

IP
INFORM.
ANIMATION
2012
research, education
and design experiences

edited by
Nicoló Ceccarelli,
Carlo Turri

FRANCOANGELI

I.P.
INFORMANIMATION 2012
research, education
and design experiences

ISBN 978-88-917-1178-6

The *IP Informanimation* project has been funded with support from the European Commission. This communication reflects the views only of the author(s), and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Part of the IP educational program has been made possible by the Regione Sardegna-Università di Sassari *Visiting Professor Program*.

Unless otherwise stated the pictures featured in this book are copyright of the author(s).

Copyright © 2014 by
Università di Sassari
Dipartimento di Architettura, Design e Urbanistica

www.informanimation.eu
www.informanimation.org

Printed by Digital Print Service srl
Legal Haedquarters via dell'Annunciata 27, 20121 Milano
Operational Haedquarters via Torricelli 9, 20090 Segrate (MI) and
via Merano 18, 20127 Milano



CONTENTS

| | |
|--|------|
| Nicoló Ceccarelli Prologue | .5 |
| Carlo Turri Introduction | .7 |
| PART.1 lectures | |
| María Fullaondo DYNAMIC VARIABLES IN DRAWING | .12 |
| Eleni Tsampra APPLYING THE ACTANTIEL MODEL ON AN ANIMATED FILM | .23 |
| Ian Mitchell MOTION TYPOGRAPHY: TEXT, TIME AND THE SCREEN | .38 |
| Alfredo Calosci APPLICATIONS FOR AWARENESS | .55 |
| Marina Estela Graca MODES OF CODIFICATION IN ANIMATION | .66 |
| Eleni Mouri PREPRODUCTION IN ANIMATION | .76 |
| Carlo Turri THE INFORMATIVE SIDE OF ANIMATION | .94 |
| Peter Hodges THE SOUND OF INFORM.ANIMATION | .106 |

MODES OF CODIFICATION IN ANIMATION

Summary

The illusion of movement that we perceive in animated films has its origin in the way the animator manipulates the graphic relation between two contiguous frames in each sequence. However, this apparently simple action entails multiple modes of codification.

The meaning of an animated document comes from the articulation of a number of formal elements that constitute its discourse and that also belong to different languages and disciplines: perception of apparent motion; graphic communication; composition of motion; dramatic expression; narrative structuring; film language; synchrony between sound and actions; and continuity/discontinuity in filmic duration.

Most of the basic concepts, constituents and techniques of animation discourse, as well as specific devices, have been already addressed in an ad hoc, bit-by-bit way. However, though they are supposed to identify all the various elements, conventions and discourse techniques in animation, they have not been yet put together and completed in a systematic manner.

This article intends to outline a theoretical framework for animation as a comprehensive field of studies.

Specifically, to animate stands for the act of composing apparent motion

The illusion of movement that we perceive in animated works has its origin in the way the animator manipulates the graphic relation between two contiguous images in each sequence. As Norman McLaren once wrote (Sifianos, 1995:62):

“Animation is not the art of DRAWINGS-that-move but the art of MOVEMENTS that-are-drawn. What happens between each frame is much more important than what exists on each frame. Animation is therefore the art of manipulating the invisible interstices that lie between frames.”

Later, McLaren will clarify the meaning of this definition, stating that:

“For the animator, the difference between each successive frame is more important than the image on each single frame. It is the heart and soul of animation. The graphism, though very important too, is of secondary importance. Animation therefore is the art of manipulating the differences between successive frames, or the image on each frame.” (Sifianos, 1995:66).

Thus, although the production of an animated document can be explained by the simple and technical act of composing the

graphic information in each of successive frames, the focus of the animator would never be on that gesture in itself but, instead, would be in controlling a sequence of perceptual gaps on the viewer's mind. With that series of visual *stimuli* the skilled animator would build a believable world able to maintain the viewer's attention for a period of time.

Animated documents are pervasive in contemporary media

Unique in its ability to visually communicate complex ideas and unseen worlds, animation is ubiquitous in creative and informative practices for some decades, now. But it is not equally common to find scientific publications about animation on the shelves of bookstores. There is no academic awareness and knowledge demonstration of the complexity of the competences required to compose animation that, expectedly, would follow the obvious quantity and diversity of available documents.

Furthermore, one can't describe the techniques and processes of an animation (film, audiovisual, performance, device, toy) without using specific terminology associated with concepts, any more than one can describe the workings of an engine without the appropriate technical vocabulary. But, while someone who wanted to learn about motors would have no trouble finding manuals, there is no comparable work for the student of animation.

Even though it is possible to find descriptions of strategies to compose frame-by-frame techniques, we still need a unified

and comprehensive system of concepts and information that allow us to address all the complexity of animation discourse.

We need a theoretical foundation of animation

In other words, we need to develop a poetics that would turn explicit the system of elements and conventions that explain how animation documents have the forms and meanings they do.

Animation poetics is a progressive, cumulative enterprise. It stands for the theory about the work made within the set of significative possibilities available to the manipulation of the author. We are referring to an area of studies that we could also call *plane of expression*, in the sense given to it by Hjelmslev (1963/1943:60), distinct and autonomous but inseparable regarding the *plane of content*. These possibilities include the critique or appropriation of the scientific model that shapes the technology to be used; the listening to the body's own memory which will manifest itself in the discourse as the author's expression; and, finally, all seized modes of articulation of formal elements observed by the author in films and other references.

Some of the basic concepts, constituents and techniques of animation discourse, as well as specific devices, have already been theoretically addressed.

However, though they are supposed to identify all the various elements, conventions and possible discourse techniques in

animation, they have not been yet put together and completed in a systematic manner.

Animation research has noticeable weaknesses: there is a lack of common reference points and terminology, and the quality of analysis and articulation is uneven. Moreover, there is no significant mass of participants; the range of journals and the number of conferences are not sufficient; critical studies are absent in academic departments. Briefly, we still don't possess the infrastructure for attracting and supporting a community.

Proposal of a framework of references necessary for animation as a comprehensive field of studies

What, then, is in question when an animator sequences images into a series of frames in order to compose movement? How many levels of competences are essential to elaborate an animation?

To fully answer these subjects we need, first and foremost, to build a comprehensive theoretical model that includes all known animated documents. That is, films, audiovisuals, performances, devices, toys and flipbooks. We have to consider those who don't contain sound or characters and not disregard the fact that some are representational and made to communicate ideas or information, other are expressive as they stand as artistic statements, several are decorative, and some are just fun to experiment. Then, we have to find what characteristics they have in common and label them accordingly as essential aspects of all instances, unless demonstrated otherwise by our peers or even us.

An obvious observation is that all animated documents have images, even when they are not perceptible, as is the case when we have empty frames, each of the discrete unities that carry graphic information in an animated film (or pages of a flipbook). The fact that all animated documents are built on discrete unities made to carry images is another common aspect and one that clearly and critically opens the technology that supports cinema.

However, before choosing a graphic language, the visual concepts to be animated, the animator has to understand the perception workings of apparent motion in order to control them.

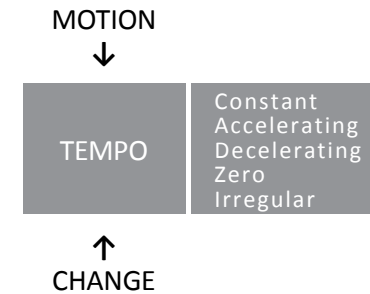
Real motion consists of continuous physical changes over time, and apparent motion is observed when its physical basis consists of discontinuous (discrete) stimulus changes. Animation is possible because of the human capacity for perceiving apparent motion.

Max Wertheimer, in his seminal publication (1912) on Gestalt theory, was the first to acknowledge the perception of apparent motion, the "phi phenomenon" as he named it, already widely known through motion pictures, and how it could be studied experimentally.

His experiences established that it could not be explained by peripheral, sensory mechanisms in the eyes, but only by taking into account higher-order brain processes. He confirmed that if one of two *stimuli* was presented to one eye and the following to the other, motion impression would still occur.

In his film *Blinkity Blank* (1955), McLaren explored the thresholds of this perceptual phenomenon by intercalating empty frames into a sequence of drawings engraved directly on black film leader.

Animation, however, is a specific communication system of graphic signs articulated in such a way to compose not just



McLaren & Munro, essential principles of animated motion.
1976-78

motion but behaviour. The graphical signs of an animated character have to act in a physical plausible universe, from frame to frame, and it has to have storytelling gestures synchronized with sound for accent and mood. Its actions have to follow trajectory lines all through the frames and the discontinuous cuts of the film, in a manner that brings out their meaning as continuity and not just as an obvious amount of sparse graphic forms shown on the screen. Thus, the animator has to be acquainted with acting, physics, storytelling and film language, and able to translate all that information through a set of marks made on a surface.

The abundance of graphic techniques seems to be the most immediate aspect and one that characterizes the production of animated documents as a whole. Consequently, the animated image has to be considered in the context defined by all forms of image making. Basically, all the modes of codification that place the image before the plan of the screen as well as those that use the screen as if it were a window.

Most importantly, and as McLaren stated, the animator has to draw not what is in the frame but what is between frames. The animator's work is not to compose a sequence of images but a congruent sequence of graphical differences perceived as motion through the passing of frames at a certain speed ratio. When composing an image, the animator knows that that image is the minimal part of the significant basis, the physical vehicle for a variety of meanings to be decoded, interpreted, by the viewer's mind also as a flux of time. When choosing the technique of animation, the process by which the images are made and edited on frames, the animator is already taking options on the relationship of film continuity / discontinuity in a way not yet predicted by conventional theories of montage and film editing.

The 'nine old men' (Thomas, Johnston, 1981:47-69) at the Disney Studios, and Norman McLaren (1976-78) at the National Film Board of Canada, outlined two different sets of principles that subsume the core of competences needed for an animator to learn the job. Both sets became conventions. McLaren's proposal is a concise grammar of essential concepts made to guide the animator's work all through the numerous animation techniques. It proposes only two categories of 'motion' to be composed on the flat screen: horizontal and vertical dislocation of shapes (or the combination of both). The illusion of an action happening in a three-dimensional space would need 'change', made according the principles of graphic design: of shape, texture, colour, size, etc. 'Change' is an important concept tool in animation as it works not only on the graphical level of codification but in all others, as it is also of dramatic and narrative use, and can be employed in filmic montage as a specific kind of transition. 'Tempo' is roughly compatible with 'timing' in Disney's proposal.

Disney's proposal correspond more to a list of essential processes, designated with names that help the aspirant animator to better understand the purpose and achievement needed by the specificity of Disney Studio's animation rhetoric: squash and stretch; anticipation; staging; straight ahead and pose-to-pose; follow through and overlapping action; slow-in and slow-out; arcs; secondary action, timing; exaggeration; solid drawing; and appeal. They have been addressed and

perfected all through the thirties until becoming the essential grammar for animation in films produced by Disney and, currently, also by Pixar.

Conclusion

As we have seen, animation discourse builds up on the intersection of practices and thought from diverse disciplines: perception of apparent motion; graphic communication; composition of motion; dramatic expression; narrative structuring; film language; synchrony between sound and actions; and continuity/discontinuity in filmic duration.

These intersections, sometimes collisions, have produced specific forms in animated discourses that also belong to other languages although not yet recognized. That is the case of animation as part of drawing studies (drawing graphical gaps not as an experimental approach but as a conventional one); the performance of animated characters in theatre; synchrony between images and sounds as visual music; and change as a specific narrative and transition device in film language. There are other forms yet to be defined.

Although ambitious in its limited space, this article has proposed an essential framework, as we must have a foundation to consolidate research.

Now, we should implement it into a comprehensive and unified field of studies.

bibliography

- Campbell J.
The Hero with a Thousand Faces
Pantheon Press, 1949.
- Hjelmslev, L.
Prolegomena to a Theory of Language.
University of Wisconsin Press, 1963.
Translation by Francis J. Whitfield from the Danish original: *Omkring sprogteoriens grundlæggelse*, Ejnar Munksgaard Copenhagen, 1943.
- McLaren, N
The definition of Animation: a letter from Norman McLaren, with an introduction by Georges Sifianos
Animation Journal, Vol.3, N°2, Spring, pp.62-66., 1995.
- McLaren, N., Munro, G.
Animated Motion
(series of didactic films)
National Film Board of Canada, 1976-78.
- Sarris, V.
Max Wertheimer on seen motion: Theory and evidence
Psychological Research, September 1989, Volume 51, Issue 2, pp 58-68, 1989.
- Sifianos, G.
Langage et Esthétique du Cinema d'Animation
Doctoral Thesis, University of Sorbonne, 1988.
- Thomas, F., Johnston, O.
The Illusion of Life
Abbeville Press Pub New York, 1981.