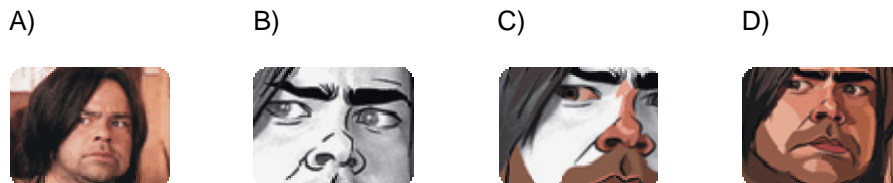


Realistic Unreality

Richard Linklater produced two major motion pictures: *Waking Life* and *A Scanner's Darkly* using the animation technique rotoscoping. The application of this method will be explored through introducing the rotoscope fundamentals, detailing its use in the computer age, reviewing Linklater's motives for using animation, and finally by comparing the results of rotoscoping in both films.

The technique was first developed by Max Fleischer in the early 20th century. Before computers a sequence of image frames were projected onto an animation stand called a rotoscope. An artist traced a frame or added an image to the frame. The concept of rotoscoping is analogous to "painting on movies".

Computer hardware has replaced the rotoscope animation stand with Wacom pens and tablets, G5s, and digital cameras. Linklater used Rotoshop, software developed by Bob Sabiston, to digitally bring this technique to the films *A Scanner's Darkly* and *Waking Life*. Here is an overview of the steps to create the rotsoscope effect in *A Scanner's Darkly* (from reference 3):



A) Film

Director Richard Linklater shoots with digital cameras. Since details are added by animators, there are minimal costumes, props, and sets.

B) Animate

Artists use Wacom digital pens and tablets connected to Apple G5s running Rotoshop software to trace the movement of actors in a scene. Not every frame is hand-drawn; the software fills in the gaps.

C) Enhance

The animators use Rotoshop's masking, warping, and blending tools to enhance the 3-D effect. Then they add scenery and adjust the color. Some elements take weeks to complete.

D) Render

The completed sequences are processed for eventual output to film. One 15-second scene that started out as a 26-Mbyte file took an hour to convert into a whopping 486 Mbytes.

Rotoshop is similar to most types of editing software. It imports a format specific file and then allows the user to modify the footage. The following is an introduction to Rotoshop use (from reference 2):

To use Rotoshop, you edit together video in any digital video editing application, such as Final Cut or iMovie. You must export the video that you want to animate as a QuickTime file. That file is requested by Rotoshop when you first run the program.

Once you are up and running, you move around within the video frame-by-frame, by pressing the arrow keys. You can change the speed of scrolling by changing the number of frames jumped each time you press an arrow key. Your primary drawing tools are pressure-sensitive lines and area-drawn polygons. The interface is familiar to anyone who has used computer-based drawing tools before.

You can use Rotoshop to draw strictly frame-by-frame, if you like. This will yield a result much like the well-known video "Take On Me," made in the 80's by A-Ha.

The software is most effective, however, when you start to interpolate your lines and shapes. Interpolating means that you can draw a line, skip forward two or three frames, and draw a second line. When you go back, the frames you skipped have been filled in automatically by the computer. It is a simple form of "automatic in-betweening." Interpolated lines and shapes have a very smooth, fluid motion that is impossible to achieve by hand-drawing each line.

In order to manage different objects in the scene, you break your drawing into layers. A layer can be "frozen" so that a single drawing remains visible throughout the entire scene. This feature is necessary for backgrounds and other things that do not change shape through time. You don't really want to be drawing those 15 times for every second do you?

Once you are finished with the animation, you can watch it in a preview window with the sound. If you are satisfied, export it as a DV QuickTime, which can be brought back into iMovie or Final Cut and edited or put out to tape like any other piece of digital video.

Richard Linklater isn't an animator or a computer scientist so why did he end up using Rotoshop? The choice turned out to be more by chance than anything else. In interviews he talked about having vague ideas for films that he had been kicking around for years but had never come up with a way to visually represent the idea he was picturing. One day he saw the animations that Bob Sabiston had been working on and he realized that the style was what he had in mind for *Waking Life*.

In *Waking Life* the animation effects allowed for the visual manifestation of the lucid dream concept. Linklater explains this idea:

And it was only when I saw Bob's animation that it clicked. Then it was like, 'Oh, okay, that's the way it should look.' Up to that point the film was too blunt, too realistic. I think to make a realistic film about an unreality the film had to be a realistic unreality. You know, the animation is that. It's realistic because it's real voices, real gestures, real people and yet it's unreal because it's ultimately an animation of that.

The film is very disjointed and verbal. The animation effect definitely enhances the dream quality in the way that Linklater explains in the above quote. The dialogue and form also twist between the absurd and the philosophical. This compliments the animation which ultimately augments the lucid dream effect.

In *A Scanner Darkly* he was going for a similar dynamic. In this film he used the animation effect to question reality:

It was *Waking Life* when I saw the earliest stages of that technique. It sort of triggered something in my brain of the story I'd been thinking about for 20 years - or kind of non-story I should say that never worked in my mind as a film. But when I saw that it was like, Okay, that works because it's not real, but it *is* real. That's why I felt it worked here. Philip K Dick is always asking, 'What is reality?' and I think this technique puts your brain in the right place to take in this particular story.

Waking Life was perfectly paired with the use of rotoscoping. Scene continuity was not of primary importance so it was not an issue to have many artists plugging away at different frames. Stylistically the animation changed drastically between scenes and often during them. The following are examples of major design shifts.



Scanners Darkly posed many more challenges than *Waking Life*. The film was much more ambitious in terms of scene continuity and that was the primary reason the film was more problematic. This meant that the artists needed stay on top of what everyone else was doing with the scene and try not to take artistic license with the animations. Unfortunately for Linklater both of these issues kept cropping up during the application of the rotoscope effect. Here are examples of the *Scanners Darkly* finished product:



In addition to the stylistic complexities *A Scanners Darkly* was plagued by other issues. A new team of artists were hired for the project so that meant that there was a considerable learning curve to contend with when it came to getting everyone up to speed on Rotoshop. On top of this, new code was added to the software since its use in *Waking Life*, which of course meant new bugs were waiting to be uncovered by inexperienced users.

Richard Linklater expressed a certain amount of wariness about using this technique in future films after producing *Scanners Darkly*. After reviewing details of this technique, and the application of this method to the films, one can understand his concern. However the effect had a great deal of importance in the story telling, consequently was a major component of both films, and in my opinion was worth the effort.

References

http://whatis.techtarget.com/definition/0,,sid9_gci212923,00.htm

http://www.g4tv.com/techtv/vault/features/23423/Rotoshop_Animation_pg1.html

<http://www.wired.com/wired/archive/14.03/scanner.html>

<http://www.flatblackfilms.com/contact.html>

<http://movies.ign.com/articles/307/307481p1.html>

<http://movies.about.com/od/ascannerdarkly/a/scannerr1062906.htm>