its distribution. It should also be remembered that a medium of communication may also exhibit a further element of expression prior to enacting communication. Ryan calls this ‘the configuring action of the medium’, and it reflects the fact that a message does not travel through a medium like water through a funnel, but instead the message is created via the medium itself (Introduction, 2004, p. 17).

New mediums emerge as an evolutionary combination, or hybridisation, of existing technologies. An example is that cinema can be seen as consisting of theatre, hand-drawn moving images, and photography. Gaudreault and Marion (2005) describe the process of medium emergence, from inception to widespread social use, as consisting of three steps. The first is its appearance into a society as an unstable technology that potentially supports new modes of communication. In this guise it will usually borrow its conventions from the mediums from which it evolved. Through its period of emergence, a medium will engage its users and creators in experimentation with the new artistic or
communicative practices that it affords. Finally, in a form of rebirth, the new medium will become an institutionalised process with its own socially constructed conventions and language. The institutionalisation procedure can take many forms, but it usually manifests in commercialisation, regulation, and the consolidation of the medium within a particular culture.

A new medium ‘remediates’ the mediums from which it evolves, in that it refashions them by adding new biases and practices of communication (Bolter & Gruisin, 2000). When television was introduced it could be said to have resembled cinema, in its use of the cinematic moving-image techniques of temporal montage, camera and lighting codes, acting approaches, and the like. In its remediation of cinema, however, television also added a new dimension to moving-image communication. This new dimension allowed television users to almost immediately receive moving images over distance. This is something that the technological support of cinema could not afford, as it is not electrical in its method of message distribution.

Indeed, many examples of cinema do rely on electricity to turn its assorted mechanisms and even project its animated images—but this should not be seen as the equivalent of instantaneously transmitting encoded analogue electrical signals over distances of hundreds, or even thousands, of kilometres. It is the offering of this new affordance, and its associated remediation of the existing moving-image medium of cinema, that makes television a medium in its own right. This is also the basis from which I suggest that YouTube can be considered a new medium. That is, YouTube emerged from a technological support that offers communicative affordances that classical cinema and broadcast television do not. These new moving-image affordances stem from YouTube’s technological foundation being the Internet, as a network of digital computers.
In Chapter Two, I begin by identifying that the digital computer is currently regarded within the literature as a ‘meta-medium’, or the medium to end all mediums (Kittler F. A., 1999, pp. 1-2). As such the digital computer is sometimes called the ‘digital medium’ as a singular form of expression and communication (Murray, 2003, p. 3). The power to be ‘all other media’ that Kay and Goldberg (1977, p. 31) attribute to the digital computer is due to its numerical representation, which affords its simulatory capability. It should be remembered, however, that simulation is about mimesis, and thus its goal is not in adding something new to that which is simulated. The latter, of course, is something that is indeed integral to the concept of remediation, in that when remediation occurs, a refashioning must occur. As such, simulation is not identical to remediation. Hence, having the power to ‘be all other media’ does not imply that the digital computer is a medium; though, possessing the possibility to remediate existing mediums, on the other hand, does.

In its remediation of existing mediums, the digital computer introduces them all to one new affordance: that of computability. This is the same way that the earlier emergence of electricity had introduced existing mediums to the affordance of instantaneous communication, and before that the development of machines remediated existing mediums by offering the affordance of easily and rapidly reproducible content. Following this, an expansion of medium theory suggests that history shows a series of jumps in technological evolution, as significant technologies emerged with radical new affordances. In turn these fostered the introduction of entirely new mediums that afforded new expressive and communication practices. Theorists such as McLuhan (1964), Marvin (1988), Kittler (1999), and Jensen (2010) have all focussed on the analysis of such historical periods of significant techno-social upheaval. I call the primary catalysts for these periods ‘foundation technologies’, and what these
offered all existing mediums in the way of new expressive and communicative possibilities, ‘proto-affordances’.

That cinema and television are both moving-image mediums with distinct social practices is an indication of their differing technological supports. Further, if one analyses their individual technological supports, one could perceive them as having emerged from different ‘foundation technologies’. That is, cinema was developed for reproducibility, in its mechanical representation of the world. Television, in turn, was born of electricity, and its fundamental purpose was to transmit moving images instantaneously over distance. Specifically and respectively, then, cinema and television can be attributed to the foundation technologies of the machine and electricity. It is from the proto-affordances of these that their respective communicative practices and conventions were derived.

The introduction of a new foundation technology to a society introduces at least one unique proto-affordance to that society’s existing subset of mediums, which in turn supports widespread remediation of those mediums. As a further example, the phonograph is essentially a mechanical technology, and supports the mass-replication of sonic representation. As similar with cinema, though later versions of the phonograph used electricity to power its mechanism and amplify its various sounds, it did not evolve to use an electrical signal as a mode of instantaneous distribution over large distances—and hence the phonograph’s original communicative uses remained largely unchanged. The introduction of electricity to human expression and communication did facilitate the remediation of sound, moving images, and text, however. This is exemplified by the subsequent invention of new electrical mediums of instantaneous communication, such as radio, television, and the fax machine.
In relation to the effect that the application of instantaneity to sound, moving images, and text, had on the culture of the time, the introduction of electricity can be seen as invoking a period of ‘new media’. That is, the electrification of existing mediums initiated a fundamental shift in the way that the people of the time communicated. The same can be said with the introduction and adoption of mechanisation, which saw the creation and implementation of socially-significant mediums such as the phonograph, film, and the printing press. All of these new mechanical mediums afford reproduction, in the sense that they each mechanically represent the world, and facilitate the rapid replication of that content. Further, when mechanical mediums were developed, they remediated the existing artefactual mediums. The latter supported the creation and distribution of medium content by the human body, often accompanied by simple manual tools such as pens, paintbrushes, and chisels.

The introduction of digital technologies can also be viewed as the advent of a new foundation technology offering the proto-affordance of computability. It is important to note here that a proto-affordance of a foundation technology is also often present in later foundation technologies. This can be seen from examining the evolution of technologies that support mediums, as they progress from machines, to electrical machines, to digital electrical machines. As examples, an electrical medium of expression, such as analogue video, shares the proto-affordance of instantaneity with digital video—which is a digital medium. Analogue video also exhibits a parallel with film, however, in that its range of affordances also includes the reproduction of the moving image. Celluloid film, however, cannot be distributed instantaneously, and analogue video cannot be computed. In this way, the proto-affordances of foundation technologies are often cumulative.
The concept of ‘foundation technologies’ raises the question as to how existing mediums transition through new foundation technologies, and whether in doing so they become new mediums. This question is also important for positioning YouTube in relation to digital cinema and digital television in contemporary visual culture. As Bolter says, when new mediums emerge, existing mediums usually continue to exist (1991, p. 36). Often, in this case, the old medium exhibits what Bolter and Gruisin call ‘reciprocal remediation’ (2000, p. 105), which is the process whereby the institution of an old medium borrows the technologies and techniques of communication practice from a new medium in order to resist dissolution. This is apparent in the complex evolutionary process of traditional cinema and broadcast television into, respectively, digital cinema and digital television.

Lehman-Wilzig and Cohen Avigdor suggest that when threatened by emerging mediums from new foundation technologies, old mediums ‘adapt’ or ‘converge’ to survive (2004, p. 720). With adaptation, this involves refining or upgrading the old medium’s content, or the absorption of new technologies into its original technological support to enrich it with new affordances and functionalities. An example of this is how cinema rapidly evolved in the 1950s due to the threat from broadcast television. Lehman-Wilzig and Cohen Avigdor’s concept of an old medium ‘converging’ with a new one is where the old medium adopts the new medium entirely—as a ‘parallel’ medium (2004, p. 719). An example of this is that the existing medium of television absorbed the new time-shifting moving-image device that was the VCR in the 1970s.

A more extreme case of convergence is what Lehman-Wilzig and Cohen Avigdor call ‘medium sublimation’ (2004, p. 719). Essentially, this is where the technology disappears while the service survives in a new technological form. An example of medium sublimation is where the printed book is now
represented digitally in the Amazon Kindle. The new medium remediates the old medium, in turn adding new communicative affordances to its content. It is significant here that the new medium is fully representative of a new foundation technology, in affording new digital practices of content distribution, access, storage, manipulation, and engagement. The only recognisable legacy of the old medium is the service of providing a medium for reading text, as the technological support of this text has been completely renewed.

Digital cinema and digital television are examples of adapted and converged versions of their traditional analogue mediums. Though it is unarguable that, in the offline space, they have both evolved over the years to incorporate new foundation technologies—transforming their conventions and practices as mediums—they still retain the legacy from whence they emerged. That is, the digital technological supports of digital cinema and digital television continue to exhibit strong signs of these medium’s original affordances, and their existing institutions persist. Digital cinema still projects one-way linear moving-image content to the public as non-interactive spectators, and digital television continues to broadcast the same to a device in people’s homes. It is for this reason that the nomenclature for these new incarnations of cinema and television merely add the word ‘digital’ as a form of signifying prefix. Indeed, this indicates that cinema and television are still quite recognisable as mediums, only converged with digital technology.

As exemplified by the Amazon Kindle, for the mediums of cinema and television to truly transcend their technological roots and become new mediums, they would need to offer the same content but completely reinvent their institutional and technological supports—as well as afford new ways of communicating. The latter requires a reinvention of the medium’s social uses
and practices to reflect the new foundation technology’s unique proto-affordance. In this situation, the new moving-image medium would be neither cinema nor television, but in its sublimation into the new technology it would instead remediate both these mediums. The digital foundation technology has the potential to support such a new moving-image medium, and in particular the Internet is the network of digital computers that can be its substrate.

Of course, the digital computer is a powerful machine for new modes and practices of expression due to its digital proto-affordance of computability. However, it does not by itself support novel ways of message distribution and reception, as it is a device primarily for manipulation and expression. A stand-alone digital computer does not facilitate communication across space, or even very well through time. The Internet, as a network of interconnected computers, however, does permit new forms of synchronous and asynchronous, two-way interactive communication through video, audio, and text. This is because the Internet is not a digitally-augmented communications channel born of a past foundation technology, but was conceived with the proto-affordance of computability as essential to its communicative function.

The new affordances of the Internet include one-to-one, one-to-many, and many-to-many communication in either asynchronous or synchronous modes. This also implies the potential for an interactive manner of communication not possible with traditional analogue forms of cinema and television. Though the institutions of cinema and television have sought to explore the potential of Internet distribution by making their content available online, through platforms such as Hulu and Netflix, they have chosen not to fully embrace the practice of many-to-many asynchronous communication. Instead, the audience of this online cinematic and televisual content is delivered in much the same way as it is offline—as a one-way communication of linear
moving-image content streamed to the spectator. Though evidence of computation does exist on this type of platform, such as content being delivered ‘on-demand’ to one’s computer via the Internet instead of as a continuous electromagnetic broadcast signal, and a user’s experience can be customised to their specific tastes and preferences, it is not reflective of the true potential of Web 2.0.

In Chapter Three, I describe the emergence of the online space, and the impact it began to have on the societies that engaged with it. The system of hyperlinked websites and search engines that is the interface of the Internet, the World Wide Web, began as a reflection of the broadcast culture of the time. That is, online content was passively consumed by the majority of its users, as similar to the way that people were then consuming newspapers, television, radio, and cinema. In the early 2000s, though, the technology that supported the functionality of the Internet improved dramatically. This included a reduction in the cost of hard-drives, an increase in bandwidth to people’s homes, and the improvement in the efficiency of data compression formats and codecs. Web designers soon began to appropriate these technologies in new ways, as they explored the untapped potential of the Internet.

Over time, platforms of online social interaction, such as Facebook, MySpace, and YouTube, were developed that reshaped the public perception and experience of communication via the Web. The passive position of Web users shifted to allow them to also produce content, making them ‘produsers’ (Bruns, 2006). This dramatic shift in online culture provoked a renaming of the Web to reflect this change, and it became known as Web 2.0. Though what Jenkins (2009) calls ‘participatory cultures’, where the public acts as producers as well as consumers (or ‘prosumers’), existed in the offline space well before
the introduction of Web 2.0 platforms and services, it is the latter which fostered the widespread dissemination of their content.

YouTube’s ‘first birth’ (in Gaudreault and Marion’s (2005) terms) saw it touted by its three creators as a ‘digital video repository’, with sharing home movies privately over the Internet being suggested as one of its primary uses. Competing at the time with Google Video and Vimeo, it was arguably the introduction of programmed Web 2.0 affordances, such as video comments and one-click emailing to promote a video, which ultimately gave YouTube the advantage. Subsequently, it was rapidly adopted for global content distribution by existing social groups and communities of practice that supported amateur production. However, during these early years YouTube’s purpose remained unclear, as users explored its potential for new and diverse communication practices.

Perhaps ironically, it was YouTube’s clash with the existing broadcast media networks in 2006 that pushed it into the public spotlight. The illegal uploading of the ‘Lazy Sunday’ Saturday Night Live skit went viral, and highlighted YouTube as more than a site to upload one’s home movies. Indeed, this remediation of televisual content also presented YouTube as a site through which ‘big media’ could reach out to a burgeoning youth audience. The purchase of YouTube by Google later that year confirmed its commercial potential, but only served to exacerbate the growing tension between YouTube’s ordinary users and the arms of traditional media.

As could be expected, Google sought to monetise YouTube through various modes of advertising, effectively exploiting the work of its prosumers for profit. To be clear, Google was not in the business of producing content, but in providing an online social network where users could engage with each other and share their own content. In this, a high number of video views for a
YouTube channel owner equals an increase in advertising revenue for Google. This ‘attention economy’ has upset some of YouTube’s core users (often known as ‘YouTubers’), who protest that commercialisation is not what YouTube should be about. Further, since its purchase YouTube has formed financial partnerships with several notable traditional media networks, such as NBC. Google’s saving grace in this situation is perhaps that they pass some of the earned advertising revenue on to its popular users, who in turn can earn the chance to become ‘YouTube partners’ with special channel privileges. These days YouTube is a functional, if not complementary, mix of user-generated and professionally-created content.

The above is an indication of YouTube’s institutionalisation as a medium, and also of Gaudreault and Marion’s (2005) final stage of medium constitution and rebirth. Further evidence of these are the many legal battles that YouTube has fought over the years, as traditional media companies seek to establish how YouTube fits within the existing, and yet swiftly evolving, understanding of copyright law. This stretches to the concepts of ‘high-lighting’ and ‘remixing’, as amateur content creators appropriate professionally-generated content and rework its meaning—or use snippets of it to inspire online discussion. These acts are new communication practices specific to YouTube and other online platforms, in that they are not available within the realm of traditional cinematic or televisual broadcast mediums. In fact, it is also true that it is not possible to publish user-generated content to the websites of traditional media networks, such as Hulu or Netflix. These, by choice, are sites of professional content distribution, rather than platforms that promote produsage and social interaction.

Chapter Three also explores how the perthbands.tv webpage is quite similar to these ‘big media’ online offerings, in that the videos are displayed as
an online archive where the public can choose one to watch at will. This, together with the ability to pause or stop the video, and adjust the start position, are the extent of user interactivity offered. This makes the perthbands.tv webpage a site for passive spectatorship, much like one would experience when watching a DVD of archived television episodes, which is hardly a catalyst for exploring novel communicative practices. The videos of perthbands.tv were also created to reflect professionally-generated content, being linear in presentation with relatively high production values. This makes them ideal vehicles through which to explore how this type of online video distribution is distinct from that of YouTube’s.

The perthbands.tv YouTube channel contains the same content as the associated webpage, though as indicated previously YouTube is a Web 2.0 platform of social interaction. This implies that YouTube’s technological support affords its users the potential for engaging with unique communication practices, in relation to more traditional models of video distribution. I also see YouTube as the communicative medium whose matching pair is digital video. This is because the expressive medium of digital video can be distributed via YouTube without the need for further conversion. Because of this, I suggest that the matching pairs of film/traditional cinema, analogue video/broadcast television, and digital video/YouTube demonstrate an evolutionary progression of moving image mediums that respectively reflect the mechanical, electrical, and digital foundation technologies.

When a channel owner uploads a digital video to YouTube, further potential for shaping the moving image message can be employed, as what Ryan (Introduction, 2004) calls the ‘configuring action’ of a communicative medium. Activities in this configuring process include permitting or denying the potential for comments, providing the video with a title, description, and/or
tags, as well as modifying or augmenting the video content itself in YouTube’s ‘Creator Studio’. All of these options available to the channel owner act to affect the users’ experience of their videos—from defining the degree of possible interactivity, through ‘anchoring’ (Barthes, 1985) a video’s meaning due to supplied text, to influencing what subsequent video may be chosen to frame the meaning of the first. These are communicative affordances of YouTube that are essentially programmed by the channel owner through the YouTube interface, and many of them serve to distinguish YouTube from the mediums of cinema and television—be they in analogue or digital form.

On setting up the YouTube channel for perthbands.tv, I chose to allow users to comment and vote on the videos. As YouTube comments had been a popular function of YouTube since near inception, it was important to explore its communicative affordances in this regard. As the video content of perthbands.tv did not actively elicit user feedback or engagement, I ultimately did not receive many comments in response to videos on the channel. One episode, however, was contentious enough to incite a ‘flame war’ (Baym, 2010) in its comments section. This imbroglio between ‘haters’ (Lange, 2007) and defenders of the band in question indicated the potential for the comments section of YouTube videos to contribute to the overall content of YouTube itself.

Through making enquiries within the offline participatory culture of local Perth musicians, I established that the band in perthbands.tv episode 19 was not liked by a small number of members of the community. The published episode was thus seen as a chance to ridicule and deride the band in the online space, which the haters did through the comments section associated with the video. What became clear through the flame war that ensued, was that the participants were aware that the medium of digital video can be used to distort the representation of its subjects. That is, the choices made in video editing can
affect the way one’s personality comes across in the final product. Further, the flame war comments indicated that the commenters recognised the power that their comments had in way of creating a context for video watching. That is, they were aware that any comments made could shape the meaning that other users derived from the video, as an example of Barthes (1985) concept of anchorage. In this way, the comments regarding videos on YouTube contribute to YouTube’s overall content. The integration of user comments, in fact, is part of YouTube’s mediation of the message.

Of note is that this type of mediation is indicative of a many-to-many asynchronous communicative affordance. It signifies YouTube user engagement in an ‘ongoing media conversation’ (Manovich, 2008) within a participatory culture. It is also reflective of the fact that YouTube users are ‘produsers’, who are collaborating in the continuing construction of online content which, as a process, has no apparent end. This identifies YouTube as a component of Levy’s (1997) ‘cosmopedia’, as YouTube users discuss and negotiate their understandings of its videos in the shared online global space. These communication practices of YouTube are ones that the traditional moving-image mediums of cinema and television do not offer. This implies the remediation of cinema and television, in that YouTube incorporates aspects of these existing mediums and yet offers new communicative affordances.

Though the institutions of cinema and television often strive to acquire audience statistics to obtain feedback and assist in shaping their future content, they cannot match the complexity and scope that the statistical computational functions of an online platform, such as YouTube, affords. Each and every YouTube user contributes to a wide array of data collected by their site usage. Besides being immensely useful to YouTube’s owners, Google, in shaping the site itself, this data can be used by a channel owner to acquire demographic
information about their audience, as well as to gauge their audience’s response to aspects of the video content itself. From statistics regarding the latter, channel owners can choose to tailor their future videos to more strongly appeal to their audience. In this way, all YouTube users are actually shaping its future content by their viewing practices. For YouTube video bloggers, who are often extremely interested in increasing the appeal of their videos, this feedback in the form of complex statistics is crucial to increasing ones’ subscription and view numbers.

As a moving-image evolution of the online practice of writing a weblog, or ‘blogging’, video blogs are typified by their direct address and personal nature. Different to perthbands.tv video content, video blogs are intended to be ongoing conversations between the vlogger and their audience, as comments and response videos from the latter are actively encouraged—often from within the videos, but sometimes also through in-video annotations. Largely due to the commercialisation of YouTube, the production quality of video blogs has developed over the years. From their beginnings as amateur quality, single-take recordings via web-camera, they are often now a more slick and well-rehearsed, professionally shot and edited, product. Authenticity and interpersonal engagement, however, remain characteristic of video blogs—though in light of YouTube’s attention economy, it could be argued that these days they are employed more as communicative conventions adopted within a specific genre, than a natural state of personal address.

I suggest that the video blog is a new genre of the moving image, in that its communicative practices and conventions can only exist within a many-to-many asynchronous space, such as a Web 2.0 platform. It is not possible for a video blog to exist or function within the technological supports of cinema or television. The affordances of these moving-image mediums simply do not
include this potential, as a legacy from their original foundation technologies and institutions. Though video blogging is not exclusive to YouTube, it is a practice that is indicative of the new communication practices that YouTube affords. This is yet another indication that YouTube remediates cinema and television, and thus can be perceived as a medium in its own right.

In conclusion, this thesis has expanded on medium theory to suggest that the history of communication can be seen as a progression of foundation technologies that each offer at least one new proto-affordance to a society. The introduction of each foundation technology sees it remediate existing mediums, as it facilitates the emergence of new mediums that refashion old mediums by offering new communicative affordances. This model of medium evolution offers another perspective from which to view the digital computer; that is, not as a single medium, but as the technological substrate from which many more digital mediums can emerge. The Internet, of course, as the global network of digital computers, is also key to this, as it is the infrastructure that was designed to support computable communication over distance.

This thesis has also shown that YouTube remediates traditional cinema and television in several ways. This stems from the fact that YouTube can be seen as refashioning these older moving image mediums—both borrowing from them, and yet also adding new communicative affordances that the older mediums cannot offer. Examples of this includes YouTube’s support for new practices of communication, such as user comments, rating, hyperlinking and tagging, and response videos. Upon uploading videos, YouTube channel owners can also configure them with annotations, which promote user interactivity. Further, a YouTube user may contribute to a channel owner’s future content by way of their complex and copious usage statistics. YouTube can offer its users a customised viewing experience, by using statistics to tailor
one’s specific ‘suggested videos’. Finally, YouTube facilitates the new moving-image genre of video blogging through its technological support. As “a medium is that which remediates” (Bolter & Grusin, 2000, p. 65), from these examples one can see that YouTube can be considered a medium in this regard.

Finally, one of the central concepts within this thesis is that of ‘medium rebirth’ (Gaudreault & Marion, 2005), as the process of new medium appearance, emergence, and constitution—with the latter very much tied in with a medium’s institutionalisation. It is clear that YouTube indeed progressed along this path, as it was born influenced by the popular Hot-or-Not websites of the time. YouTube’s creators also initially promoted it as a home-video sharing repository, as a reflection of the digital and networked incarnation of an existing cultural practice. As its users continued to experiment with its unique potential for communication, though, it was the uploading of a snippets from broadcast television near the end of 2005 that arguably brought YouTube to the world’s attention. This increased YouTube’s public usage, indicated possible links to ‘big media’, sparked the need for legal intervention, and was likely the first step towards Google’s purchase and subsequent commercialisation of the platform nearly a year later. Just like many mediums before it, then, YouTube was reborn as a singular digital medium.

This thesis builds on existing medium theory to suggest that the concept of the ‘medium’ can be extended into the online environment. It does this through presenting digitality as a distinct jump in technological evolution, but in the same way that the introduction of the machine and electricity were. It is through their new ‘proto-affordances’ that each of the latter ‘foundation technologies’ also brought about their own specific periods of new media. This model of medium evolution establishes the prospect that online digital interfaces that afford new practices of expression and communication can be
deemed new mediums. It also implies that further foundation technologies, and hence periods of new media, may exist, now and in the future.
APPENDIX A: perthbands.tv
*perthbands.tv* is not a product, but a concept.

It had a beginning, but has no anticipated end.

Though its roots are in YouTube, it has no one specific online or offline location, but exists wherever it finds a niche to support its accessibility.

In this appendix, I will briefly outline the creation and development of *perthbands.tv* and the major distribution outlets that it has lent itself to over the six years of its existence. I will also describe how best to engage with *perthbands.tv* as a production appendix of my PhD thesis.

**Beginnings**

I spawned the idea for *perthbands.tv* as the creation of moving-image medium content themed around the Perth local original music scene, with the idea of this content being distributed via the Internet. Having spent many years as a local musician, as well as creating music videos for successful local Perth bands, I am well versed in this scene and have many contacts in the local Industry. I am also familiar with the intricacies involved with covering live music performances with multiple video cameras and the synchronised video mixing that is subsequent to this process.

As to exactly what form the concept of *perthbands.tv* would take—I initially could not know. My previous experience with creating moving-image medium content was for television or cinematic presentation and distribution, and I wasn’t really aware of what differences I might encounter when producing the same for the online environment. In early 2008, my research into the potential for an online local music channel began.
Existing Websites

As I realised that the core of the publicly accessible Internet is an interlinked system of webpages, I envisaged that *perthbands.tv* would have a website as its nucleus. Investigation commenced by scouring the web for sites that had music performance related themes—particularly those that presented streaming video content to their audiences. Most of the websites that I discovered provided a multiplicity of audience engagement. This included news articles, photographs and sometimes videos, reviews of CDs and gigs, as well as a community forum for subscribed members of the website to discuss pertinent topics and debate community issues. A perfect example of these websites is *www.pitchfork.com*, which is a long-standing and well-populated US based music website. It became clear from this study that the focus of most music websites was to create an online community of music appreciators who revelled in being an audience to the variety of music-related content, but also who desired an avenue to synergise with like-minded individuals.

The website model that was applied to *www.pitchfork.com* appealed to me, as it was one of the only music websites delving into video distribution with videos that included live band performances shot with multiple cameras interspersed with interviews with the band members themselves. This aspect of the *pitchfork.com* website was appropriately called *pitchfork.tv*. Even so, the videos on *pitchfork.com* were presented in a way that also reminded me of television on demand. An archive was present that you selected a video from and you watched the chosen video as a spectator. In my speculative mind there had to be more to online video than this. I was sure that the new online moving-image medium could not just be short-form archived television episodes, and was determined to find out what more it actually was.
I am a traditional screen producer. I specialise in working with devices that acquire moving images as representative of a specific point in time and space. I then edit and manipulate these to create moving-image medium content. The limitation of this is that I could not create a music website and online music appreciation community myself, as neither Web design, nor database creation, are part of my skillset. As such, I set out to find an existing online music community that was lacking moving-image medium content. I would then use this as a platform upon which to disseminate my video productions.

The physical community involved would necessarily be situated in Perth, Western Australia, as this was the city that I lived in and thus could produce medium content about. There were a few community-based music websites pertaining to the Perth area and local industry, but one stood out: www.perthbands.com. This website includes local music news and reviews and has an extremely active forum populated by individuals with passionate views on emerging local independent talent and the bands that participate in the independent (i.e. not signed by a record company) genre. It was my hope that this website would provide me with an attentive audience for the content I wished to produce.

My list of goals for perthbands.tv did not include competing with existing creators of online moving-image medium content regarding well-known musical performers. I did not want to merely attempt to create another pitchfork.tv. To begin with, I did not have the initial capital to inject into such a project, nor access to highly qualified staff and trained crew to support it. Secondly, I wanted to provide a local physical community with online video content of its own local independent bands. This would allow me to be
immersed within the community that I would be accessing the bands from, and providing the content directly for, and thus have a much more direct and symbiotic relationship with both. Forging a relationship with the website perthbands.com provided me with this, and it is my belief that my experimentation with creating online video content benefitted me much in this regard.

Figure 7: The perthbands.tv Web Page

Entering into a dialogue with the owner/manager of perthbands.com, Craig Harman, regarding the potential for augmenting his existing site with moving image content proved successful. Craig was willing to establish the virtual infrastructure upon which to launch the video content, and I would be responsible for the content creation and publishing. On these good terms we strove to further elucidate the most effective plan of action. perthbands.tv was all but born.\(^{20}\)

\(^{20}\) A full still image file showing the original scrollable perthbands.tv webpage can be found on the storage media accompanying this thesis.
The YouTube Channel

It was decided that Craig would create the interface for presenting the growing archive of *perthbands.tv* videos seamlessly within the existing *perthbands.com* website. This is very much the way that websites such as *pitchfork.tv* present their videos. There was, however, one major difference in the way that Craig and I decided that we would handle the hosting of the upcoming *perthbands.tv* episodes. Due to the potentially high cost of using server space that we would have to pay for ourselves, we decided to capitalise on the webpage embedding potential of YouTube hosted videos. In effect, starting a *perthbands.tv* YouTube channel and uploading our videos to that meant that we could embed the resultant YouTube videos into the *perthbands.tv* Webpage directly.²¹ Our videos would hence inhabit two online ‘spaces’ at once: on the *perthbands.tv* webpage and on the *perthbands.tv* YouTube channel. This increased our potential distribution over and above the existing *perthbands.com* members via YouTube audiences performing direct band searches, random YouTube surfing, or choosing *perthbands.tv* episodes from the suggested videos on a YouTube page should they show up.

The direct link to the *perthbands.tv* YouTube channel is below:
https://www.youtube.com/user/perthbandstv

The Emergence of a Research Question

It was at this point that I realised that the research potential of hosting the *perthbands.tv* content on YouTube, and subsequently embedding these videos into the *perthbands.tv* webpage: it provided me with two online distribution modes to compare. My interest was piqued as to how my

²¹ The *perthbands.tv* YouTube channel leaves the full-stop out, so it becomes *perthbandstv*. The reason for this is that unfortunately YouTube did not allow full-stops in the names of its channels at the time I set up the *perthbands.tv* account.
experience as a content creator and publisher with one would differ from the
other? Also, how would the audience experience differ from one to the other?
These questions became even more prominent when I considered that I would
be creating video content in the style of broadcast television. That is, what signs
of expressive and communicative ‘newness’ would become apparent
throughout my content creation, manipulation, and distribution stages?

As I discuss at length in Chapter Three, the perthbands.tv webpage is
much more like a traditional website that offers content for its audiences’
viewing pleasure. In many ways it is like archived broadcast television, in that
viewers cannot add to or change the content in any way. The perthbands.tv
YouTube channel, however, provides its audience more alternatives for
interaction. In fact, its audience are permitted to transcend the position of
spectator, and contribute to the content by way of votes, comments, and usage
statistics. Further, they can also embed the perthbands.tv episodes on other
webpages outside of YouTube.

I realised not long after I began uploading completed perthbands.tv
episodes to the perthbands.tv YouTube channel that this last capability provided
a further benefit in terms of distribution. This was that anyone could embed any
of the perthbands.tv episodes into any webpage without consent or authorisation.
I subsequently began encouraging bands to embed their specific episode into
their own webpages, MySpace pages, and Facebook Groups. Not only did this
mean that any views of these embedded videos would register for statistics on
the perthbands.tv YouTube channel, but also that double-clicking on the
respective video would take the viewer straight to the YouTube page that the
video was embedded from—essentially, straight to the perthbands.tv YouTube
channel itself. The number of online places that the perthbands.tv episodes thus
inhabited was increasing with the publication of every single episode.
Currently there are twenty-eight \textit{perthbands.tv} episodes published on YouTube and these have attracted more than 60,000 views since inception.\textsuperscript{22} There are over 150 subscribers to the \textit{perthbands.tv} YouTube channel, and despite the fact that no new content has been uploaded for over four years, the videos still attract around 10 individual views per day. Because its content was getting stale through not being updated, and it was in a public space, I decided to shut the \textit{perthbands.tv} webpage down mid-2014. The video content and images related to this page, though, can be found on the storage media associated with this thesis.

\textbf{Figure 8: The \textit{perthbands.tv} YouTube Channel}

\textbf{The Need for a Watermark}

Early in the planning stages of the \textit{perthbands.tv} concept I recognised that the video content might eventually become detached from the \textit{perthbands.tv} YouTube channel. I had witnessed this happening to video content all over the

\textsuperscript{22} This does not include \textit{perthbands.tv} Episode 19 that I eventually had to remove from public view. I explain the reasons for this in detail in Chapter Three.
Internet, and recognised that if a viewer stumbled across a perthbands.tv video on another website, or even on a Facebook or MySpace page, they may never appreciate that its parent webpage was perthbands.tv, or that its parent website was perthbands.com. Of course, clicking on the ‘YouTube’ logo on the video would take them to the perthbands.tv YouTube channel, but they still may never find the core website and associated online forum community from there. To address this problem I followed a fairly standard practice for distributing video online and embedded a perthbands.tv watermark on every episode. This essentially created a perthbands.tv brand, and linked all the content back to the two overarching distribution sources: being the perthbands.tv YouTube channel and the perthbands.tv webpage.

iTunes Vodcast and RSS feeds

From the inception of perthbands.tv, it was obvious that video podcasting (often called “vodcasting”) was another online distribution process that I could choose to experiment with. Podcasting is a process where the audience can subscribe to being automatically notified when a new episode of an audio or video series is available. From there the new video can be automatically or manually downloaded for viewing. Vodcasting cannot be achieved through YouTube video embedding or linking, so I secured space on a Murdoch University server that would support the vodcast episode downloads. Craig from perthbands.com installed a rich site summary (RSS) feed link on the perthbands.tv webpage so that users could subscribe to the feed, as well as a link for iTunes podcasting. Though the perthbands.tv vodcast options have also recently been discontinued, as the content was becoming stale through lack of updates, in iTunes perthbands.tv vodcasts could previously be found by searching for ‘perthbands.tv’ in the ‘iTunes Store’ section. The vodcasts could
be watched within iTunes itself, on an iPhone, on an iPad, or on any other vodcast compatible video player.

Figure 9: The perthbands.tv iTunes Vodcast Page

**The Facebook Group**

In 2008 Facebook overtook MySpace to become the world’s largest social networking site (Schonfeld, 2008), so it was only natural that I would explore this option for distributing the perthbands.tv video content. I established a Facebook Group that I named, of course, perthbands.tv, and explored the potential that Facebook offered in distributing video. Essentially I had two options within Facebook: I could either upload the videos directly to the Facebook server or, once again, embed the YouTube video into the Facebook Group page. The main issue with doing the latter at the time was that when chosen to view, the video displayed in quite small pixel dimensions in the Facebook Group page. I preferred the size of the video (and even the compression quality) that would result from a direct upload to the Facebook
server, and so ultimately chose this method of presentation for the earlier videos.

Making the choice to upload perthbands.tv videos directly to Facebook denied me the ability to obtain statistics on episode views, or for viewers to automatically click through to the YouTube channel, which I realised later is quite detrimental to an online medium content producer. Shortly after I started publishing perthbands.tv videos, YouTube increased the quality and pixel dimensions of their videos. Consequently, I began embedding the YouTube perthbands.tv episodes into the Facebook Group webpage, instead of uploading them to the Facebook servers. Though it is no longer updated, and hence its 246 strong membership has dwindled over the last several years to two, the perthbands.tv Facebook Group still displays all twenty-eight of the publishable perthbands.tv episodes.

Figure 10: The perthbands.tv Facebook Group
The link to the perthbands.tv Facebook Group is below:
https://www.facebook.com/groups/181913895345

**Spinearth.tv**

In May 2009 I was asked by global music magazine *SPIN* to feature some of the best perthbands.tv videos on their then emerging video website: www.SPINearth.tv. The website is now defunct – for reasons unknown to me – but at the time I uploaded eight video episodes with accompanying promotional photos, mp3 sample tracks from the bands, and a 200 word write-up. The only option for presenting videos on SPINearth.tv was to upload directly to their servers, which once again denied me the ability to view statistics of video access and viewing. The chance to have the perthbands.tv content distributed on a global website, and have our watermark visible to the global market, was too promising to refuse. Some months later the perthbands.tv videos were being watched by a worldwide audience—however modest it may have been in size.

**Northbridge Piazza**

In June 2010 I was approached by a representative from the Northbridge Piazza in Perth, Australia, and asked if I would consider allowing them to screen the perthbands.tv episodes. The Northbridge Piazza is a public space created as a commercial, cultural and creative hub for Perth, and has a permanent outdoor LED screen. I provided the perthbands.tv episodes to the curator of the audio-visual presentations on the LED screen and they have been presented there ever since on various occasions.
**Northbridge Plaza**

As part of ongoing enhancements to Northbridge, the City of Perth has completed a new public space on the corner of Lake and James Street – The Northbridge Plaza. This landmark site in the heart of Northbridge was officially opened on 28 October 2009. It is to be a major commercial, cultural and creative hub acting as a destination for families and visitors by as well as a venue for large-scale cultural events.

The Piazza is framed by the new multipurpose community building, a versatile stage, an outdoor LED screen and an illuminated 6 metre high feature ‘Green Wall’. The space has been flexibly designed to encourage community use for performances, exhibitions, festivals, sporting events and other cultural activities. Perth’s first permanent LED screen is a major attraction, operating 24 hours a day and showcasing a variety of features such as films, creative presentations, sport and music.

One of the unique features of the Piazza is the distinctive Kimberley Stone paving, which stretches across the road and connects with adjacent al fresco dining areas that spill into the space, adding ongoing life and vibrancy. With these supplying shade and atmosphere, the curved steps and low walls of the Piazza provide informal seating which is ideal for everyday use. The more ‘public’ distributed throughout the space not only offer seating, but also become a night-time feature when they are illuminated an efferescent blue after dark.

![Northbridge Plaza](image)

**Figure 11: The Northbridge Piazza**

*perthbands.tv and Thesis Examination*

The YouTube channel for *perthbands.tv* currently consists of over two hours of online video content in serialised band interviews and live on-stage musical performances. Thankfully, it is not necessary to watch every second of the *perthbands.tv* video content, or read every one of the comments on the twenty-nine video pages, in order to examine this thesis. This is because the thesis is not primarily about the particulars of the content associated with *perthbands.tv*, it is about the *perthbands.tv* webpage and the *perthbands.tv* YouTube channel as online digital interfaces that support moving image communication. Further, it is about the communicative affordances that both these technological supports offered myself, as well as the other individuals online who chose to engage with them.

Though I do refer to some aspects of digital moving-image content creation—and certain features of the content on the YouTube channel—within this thesis, it is only the characteristics that I specifically identify, detail, and
discuss throughout this text that an examiner need engage with. In fact, one
could examine this thesis without access to the perthbands.tv video clips, the
perthbands.tv webpage or YouTube channel, or even the Internet. Though my
experience of creating and publishing the perthbands.tv content was crucial to
my experience and subsequent understanding of how YouTube is placed within
contemporary visual culture, the details of these findings are clear within this
document’s written text and embedded still images. Needless to say, if an
examiner does wish to peruse the perthbands.tv content in more depth—be it by
inspecting the content on the storage media accompanying this thesis, or by
trawling the depths of the perthbands.tv YouTube channel—they will only
achieve a greater understanding of the methodology underpinning this
research.

**How to Experience perthbands.tv**

Of course, when it was active, the perthbands.tv episodes could have been
viewed chronologically from start to finish from within the perthbands.tv
webpage, but this would not have fully captured the true essence of
perthbands.tv. This is because perthbands.tv is more about the many and diverse
mediums through which it can be experienced, than it is the videos themselves.
To really experience what perthbands.tv was like when it was in full swing, one
would need to participate in the various interactive and engaging
communicative practices available to audiences within each of the mediums
where the videos currently reside, or have been hosted by previously.

As part of this exploration into perthbands.tv as an overarching concept,
ideally one would read all the YouTube comments that accompany each
episode; in particular, the many heated and defamatory comments that were
submitted for the infamous, and now hidden, *perthbands.tv Episode 19*. Posting a comment or two while doing this would offer an even better perspective of what *perthbands.tv* actually is. In times past one could then also have located and subscribed to the now inaccessible *perthbands.tv* iTunes vodcast page, and downloaded the vodcast for at least one episode. Joining the *perthbands.tv* Facebook Group, and flicking through a couple of the episodes on there, would give one a feel of the potential for communication in that particular space. Comments could also be written in the Facebook Group, and when the membership was high one might have eventually received a reply to those comments.

If it was possible to make one’s way down to the Northbridge Piazza in Perth, one could then sit and watch a few videos on its huge outdoor LED screen. The videos currently screened will likely not be *perthbands.tv* episodes, but one would get an idea of what it would have been like watching these in that more traditionally-cinematic space. Of course, a complete experience of *perthbands.tv* would not be possible without accessing the *perthbands.com* discussion forum, doing a forum search for ‘*perthbands.tv*’, and reading what is written there about the episodes. Some comments are scathing, some discussions are inane, but all are part of the medium content surrounding, and yet also constructing, *perthbands.tv*.

Finally, for an even deeper delving into what *perthbands.tv* really is, one should type ‘*perthbands.tv*’ into the Google search page and start following the links that are returned. Even recognising the variety of webpages that come up with references to *perthbands.tv*, or with actual episodes embedded, indicates how deeply integrated within the online distribution environment of the World

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23 This episode cannot be viewed on the public *perthbands.tv* YouTube channel, as it has been made private. Examiners can view this video on the storage media accompanying this thesis.
Wide Web *perthbands.tv* still is. Undoubtedly, it would be very difficult for me to remove every trace of *perthbands.tv* from the online space, even if I wanted to. Though its search engine references are slowly getting buried under more recent content about Perth bands, and the number of platforms and modes of its initial distribution are slowly diminishing, *perthbands.tv* has been adopted by, and converged with, enough other online content to see it continue to exist for some time—perhaps as long as the World Wide Web does.
APPENDIX B: YouTube comments for
perthbands.tv Episode 19

(Please note that YouTube comments need to be read from bottom up to appear in chronological order)

- Hey peeps. Respect.
  Gotta say I'm surprised to see the bitchin bout this clip.
  My Nanna use to say; if you aint got nuthin nice to post, for what reason would you waste your time doing so?
  They're young, passionate lads with a dream - trying to sell themselves the best they can.
  Isn't that what being a musician is all about?
  Let's all just support each other, eh?
  JM [johnnymac001] 11 months ago

- so, they are that bad that they get to support them crooked vultures???WOW ...how does that work? time to retract ya comments all you downers... [partywithclair] 1 year ago

- hahahahahahahahahahaha [smubblie] 1 year ago

- great band live great songs and good guys, thats all that matters. [youmeandryan123] 1 year ago

- Hey RicketyJoe, JasonSpearman1 and the rest of the losers who spend their time ragging on people that work hard to get where they are, show me your band, let me see your interviews, no? [youmeandryan123] 1 year ago
  Thought as much.and IceMunga, I know them too, and the interview was edited hard, they didn't control that.next time I see Corey I'll ask to borrow his belt buckle JasonSpearman1, sure I can find something far more useful for it then your idea.Corey has plenty to the offer the world, your tiny mind, not so much mikkittease8170 1 year ago

- Comment removed [rockmeization] 1 year ago

- These negative posts sounds like tall poppy syndrome, try hards who can't cut it in the industry because they don't have what the novocaines do to persist and wait for it to pay off just can't deal their talent and success [caroline4t] 1 year ago

- Comment removed [JasonSpearman1] 1 year ago

- Wow!!! Do u people not have anything better 2 do with ya lives than dribble absolute shit!!! no, it is you spineless wank stains that i feel sorry for not the novocaines. the caines dont need to prove themselves to any of u. they just enjoy doin wat they do & there r a few other people out there that enjoy them too - me included. how about u all go and do something useful with your time - like become as passionate as corey is about something!!!!! and i promise i wont bag you!!!! get a life! [partywithclair] 1 year ago

- absolutely a fucking great live band! keep it up novocaines. the more people talk about you, the more publicity u will get. these dikheads who are trying to bring you down dont realise that its all backfiring. so fuk em! [chazverm21] 1 year ago

- Yeah man, if we can get this video up to 2000 hits I hear they'll get a record contract!!! Go Caines! [TheSpitfiresBand] 1 year ago

- nice one RicketyJOE [spaghettihamburger] 1 year ago

- "... just look at their live clips in this! 
  The live clips are the most difficult part to stomach! [cheesekransky] 1 year ago

- Hi, you've reached the Corey hot-line. $4.95 a minute. Here are some words that rhyme with Corey: Gory. Story. Allegory. Montessori. [RicketyJOE] 1 year ago
• try hards [JasonSpearman] 1 year ago

Its just soooooo eassssssyyy.
Hahaha these guys are a fucking joke, and its offensive them being compared to as Iggy Pop. Fucking rubbish.... [kprowie] 1 year ago
• Sounds like to me a lot of bands that can't get gigs use youtube to slag off good bands KT RUMBLE Kirktrumble 1 year ago
• PS id love to rip that disgusting belt buckle off the singer and beat him with it. [JasonSpearman] 1 year ago
• just throwing it out there but im getting the impression the majority of the comments defending this pack of losers are actually coming from the band themselves. its pretty funny they proclaim themselves as "successful" considering they do fuck all. the only thing they can probably lay claim to is being one of the ugliest bands in australia. (bass player and guitarist especially) [JasonSpearman] 1 year ago
• this would be fucking hilarious if it weren't so goddamn depressing that people like this exist. [spaghettihamburger] 1 year ago

• longevity []
soul []
honesty []
third place is the best thing for any band ever []
shit, delusional band [X] [inisisbuzkill] 1 year ago
• these guys are great!! i dont care if this interview is bad. i heard an interview with these same two guys on triple j and they seemed funny and friendly. and there songs are unreal! everyone needs to chill out a bit. its obvious that the few guys writing the mean comments have personal issues with the band. get over it and stop trying to tarnish the novocaines just because your own band wont take off...
• What on earth is with all these mean comments? Sure I'll admit this interview comes off a bit awkwardly, but seriously... a lot of these comments come a cross as trolling to me. I know the drummer fairly well and he's an awesome guy and I love their music... just look at their live clips in this!

• There is no way these guys are serious.
Who are they trying to be? These guys are an embarrassment to the Perth band scene...you guys are a P*cking joke.
Third place is the best place for a band?? Is that what your mum and dad told you to make you feel good about yourself?
1983icequeen...pretty sure these guys would have no chance of stealing anyones girlfriend...
• Ricketyjoe - you're a tosser. F*ck off.
these guys are probably the best live band in perth. their songs are awesome and the guys are so nice. stop trying to slag on them and gt over yourself [chazverm21] 1 year ago
• RicketyJOE is pointing out things in the interview because that's what people do when they watch interviews. It is true, they love themselves too much.
"we are the most entertaining band in australia" is so damn arrogant I actually laughed my arse off. How can you compare your entertainment over a whole nation...

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Some of these guys are real dicks to people behind their backs, I know what they’re like. IceMunga 1 year ago

- These guys are like the used car salesmen of rehash Rock N Roll.
  I just don’t believe a word they say. mugwump1234 1 year ago

- Comment removed claudiacukrov 1 year ago

- Hahahaa dude I think you’ve missed the point as to why this clip is funny. And in actual fact rather than disrupt my sleep pattern all this clip has done is provide endless hours of entertainment for my friends and I. Derrrr. RicketyJOE 1 year ago

- Rickety Joe.
  Are you having a hard time sleeping over this clip because it seems you are.
  What happened did this band steal your girlfriend? not ask your band to support them?
  Your examining this clip awful hard, isn’t the nobel prize written speech.
  hope your sleeping pattern gets better soon. 1983icequeen 1 year ago

- There is no percentage of time that we are not all together? Does he realise this makes no sense? What about when you’re at work? Or taking a dump? Or masturbating? Actually when I think about it I have no doubt that you all together when you’re masturbating. RicketyJOE 1 year ago

- I LOVE THIS BAND <<<3 charlottejane0 1 year ago

- "Oasis were confident/arrogant - shame they never went anywhere huh?"
  or if this is a parody.. classic..
  either way i love their songs. 1983icequeen 1 year ago

- Great reply to the attack of the "not getting question"
  F-ck perth bands constantly killing whats so good in their own soil to gain publicity. YOU SHOULD BE ASHAMED.
  Lucy suitablesuiter1 1 year ago

- Rough interview, but rekon its been edited rough. Great live band though. Sean silversteed0 1 year ago

- This is a parody right? like a sketch? These are actors pretending to be douches thinking they are gods gift to the music scene?
  You felt like an outcast because you didn't play football? You're a lil bit sensitive arent you?
  "we're a very very entertaining live band” Jay gets hand off appendage.
  “very very few bands are as energetic bands as us”
  Just a few douchey comments made by the lead douche.
  Bravo. ThePunka83 1 year ago

- These guys are so funny - fucking love how far up their own arses they are. hpk123 1 year ago

- These guys are total faggots. RicketyJOE 1 year ago

- thats an insult to homosexuals. ThePunka83 1 year ago
APPENDIX C: Contents of accompanying storage media

The videos on the storage media accompanying this thesis are listed below in alphabetical order. For ease of viewing and storage these videos are not of high quality, but are identical to the quality viewed by most people on the perthbands.tv YouTube channel.

Note that there is also a still image file in the folder named ‘perthbandstv webpage’ that reflects the original scrolling perthbands.tv webpage.

perthbands.tv episode 1 – Kill Teen Angst
perthbands.tv episode 2 – Blac Blocks
perthbands.tv episode 3 - Gilroy
perthbands.tv episode 4 – Capital City
perthbands.tv episode 5 – Tame Impala
perthbands.tv episode 6 – Russian Winters
perthbands.tv episode 7 – Injured Ninja
perthbands.tv episode 8 – Harlequin League
perthbands.tv episode 9 - Project Mayhem
perthbands.tv episode 10 – Schvendes
perthbands.tv episode 11 – Red Jezebel
perthbands.tv episode 12 – The Scotch of St James
perthbands.tv episode 13 – The Silents
perthbands.tv episode 14 – The Ghost Hotel
perthbands.tv episode 15 – Apricot Rail
perthbands.tv episode 16 – Mile End
perthbands.tv episode 17 - The Sure-Fire Midnights
perthbands.tv episode 18 – Blackmilk
perthbands.tv episode 19 – The Novocaines (not on YouTube channel)
perthbands.tv episode 20 – The Spitfires
perthbands.tv episode 21 – The Devil Rides Out
perthbands.tv episode 22 - Extortion
perthbands.tv episode 23 – French Rockets
perthbands.tv LIVECUT 1 – Harlequin League – Syndrome Expatri
perthbands.tv LIVECUT 2 – Red Jezebel Wide Open Spaces
perthbands.tv LIVECUT 3 – The Floors @ Mojos Bar
perthbands.tv LIVECUT 4 – Bonehouse @ Chainsaw Horror
perthbands.tv LIVECUT 5 – The Joe Kings @ Mojos
perthbands.tv LIVECUT 6 – Tracksuit @ Mojos
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Hitchcock, A. (Director). (1948). *Rope* [Motion Picture].


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