The remote control and television’s history of the present

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Television’s present is a dangerous intersection of pasts and futures. While the global media economy is consolidating around the power of broadcasting businesses, unresolved industry and policy arguments reflect different understandings of television’s trajectory and its history. The recent fiftieth anniversary of television broadcasting in Australia provides an example: alongside the familiar tales of nation-building public services, pioneering broadcasters, and all-conquering networks, a number of alternative paths can be plotted through the last half century, tracking the gradual decline of broadcast television, the emergence of the viewer as a new social and cultural subject of television history, and the flow of innovation from mainstream broadcasting to the fringes of the audiovisual system. Together with these narratives of past and present, competing images of television’s future also shape commercial and policy debates. Broadcast television remains a remarkably inventive and adaptive medium, and it now looks to the Internet and telephony for models of interactivity, and to cinema and the DVD for advertising and home entertainment. Adaptation is vital for any evolving medium, but the transition to digital broadcasting has revealed new planes of cleavage across the industry.

What sort history might be useful for understanding television’s multiplicity of competing futures? This paper revisits the remote control as a central material artefact in a revisionist television history. My argument is that the remote control can now be understood not as an accessory device, peripheral and functionally unnecessary in the television broadcast system, but as a distinct, proliferating technology for television use, and one that has an important place in the continuing attempts of users to organise and control television. The remote has played and is playing a critical role in slowly detaching television from broadcasting. From the wonderfully simple, iPod-like integration of function and content in early television receivers, the hardware and software of television have diverged into a multiplicity of boxes, applications, and sources of content. This divergence was preceded and made possible by the gradual physical disconnection of the remote from the television set – despite early wireless models, it was not until the 1980s that wireless remotes became standard household items.

We can start with a simple point: the digitisation of broadcasting is not the same as digital transformation of television. The first is familiar to scholars as the recent focus of media policy and politics, but the second is an older, longer-running and more diffuse cluster of transitions, commencing with a sequence of advanced television technologies which began to appear decades before the faltering new channels of the millennium. That sequence, beginning with the infrared remotes of the 1970s — possibly the first digital devices built into a significant number of television receivers — and including teletext systems, games consoles, laser disc players, and programmable VCRs, was by no means wholly successful, but may in the long run prove more consequential than digital transmission. While digital broadcasting has
rightly been a critical topic for television scholars over the last decade, many writers see it as ultimately an effort to defend broadcasting’s once central position in home entertainment. At the same time, the remote is interesting as a technology which seems to be simple, but has never completely succeeded. Its failures and frustrations are as telling as its slow triumphs. Remotes have had a major impact on television, but still cannot simply and effectively control it.

It is not novel to suggest that the remote control is an important element in the experience of contemporary television; extensive debates were generated in the 1980s and 90s by the diffusion of the television remote control and its related technologies, especially video cassette recorders. Several critical scholarly issues emerged: How often were remotes being used, and in what ways? Who clicked the clicker? How did the remote control change the family viewing experience? How did the remote change the way people watched television, especially when it was combined with the VCR? Did viewers watch programmes, or channels? In the language of 1990s television research, the remote was interesting because it allowed viewers to do new things: ‘zipping’ (fast forwarding through recorded content), ‘zapping’ (switching channels), and ‘hopping’ or ‘grazing’ (creating a mix of content from a sequence of sources).

Gauging the impact of these activities in a rigorous way proved difficult, with very few studies able to provide a fine-grained picture of what a significant number of viewers actually do with remotes. Counting the number of channel changes, or the number of ads zipped, has not proved particularly informative, and results are hard to interpret because researchers have used many different ways of measuring remote control use. The US television scholars Robert V. Bellamy and James R. Walker produced a comprehensive analysis of the academic and industry research on remote control effects in their 1996 book *Television and the Remote Control: Grazing on a Vast Wasteland*. Bellamy and Walker’s overall analysis of dozens of studies produces several broad conclusions about user activity. Viewers with remote controls did change channels much more frequently than those without; some commercials were zapped much less than others; zipping ads in recorded programmes was very frequent; and the more television technology there was in a household, the more likely viewers were to use it to avoid ads (Bellamy and Walker, 24–45). As an aggregate picture, findings of this sort could both comfort and disturb broadcasters. We now know that none of these activities seriously compromised the broadcasting business model. Zipping was not a profound problem, because only a small minority of viewers actually used VCRs to record a substantial amount of content — a result that could be attributed both to the multiplying attractions of broadcast television in this period, and the limited usability of VCRs. Zapping also was not a disaster: it turned out that although viewers changed channels more often, that did not mean they watched significantly more channels (Ferguson, 1994), or that they zapped much in the middle of programmes (Neuman, 1991).

Even so, for industry analysts, broadcasters and scholars, remotes were and remain a source of deep ambivalence. For Bellamy and Walker, the remote
heralded a second television generation, enabling passive viewers to become active users of television. But for them the terrain of the remote was still the ‘vast wasteland’. For viewers, remotes clearly add to the overall pleasure of watching television — at least for those viewers who do get to click the clicker — and probably increases the amount of time people spend watching TV. In 1994 a US study of 46 students deprived of remote controls for a week reported a mean deprivation score of 5.65, where 8 was ‘extremely deprived’. Without the remote, these viewers found television less informative, relaxing and entertaining, and 31 out of the 46 cheated by using their remote controls during the week (cited in Bellamy and Walker, 114). In the marketing of consumer electronics, remotes are presented as marvellous, if very basic, conveniences, saving viewers the trouble of rising from their seats to change the channel or turn down the volume. They thus contribute both to the much-celebrated empowerment of viewers, and to their much-worried-about immobilisation. In academic research and media industry comment, there is also a double edge of this sort to much of the analysis. Remote controls are taken to be ‘subversive technologies’, shifting the balance of control from advertisers and broadcasters to viewers, with the qualification that some viewers, especially men, control the remote much more than others. ‘As the male of the family I believe it is my right and duty to monopolise the remote control’, says a 38-year-old self-employed caterer in David Gauntlett and Annette Hill’s study of TV Living (1999: 243). Gauntlett and Hill note this remark with due seriousness.

More ambivalence: on the one hand, the remote, together with the VCR, is often presented as potentially undermining the broadcast business model, simply by enabling the viewer to avoid advertisements. On the other, these devices have clearly sparked new business models and new ways of engaging audiences. Even without a time-shifting revolution in viewing, the VCR had dramatic and wide-ranging effects on audiovisual trade (O’Regan, 1991). On the other hand, the remote and other new television technologies have encouraged innovations that increase the density, flow and velocity of programming and production: fewer breaks between programmes, strong lead-ins to ‘front load’ drama, the parallel running of credits with previews, and the demographic shaping of programme sequences. The remote has encouraged all sorts of experiments and stratagems on the part of broadcasters, advertisers and program makers to attract viewers’ interest and then keep them watching. Producer Steven Bochco memorably described the challenge of the remote in a 1991 interview in the US trade magazine Broadcasting:

The competition is fierce. Viewers are fickle. They sit there with their zapper, and they can access 50 channels without getting up off their behinds. And if they don’t like what you’re doing, then in 90 seconds you’re history. And they don’t come back because there are just too many other things to access. And in that climate, I can’t imagine a fresh idea not generating interest. Zapping doesn’t bother me. It’s a complete waste of time for any of us to bemoan what once was. Besides, I’m one of those guys that sits there with the zapper clicking through those channels. And you better grab my ass fast or I’m looking for the next ball game, you know? (Bochco, 1991, quoted in Eastman and Neal-Lunsford, 1994)
One of the difficulties with research in this area is that it often assumes a somewhat static television environment and user base. Remote controls themselves have changed and multiplied over the last twenty years (and are continuing to change), so studies concerned primarily with channel changing or zipping no longer describe some of the key things that people may now do with them — controlling DVD players, navigating electronic programme guides, or pausing broadcast television through a hard disk recorder. Certain images of television viewing persist in industry and academic analysis. The issue of whether people watch programmes or channels is an example: US media analyst Timothy M. Todreas writes that “In the end viewers will select a handful of dominant brands for two main reasons: viewers are ‘couch potatoes’ and they graze channels in herds. People are lazy when it comes to media.” (Todreas 1999, p. 178). The “who clicks the clicker” question is another instance, a staple preoccupation of social studies of television, even as recently as the 1999 TV Living study. The issue is clearly of interest to media sociologists, but its importance seems to be mainly related to the dynamics of family television viewing, a practice which may no longer be dominant as television hardware has multiplied in Australian houses. (According to the Australian Communications and Media Authority, Australian households now contain an average of 2.3 television sets (ACMA 2005)).

This article is a postscript to the remote control debates of the 80s and 90s, not because it disputes the diverse consequences of the remote so extensively researched over the last two decades, but because the research of that period was essentially preoccupied with understanding the remote as a social and economic instrument operating entirely within a broadcast environment dominated by free to air television, cable or satellite, and the VCR. Bellamy and Walker’s argument is that the freedom the remote offered viewers in an era of cheap VCRs and proliferating services is likely to be proved transitory: governments have encouraged a consolidation of media industries, and real choices for viewers are likely to diminish. That issue reappears later in this paper; the more immediate problem with their analysis now is the characterisation of the remote as a mediating technology between viewers and broadcasters. The remote control did indeed become functionally integral to broadcast television, allowing users to zip and zap between programmes and channels, but it now also enables viewers to switch between different sources of audiovisual content, including free to air, subscription and pay per view broadcast content, packaged media such as DVDs, and user-recorded, user-downloaded and user-generated content. The TV remote control is no longer a device functionally dedicated to navigating and selecting broadcast programmes.

This article therefore sketches two tracks for the history of the remote: the first tracing how, over a considerable period, the diffusion and popular uptake of the remote seems related to a host of problems and a long-delayed physical disconnection from the television set. The other track is the more general, and equally gradual, disconnection between the software, or content, of broadcast television, and the hardware that presents it to its viewers. I follow these two tracks through the remote’s tangled and in places mythologised histories.
They converge around the question of control over content, something the remote has made challenging for both users and media industries.

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The home entertainment remote control predates television, suggesting that these devices have an independent history, rather than merely an accessory role in the story of television. Before the TV version, there was the radio remote control. Like many other aspects of contemporary domestic comfort and technology, the appearance and early development of the remote are part of the extraordinary between-wars diffusion of radio. From the late 1920s on, wired devices were available which gave listeners ‘armchair control’ over the living room radio set. These controls were essentially small electric motors, connected to a receiver through a flat ribbon control cable which could sit beneath rugs and furniture. They could switch on or off the receiver and speakers, and offered ‘automatic tuning’, the capacity to cycle through selected stations in a fixed sequence. These devices were clearly well adapted to the living-room experience of multichannel 1930s radio, but they were also expensive and cumbersome in many ways — they were hard to ‘fine tune’, they had to be attached to the receiver, the connecting wire could easily be damaged, and once positioned in a room they were not easily moved. Nevertheless, these early devices were clearly the creatures of active radio listeners, and are the precursors of both the remote controls for today’s home audio systems, and those that we use now for television.

Although they were not widely adopted until much later, television remote controls appeared early in the history of the medium, not from the mainstream television industry but from its periphery. Louise Benjamin’s account of early US remote controls suggests that from the late 1940s to the mid-50s there was a first generation of simple remote devices designed or sold by independent entrepreneurs or electronics enthusiasts. In 1953 one US advertising executive was marketing the $2.98 ‘Blab-Off’, which, with the twenty-foot cable supplied, could be attached to a television loudspeaker, enabling the viewer to ‘select the advertising he wants to hear, and he can get away from the commercials he dislikes’ (Benjamin, p. 17). Electronics, radio and television magazines instructed their hobbyist readers in the construction of similar devices. This pattern of somewhat subversive innovation from the periphery has long been an element in the development and application of remote technology — the Blab-Off has a recognisable descendant in today’s $19.99 ‘TV-B-Gone’, a key-ring sized, high-powered universal remote which can turn on or off most television sets by cycling through the various codes used by leading manufacturers. The TV-B-Gone was designed to combat the diffusion of television in public places such as airports, bars, restaurants, and laundromats. Its inventor, Mitch Altman, says you can use the TV-B-Gone ‘to control access to television for philosophical or practical reasons, or simply to have fun!’

The early television remote control is interesting not so much as a rather rare curiosity, or as a technical breakthrough, but because it foreshadowed continuing arguments around television viewers and their relationship to the medium. The ‘blab-off’ raises immediately the business implications of viewer
control. By 1955 a second generation of more polished remotes had appeared, with television manufacturers beginning to sell and vigorously promote their own devices. The US manufacturer Zenith is generally credited with the development of the first wireless remotes. Zenith’s founder, Eugene F. McDonald, known to all as the ‘Commander’ after a career in the navy, apparently believed that free to air, advertising-supported television would fail to gain consumer acceptance, and therefore asked Zenith engineers to develop a convenient and reliable device to help viewers circumvent advertising. Zenith’s innovations emerged in the context of extensive debate and commercial rivalry around the television business. At the time Zenith was developing new remotes, McDonald was seeking FCC approval for ‘Phonevision’, an early model of what was then called ‘pay-as-you-see-TV’ television, where a scrambled terrestrial signal could be unlocked by a code sent through the telephone system. Phonevision had been a project at Zenith since the mid-1940s; by the mid-1950s, other parties were also interested in the area, although the basic mechanics of how to deliver a paid-for service were not yet clear. Paramount Pictures was working on the technology through a subsidiary, International Telemeter, as was a firm called Skiatron, which used a decoder box and IBM punch cards. The fractious convergence of information technology and entertainment has a long history: in May 1955 the business magazine Barron’s commented on the struggle over ‘pay as you see’: ‘a “home-box-office” for TV movies could change the whole pattern of both moving picture making and movie viewing. It could turn the sports world topsy-turvy, bring adult education in to the living room, and alter real estate values along every Main Street from one end of the country to the other.’ (Chamberlain, 1955).

By 1957, just one year after licensed television broadcasting began in this country, television remote controls of many kinds were widely advertised in Australian newspapers and magazines. The 1950s remote control was presented as an artefact from an imaginary future, a world characterised by short working hours, diminishing household labour, and, axiomatically, miraculous technological control over the domestic environment. The idea of ‘automatic’ control, or the capacity to control machines simply by pressing buttons — a physical action without effort or any particular relation to its mechanical outcome — was clearly enormously attractive. Advertisements for early remote controls emphasise the gift of controlling television ‘from where you sit’. In December 1957 an advertisement in the Age announced that ‘yes, now, for the first time in Australia, you can control your TV set COMPLETELY from wherever you are sitting. You can switch the set on and off, change programmes and adjust tuning, simply by pushing buttons beside your chair’ (Age, 19 December 1957). A smaller and simpler device, with the capacity only to control volume and picture contrast, was advertised under the heading ‘Don’t bother to get up’. ‘Every owner of an H.M.V. 21-inch Receiver can now stay relaxed in an easy-chair and make adjustments for comfortable looking and listening’ (Age, 18 November 1957 p. 3). Before it became a problem for public health, the combination of sedentary relaxation and electronic control was a positive selling point. Cecelia Tichi’s study of early US television culture shows how the ‘relaxed’ viewer could quickly come to be seen as pathologically inactive and immobilised, but before that transition,
there was the La-Z-Boy, and, to go with it, Zenith’s early remote, the ‘Lazy Bones.’

Wired remotes have always been awkward for viewers, but the technology of physically detaching the remote control from television set was not trivial. Zenith’s first attempt at a wireless remote, the Flashmatic, was essentially a modified flashlight, the only handheld, widely used, battery powered domestic technology of the time. The Flashmatic was designed to direct a beam of light at photosensitive cells located at each corner of the television receiver. Each cell controlled a different function. The problem with the Flashmatic was that bright light from other sources, especially sunlight, could activate the cells. Further, users could not always remember which corner of the screen did what. In 1957 Zenith replaced the Flashmatic with the Space Command, a device which looks more like a modern remote control, although it worked very differently from today’s infrared remotes. The Space Command, devised by Zenith engineer Robert Adler, controlled television receivers through ultrasonic signals generated by an internal spring, like a tuning fork. The sound emitted was just above the audible range of human hearing. Separate keys enabled the user to turn the television on or off, mute the volume, and select channels. The first Space Command remotes were introduced in the US market in 1957 and cost $399. Ultrasonic signalling, either mechanically or electronically generated, remained the dominant wireless remote technology through to the 1980s. ‘Bongers’, as they were sometimes called, acquired new buttons and functions to manage colour and multiplying channels.

On the basis of the Space Command, Adler is widely celebrated, a member of the US Consumer Electronics Hall of Fame. His story is one of innovation from within the television industry: the primary inventor of a device at first intended to undermine free to air broadcasting, which then helped make television watching in all its forms more popular than ever. But what is striking from another perspective is the mixed success of his device. It remained an expensive accessory through the sixties and seventies, and like its predecessor the Flashmatic, it was not a foolproof solution. Pets could be alarmed; jangling keys could inadvertently change channels and turn televisions on and off. A remote control of this kind was an additional feature, a luxury. RCA Victor sold televisions with and without ultrasonic remotes through the sixties and seventies. As Janet Abrams notes, the RCA remote could change not only channels but also the name of the TV: with the optional remote, the humble ‘Bellamy’ consollette became a more desirable ‘Ashmead’, and the table top ‘Glenview’ became ‘The Edgewood’ (Abrams 1995, 57.) But this was in a period when the industry’s focus was not on the traditional expensive living-room centre piece, but on new products, especially smaller, portable televisions, promising viewers freedom and flexibility.

The extraordinary flowering of the new television technologies of the 1970s occurred without ultrasonic remotes. In essence, these new technologies had one primary consequence: they increased dramatically the amount of information accessible through a television set. But managing an exponentially greater amount of information meant that totally different user controls were necessary. Devices such as home video cassette recorders,
games consoles, and laser disc players demanded a level of user attention and interaction that could only be achieved through something like a keyboard, and they all initially relied upon wired keypads. The BBC’s Ceefax, launched in September 1974, was an early teletext service, described as a ‘newspaper on a colour television set’ (Electronics Australia, October 1975, p. 30). The UK Post Office’s Prestel and the French Minitel were other initiatives from the same era, all bearing distinct signs of their origins in state-run broadcasting, post, and telecommunications systems. Ceefax pages had a three digit number, so decoders included a wired remote ‘page selector unit’. A simple television remote capable of nothing more than cycling through channels could never usefully manage the volume of content, just as a calculator-style keypad would also be necessary for multi-channel cable television. Teletext devices such as the Ceefax appear to have driven the development of the infrared alternative to ultrasonic remotes by companies such as ITT. These remotes used infrared light emitting diodes (LEDs) to transmit a series of digital codes to a receiver and decoder built into the Ceefax set-top box. The codes were organised according to a simple protocol which allowed for a large number of possible functions, enabling far more complex operations than ultrasonic remotes.

Infrared remotes were successful because they were well adapted to domestic applications. By the late 1970s they were relatively simple and cheap to manufacture — infrared emitters had been the earliest of the LED semiconductors to be invented and developed, and they had the further advantages of being very energy efficient, long lasting, and unlike some radio frequency based alternatives, were well contained within rooms because they were blocked by walls. But although they were rapidly adopted, no general industry standards developed for the codes they used: individual manufacturers invented or adapted their own versions of the various communication protocols that were developed. Although the basic technology of the infrared remote was almost standardised, the devices themselves fragmented and proliferated.

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We’ve seen that remote controls were available from the commencement of Australian television broadcasting. Uptake for at least the first two decades of broadcasting was probably low, given the expense of the available technologies and their practical shortcomings, especially the inconvenience of wired remotes. Because remote controls are usually seen as accessory devices, and are sold with many kinds of audiovisual equipment, it is not possible to track the diffusion and uptake of the television remote control in the way that one can do for other consumer electronic technologies, such as DVD players. We know that colour television receivers were very rapidly adopted after colour transmission began in 1974, with 93 per cent of Australian households owning one by 1985 (Ironmonger et al 2000), and this was also a key period for the proliferation of wired remotes and the first infrared systems. However, no separate market data appear to be available for the sale of television receivers supplied with remote controls, and given the comparatively long life of television sets, it is safe to assume that many households acquired their first remote control with another device. A useful
indication of the diffusion of remote controls can then be deduced from the take up of devices supplied with them, such as video cassette recorders, subscription television and other decoders, and DVD players.

In Australia, the earliest of these ancillary devices to achieve widespread diffusion was the VCR, introduced in Australia in 1978. According to market research data aggregated by the Australian Film Commission (see figure 1 below), VCR ownership in metropolitan households climbed steeply through the 1980s, reaching a mid-80 per cent level by 1996, and a high point of 89 per cent in 2002. This conforms to economists’ models of technology uptake, where an initially small number of early adopters slowly reaches a critical mass, and grows rapidly before the rate of diffusion declines when the technology reaches a saturation point. This model produces the familiar stretched S-shaped curve (Ironmonger 1972). In their account of technology adoption in Australian households from 1985 to 1995, Ironmonger and his co-authors make the general observation that households with children acquired VCRs faster than those without, and single adult households were the slowest adopters (Ironmonger et al 2000).

DVD players were adopted more rapidly than VCRs, reflecting stronger content and steep price drops. Average prices for DVD players in Australia fell from $1005 in 1999 to $148 in 2005 (AFC, 2006). The appearance of DVD players substantially changed domestic audiovisual entertainment, creating almost overnight a new market for film, television and music. A significant point, however, about the take-up of DVD players is that sales have declined since 2004. Newer technologies are appearing, such as DVD recorders and hard disk recorders, some of them combining digital decoders. Other emerging devices include home media servers of various kinds, which enable users to bring audiovisual content from computers more easily to the television screen, and conversely to make broadcast or other TV content accessible on home computer networks. These newer devices are also experiencing a rapid cycle of falling prices and burgeoning consumer demand.

**Figure 1: Proportion of Australian metropolitan market households with video cassette recorders and DVD players, 1984–2004**
The important point about the diffusion of the remote control is also the obvious one, that rather than following the classic S-curve of technological adoption, households continue to accumulate remote controls with every additional device. Remotes are acquired along an ascending path of sequentially stacked S-curves. There is no plateau or saturation point because the unstable dynamics of the information technology industries mean that there are always options of new devices offering new possible uses for audiovisual content, and the new device will always entail a new remote, tailored to some specific set of functions but not necessarily operating consistently with all the others. Thus a small population of remote controls grows around every television screen: the display, the decoder, the media players and recorders. They are connected together, but not controlled together.

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Over fifty years, television sets have gradually evolved into video displays: they are no longer functionally dedicated to content of a particular sort or origin. Like the word processors of the early 1980s, TVs were once designed around essentially one application, in this case the reception and selection of a limited number of VHF and UHF broadcast channels. A single radio frequency input socket enabled viewers to plug in an aerial, and nothing more. Hence the complexity of early video cassette recorders, which could only be attached to a TV through that RF socket, and therefore had to pretend to be television transmitters accessed through a special designated channel. Television sets are now designed as aggregating displays for an ever-increasing amount and diversity of home audiovisual content, whether it be broadcast, streamed, purchased, user-created, stolen or shared. Current televisions include support for up to four different kinds of video input, as well as the capacity to connect personal computers; they do not always include integrated tuners or decoders for broadcast content: these are purchased as additional components.

New devices are supposed to help viewers use TVs to draw together and navigate all this material; others find ways of retransmitting it beyond the TV onto home computer networks and the Internet. Where does the remote belong in this scene? Remotes are now the means of user control for home audiovisual equipment. Sliders and dials have vanished from the surfaces of the boxes, reappearing as arrays of buttons on a remote, or as options on remote-controlled on-screen user interfaces. Remotes are now complex, they
speak different languages, and in the main they are designed around specific uses. This means that they are not necessarily created in any simple way for the viewer’s convenience.

To take one example: pay TV broadcasters supply remotes which are dedicated to those functions of the subscription service that create value for the broadcaster, such as interactive content, electronic programme guides, and pay-per-view content. The Foxtel IQ remote is an interesting instance, identical to the Sky Plus unit provided by a related News Corporation broadcaster in the United Kingdom. The Foxtel IQ decoder incorporates a hard disk-based recorder, so recording and programme navigation buttons are also prominent, enabling viewers to timeshift easily, to navigate among recorded programmes, and then to play back and fast forward. Coloured buttons control certain additional features of the IQ, so that programmes are easily scheduled for recording, easily deleted once recorded, and linked for recording as a series. The remote is designed to embody a carefully crafted set of technological and commercial compromises enabling the viewer certain degrees of control over the content available, but restricting certain critical options. The viewer can fast forward through advertisements, but cannot jump past them: hard disk recorders provided by consumer electronics manufacturers provide that feature. In order to better control the distribution of decoded digital content, the IQ is a time shifting rather than an open-ended recording device, so the remote, together with the screen interface, is organised around the temporary storage of content – recording and deleting are both functionally prominent. But the ‘Box Office’ button is more so.

The problem of the remote is that even when it controls a specific task well, there are no widely used protocols, and certainly no overall operating system that manages all the different things that people do with television sets. Firms such as Microsoft seek to fill this gap with ‘media center’ software, with mixed success so far. The result for now is a level of complexity and difficulty that is the opposite of that mid-century dream of effortless ‘space command’. Jakob Nielsen, an expert on the usability of Internet applications, has written in this vein about the ‘anarchy’ and ‘overwhelming complexity’ of the remote control. Like many home television viewers, Nielsen was attracted to the idea of a modest home cinema, involving a connection between his television display, pay TV decoder, audiovisual devices such as a DVD player and VCR, and his audio system. Controlling all this involved using six remotes with 239 separate buttons, many of them with confusing or completely obscure labels, inconsistent colours, and four different numeric keypad layouts. The remotes all looked the same, making it hard to tell them apart in a dim room, and they all did things differently. But the most difficult aspect of remote control anarchy was the absence of interoperability between the remotes (Nielsen, 2004). While many remotes can perform some ‘universal’ functions, specific devices, for example DVD recorders, will always require some particular controls only accessible on one remote. Other general, very basic functions, such as controlling volume, may also be managed on more than one remote, but often with inconsistent effects which may actually make managing the overall system more difficult.
Earlier remote control scholars were optimistic about universal remotes being able to control the full gamut of devices. But these remotes have never become generally used: they’re expensive (especially for consumers who perceive remotes as accessories), they’re hard to set up, and they cannot on their own solve the problem of the complex relationships between the various machines that need to be combined to do something. It must be a sign of some considerable design failure when viewers stick pieces of paper on the side of a TV set setting out the sequence of steps required to watch a video tape, or attempt to disable confusing buttons on the remote with electrical tape — my parents do both. One response is for the universal remote to take on the task of providing something like an audiovisual operating system. Instead of providing dizzying numbers of buttons devoted to arcane technical functions, the remote provides controls for ‘watching a movie’, or ‘watching TV’. These controls activate a series of commands directed at a range of devices, but the user has no need to follow the specific steps in the process, just as a graphical user interface conceals the technical complexity of its operations from the user. A system like this, however, still depends on a fixed configuration of complex hardware, probably arranged by the emerging professional service industry of domestic audiovisual installers.

The difficulties of navigating post-broadcast television raise economic and policy issues that extend well beyond the scope of this essay. Without any easy integration of the diverse elements of audiovisual entertainment, services that may be on the periphery of a broadcast or cable platform risk losing visibility. Should a content provider make an arrangement with a dominant platform such as a pay TV provider, simply in order to avoid requiring a viewer to use another remote control to access their channel? This takes us back to the question of control in the new media environment. I’ve already noted the point made by Robert Bellamy and James Walker, two earlier remote control scholars, that the freedom offered by the remote could rapidly evaporate in an increasingly concentrated media landscape. We could add another issue to their concerns about competition and diversity of ownership: if remotes are above all about controlling content, then efforts by large media businesses around the world to restrict the capacity of consumers to store, share and modify content need careful attention, especially those new provisions in copyright law which aim to prevent users from working around technological protections of copyright material, such as conditional access systems and encryption. Digital broadcasting may be used for exactly this purpose if the US concept of the ‘broadcasting flag’ is widely adopted: the idea is that transmission signals include information which then controls whether or not a programme may be recorded, stored for any period of time, or burnt to a DVD.

In these circumstances, it is the curious and infuriating ‘anarchy’ of the remote which may actually prove useful. Open source developers are busily designing better systems for connecting infrared remote controls with personal computers, and several open source personal video recorders are already in wide use. A chaotic plethora of devices and communication standards frustrates viewers, but control is likely to prove just as elusive for those who most wish to manage television.
Grandpa to grandson watching television: “When I was a boy, I had to walk five miles through the snow to change the channel.” (Cartoon, The New Yorker, 2 October 2006, p. 68.)

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