

editing for educational films
-anirudha joshi

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EDITING FOR EDUCATIONAL FILMS

A project report submitted in the partial
fulfilment for the award of Master of Design
degree in Visual Communication

By
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Guide
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Industrial Design Centre
Indian Institute of Technology
Bombay

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APPROVAL SHEET

Special
The Project Report entitled ' Editing for Educational Films' submitted by Anirudha Joshi in partial fulfilment is approved for the award of the degree 'Master of Design' in Visual Communication.

Guide *mmS.*

Examiners

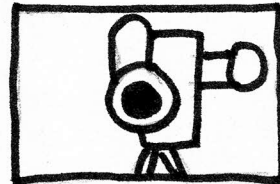
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1. INTRODUCTION AND THE SCOPE OF THE PROJECT

With the advent of video, the medium of cinema has truly reached the masses. Film making was initially the monopoly of big film companies and skilled professionals. But the prices of equipment have dropped phenomenally and unlike film, video tapes are reusable. As a result any small institution, which perhaps earlier couldn't afford even a film projector, can now make video films of its own. As happened with photography, amateurs are making inroads into film making as well. The result is the jump in the number of films produced every year. Unfortunately the lack of professional skills shows easily in some of these films.



Among the amateurs, there are a large number of teachers turned film makers. They are interested in documenting lectures of experts on the topic of their interest. The phenomenon of using the powerful medium of cinema for education is not very new. What is new is the film maker.

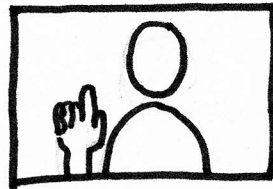
Of all the departments of film making the most unnoticed one is editing - unless it is bad editing. Infact a well edited film is one in which the cuts are least visible. So it becomes difficult for an amature film maker to observe good cuts without assistance.

The aim of this project is to identify certain basic editing techniques that are specifically applicable to educational films and document them on video for easy identification.

2. EDUCATIONAL FILMS AND EDITING

Broadly speaking, a film that gives information on a specific topic and is directed at a specific audience is an educational film. Educational films can be classified on the basis of the time and effort that goes into their making.

At one end of the scale are films that are mere documentation of lectures or talks by experts. The main aim of such a film is to record what happened during the talk, and its ability to communicate concepts largely depends on the oratory skills of the speaker. At the other end of the scale are films produced by big film companies, where everything including editing is done by trained professionals. This project is applicable to film makers who lie somewhere in between these two extremes.

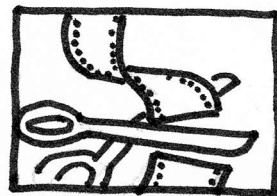


a) Educational Films

One step ahead of a record of lectures on video tapes or films (in future used synonymously

for the sake of convenience) would be a compilation of lectures by different people on the same topic. This immediately involves editing - a conscious decision has to be made about ordering shots one after another. The most appropriate cutting point has to be selected to move from one shot to the next one and so on. While making a compilation film, the editor has to work with whatever material has already been shot by the cameraman (usually the same person).

But if the film is planned in advance - for instance a narrator is presenting a topic from a pre-written script, then the editing of the film should also be planned out in advance. The script, in this case should include all the editing points, and when the shots go to the cutting room, the only job of the editor should be the fine tuning of these cuts.



b) Editing

Technically speaking, editing means joining shots one after the other in a specific order.

But editing does more than that. Firstly it is the tool in the hands of the film maker that allows him to lay different emphasis on different objects, people or events. In this way he can channelise the attention of the viewer from one point to the other.

Secondly, the film maker can handle time to suit his needs. The rate at which cuts follow one another determines the pace of the film. Fast successive cuts create the feeling of quick action. In contrast the slowness of a process can be emphasised by long shots and slow rate of cutting.

Unnecessary action can be edited out and only relevant information can be given, thereby compressing time. Alternatively fast action can be repeated to give the viewer more time to understand what's happening.

Perhaps the most important application of all editing techniques is the creation of an illusion of reality. Although all the shots of

a film may be taken separately, a well edited film gives the impression that all the events are happening in real time in front of the viewer. This is the strongest advantage of cinema over all other media of communication and is due to editing.

Three aspects of a film that are especially important for educational films - clarity, audience receptivity and smoothness of presentation. In educational films care should be taken to see to it that the audience is not even slightly confused. Secondly the grasping capacity of the audience will determine the rate at which the information needs to be given out. And finally the smoothness of presentation helps the understanding of concepts by holding attention. A film filled with harsh cuts distracts the viewer and makes him notice the film technique.

3. EDITING TECHNIQUES

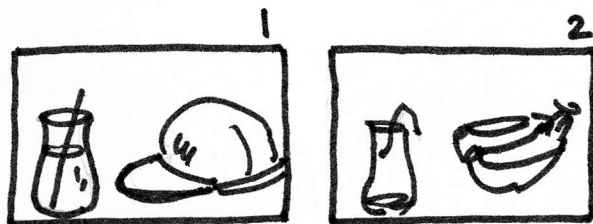
When one shot of a film ends and another one begins it is called a 'cut'. Most thumbrules for editing are directed towards making a cut as smooth as possible. They apply to cuts between shots within a scene as well as to cuts from one scene to the other. Apart from these, there are thumbrules that help one to use the medium of cinema in a more effective manner.

a) Matching consecutive shots

Firstly two shots of a scene need to be matched. At the most elementary level this means matching the sets props and the dress worn by the people in all shots of the same scene.

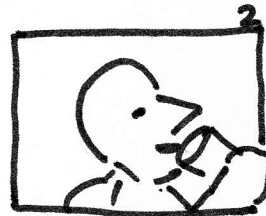
Sets, Props and Dress

It often happens while making a film, that different shots of a scene are taken at different times. So care needs to be taken that all the people involved in a scene should be wearing the same clothes and using the same props sets etc.



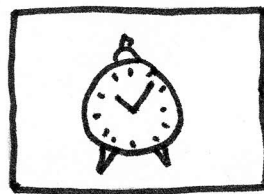
throughout. The audience will immediately make out any difference otherwise and will get distracted.

Repetition or Dropping out



While shooting, the final action in the earlier shot is usually repeated in the next shot so that there is sufficient room for fine tuning the cut. But when the two shots are put together, care should be taken that no part of the action is repeated or left out. If at the end of one shot a person has picked up a glass of water, this action should not be shown again in the next shot. Neither should the next shot begin when the person is half way through the process of drinking the water. The action should begin when he is about to lift the glass upto his mouth.

Timing a Cut

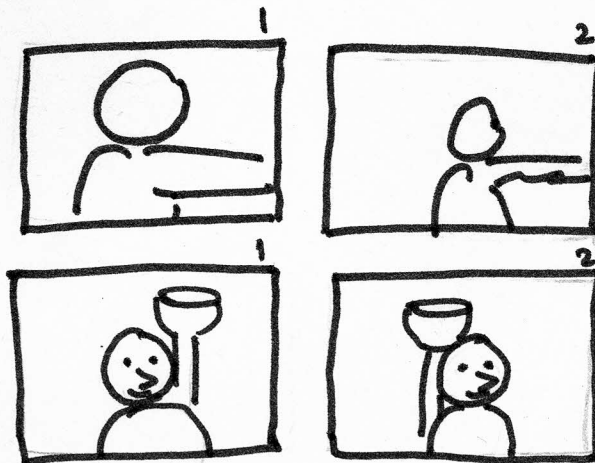


Each cut should make a point. So not only should two shots be matched in terms of sets props etc. and the content of action, there should also be reason to cut from one camera position to the other. The exact timing of the cut should be the one that makes most dramatic impact. The cut will go unnoticed if at the point of the cut

the audience is mentally prepared to see something different. So it is unwise to cut to a close up when a very trivial action of drinking water from a glass is about to take place. If, on the other hand, a person is demonstrating the action of a puppet, it is better to cut closer just before the demonstration begins.

b) Extent of Change

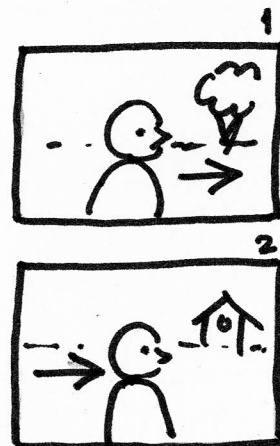
The extent to which the camera angle or the camera proximity changes from one shot of a scene to the other should be substantial. If from a mid shot of a person showing his hands upto the elbows if we cut to a slightly longer shot in which we can see his hands upto the wrist, the audience notices the cut but doesn't get any more information than it was getting earlier. There is no point in this cut and hence it becomes particularly harsh. Instead, if the next shot is taken from further away, such that we can see what the person is doing with his hands, the cut gives more information and is more acceptable.



Similarly if the camera changes its angle or point of view, it should do so substantially otherwise the cut will appear to be harsh.

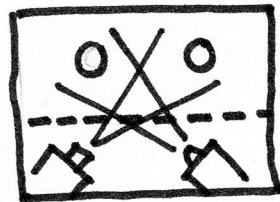
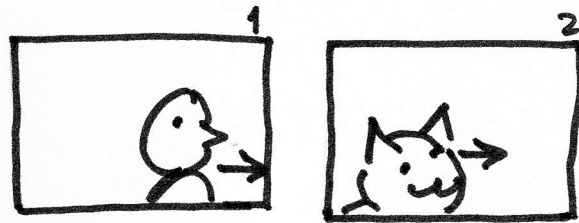
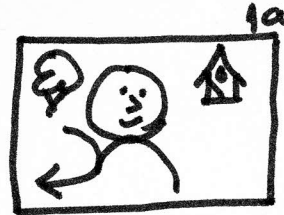
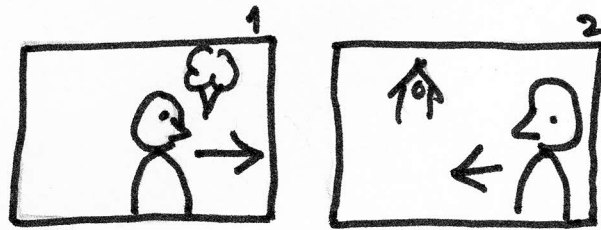
c) Preserving a sense of Direction

It is necessary to maintain a clear picture in the minds of the audience about the relative positions of various actors, props, their direction of motion etc. This is achieved by maintaining a clear sense of direction in the film.



Managing Entries and Exits

When a figure moves out of the frame from one side, the natural tendency of the eye is to search for that figure at the other side of the frame. So if the figure enters from that side at the beginning of next shot, the eye doesn't notice the cut. This editing device is applicable not only from one shot to the other within a scene, it also yields a smooth cut from one scene to the other.

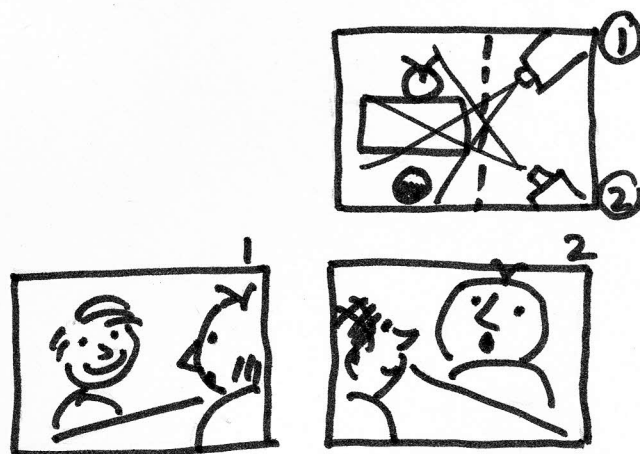


However if the figure enters from the same side as it had left, the audience will get confused and the sudden change in the direction of motion will appear to be jerky. So if such an entry is unavoidable, a slight delay should be given before the entry during which the audience presumes, the figure changed its direction of motion.

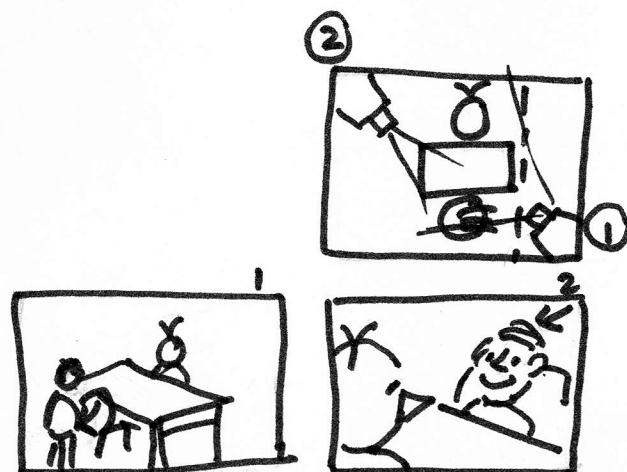
But on the whole, it is better to manage entries and exits from opposite sides. In fact just for the sake of continuity, we can show one figure go out of the screen on one side and another entering the frame in the next shot from the opposite side. The cut appears to be that much smoother.

Crossing the Line

In conventional theatre, all performers sit on one side and all the audience sits on the other side such that a clear line can be drawn between them. A film is a play seen through the eyes of the cameras. So if all the cameras are placed on one side of a 'line' and all the action is



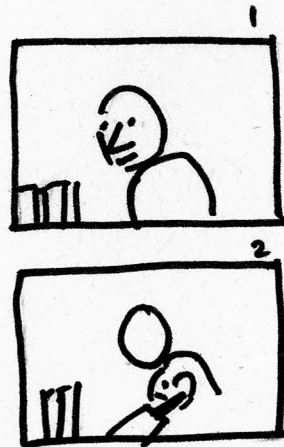
taking place on the other side, the audience will have no difficulty in following the film. On the other hand if even one of the cameras is not on 'this' side of the line, the audience may be momentarily confused every time one cuts to that camera. This doesn't necessarily mean that all sets should be on a stage and the cameras kept in the audience. What it means is that it should always be possible to draw a straight line between the performing area and the cameras. So the performing area could be around a table with people sitting on both sides facing each other while all the cameras are placed either on the right or on the left of the table. Or it could be along a street corner with all the cameras on the opposite side and so on.



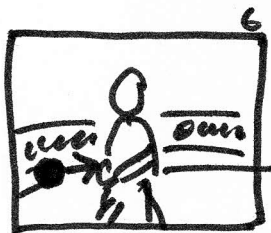
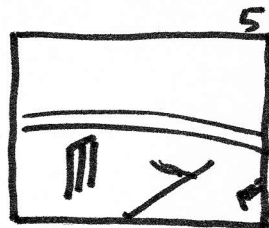
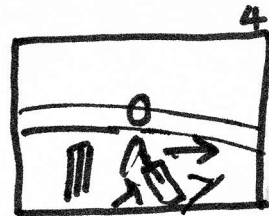
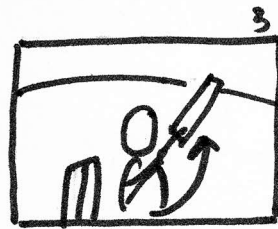
Sometimes it become inevitable to cross the line - either because of space constraints or because say a particular instrument needs to be shown from all sides. In such cases one has to be very careful to avoid confusion in the minds of the audience. While crossing the

line for the first time, some clue should be given to the audience as a reference from which they can judge the relative positions of objects and people. This clue could be either a very noticeable object or a very conspicuous action. The simple act of pulling a chair and sitting on it can be started in a camera on one side of the line and completed in the camera on the other side. Once both the cameras have been so established, the audience should generally follow the relative positions of different objects even if the line is being crossed.

d) Complete actions and Camera Movements



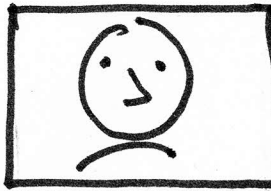
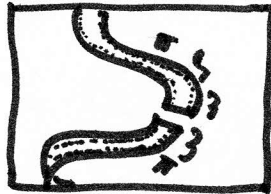
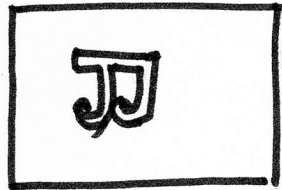
As we have seen above, actions are often used as cutting points. But these actions are valid cutting points only if they are used to change view points, and are partly shown in shots on both sides of the cut. If a person turns away from a camera in order to demonstrate something on the other side, the situation demands that we switch to a camera that gives a better view point. But the cut will appear



to be smooth only if the act of turning which was shown to begin in the first shot is completed in the subsequent one.

So unless an action is being completed in the subsequent shot, the cut should be taken only after the action has been completed. What is true about actions is also true about camera zooms, pans, tilts, dollies etc. A cut made when an action or a motion is mid way, appears to be particularly harsh, especially a cut where one scene ends and another one begins.

Apart from actions used as cutting points, the other exception to this rule are montage sequences. It is possible in montages to cut midway from one action or motion to another, provided both actions or movements are of similar nature and the changing area is roughly in the same part of the screen. So one can cut mid way from one pan to another or one zoom to another. The cut doesn't appear to be harsh because the eye roughly continues a similar kind of movement from one shot to the other.



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e) Use of Sound

All the thumbrules talked about so far have been concerned with editing based on visual principles. But cinema being an audiovisual medium, the sound track is as important as the visuals.

Flow the Sound Over

A simple way to make a cut smoother is by 'flowing the sound over'. If both the visual cut as well as the sound track cut are simultaneous, the cut will be more noticeable. On the other hand if the two cuts are separated, there is visual continuity during the audio cut and audio continuity during the visual cut and the overall effect is much smoother.

It is our daily experience that visual and sound cut does not happen simultaneously. A person hears a sound and then only he turns around to look for the source of the sound. Here the audio cut comes first producing the sound. The visual is meanwhile showing the person's reaction



to the sound - he turns around to look for the cause. Then comes the visual cut to show the cause itself. The sound has thus flown over the visual cut.

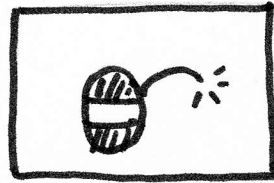
Sound can also flow over from the earlier shot to the next one. Suppose a teacher is talking about how a DC motor starts. Before the end of her speech, we can cut to the shot of a stationery DC motor. The visual cut has taken place but the audio is still flowing. When the teacher has finished, let the motor start at which point the audio cut can be taken bringing in the sound of the motor.

Cut to the Beat

Montages are often employed in films to link up differing shots of a common theme. A montage sequence can effectively show the different uses of steel for instance or the variety of wild life in a particular sanctuary. Since shots are varied, the use of natural sound is not possible. So music is used to bind all the shots together. If the shots are cut to the beat

of the music, the montage will look much better and rhythmic.

The Use of Blink Reflex

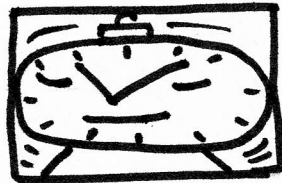


When the ear hears a large sharp sound, the human eye blinks as a reflex action. So if a cut is made just after a large sharp sound, the audience will blink momentarily and miss the cut. This large sharp sound could be anything from banging a door shut to dropping a flower vase.

f) Manipulation of Time

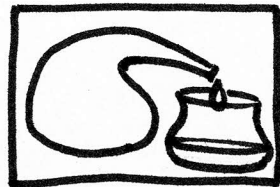
Cinema is a time medium that creates an illusion of reality, so whatever goes on the screen appears to go on in real time. Apparently, it is a record of whatever action that is taking place in one continuous flow, as seen by different cameras at the same time. It is only for the sake of convenience of better viewpoint, the viewer assumes that he is being shifted from one camera position to the other. As long as the cutting is smooth, it's all the same for him,

whether the scene has been shot with many cameras at the same time or by the same camera at different times. To him it is a chain of events flowing one after the other and it takes the same amount of time on the screen as it would have taken, had these events happened one after the other in real life.

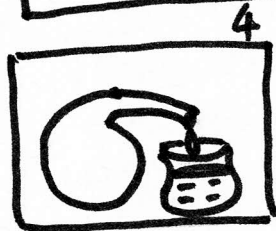
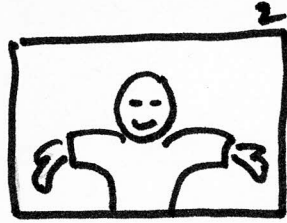


Time Compression

Or so he thinks. If films were actually made in this way, they would turn out to be very boring. If it takes five minutes to fill up a jug with a chemical oozing out of an apparatus drop by drop, one can't fill five minutes of screen time with just this. Unless the actual process of filling up is important, about forty seconds is what this part of the experiment should deserve. So what we need is a device to compress time.



The simplest, devices are the most cliched ones. Shots of calender pages flapping or a clock flicking over five minutes fall under this category. Unless the exact time that passed

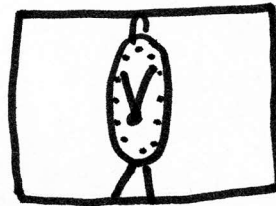


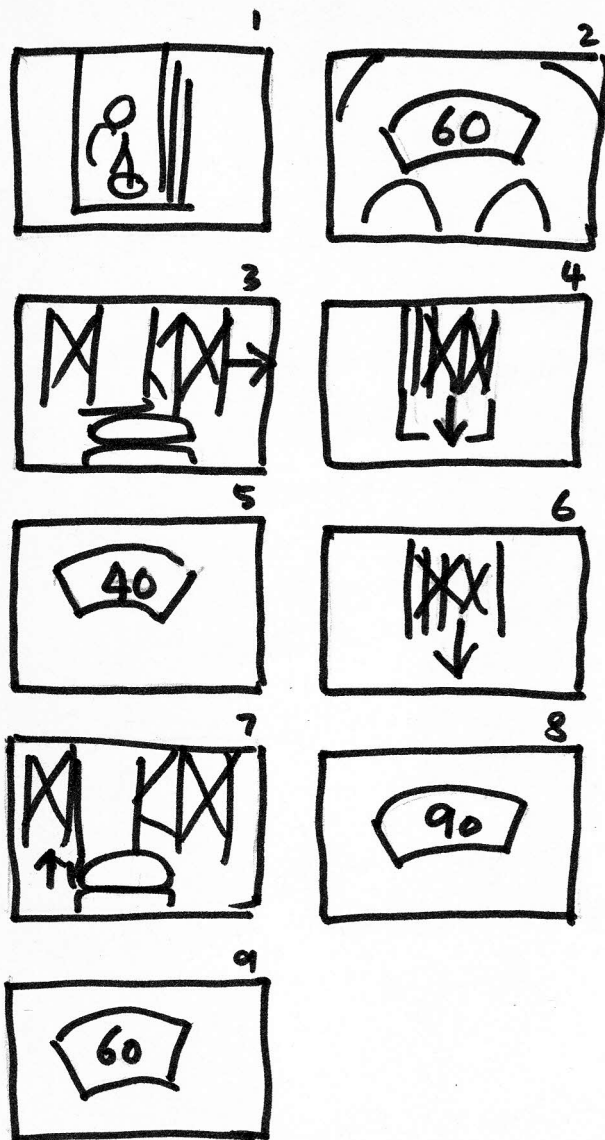
is important, these should be avoided.

There are subtler methods instead. After a few initial drops have fallen into the jug, one can cut to the teacher, who, while waiting for the jug to fill up is giving some more information regarding the experiment. Here's also a chance to get some of the more interesting side lights in. Hardly has this gone on for thirty seconds or so and we can cut back to the jug. The half a minute or so while the teacher was talking was sufficient, the audience presumes to fill the jug.

Time Expansion

In certain experiments too many things happen too fast. Such experiments need to be slowed down on screen so that the viewer can perceive them. In other words we need to expand time. This may be done either by repeating the whole action or showing the action in slow motion. But repeating an action on screen tends to make it uninteresting and show motion facilities may not be available.





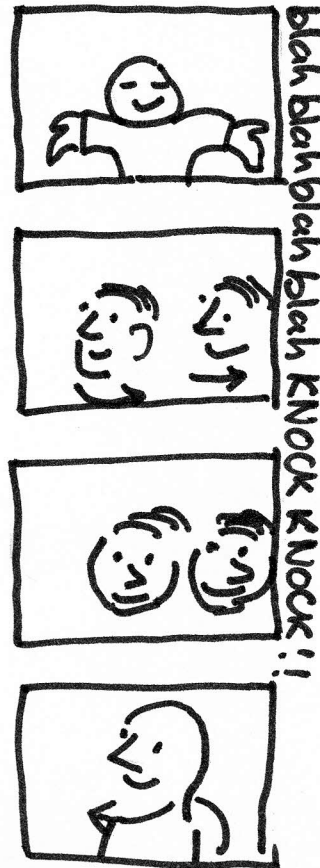
Instead it is possible to simulate a life like experience of a quick action. Assimilation of information difficult if too many things happen in too short a time. A weighing scale showing the weight of a person standing in a lift for instance, dips as soon as the lift begins to descend and shoots above the person's weight when the lift is about to come to a half. In reality the whole action takes less than ten seconds. But ten seconds of screen time is not sufficient for the audience to understand what happened. Instead, if the whole action is covered from 3 - 4 different view points each emphasising a different part of the action - one showing just a close up of the weighing scale, one showing the lift beginning to descend, one from inside the lift and one from the ground floor showing the lift coming to a half - the concept becomes clear. Meanwhile all these shots have used up about thirty seconds of screen time which is sufficient for the viewers to grasp the situation.

4. DRAMATIC CONTINUITY

Most editing devices discussed so far are devices of mechanical continuing of a film. They are based on very formal aspects related to movement, Camera position, timing etc. These are guidelines to avoid mistakes. They do not depend on an important aspect of a film - its content.

But one thumbrule is purely based on the content of the shot. It says cut when the audience is ready to see something different. This method of editing gives the dramatic continuity to the film. It means that editing should be done to the flow of ideas. While editing based on the rules of mechanical continuity acts at a subconscious level by smoothening out the cuts, editing based on dramatic continuity gives us the lifelike semblance of what we see. A new shot appears because and just when the earlier shot has made the ground work for it. The minds of the audience has been prepared and

they are actually asking for something else. A film with good dramatic continuity is not so much a record of the physical conditions of a scene, but an interpretation of the mental process by which one experiences it. It channels the attention of the viewer to what and only what the film maker wants him to see.



For instance consider the scene in which a class is going on in which a teacher is explaining something to the students when all of a sudden an interruption takes place. First we start with a mid shot of a teacher talking. Then we cut to a few close ups of the students listening. Meanwhile the voice of the teacher continues to flow in the background. Super imposed over the voice we hear a knock on the door. The student, whose closeup we were last showing reacts and looks at the door. The voice of the teacher has stopped abruptly. So we cut to the teacher. She too is looking at the door. By now the audience is interested to know what happened. So we cut to the door to show whoever or whatever knocked. And so on .

Thus each cut has a reason, not a reason of mechanical continuity, but a reason in the content of the earlier shot. The audience tolerates the cuts because it wants to know more.

In general the order of shots is decided with the considerations of dramatic effect. Then the rules of mechanical continuity are applied to the cuts to smoothen them out. At times it is not possible to satisfy both those considerations. In such cases the rules of mechanical continuity are sidelined and a jump cut is accepted for the dramatic effect.

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