

NOT-SO-GLOBAL VIDEOS

Ronald Inden©1997
University of Chicago

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The MPEG compression standard[s]...first incarnation was in the old VideoCD format. Because consumers needed the proper...chip to play back these discs, they had to buy new hardware to get into the format. They didn't—VideoCD died an unlamented death, although today's DVD players are still backward compatible with those discs. (Ron Goldberg in *Home Theater* (September 1997), DVD Forum's website, www.dvdforum.org)

The language of globalization is not purely descriptive. It is also formative of the present-day world. Global “flows” of information, goods, and people, pushed by the relentless logic of advanced or “late” capitalism are supposed to make whole ranges of products from every conceivable place available in increasingly universal markets for increasingly cosmopolitan consumers. The use of this linear, teleological language, I argue, masks the conflicts that occur among the “producers” and “consumers” in markets that are anything but the neat expression of a unitary capitalist logic. The story of the DVD which one might expect to be a paradigm of globalization is a case in point.

The Video CD: Having Fun in Asia

A new medium for showing feature films, the Digital Versatile Disc (DVD) was introduced in the US in 1997 and consumers have, as of this writing (April, 1999), clearly accepted it, buying the DVD players and disks in larger and larger **numbers**. People in South, Southeast and East Asia began to turn to a predecessor of the DVD, the **Video CD (VCD)** for recording and showing feature films and music videos some two to three years earlier. They also began to use VCDs to add a visual component to karaoke (which is, overall, probably the greatest use to which the VCD has been put in East Asia). Use of the Video CD, along with VCD players, has, consequently, rapidly expanded at the expense of the VHS tape and Video Cassette Recorder (VCR) throughout the region sometimes known as Pacific Asia. This, despite the repeated announcement of the VCD's death.



One estimate in 1998 placed the number of players in use in China alone at 25m and the number of different **VCD titles available** at 15,000 (Barry Fox, "A Very CD Business," *What Video & TV* (April 1998), 20–21). Since then Chinese consumers have bought another 15m VCD players. Hundreds of Hollywood films are also available on VCD (with and without Chinese subtitles), including recent ones. Two commentators provide this explanation: "In a country where TV programs are heavily censored and audio CD players have been largely inaccessible, the video CD is the combo entertainment system of choice, serving as VCR, hi-fi and audio system, and karaoke machine" (Junko Yoshida & Mark Carroll, "China Carving a Consumer Design Niche," *Electronic Engineering Times* (<http://techweb.com/wire/news/1997/10/1006china.html>)). As of now (2000), close to 2,000 **Indian films on VCD** in the Gujarati, Hindi, Kannada, Malayalam, Marathi, Panjabi, Tamil and Telugu languages are

Numbers: 59m DVD discs were produced in 1998. The estimate for 1999 was 95 and for 2000, 170m. Sony expected 3m DVD players to be in use by the end of 1999 (www.dvdchannelnews.com, April 1999), but more than 9.1m players were sold worldwide in that year and 57m discs in the US alone (*EMedia* (March 2000), 12).

The **Video CD** was, in fact, called a Karaoke CD when Philips and JVC introduced it (1992) in Western Europe and Japan, in conjunction with their CD-i (Compact Disc Interactive) player. That was a device to be connected to a TV set and originally used for playing games. A year later, joined by Sony and Matsushita, they introduced the Video CD. CD-i lost out to Sony's PlayStation and SEGA's Saturn, wealthier film fans decided to stay with the Laser Disc, and the Hollywood companies wanted to hold out for the higher quality, convenience, and piracy safeguards that the disc later to be known as the DVD would offer them. Russil Wvong's Video CD FAQ (frequently asked questions) provides information, a forum, and links (www.geocities.com/Athens/Forum/-2496/vcdfaq.html) See also The New International CD-i Association's FAQ (www.icdia.org).

VCDs are available in the US, Canada and the UK in Chinese neighborhoods. Several Web sites also list and sell East Asian film titles: Hong Kong films on DVD and VCD, Japanese serials with Chinese subtitles on VCD (www.dvdvideocd.com); Hollywood films, TV sports and Japanese animation (www.cdmovie.com); and Cantonese, Taiwanese, Japanese, Vietnamese and Thai karaoke (www.cdkaraoke.com).

Indian films on VCD: IndiaPlaza (www.indiaplaza.com) provides a comprehensive list.

available. The average Indian feature film requires two to three compact discs. **Piracy**, which has been common in India and China in the sale of video tapes, also became widespread in the making and sale of VCDs, began to appear within days of a new film's release. They are sold to film viewers and used by satellite operators to show new films on television, much to the fury of people in the film industry. According to one report,

Chinese customs officers recently smashed a sophisticated Video-CD piracy syndicate, seizing 410,000 illegal discs and production equipment worth \$20m.

Officers of the Intellectual Property Investigation Bureau raided an underground factory in Tsuen Wan, two factories in Kwai Chung and five storage centres.

Its part of a concentrated policy to stamp out the pirating of software across Asia. During 1999 Chinese customs officers seized 16m pirated VCDs, estimated to be worth \$290m. (*Home Cinema Choice* (March 2000), 9)

Video CD is a digital, **compact disc format** introduced eleven years after Sony and Philips had introduced the Audio CD or CD-DA (Compact Disc Digital Audio) in 1982 and the CD-ROM (Read Only Memory) in 1985. The VCD is not to be confused with three other formats: DVD, LD (Laser Disc) or CD-i. VCDs can hold up to 74 minutes of video (and audio) material (650 megabytes). The video material is digitally recorded on a compact disc (5 inches/120mm in diameter) using a method known as **MPEG-1** after the international body (Moving Picture Experts Group) that set this standard for data encoding and compression (in .MPG files). Companies sell VCDs in the same plastic "jewel cases" used for Audio CDs.

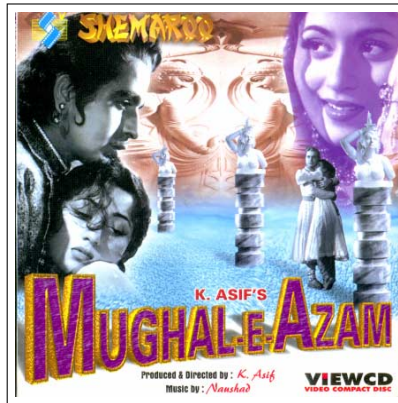
Pirated VCDs "...no longer show jerky camera prints with fuzzy pictures and a muffled sound.... VCDs provide clear sight and sound.... The hand-held cameras filming a movie as it was screened have been replaced by U-matic cameras which offer a better resolution" (K. M. Thomas, "Raiders of the Big Screen," *India Today* (July 27 1998), 44-46). A "telesync" is a movie recorded from a screen, but in an empty theater. Another source of pirates is the "screener," a pre-release promotion video of a film.

Each of the **compact disc formats** has an internationally agreed set of standards called "books." Video CD is White Book, Audio CD is Red Book, CD-ROM, Yellow Book. Tony Feldman, *An Introduction to Digital Media* (London/New York: Routledge Blueprint, 1997) is useful even if already out-of-date.

VCDs are recorded in **MPEG-1** at a rate of 1.15 MB/sec (video) and 224 Kb/sec (audio) (using .DAT instead of .MPG files) compressing the video information at a ratio of more than 100:1. Consult www.mpeg.org for information and news on this format. M-JPEG (Motion Joint Photographic Experts Group), a format useful for editing, is in wide home and semi-professional use, as are Apple's Quick Time for Macintosh and later for Windows (.MOV files) and Microsoft's Video for Windows (.AVI files).



Samo Hung, *Mr. Nice Guy* Hong Kong 1997



K. Asif, India 1960

Videos on VCDs have the same vertical resolution as video cassette tapes recorded in either the **PAL** or **NTSC** formats, half that of TV programs broadcast in those standards. Both are recorded in 24-bit color (16.8m colors). Audio can be recorded in mono, stereo of the same quality as an Audio CD, or dual channel. Many of the Hong Kong films released on VCD use one channel for Cantonese and the other for Mandarin Chinese. Playback requires a VCD player or a game station equipped with a movie cartridge, either of which must be connected to a TV monitor, or a multimedia computer.

VCDs in **PAL** (Phase Alternation Line) format have a maximum visible resolution of 352 (instead of 384) horizontal pixels ("picture elements") x 288 vertical pixels (lines) and are shown at 25 frames per second, the VHS standard for most of Europe, India and China. (The broadcast standard is 768 x 576 pixels). France, Eastern Europe and some Middle Eastern countries use another standard, SECAM (Sequential Couleur À Mémoire).

VCDs in **NTSC** (National Television Standards Committee) format have a resolution of 352 x 240 at 30 fps for VHS in the US and Japan (broadcast standard is 704 x 480).



Tay Teck Lock, Singapore 1998



Barry Sonnenfeld, USA 1997

A VCD player is an Audio CD player with one extra **chip**, which decodes and decompresses the video, and extra input and output connectors, for hook-up to a VCR, TV and Stereo, and controls, including a remote control device. A switch al-

VCD chips: C-Cube, California (www.c-cube.com) is perhaps the most important manufacturer of video encoding and decoding chips.

lows for NTSC-PAL conversion. A multimedia computer plays a VCD through the CD-ROM drive and the use of a **software VCD player** (which simulates the control panel on a hardware VCD player) in conjunction with a mouse. This permits “full-screen full-motion” display on the computer monitor’s screen. It is displayed on the entire screen of the monitor instead of in a small window and at a rate of 25 or 30 frames per second. To do both together was impossible even a few years ago (One second of PAL video takes up 21 megabytes of disk space). Unless the computer is very powerful (Pentium II, 350 MHz or higher), an additional card with chips that take over the playback function from the main processor and video card is desirable. These **MPEG decoder cards** offer additional options—the fine tuning of images, still frame capture, and the capability to port images from the computer monitor’s screen to a TV monitor and a VCR. Many multimedia computers of the notebook or portable variety, equipped (with Zoom Video port support) to play digital videos for business presentations and to port moving images to a TV monitor or projector, can also be outfitted to play VCDs. Some DVD players (Sony, Panasonic, Pioneer, Samsung and RCA) will play back VCDs, but not always with the same reliability or flexibility as a VCD player. (Panasonic players display PAL VCDs but in order to do so lop off the extra 48 lines at the bottom, along with any subtitles. Sony players lop off 24 at the top and bottom.) There are VCD players which (like their audio counterparts) can play three or more VCDs in sequence. Portable VCD players from Sony, Panasonic and others are also available. Of the 15m VCD players sold in China in 1997 (compared to 7m in 1996), 90% were made by companies in China, many of them small (Yoshida & Carroll).

There are several reasons for the success of the Video CD in Pacific Asia. Videos in VCD format are relatively easy and inexpensive to prepare. **MPEG-1 encoder cards** are now available for desktop computers, as are software packages for “authoring” VCDs. The players and discs themselves are also inexpensive (DVD players are two to four times as expensive as VCD players). Players in China sell for about \$100, the

Software VCD (and MPEG) players:

Xing Technologies’ Xing MPEG Player 3.11 (\$30: www.xingtech.com) can play VCDs. Quick Time 3 or 4 for the Macintosh and PC (with the upgrade, www.quicktime.com) and Microsoft’s Windows Media Player (using DirectX video drivers and DirectShow, free downloads at www.microsoft.com) can play MPEG video files, but not interactively as VCDs. Videos recorded in the Video CD formats have rectangular pixels for display on TV sets with 4:3 ratio screens. MPEG videos made for display on computer monitors at 640 x 480 (NTSC) or 800 x 600 (PAL) should be encoded with square pixels (320 x 240 or 288).

MPEG decoder cards for the playback of DVDs and/or VCDs are made by Sigma Designs (www.sigmadesigns.com) and Creative Labs (www.creativelabs.com).

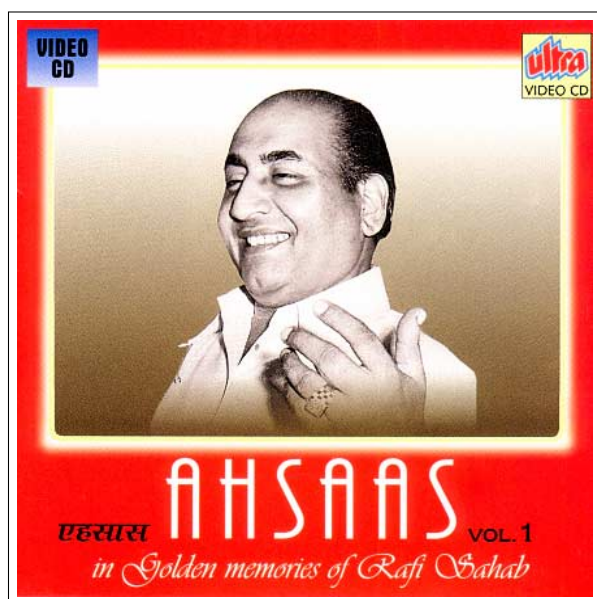
MPEG-1 encoder cards such as the Darim Company’s MPEGator (www.darvision.com) and Data Translation’s Broadway (www.datatranslation.com) cost less than \$1,000.

discs for \$5 to \$10. According to Patty Chang of Philips, the VCD player is affordable, “equivalent to the cost of a pig” and “is a check-off item for wedding gifts in China. And 18 million people get married every year” (Yoshida & Carroll). VCDs and their players are also more robust than video tapes and players. Since they are digital, VCDs display cleaner pictures lacking the “noise” characteristic of VCR tapes and **Laser Discs**. The appearance of “artifacts” however can be a problem. These consist of pixels (picture elements) of the wrong colour and of “pixelation” or “blockiness” of the picture, especially when rapid movement occurs. VCDs do not suffer from fungus and wear and tear, as do tapes, an important consideration in a tropical climate. By connecting a VCD player to a VCR, transfers can be made to VHS tape, without degradation, a major problem with video tape-to-tape transfers. Copies can also be made to compact discs of the CD-R (recordable) type. These will play back on VCD players and some DVD players as well as on CD-ROMs and DVD-ROMs. “Silver” VCDs are pirated films pressed on a commercial machine instead of a CD-R drive.

Perhaps most important, for both lay users and scholars, VCD material is more accessible during playback than on VHS tape. VCDs are made available to the user in one of two formats—“linear,” without menus (Version 1.1, introduced in 1993)—and “interactive,” with menus (Version 2, introduced in 1994). Most Hong Kong films are recorded in 1.1, most Indian films in 2. On a VCD player (as on audio players) the user can move to tracks or to any point in time on the disc. Additionally, on a computer’s media player one can move almost instantaneously, with the use of a position slider, to any point in a film, by track, time or frame. The **menus** in Version 2, depending on how they are organized, allow the user to select particular scenes.

Laser Discs, 12 inches (300mm) in size, have the advantage of accommodating an entire feature film on a single disc. The disadvantage is that this format, which is analog and not digital, is compatible with no other (Pioneer makes a player that will play VCDs, LDs and DVDs).

VCD **menus** are themselves still pictures, in PAL (768 x 576) or NTSC (704 x 480) resolutions, which can also be stored and displayed on a VCD.



Mohammad Rafi songs



Interactive Menu

I have already stated that karaoke constitutes the main use of the VCD in China (and probably also in Vietnam). Many if not most of the VCD players there have microphone inputs and a karaoke feature which turns the main singing voice on the VCD on and off. Multi-disc players are popular for this purpose (they also allow for the watching of a film over two or more discs without interruption). The most important use to which Indians have put the menus on Video CDs is, of course, making the song and dance numbers for which Indian popular films are well-known accessible. No longer do users have to trawl endlessly through a tape of film songs to find the one they want. People can now watch and listen to their favorite numbers in bars and clubs and at parties, as well in homes (and offices) at the push of a button on a remote control (or mouse).

Given its advantages over the VHS tape and recorder, it is no surprise that consumers in several Asia Pacific countries—China, Hong Kong, Vietnam, Indonesia, Malaysia, Singapore, the Philippines, and India—have more or less quickly and completely turned away from that medium and its technology to the VCD. People in the Middle East (Turkey) are also

beginning to turn to the VCD. Even where tapes are available it is often the case that they are made not from other VHS tapes but from VCDs. (Sony combines a VCD player and VCR in one machine that it sells in the Asia Pacific market).

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Ad for home theater in Indian film magazines 1998, 1999



A VCD player has replaced the VCR

The DVD: Global Medium for the New Millennium?



The DVD emerged as a compromise between Toshiba and its allies, who had moved in 1994 to establish their own high-

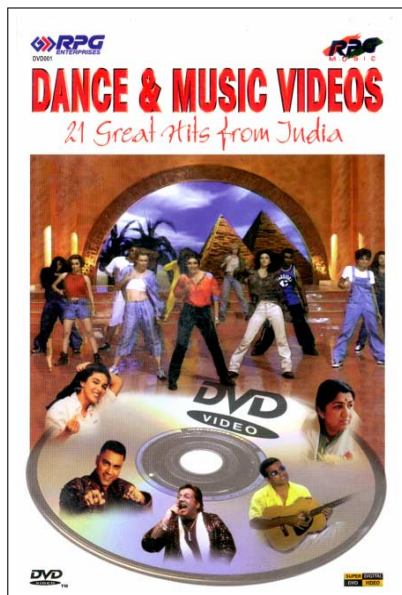
density compact disc format, and Sony and Philips, leaders of the CD industry. Ten companies worked out the compromise solution through a manufacturers' organization, the DVD Consortium (now the DVD Forum: www.dvdforum.org) formed in 1995. Finally introduced commercially in the US in 1997, the DVD has begun to pose a threat to the VCD's dominance in Asia. What is **DVD technology**? It is a further development of the digital technology used in the Video CD called MPEG-2, the standard for which was agreed upon in 1994. It is now being used for digital **satellite broadcasting**. The DVD disc itself is a further development of the compact disc. It is also 5 inches (120mm) in diameter, but is double-sided and double-layered. Software companies have opted to package these discs in oblong black or transparent plastic containers (called Amaray or keep cases) in order to avoid confusion with Audio and Video CDs which are marketed in their square jewel cases.

Playback of a DVD requires the use either of a DVD player, of which there are now many on the market, or of a DVD-ROM drive in a multimedia computer. Neither of these devices, it should be noted, can be used to record TV programs or copy DVDs. Electronics companies keep promising to release **Digital Video Recorders** for the consumer market that will make the timeshifting of TV programs in broadcast quality possible and effectively replace the VCR. The absence of an agreed format for recordable DVD, the result of manufacturers seeking the edge over their rivals and Hollywood's fears that consumers might be able to make high-quality copies of their software, have, however, combined to prevent the appearance of such machines.

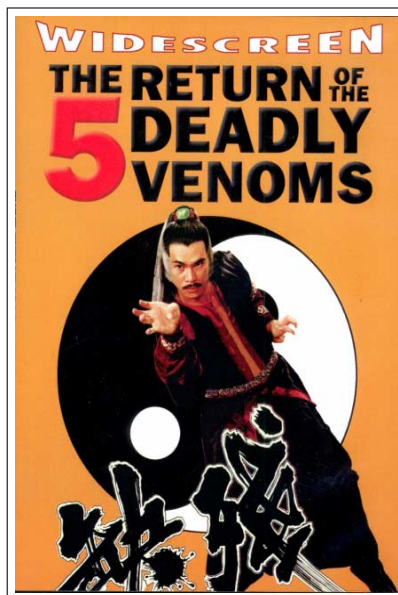
DVD technology. Jim Taylor, *DVD Demystified* (New York: McGraw Hill, 1998) provides the most thorough introduction. It is also available in FAQ format (www.dvddemystified.com/dvdfaq.html).

Satellite broadcasting is shifting to an implementation of MPEG-2 known as Digital Video Broadcasting (DVB), a European standard for satellite and terrestrial television. The USA has its own terrestrial "standard" consisting of two different format ranges, High Definition Television (HDTV) and Standard Definition Television (SDTV), which latter is a close relative of MPEG-2.

Pioneer has released a **Digital Video Recorder** in limited quantities in Japan: "Recordable DVD: At Last!" *DVD Review* 10 (March 2000), 128–30. None of those so far seen at trade shows records at the same high level as professionally made DVDs (Lou Skirba, "DVD Home Recording: Super Highway or Dead End?" *EMedia* (March 2000), 20–22). JVC has (Spring 2000) released a PAL version of its Digital VHS recorder in Europe (*Home Cinema Choice* (March 2000), 16, 38–48).



TV Music Videos



Chang Cheh, Hong Kong 1979

The DVD does offer several advantages over the VCD. It can hold a great deal more material (up to 480 minutes on both sides and layers, or 17 gigabytes), allowing an entire film (and other related material) to be recorded on one disc. (Amazingly, some companies have, unnecessarily, recorded films that require the user to turn the disc over. Such discs are called “flippers.” Manual flipping of a disc is, of course, one result of the compromised format that is DVD.) It has more complex interactivity, allowing a viewer to select soundtracks in different languages, switch subtitles on and off, and change display formats: “widescreen” (16:9 ratio, which displays the entire film image on a widescreen TV but is “letterbox” on a 4:3 screen), and “pan and scan” (which leaves out parts of the image, but fills the 4:3 screen) as well as “fullframe” (4:3 on a 4:3 screen). DVD has a **higher resolution** than the VCD. It has a much **cleaner picture** and offers **better sound**. Finally, DVD players and DVD-ROM drives offer backward compatibility with VCDs. DVDs cannot, however, be played in a VCD player or a computer’s CD-ROM drive.

These presumed advantages convinced the major companies such as Philips and Sony to discontinue the promotion of

Higher resolution: DVD displays a picture of 720 x 480 vertical lines for NTSC and 720 x 576 for PAL compared to 330 for LD and 240 or 288 for VCD and VHS, 400 for S-VHS.

Cleaner picture: The DVD format keeps the “luminance” (brightness) and “chrominance” (color) in the signal separate, as does Super VHS (S-VHS) recording. (Use of the S-VHS connector keeps the two separate when connecting a DVD player to a TV). The chrominance signal is itself also “component”: the color information in the chrominance signal is contained in three separate signals (YUV with 3 RCA connectors and RGB with 3 RCA or SCART connector). NTSC and PAL broadcast signals, along with VHS and VCD, combine the two and are, thus, said to have “composite” signals.

Better sound: DVD discs provide Dolby® Digital Surround (previously called AC-3), with 5.1 channels for NTSC and PAL, and MPEG-2, with 5.1, for PAL; DTS, Digital Theater Sound; Dolby Pro Logic, with 5, a modification of the older stereo, with 2.

the VCD for films in Europe and not to introduce them into the North American market. The DVD, however, does have disadvantages. Compared to VCDs, DVDs are expensive to make and even to copy. Because they are so densely packed, DVD discs may also be more subject than VCDs to playback errors arising from improper handling. The persistence of the NTSC, PAL, and SECAM standards continues to cause annoyance. Most of the better TV sets of the SECAM standard can also play PAL videos (PAL TVs can play SECAM videos, but without color). Similarly, newer, medium priced or higher TV sets of the PAL standard have an NTSC playback feature (which converts “true” NTSC, 3.58, into NTSC 4.43, pseudo-PAL or PAL 60). Few of the NTSC sets, most of them in the US and Japan, have a PAL (or SECAM) playback feature.

The companies that make and distribute films, with Hollywood in the lead, wanted to offer the customer a noticeably better product but at the same time they were concerned that piracy would become a massive problem. VHS tapes were clearly inferior and because they were an analogue medium, repeated copying from the same tape, never mind copying from copies, led to fairly rapid degradation of quality. Videos available in Asia Pacific and Middle East countries have long suffered from this problem, as any user of them can attest. The piracy of DVDs which, because they are digital, can yield the highest quality VHS tape with every transfer. So the companies decided to prevent copying to tape (or, even worse from their point of view, to disc) through the use of **copy protection**. This also creates problems when people, quite legitimately, try to display DVD films on projectors in their home theaters.

The most-resented “feature” of DVD, on which Hollywood insisted was the division of the world into six “regions.” Each DVD disc and player was to be encoded for its own region. The result would be that discs from one region would be incompatible with the players from other regions. Users of DVD films on computers would be able to change regions, but only five times. The reason for this move as often represented in magazines is the industry’s desire to preserve its system of delayed and managed release of films. Hollywood does not

Macrovision® (www.macrovision.com) makes **copy protection** and encryption systems for pay-per-view TV and DVD films.

want people from one region to see a film on DVD before it has been released in the cinema halls. It also claims it is unable (or unwilling) to provide the much larger number of prints required for worldwide releases (Barry Fox, "FACT or Fiction? 20th Century Barry Fox," *What Video & TV* (October 1999), 11–12). The issue of regions has, thus, become quite complicated (Guy Rowland, "Je voudrais mon DVD, s'il vous plaît: DVD in Europe," *Total DVD* (March/April 1999), 20–23). The producers of Hindi films release their films worldwide on the same day but Hollywood apparently thinks of a world having regions that are still linked only by steamship.

How have the manufacturers, resellers and consumers of DVD disks and players addressed this situation, especially in Asia Pacific and the Middle East? Makers of DVDs in France encode their DVDs in PAL which will play back on French TV sets. There are, thus no SECAM DVDs. India is in DVD Region 5 but so far as I know there are no Indian Region 5 DVDs. Nor have I seen any Chinese Region 6 DVDs. (Hong Kong and Taiwan are strangely placed in Region 3 and Australia is stranded in Region 4). The main targeted markets for Indian and Chinese DVDs are people—no surprise to anyone outside the Hollywood companies—who belong or aim to belong to the transnational class some commentators on globalization imagine to already exist, overseas Indians and Chinese. Given their diverse locations, these potential customers use TV sets of all three broadcast standards and in several of the DVD regions. Makers of DVDs in India and Greater China have addressed this problem by encoding their DVDs as Region "All" or "0". This is a coding that is supposed to be reserved for musical and documentary DVDs, the only ones Hollywood apparently thought should cross region boundaries. They have also made their DVDs in NTSC format, on the assumption that purchasers with PAL (or SECAM) TVs will be able to view the discs because they have NTSC playback as will those who have NTSC-only TV sets.

Manufacturers of DVD players have done little or nothing about incompatibility problems for Region 1, NTSC, that is, North America. The assumption seems to be either that cus-

tomers there will not want to play any Region 2–6 or PAL DVDs because none worth having will appear in those formats or that customers in Region 1 will simply not be interested in “foreign” non-English language films unless released in their region. Neither of these assumptions squares very well with the idea of the US as the leader in the formation of a globalized, increasingly cosmopolitan world.

Cross the Atlantic or Pacific and a different situation appears. The release of commercial DVDs began over a year later here than in North America. There is a relatively small number of films on offer and some say that many of these are not as well-produced as their US counterparts. Additionally, of course, consumers resent being forced to wait for months or even longer for new films to be released in their region. Consumer **entertainment magazines** in the UK, especially those on home theaters, are replete with articles, letters and advertisements addressing these questions. Whole Websites are dedicated to the issue of **DVD regions**. Manufacturers have built PAL and NTSC conversion into some of the DVD players themselves and have even begun to make multiregion machines. Sony’s DVD player DVP-M35, though marked Region 3 on the back, is somehow able to play DVDs from all regions. It also automatically detects whether a disc is encoded in PAL or NTSC and converts the signal for the appropriate television (Bob Tomalski, “Born To Be Free: Sony DVP-M35,” *Total DVD* (March/April 1999), 44–46).

Electronics and DVD equipment resellers offer another solution to the standards problem: the use of separate standards converters (Martin Pipe, “Get Converted,” *What Video & TV* (September 1999), 92–97 and “Standards Converters: The Xpert’s Files,” *Video Camera* (August 1999), 64–67). **Multistandard VCRs and TVs** have been available for a long time and are still the main option for those expatriates, immigrants, and scholars in the US who want to watch VHS tapes in PAL or SECAM. Color correctors make it possible to get around copy protection and tape copies of DVDs. Indian video dealers in the US have taken advantage of this and soon after DVDs appeared began copying their VHS tapes from them rather than other

These **entertainment magazines** include *Home Cinema Choice*, *Home Entertainment* and *What Video & TV* and three new magazines devoted to DVD: *What DVD?*, *DVD Review*, and *Total DVD*.

DVD regions Websites: The UK DVD Debate, which is, probably unintentionally, given as a link on the DVD Forum’s site (www.dvd-debate.com) provides other links. Among these are a Swiss site, DVD Planet, which in turn provides links to other German-language sites (www.planet-dvd.ch) and DVD World Report, which does the same for French (www.dvdworldreport.com).

AIWA sells a **multistandard VCR** which does not require a multistandard TV (www.aiwa.com) and there are UK equivalents (www.lektropacks.co.uk).

VHS tapes.

Resellers have come up with solutions to the problem of regional encoding: “chipping,” “mods” (software modifications), and “handset hacks.” The result—**multiregion players**. Some of these modifications also include a VCR mode, which removes copy protection. One of the larger Chinese electronics firms, Shinco, has gone a step further in early 2000. It is offering machines for around £250 which incorporate all the above solutions to the standards and regions problems. Along with these developments, dealers offering their customers DVDs from Region 1 in the UK and elsewhere in Europe began to proliferate. Recently a film industry body, the Federation Against Corporate Theft, won its suit against Laser Enterprises Ltd. of Essex, the effect of which is to make the sale of DVD discs outside Region 1 by British dealers illegal. It remains legal for consumers to buy these discs from overseas dealers (*Home Cinema Choice* (March 2000), 11, 105). Major retailers in France, however, openly sell DVDs from Region 1, offering discs not only from the US but also Japan.

Norwegian hackers calling themselves the Masters of Reverse Engineering cracked the Content Scrambling System (CSS) that was guaranteed to prevent copying of a DVD onto the hard disc of a computer and made the software patch, **DeCSS**, designed for the Linux operating system, available on the Web in October 1999. Suits by seven movie studios (Buena Vista Pictures, Metro-Goldwyn Mayer, Paramount Pictures, Sony Pictures Entertainment, Twentieth Century Fox Film, Universal Studios, and Warner Bros.), the Motion Picture Association of America, and the DVD Copy Control Association and a raid on one of the hackers, 16-year-old Jon Johansen, forced him and others to withdraw it (*EMedia* (December 1999), 23 and (March 2000), 11, 18). **Software patches** for DVD-ROM players that get around the limit of five region changes are also available on the Web.

Despite the software shortage, dealers in Western Europe are able to sell unmodified Region 2 DVD players. The situation in Asia Pacific, much of which is in Region 3, is more difficult. Few DVDs for that region have been issued. One electronics

Multiregion players and modifications are supplied by Techtronics: www.techtronics.com; Futuretronic (www.futuretronic-uk.com); and Project K (www.projectk.com). David Smith interviews Carl King of Techtronics (“De-zoned: Behind the Scenes,” *Total DVD* (March/April 1999), 30–32).

DeCSS has a site with reports of legal coverage and links (www.pzcommunications.com/decss/main/htm).

Software patches can be found for the Hollywood Plus (www.multimania.com/hollywoodplus) and Creative Labs (www.visualdomain.net) decoder cards. These work with or without remote controls.

dealer in Singapore said that he could not sell Region 3 players unless they were modified to be All Region, allowing customers access to Region 1 discs.

Close to two-thousand Hong Kong and Hindi film titles have been issued on DVD. Most of them do not have stereo sound, never mind Dolby Digital Surround, but some of those that do are stunning. Websites that sell VCDs also sell DVDs. Dealers in Indian videos in North America have largely discontinued the stocking of VCDs of Hindi films and now have several shelves filled with DVDs in their shops. So it can be inferred that the DVD has been a success with the overseas markets. My own observation is that this success has not been matched in the Asia Pacific region itself. On a recent trip to Singapore (June 1999) I can report that, compared to the thousands of VCDs, including hundreds of Hollywood and UK films available without Chinese subtitles, relatively few DVDs from any region are available, especially outside the large international shops.

Meanwhile, those invested in the VCD have not accepted the inevitability of DVD. A standards committee of businesses and researchers, backed by the Chinese government, announced an upgrade of the VCD, the **Super Video CD (SVCD)**, in September 1998. It makes VCDs of "near-DVD" quality possible. According to a recent report,

DVD may not have such a big impact in China as originally thought, thanks to the huge success of the Super Video CD format rolled out late in '98. By the end of last year, SVCD took 58 per cent of the Chinese video disc market. The Video CD format is expected to be worth 16 million players this year, of which 85 per cent will be SVCD. (*Home Cinema Choice* (July 1999), 11)

SVCD uses MPEG-2, at a resolution (480 x 350), which is higher than the VCD or VHS but lower than the DVD and 2-channel MPEG-2 Layer II audio.

DVD players made in China and also now exported play these SVCDs. Whether Super VCD or DVD will become the new standard in Pacific Asia for compact disc entertainment is now an open question. My own guess is that DVD and MPEG-2 will eventually win out. Chinese producers will crack down on piracy and give US and Japanese companies more access to their markets. (Microsoft and other companies want to sell

a multimedia computer in China that integrates with television and the VCD (PR Newswire, March 10, May, 1999.) China will in turn gain some concessions from the big American, European and Japanese entertainment corporations such as the opening of their markets for Chinese electronics, the loosening of discriminatory copyright restrictions, removal of copy protection, or the abandonment of DVD regions. Interesting, unforeseen, outcomes are possible.

Recently a Chinese company, MiCO, announced that it is about to market a machine which it calls a Video Digital Recorder (VDR). It is a machine that allows the recording of television programs onto CDs. As noted above, the major manufacturers, have been unable to agree on a single standard for a DVD recorder. MiCO (and others) are prepared to take advantage of this by introducing the VDR an adaptation of the CD Recorder (CD-R) already available as a separate machine for making copies of audio CDs and as a component of a personal computer for making copies of data files as well as audio tracks. The CD-R can currently accommodate only 74 minutes of video in MPEG-1 (VCD) or 45 in MPEG-2 (SVCD). MiCO claims its VDR will get two hours onto a disk, enabling it to hold two hour-length TV programs or one feature film in VCD format (and, presumably, 90 minutes in SVCD format). (Bob Tomalski, "CD-R Disc Recorder Revealed," *Home Cinema Choice* (July 2000), 28–31). Since this same machine will also play everything from DVD to CD-Rs, it could become a low-cost alternative to the DVD recorder. Watch this space.

Ironically, the very success of DVD has given the **Video CD in the US and UK** a growing presence. People do use VCDs in the US and Western Europe and on a larger and larger scale, but they use them primarily for making audiovisual business presentations and not for entertainment (apart from some "adult" films available). The increasing use of digital cameras and camcorders, however, is making the use of the desktop computer for producing home videos attractive. The low cost of making a VCD has given rise to a new market niche for it.

Producers for and users of the World Wide Web have also discovered the advantages of MPEG compression for making

Video CD in the US and UK: Articles recommending this format as an inexpensive do-it-yourself alternative to DVD now appear frequently (Bob Tomalski, "MPEG for the Masses," *Computer Video* (January/February 1998), 36–40 and Steve Bress, "DVD on a Budget," *Camcorder & Computer Video* (April 2000), 24–28).

both audio and video accessible on Web sites. Currently there is a furore in the music recording industry over “digital jukeboxes” and **MP3**, a method of MPEG encoding and decoding for downloading music of “near CD” quality from the Web and playing it back from a file, on a CD-ROM, or on specially manufactured MP3 players. The use of MPEG-1 for **video streaming** on computers has given that format a new lease on life.

Conclusion Most writers on “globalization,” including academics, seem to accept the electrical metaphor which, in my view, is constitutive of the idea itself. I refer to the metaphor of activities held to be characteristic of the phenomenon as **flows**. Electronics experts have long used this term when they talk about the directional movement of electrical “current” (on the analogy of water in a pipe: Jayant Baliga, “How the Supertransistor Works,” *Scientific American* (1997, special issue), 34–41). Globalization discourse speaks of flows of raw materials, consumer goods, currencies, technoentrepreneurs, and migrant workers. The most important entity that flows, however, is **information**. People nowadays use this term in a double sense, to mean the knowledge needed for instrumental purposes, for rational decision-making and also (but often unwittingly) to mean that knowledge or data encoded in digital form and transmitted electronically. This is the basis of the technological or free-market utopia (or dystopia) that globalization discourse presents to its audiences.

Despite cautions and disclaimers about oversimplification or technological determinism, one continually reads about a world in which human activities, both institutional and personal, and their consequences are silently likened to the smooth, controlled, instantaneous movement of electrons through cables in the ground or waves in the air. What we see in looking at just one use of digital electronics in the entertainment industry does not integrate well with this language. Computer technology and free-market economics have not given rise, when it comes to video discs, to a single, uniform standard for consumer goods even though it could. Nor have they led to

MP3 was derived in Germany from the sound format, MPEG-1, Audio Layer 3 (www.mp3.com). It has drawn attention to the complex of legal and technological issues having to do with digital audio and video distribution. The computer advocate’s magazine *Wired* devotes seven articles to MP3 in a recent issue (August 1999). One company (www.napster.com), which links users to one another rather than warehousing its own titles is now in the courts.

Video streaming, the display of video on demand without having first to download a huge file, is dominated by RealNetworks (www.real.com). Its RealPlayer now supports both MPEG-1 and MPEG-2.

Flows: One scholar, citing another, simply points to the importance of this term in his discussion of “connectivity” (another electrical equipment term): “[He]...speaks of globalization as ‘simply the intensification of global interconnectedness’ and stresses the multiplicity of linkages it implies: ‘Nowadays, goods, capital, people, knowledge, images, crime, pollutants, drugs, fashions and beliefs all readily flow across territorial boundaries’” (John Tomlinson, *Globalization and Culture* (Cambridge: Polity Press, 1999), p. 2).

Information: Kenichi Ohmae, for example, in discussing the topic of “global citizens,” states that: “On a political map, the boundaries between countries are as clear as ever. But on a competitive map, a map showing the real flows of financial and industrial activity, those boundaries have largely disappeared. Of all the forces eating them away, perhaps the most persistent is the flow of information—information that governments previously monopolized” (*The Borderless World: Power and Strategy in the Global Marketplace* (London: Harper-Collins, 1990), pp. 18–19). “In the past, there were inefficiencies—some purposeful, some not—in the flow of information around the world. New technologies are eliminating those inefficiencies...” (19).

the inexorable flow of those goods across national boundaries. Complex human agents in the form of business corporations advocate competing standards. They either compromise and land themselves and the public with something one or the other or neither quite wanted. Or they fail to reach a compromise and so two or more standards coexist on uneasy terms. Conflicting desires also lead to situations where none of the parties gets what it wants. Software manufacturers want to restrict releases and keep costs down by actually imposing separate regional markets where none need exist. Hardware companies want to maximize sales by making machines that will perform the functions they think customers want but cannot afford to alienate the software companies. The result is video piracy and machine modification.

To be sure, the large Hollywood software companies do not simply lead the entertainment world, though that is, of course, the image they would like to project. They also dominate it, through the use of legal and administrative force exercised by trade organizations such as the DVD Copy Control Association, the Federation Against Copyright Theft, and the Recording Industry Association of America, which act as their instruments. It would also be a mistake to assume that these companies are all American or that they also dominate hardware production and distribution. Most of the software companies are based in the US, but two of the bigger firms, Sony and Bertelsmann are not. The hardware business is led and dominated not by US companies but by firms in the Asian Pacific, mainly Japanese—Philips is the only significant Western player—but also Korean and now Chinese and these companies are also able to throw their weight around, again through the instrumentality of trade associations such as the DVD Forum. Consumers outside the US are neither duped by Hollywood nor powerless.

Most of the consumers and writers who criticize and oppose Hollywood also seem to accept Hollywood's leadership in the global entertainment world. Indeed, much of the irritation some of the more vocal consumers vent on Hollywood results from its frustration of their desires to have and use Hollywood's products. Yet at least some consumers and media

writers, those who write to and for the magazines, which many thousands read, and those who put up Websites, are also capable of quite scathing criticism of the industry's moves. The accessibility of computer technology makes it possible for small companies and critical end-users to counter the moves made by the Hollywood giants not just with words, as in the consumer film and equipment magazines, but with chipping, hacking, and piracy. One Web site for VCD pirates (www.mpegAV.com) even provides with the rules for that practice. These activities have provoked the entertainment multinationals into taking costly legal action.

Those who, from a dystopic angle, represent the variety of antagonisms consumers exhibit as "resistance" against the forces of technology and world markets are not as radical as they think. This word is itself another term in the electronics lexicon. It is "noise" which engineers can, through "feedback" and counter measures, progressively eliminate from their global flows. Resistance is, thus, as constitutive of globalization discourse as is flow.