

Gerhard Schumm

Notes on Digital Film Editing

Some friends say they can tell if a film was edited on the traditional editing console or digitally with computers. I don't know. However, I have my doubts.

Even though films may not change, the process of editing is changing with the introduction of digital technology. I am sure: reason enough for considerations.

General changes:

There are a few changes in basic conditions, e.g. the increasingly close relationship between editors and equipment manufacturers.

1 - One innovation is helpful advice and support just when you need it, supplied in all kinds of critical situations by the manufacturing firms' support teams, all armed with mobile phones. There is no parallel to them in the old-fashioned mechanical and electronic editing business. Neither Mr. Sony nor Mr. Steenbeck was willing to give their immediate support by phone calls. As the ripening of software generally follows the banana principle and develops its flavour only after being purchased by the customer, the manufacturing industry is not entirely altruistic in taking an interest in the dangers, difficulties, bugs and half-baked solutions with which the customer is confronted.

2 - An astonishingly symbiotic relationship appears to be developing between the editing profession and high-tech manufacturers. Sometimes it is obvious that technological engineering is encroaching on the job of editing. The criteria of a differential diagnosis in looking at the evidence would be met if editors and trainees (only a few are women) were no longer discussing their films but instead were passionately arguing about hard disc capacity, and the speed of data throughput, or upgrade-bugs. As far as I know, the manufacturers do not debate film projects and the creativity of editing methods with quite such gusto, so it seems that this symbiotic relationship is rather one-sided.

There are two sides to the technological aspects of the cutter's profession. On one hand, cutters talk of their love for the genre, and stress that the integrity of editing is also based on technical competence. Aesthetic practice is never indifferent towards material, equipment, tools, the physical or almost assembly-line work. Even 16mm/35mm editors occasionally display enthusiasm for the tools they use. In Anglo-American film literature, editors praise their beloved noisy Moviolas in every interview.

Yet on the other hand, there is a temptation to indulge in technology and hide behind the novelties of engineering. It is all about finding a new form of mutual pervasion but also about mistaking the artistic for the engineering profession and vice-versa.

The aesthetic approach, always linked to experiencing the world and the self, is in danger of succumbing to the technocratic approach of the equipment manufacturers. There may be a thin borderline between technological inquisitiveness and the becoming immune to experience by indulging in meaningless chatter. However, we can define precisely where this borderline runs, as this is the point where controversial ideas are discussed.

Aesthetic inquiry feeds on the experience of contradictions and on grappling with irresolvable contradictions. Technological thinking, however, holds its own in providing answers to problems that can be solved.

And I am convinced that constant over-excited techno-babble at the editor's console is nothing but mindlessly following current trends and will make those who indulge in it a laughing stock of later years. This discourse rapidly becomes obsolete. The computer abbreviations you just memorised are old hats of the latest software. Technical competence is the fundamental basis of the editing profession and its source of self-assurance. However, it is creative assemblage of the material that lies at the heart of editing.

3 - Editors seem to be more and more prone to a new kind of technological dependence. This derives from the fragility of the equipment: the editing table - almost as resistant as a mule -

has been replaced by a fragile and agile racehorse, the editing computer.

When I started to use my computer in the early eighties, before I could start typing I had to warm up the keyboard by holding it near to the stove on cold winter days, so that the letters would not run amok. At the time I thought these were the teething troubles of a new not yet established low voltage technology. I thought, in a few years time electrons would surely find their way through all the properly arranged boards to the diskettes and hard-discs. Right from the start we were talked into believing that digital technology - as opposed to mechanical technology - was inherently wear-resistant and simply indestructible. And it was plausible too, that in contrast to analogous media, in the digital world (for simply logical reasons) there would be no copy loss at all. It was too damned early to be infected by the oldest, most fatal computer virus of all, namely the belief in loss-free copying, faultless functioning and digital perfection.

Sure enough, slow and easy scoring, all those grating signs of fatigue and wear and tear of mechanical equipment, and gradual copy loss, are indeed eliminated in digital editing. But in its place we experience systems collapsing for no apparent reason, corrupt files, data disappearing as if by magic and copy errors that turn boring filmstrips into psychedelic experiments.

Obviously in digital editing technology the irresistible wonderful ease with which the technology can be used cannot be separated from the unexpected and aggressive blockages it produces, which paralyse everything.

This simple fact should be taught in every beginner's course for digital editing. The unaware student should learn about the abrupt change from feeling fully in control to being utterly helpless just a moment later. Students need to learn how to stand this unbearable feeling of powerlessness. From the very beginning you have to do away with the myth of digital perfection and its resistance to faults and errors. For if you believe in that myth, you will have to question your own judgement forever more.

4 - The impact on the whole editing profession of changes caused by technology should be considered. We do not yet know about the effects of new editing technology, which will gradually drive assistant editors out of the editing room. Digital editing does not require assistant work. Assistant training will decrease accordingly. It looks as if editing might become a damned isolated business, where you spend weeks and weeks on your own at the computer- especially because there will be more and more editing work for film series where a director does not need to be present during the editing process.

Furthermore, the assistants traditionally learn about the profession by working within a master-student-relationship. Professional skills are therefore passed on in a personal and un-bureaucratic way. Should this change, we will lose a crucial phase in the training of chief editors. (It seems to me that it is a real achievement to manage to conclude an employment contract including an assistant or assistants for digital editing.)

The same applies to the viewing of dailies and different edits on the theatre screen.

To conceal the fact that digital editing is in most cases more expensive, but still worth the trouble, attempts are made to economise at this stage. Viewing on a large screen, however, is crucial to attaining a professional standard in cinema films. It is the only way that details of imagery and rhythm can be adequately evaluated. In professional training, this type of viewing is the only way to grasp how an edited version of a film really works on the screen.[1]

Most trade unions have not yet made a final decision about questions concerning digital editing work. There is great uncertainty as to whether the work procedures will be further differentiated. The question is whether separate digital work places especially for sound editing, special digitising work-stations and the preparation of material will be conceived or whether the opposite trend will predominate. This would mean that the universally trained all-round editor will be the professional standard of the future, as titling, graphic design and visual effects, as well as sound editing and mixing, will be handled by one single machine. It looks as if the equipment manufacturers will determine the profession's future develop-

ment. This may happen deliberately, often behind the editors' backs, yet determined by them nonetheless.

I know that times are not particularly suited for self-assured undertakings. Nor, in terms of the profession as a whole, are they suited to defining one's own time standards and how work should be divided. It is obvious that the advertising of the manufacturers mostly show editors enthusing about how quickly they can edit a film with digital technology and how wonderful it was to spend weekends and nights on digitising and sequencing the material. Here I put my hopes in a new and self-confident generation of editors coming out of newly established vocational training courses and out of film schools. I count on well trained students who are not only happy to have found some kind of job, students who are not satisfied with simply letting themselves being grouped around technology freaks as user groups, but will instead be able to organise and articulate their own interests. I am hoping for colleagues who have the courage to refuse bad pay, demand quality standards and agree on working conditions. There are editors of this sort in the Anglo-American world. The professionalization of training in editing could also overcome the sometimes-unbearable modesty and self-effacing attitude associated with the profession.

5 - Additionally, the economic balance of post- production is shifting: the costs for editing computers with their entire periphery are much higher than they used to be for editing equipment. You could buy a new editing table for the annual maintenance costs for digital equipment. The whole final cut, including sound editing, is becoming more complex and expensive with digital technology. As a rule, management is trying to defray higher costs by decreases in editing time. Editors are under increased time pressure because editing is always based on pay per hour. Unfortunately it has so far been impossible to say or write anything on this subject based on solid facts. There has been little empirical economical research, and this could be a good subject for theses by film students. Such information would really be of great importance.

The specific nature of digital editing: de-bureaucratisation of the editing room.

I believe a completely new tendency towards de-bureaucratisation of editing rooms is emerging along with the introduction of editing computers. This is one of the real qualitative changes. All of a sudden there is no ordering of loose filmstrips and clumsy trims. The necessarily paranoid pedantry so typical of the profession is suddenly gone, a trait that even penetrated private life and turned the untidiest editor into an order-loving fanatic.

Of course, there has to be control over the material in the virtual screen editing room, with all the clips, subclips, sequences and edits. But simply by pushing a button, ins and outs, sequences and edits appear- just like that. Here the digital machine is indeed a big help. Newcomers to editing are helped by one of the most willing and perfect machines from the start. Computers, including editing computers, are by design perfect for sorting and re-arranging.

These characteristics of digital editing systems provide the happiest moments of editing work- it is flowing. Everything is at your disposal. Mechanical rhythm and material flow adjust to the imaginative stream of the editing work. The tricky resistant character of the job, the annoying loss of synchronisation, the paranoid fussiness, the narrow-minded insistence on orderliness are no longer central issues. This is, of course, fundamentally changing the character of editing, and, when all goes well, giving it more generosity and dynamism.

The specific nature of digital editing: the major aspect of the minor.

The mechanical fidgeting about in classical film editing, all this labelling of cans, rolls and trims, this cueing, list keeping, reel changing, this rewinding, locating and marking as a rule was not simply a nuisance. It often was nothing more than mechanical automatism where busy and swift hand movements were doing the job. Those industrious hands and walks to the shelves were the excuse for putting off thinking, for a moratorium, legitimising delay in order to come up with an idea for editing.

Often it was a way to stir up the space, movement, diversion necessary for a chance at creativity. Ideas pop up best as something incidental to automatic movement. You get the best ideas while strolling and rummaging about, walking up and down, travelling, in a state of motion, probably because, being mentally under-challenged, there is room for other things to emerge.

By these unengaged activities that offer a creative caesura are not breaks to chat, for example, when directors and editors have conceptual communication about footage. This is not what I mean. Talking is different from this incidental preverbal and non-verbal pondering connected to material.

Perhaps this is only my experience, but perhaps it can be generalised. I can hardly consider those unchallenging little jobs of minor importance, this ground where ideas spring up. When using the editing computer there is no room for the pre-conscious mind. Computer editing seems to function in terms of purpose and practicality. It is devoid of the annoying and seemingly mindless trivialities, which in reality are not at all unimportant.

Although the editing computer also suffers from interruptions and delays due to software booting, copying, searching for materials strangely enough, these mostly have the character of nervous dead time where nothing moves. They stop you in your tracks. You find yourself in a tense and helpless waiting period.

I believe it is important to work out methods that allow creative momentum in working with the editing computer. It becomes more important to working at a desk with scrap paper and sketchpads, storyboards and photos on blackboards and bulletin boards, with timeline copies you can scribble on. It will be wise to think of reasons to get away from computer screens, to get up and resist their attraction. We have to learn to drop work at the right moment and to take the requisite time for creative breaks, even if it seems the editing could continue smoothly.

The specific nature of digital editing: persistence and reversibility.

Computer editing offers an impressive advantage, as it not only permits traditional editing to be divided into steps, from separating of footage, to selection and on to sequencing, from rough cut to fine cut but it also stores all these steps to be called up at any time.

This is exceedingly more than the often-cited possibility of leaving various edited versions, as they are, for example a variety of fine cuts.

This historically new, non-destructive, easily reversible, sequential process then allows the comparison of each detail of weeks of work.

In addition, digital fine cut ingeniously keeps the so-called out-takes as recallable seams in the background of the interfaces.

The fine cut then loses its crudeness and rigidity and acquires a new quality. Then the job of fine cut, which means the fine-tuning of cuts and dissolves, can concentrate on the footage.

This is one of the most wonderful innovations in doing a creative job, which draws on looking forward and back, on revision and anticipation. In the past with each new step you necessarily had to destroy all previous steps and burn bridges behind you. Proceeding with work always implied a demolition process as well. Digital editing now permits self-confident evaluation of all sequences of the material and various assemblages of the sequences.

The specific nature of digital editing: digital methodology.

To put it in bald theoretical terms, editing is the step-by-step transformation of separated, non-linear footage sources (paradigma) into linear chains of sequences (syntagma).[2] This is achieved by paradigmatic selective procedures and syntagmatic constructions. In traditional editing - meaning operating with thin strips, where you can see little transparent images if you hold them up to the light, and cutting with little

knives, then splicing - any refining of the sequence in which the material appears also means that the options available in making further changes are reduced.

During the traditional work process, the cut becomes more rigid, exchange becomes more difficult.

However, digital editing keeps open the permanent exchange between syntagma and paradigm.

This transparency is the essentially new definition of editing with computers. It leads to more open, smoother work methods with more emphasis on the editing process.

Vilém Flusser (1995) describes this working with flexible, descriptive electronic signs as "digital gesture", meaning it is no longer a question of - and I would add, no longer merely a question of producing self-contained, perfect information (works) but rather of keeping one's own creativity on a long rein in dialogue with others. The aim is no longer to produce something but to allow scope for the gesture of creation itself.[3]

This is a very beautiful sentence. The digitally made is much more clearly a proposal.

Contrary to film, digital editing no longer cuts, knurls, glues or scratches the footage. You don't finish editing physically but only virtually.

However, in order to be able to use this artistic freedom you need two things: time and discipline.

You need time to take a break for revising the material and to turn an attentive eye to the struggling images, despite the option of flipping through the material at the speed of light. You need discipline so that picking up on your work so far does not turn into a mindless poking about in an abundance of variants.

In the course of its history, classical film editing has developed a methodology, which is nearly the same in all countries that still practise it. This structures the work process into precise phases: each phase has its own procedure, and its own central. It is often mistaken for a merely practical approach. If this were

the case, it would have lost its importance as soon as editing stopped dealing with 16mm/35mm film.

But at the same time we deal with aesthetic procedures, practical epistemology in a medium of the senses. I do not want to discuss how strongly classical work stages in editing support the structuring of bins during digital editing, if these are no longer interpreted only as executive rules on "order in the editing room". They serve a more differentiated search for the essence of the material by focussing in turn on different levels:

1. Level of sorting footage: logging of dailies. The raw footage is non-contextual, fragmented, isolated and extracted from the specifics of the shooting situation. It enables a non-judgmental and unprejudiced view of the pictures, uninfluenced by a sense of story. It enables a free-flowing view of the atmosphere of the pictures, and sensitivity to the details of nuance in movement and gestures. Fragmentation can occur in digital material or earlier, in the process of digitalisation.

2. First Assemble: stringing together the footage. The creation of the roll to be edited can be done in a split second with the push of a button in digital story edit mode. The first assemble is the roughest sketch. Having a look at the (digitally stored) first assembly can sometimes help at a later stage in editing if you are stuck in a particular concept. Its open sketch-like character can bring new ideas.

3. Rough Cut development and Rough Cut variations: This is where the scenes are sequenced in narrative order and continuity is checked and stabilised. It's a semantic exploration to determine coherence and incoherence. A primary edit is assembled. In classical film editing, the details of the edits are not apparent. They are borne in mind during the viewing. When digitally editing, the cuts between the scenes should be considered hypothetical in order to be able to concentrate on the global relationship and the entirety of the scenes and not commit to any edit too soon. If they are smoothed out throughout it is hard to recall that these edits are temporary. There is not really going to be a true rough cut any more in digital editing. Instead there will be a kind of global cut, rougher in places and porous, smoother and completed elsewhere. This

could be said to correspond to the earlier phase of the rough cut, which you can ill afford to lose.

4. The First Cut: This is the version intended for rough cut acceptance. Selection and sequence are basically fixed. The later film is visible. Detailed fine cut starts out from its proportions, structures, rhythms and emphasises them.

5. Fine cut: Work is done on ensuring good fusion, cohesion or a clear caesura at the points where cuts have been made. Cues, marks, separation points, dissolves, L-cut, sound editing. The focus is neither on the sequence of takes nor on global coherence but rather on producing the direct cohesion of interfaces from a changed point of attention and a different angle. And by adding inserts, interfaces turn into separating points. The form of digital fine cut implies a transparent correctable approach. The focus on certain local aspects of editing seems to be worth keeping up.

6. Level of final cut: last fine cut is as a base for further sound mixing.

The specific nature of digital editing: multiple functions.

The hundreds of functions of one professional editing computer - so far nobody seems to have counted them but heaps of operating manuals tell their own tale - is rather challenging, especially for beginners. The attention needed to handle the machines undermines editor's ability to concentrate on images and sounds. However, it is fairly easy to acquire the technical skills necessary for film editing: you separate and combine material. Strictly speaking, editing computers could do their work with only two buttons: one for separating, one for combining. But what about the other 999 functions? Even a less provocative definition of the basics of practical editing would end up with seven fairly manageable elementary steps in practical editing, which are combined to produce all other steps:

- 1 - Separating (segmenting; add edit, make subclip)
- 2 - Linking (sequencing, adding)
- 3 - Selecting (select, activate, mark in /mark out)
- 4 - Inserting (substitute, splice in)
- 5 - Removing (eliminate, extract)

6 - Replacing (permutations, replace, overwrite)

7 - Making longer or shorter (expand and compress, trim, slip, slide)

Why is it that in digital editing a much wider variety of procedures are possible?

Most of all because almost each function can be achieved by a number of different approaches.

Using an AVID composer, for example, I can sequence material in various modes:

- composer editing mode
- storyboard editing mode
- keyboard full screen editing mode
- segmental editing mode
- mini controller editing mode (not programmed in new software upgrades).

This variety of modes of operation rapidly adds up. Each mode has advantages and disadvantages, but once you have got used to each, you would not want to do without it. The composer mode is leads you step-by-step. Its similarity with video editing makes it easier for beginners. Keyboard mode allows you to focus all your attention on the material. Storyboard mode is closely related to classical editing and unrivalled for speed. Timeline-focused segment mode helps you to get an overview and fosters montage work with a structural emphasis.

This results in an unprecedented palette of possibilities. This would not be of any interest if only individual preferences of work styles were at stake. However, we are not dealing with random aesthetic procedures and approaches, for methods matter and can be adapted to suit the material, design concerns and particular stages in work. In this process specific aspects of the job will either stand out or disappear. For example, at the moment I am working on moving away from the composer mode as fast as possible in order to gain first rough film sketches by the story editing mode instead. In the next step this leaves material rough for treatment in the segmental mode. This kind of rough sketch is tidied up and at a later stage by using the trim mode.

It would be too early to take stock. The state-of-the-art is much too new and has not been sufficiently discussed by editors. At the moment we are at the stage of gaining and exchanging experience.

The specific nature of digital editing: how perception is organised.

A peculiar change has occurred in the relationship between the tools and the image. I don't quite know yet what it means but I am considering it and would suggest it deserves consideration. The change can be described as the perception of digital work becoming increasingly uniform.

As they developed, specific forms of work produced their own tools; in painting, brush and pencil, the keyboard for calculations, the piano keyboard in music and the splicer in film editing etc. The splicer was always within reach in classical editing-workstations. It was always within easy reach. The monitor was further away and therefore within a different field of visual perception. The tool and image belonged to different perceptual areas. People thus looked at different things when looking at these two aspects of work, looking either at the tool or at the frame. This categorising of vision into the nearby and the far away is similar to the classical artistic work process. Going back and forth between the tool and the object of work encouraged interplay between a distancing gaze and an appropriating gaze.

Computers, however, have tools grouped around a monitor image, encircling the full frame. Image and tool are located on a plane, in the middle distance. The result is an amalgam of visual perception. The tool you want to have at your fingertips and always in reach is fixed in the middle distance and has mutated into tiny icons. Controlling the tools by mouse click requires perceptive skills that cannot be entirely automated. The full frame, which you would like to at some distance to assess how the film will look on screen, is rather close up and is often too near.

But to be able to judge the images, you must be able to change your point of view, to distance yourself from the film, to introduce a degree of alienation, to move close again and finally drown in the images.

The technological development of the computer into an omnipotent device for work that entails so many different sensual aspects began with digital computers with keys for figures and characters. Originally it was used in administration for data processing. Not much has changed in the basic fittings. Computers have, broadly speaking, remained been on this level. The organisational keyboard with its figures and letters and the ubiquitous mouse have been burdened with new functions. Depending on the programme, computers serve as brush, pencil, spray tool, rubber and splicer. Procedures, which in some cases called for impulsiveness, instinct and sensitivity, along with a feeling for the resistance of the material to the tool and skill in deploying it, are now carried out by operating push-button keys, which offer no variety in terms of sensory input, and occurs in a homogenous field of perception.

Tools force their way into the visual image. Their permanent presence and importunity disrupt how material is handled perhaps more than the not very detailed monitor image. And although you scarcely realise it, they promote a technocratic understanding of editing. The full frame image and computer tools have a different status, although they may exist within the same visual field. All the editor's attention, visual and mental reflection and pondering should be concentrated on the film, not the instruments. An editing computer with all its wonderful gadgets is not just like the dashboard of a car.

Among other things these tools also disrupt directing. Working with the monitor is, like all visually focussed movement, extremely demanding and distracts from the flow of images. Work at the editing console was also highly dynamic: movement of hands, material. This, however, was the job of the editing people, and these were the details they looked at. The unobstructed view of the film remained intact. A special monitor for editing workstations, permanently displaying a full-screen image of the film and only the film, would, I believe, constitute a decisive improvement.

Back pains, headaches and eye trouble may also result from this constant distance from the area of perception. An astonishingly large number of editors suffer such symptoms, especially when they start to work with editing computers.

Editing teams need to learn to establish a distance from all these tools and to ignore them. I think it is important when learning digital editing to move as rapidly as possible from mouse-click work and monitors to keyboard editing. This allows fairly automated use that does not require a good eye for mouse-click control.

Perhaps I am mistaken. Perhaps these shortcomings in the specific nature of utilisation will soon improve. I would be quite happy about either option.[4]

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[1] see also: Murch, Walter (1995) In the Blink of an Eye. A Perspective on Film Editing. Los Angeles / Beverly Hills: Silman-James Press. p. 88-89

[2] see also: Jakobson, Roman (1960) Zwei Seiten der Sprache und zwei Typen aphatischer Störung. In: Jakobson, Roman (1979) Aufsätze zur Linguistik und Poetik. Frankfurt am Main/ Berlin / Wien: Ullstein. p. 117-141

[3] Flusser, Vilém (1987) Hinweg vom Papier. Die Zukunft des Schreibens. In: Flusser, Vilém (1995) Die Revolution der Bilder. Der Flusser-Reader zu Kommunikation, Medien und Design. Mannheim: Bollmann. p. 63

[4] Thanks to Tina Hillmann and Magus Schmidt for discussions.