

## The paradox of animation time.

If the inanimate experiences real time why does it appear alive for a brief moment?

Andy Joule

Animation is by nature a time based medium. It is a dissection of time, a fragmentary exploration and journey of discovery frame by frame. By utilising the idiosyncrasies of film and perception of vision, the animator attempts to reconstruct their understanding of reality twenty five times every second. The paradox of this action occurs between the observation of this and the execution of the result. In short this is what the animator experiences and what the inanimate does.

This extract is based on my observations as a practitioner in the field of stopmotion animation, and my considerations of the passage of time for me as the illusionist, conjurer and artist, and the time that I shared with the inanimate object; the puppet or similarly inanimate object, that which was bereft of life. Unaware itself of time the puppets would appear lifeless, static and unconscious, until the camera awoke and shared its moment with the audience. Here the animator not only brings the puppet – that which is animated, the term being interchangeable with 'inanimate object' – something not necessarily anthropomorphosised or directly representational like a human or animal figure, rather something that would naturally be inanimate – to life, but also wakens it to a period of time. It is this period of time that only the animated object experiences. It is also this period of time that the animator needs, essentially, to understand to create something akin to a new reality.

If the animator cannot dissect this time, hold those fragments internally and imbue them into the inanimate then the result is a discordant recreation of reality.

The paradox that exists therefore is the dual time zones that the process creates. For one, the animator, time passes as measured by the watch or clock, with twenty-four hours per day, possibly eight of those spent in the act of animating. 480 minutes. 28,800 seconds. 720,000 frames. This is the time that we are familiar with. The time as experienced by the inanimate only occurs when the shutter opens, and this can lead to a time reality from as little as 1 second, or 25 frames, to as much as 15 seconds or 375 frames. Herein lies the paradox. The skill for the animator comes from being able to separate these two time zones, inhabit each in equal measure and to imbue each with equal skill and understanding. For the purposes of this essay I will refer to the time we experience in our everyday lives as 'real time', and that of the inanimate (once replayed in a moving image sequence) as 'animate time'. In this essay I will also use the term 'puppet' when referring to the inanimate.

This paradox is not created within the mind. It is not a construct therefore, rather it is an occurrence born out of a creative process. This is self evident within time lapse photography – the simplest and most basic form of time based dissection. It allows the spectator to observe natural processes and phenomena in another dimension of time. Within stopmotion there is a commonality as they are both time-lapsed creations. The fundamental difference between time-lapse and stopframe being that one – time lapse – is a purely observational and a non-interventionist process as opposed to stopframe which is an interventionist's approach to the medium, one that is controlled by the creator with no external considerations given to the passage of time, movement of light or extraneous bodies (all of these are considered to be within the control of the animator).

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The difficulty that remains for the stopframe animators as the controllers of these two time frames is their ability to deconstruct and recreate the two, and to hold their own real time existence in mind whilst projecting the animated time on to the inanimate puppet.

The simplest method of control over any irrationality over timing is simply for the animator to attempt to recreate the motion or action and to time this, not just in seconds or fractions of seconds but specifically into frames. This process is fundamental to all animation, not specifically stopframe, and must be executed with all movements – this allows the animator to 'feel' the movement and create muscle memory, to identify the motivators of a movement and to discover its duration. I suggest that motivators are those actions that precipitate an action. For example I would argue that for a character to wave goodbye it first needs to raise its

arm. This movement should start from the wrist, moving away from the body as the hand twists back towards the body in obeisance of the laws of physics: all actions have equal and opposite reactions. Therefore the 'motivator' in this instance is the wrist. With practice this process will become second nature, so that the experienced animator can analyse a movement and ascertain the number of frames required. Even with this skill the animator should go through the movements several times to establish an average timing. The next stage, particularly for the novice animator is to log the idiosyncrasies of the movement, breaking down each movement into its component parts into frames as well. Traditionally (for puppet stopframe) this would be written into the dope sheet. In the days before video assist or digital capture (and the ability to replay the animation as it is appended) this was essential as it enabled the animator to keep track of the timings and where and when specific actions were to start or end. At this point it is worth mentioning that the animator needs to develop another key skill allied to that of inhabiting the two time zones, and that is to be both conscious and unconscious of the movement they are analysing. If the animator is too conscious of the action they are acting out then the movements will become artificial, so the animator needs to separate their 'acting' and 'analysis' as two separate but intertwined activities. In time an animator should be able to bypass these processes altogether and hold this information internally, to know intimately all actions, motivators and timings, and to know just by looking at the puppet where it 'lives' within a cycle or movement, in short the animator can analyse a frozen moment in time and know where it sits in relation to the time past and the time yet to occur.

The latter statement is the paradox. The inanimate puppet exists within a flow of time of which we are consciously aware. However the puppet at any given stage appears to have no life. It is static. The casual observer has no awareness of the gradual changes and that in fact the puppet is alive through the process of manipulation. It is the process of animation that brings the puppet to life but it also requires some form of evidencing – filming frame by frame. Just as with time-lapse, it is only by replaying the film can the audience see the inanimate come to life. We are aware that, for example, given time an apple will soften, change colour and decay. This process will normally take several days if not weeks, and, unless we sit in front of the apple for the duration of its decay we will not notice the subtleties of this, the shift of hues, the undulation of the skin, its change of form and volume. By photographing this process the evidence is compiled and the whole decay can be

replayed in a contracted form over a number of seconds or minutes. Here time lapse gives the audience a window into another dimension of time, albeit an artificially manufactured time dimension. It shares many similarities with high-speed photography which allows the observer to analyse systems and processes in acute detail as it is able to highlight subtleties, for example, in the way a drop of water deforms and fragments when it hits a hard surface. It is as if high-speed photography is the microscope to the magnifying glass of time-lapse. Each has a valid contribution to make to our understanding of movement and changes over time, and individually they allow us to look at movements, systems and processes from different directions.

In the same way that the results of time-lapse and high-speed photography depend on the frame rate chosen to examine a process, then the choices of movement made by the animator affect the perceived reality of the results. With time-lapse the time taken between frames not only decides the duration of the shot but allows the audience to witness subtle differences. Returning to our decaying apple this could be seen as something rotting away in mere seconds if the interval between frames is long enough, or over several minutes by reducing the interval.

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The skill for the animator here is to be able to predict the results and calculate the ideal interval. A similar understanding is needed when capturing an instance with high-speed photography, knowing what it is that is to be examined and determining a sufficient frame rate to do this. With stopframe animation the animators are aware of their own time passing as well as the time that needs to be recreated with the puppet to give it the illusion of reality. This is a dual process of dissecting time and movement. Within the mind of the animator the two time zones coexist and the skill for the animator is their ability to keep both alive, one running in real time, the other as a series of imagined movements and an awareness of where the 'static' puppet is within its animate time.

I mentioned earlier the use of dope sheets as a means of charting timings and movements and the importance of this, particularly in the days before video assist or digital capture, when the animator would shoot 'blind'. As a practitioner it was a process that was an essential stage in the creation of a well-timed animation. It allowed me to record when, for example, a puppet blinked, or whether a hand waving was moving to the right or to the left. It was this process that made me first aware of this duality of time. I had animated a shot and I had failed to log when the blinks had occurred, and so, wanting to keep a background character 'alive' I simply

blinked it whenever I felt that a suitable passage of time had occurred. The shot was only four seconds long, but as there were a number of characters that needed animating it took several hours to create it. To my mind I had blinked this character every hour or so, as I would think back to when it had last done this, realise that it had been a long time and feel justified in getting it to blink again. When the film came back the result was a puppet that blinked five or six times over four seconds. For me, in my 'real time' that number of blinks felt like a reasonable number. For the puppet in its 'animate time' it was totally unrealistic. I had failed to appreciate and act upon an understanding of this duality.

For stopframe animators working today, where shooting blind (straight to film without video assist) is rare, and where the opportunities exist to shoot digitally and review their animation frame by frame – an essential process still, there still needs to be an understanding of this dual time. Shooting digitally now allows the animator to shoot straight away, and almost time things as they go along. It is far easier to correct poor timings in post than it has ever been, and post-production can sort out a wide variety of mistakes. However a reliance on this does not serve the animator well. At the heart of all successful animation is the skill and understanding that the animator brings to the subject – it is the animator's unique ability to work with this paradox of time, and how to exploit it that allows for exquisitely manipulated sequences to come to life.

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**Andy Joule** is a Senior Lecturer in Animation at the University for the Creative Arts at Farnham, UK. He started his career in 1990 in stopmotion animation, and has worked on a wide variety of films, children's productions, commercials and title sequences. He has worked on a number of BAFTA nominated programmes and in 2007 won the D&AD Yellow Pencil for the BBC's 'Kill It. Cook It. Eat It' titles. From 2006 to 2008 Andy was on the BAFTA jury for animation.

Andy's interest in the time paradox in animation came about through direct experience working in animation, and he is now researching this idea. Andy is also producing a short film that explores the movement of light and time.

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