

ANATOMY OF A PUPPET

Design driven categories for animated puppets' skin

Vincenzo Maselli



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Vincenzo Maselli

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Foreword

by Michael Cusack¹

I have always been fascinated by the power of puppets, so fascinated that I ended up making it my career. I have been a stop motion animator for over forty years and even now, after all this time, I am still thrilled when I see my puppets moving, knowing that I have been able to breathe life into them. It is something that I will never tire of. It feels like magic, indeed, the title of one of my short films "Sleight of Hand," which is about a man who creates a stop motion character, only to find out that he too is a stop motion puppet, refers to the fact that stop motion, when done properly seems like a wonderful magic trick. When the puppet and the animator are working in unison, a delightful and powerful partnership develops.

When I am on set animating a character, a real tangible bond exists between us. While I am moving the puppet around a frame at a time, I really do consider that the puppet and I are combining to create a performance together. This is not as farfetched as it sounds. Every puppet has its own quirks and foibles... each one is different and each one responds in a different way to how it is being manipulated. Many is the time that I have started a shot and then realised that the puppet is moving in an unexpected way, that is actually better than that which I had planned... the puppet is helping dictate the action.

Vincenzo Maselli's book on stop motion puppets goes some way into trying to understand this alchemy and explores this special relationship between puppet and animator. Maselli understands the tactile nature of the medium and the importance of understanding that the stop motion puppet is a result of a complete design process. Stop Motion is a unique art form in that the puppets being manipulated are occupying a physical space. They are

¹ Michael Cusack is a master Australian puppet animator and director, co-founder of the Adelaide based animation studio *Anifex*.

tangible, they are real, they are there. Maselli has outlined the importance of skin and how that influences both the design of the puppet and the relationship between puppet and animator. As an animator myself, it was a fascinating read and actually gave me a few insights into the process which I had never really considered on an intellectual level.

Puppets share a special place in the human psyche. We all like to see what we know to be inanimate objects moving in ways that we recognise, to imitate us. Stop Motion puppets in particular have this ability because without visible strings or rods, stop motion puppets above all others, can seemingly move without restrictions and can therefore "behave" more like humans. This in turn gives them greater resonance with an audience.... and as an animator, there is no greater prize than to look out over your audience in a darkened theatre and see them laugh and cry at a performance that you have created. The puppet has transformed from a lifeless mass of wire, clay and silicone into a living, breathing creation that can take an audience on an emotional journey.

Introduction

Theoretical framework and contribution

Animation is an interdisciplinary field, as it connects several disciplines such as film studies, philosophy, aesthetics, fine art, design, technology and many others¹. Design, on the other hand, encourages interdisciplinary production methods and interdisciplinary teaching approaches². Complexity is the first common aspect between these production fields and academic disciplines. Is not surprizing that animation and design have several common aspects and both can be used in the production processes of the other. Carlo Turri in *I linguaggi dell'animazione. Strumenti per la Comunicazione Visiva tra continuità e innovazione* (2010, pp. 74-77) has identified some of these aspects. Turri, writes that both design and animation derive from craft activities, and their production approaches rely upon two main components: creativity and technology. Both are linked to craftsmanship: Turri calls animation an “art of modernity”, and reminds the reader that Morris’ *Arts & Crafts movement* represents the starting point for modern industrial design. But they also exist in an industrial dimension. Animation is a design discipline because it engages the overall vision of an object – the animated film – and the definition of all the elements that form it. Design is a tool that participates to the animated film production in many ways and moments. Furthermore, both animation and design must respect constraints and limits, often coinciding, and sometimes they find their strength in them. Those limits are, for instance, time and available resources, the limits of technology, the unexpected

¹ More details in P. Ward (2013), “Animation studies as an interdisciplinary teaching field”, in S. Buchan (Ed.) *Pervasive Animation*, Routledge, London, 319-324.

² See L. de Greef, G. Post, C. Vink, L. Wenting (2017), *Designing Interdisciplinary Education. A practical handbook for university teachers*, Amsterdam University Press, Amsterdam.

changes, the costs, and the presence of a public/user. In this book, I consider another common aspect of the relationship between animation and design, omitted by Turri in his dissertation. Stop-motion is an animation technique in which real objects, puppets, are physically manipulated and slightly moved between individually photographed frames, so that they appear to move on their own, creating the illusion of movement, when frames are played as a fast sequence³. The protagonist of this animation technique is the puppet, an object of design that, as such, can be analysed from both a material/functional and linguistic-emotional point of view.

Design practice and puppets manufacture process are interwoven with a manifold practical-based long tradition. Designing characters has an ancient artisan tradition, that today finds an important application in the field of digital and contemporary animation. As this volume will prove, design contributes in many aspects of this process. From the material aspects to the shape, and from the story to the personality, character designer's tasks require specific principles and stratified practices that go beyond films and videos production.⁴ Furthermore, giving human shape to either digitally or manually created characters is now influential in many fields of design: from the medical world, with the study for human prostheses, to robotics, and from the design of behaviors and interactions of avatars in virtual reality to digital performing arts. By addressing material and manufacturing issues related to the complex task of designing stop-motion animated material characters, this volume can have a relevant impact on both involved disciplines and be of interest of a greater number of character designers, puppet makers and puppet animators, since outlined, categorized and interpreted processes effect both the design of material character and the animation of material objects.

The relationship between the two disciplines of design and animation and, in particular, the analysis of the puppets' material aspects from the two different perspectives of material analysis and film interpretation, needs to be properly outlined, too. This book is far from satisfying the complexity of the correlations recognizable around this common aspect of the two disciplines,

³ This short description has been developed summarizing and integrating the definitions provided by following books: L. B. Holman (1975), *Puppet animation in the cinema. History and technique*, A.S. Barnes, New York, 11; S. Shaw (2004), *Stop Motion. Craft skills for Model Animation*, Focal Press, London, 1-4; K.A. Priebe (2006), *The Art of Stop-motion animation*, Cengage Learning Inc., Clifton Park, 129; S. Bessoni (2014), *Stop-motion. La fabbrica delle meraviglie*, Logos, Modena, 8; B.J.C. Purves (2014), *Stop-motion Animation: Frame by Frame Film-making with Puppets and Models*, Bloomsbury Publishing, London, 9-13.

⁴ In the book *Creative Character Design* (2019) Bryan Tillman argues for six core principles a character designer needs to know and apply to create a good design of the character: *archetypes, story, originality, shapes and silhouettes, references, aesthetics* (Tillman 2019).

due to the puppets' numerous properties and pathways of analysis. The provided investigation recognises the relevance of an analysis of puppets' skin material features and manufacturing processes, and use collected information to formulate a new categorization of puppets films. I name these categories "design-driven" as their definition and characteristics are based on the manufacturing and material features of the design object under investigation, the puppet.

The definition of animated puppets as design objects, the identification of different criteria of categorization of puppet-building techniques and the formulation of design-driven categories constitute the contributions of this research. As I will state in the third chapter, a definition of the techniques applied in the making of puppets already exists, but they are all partially complete. Formulating new categories means rethinking the existing parameters with the aim to include those aspects that previous attempts did not consider and to solve the issue of the consistence of categorization sometimes based on material aspects, other times on the technical feature of the animation process. In the conclusive chapter I will also briefly outline the possibility to use the provided parameters of investigation and criteria of classification as instrument of interpretation of stop-motion films.

The structure of the volume

The book is divided in two main parts. The first consists of theoretical assumptions, the definition of the object under investigation and the criteria I use to analyse it. The second part holds the contribution of the book and describes the above-mentioned design-driven categories from an interdisciplinary perspective: material features, anthropological roots and, depending on the case, technology, alchemy or entertainment.

The first part consists of two chapters. In the first chapter, I discuss the relationship between product design and stop-motion animation, suggesting that, regardless of the audio-visual medium through which the audience experiences the film, this animation technique is based on a material object produced with specific fabrication processes and made of tangible materials. The chapter has a funnel-shaped structure, according to which I first provide a definition of the object, by specifying several disciplines that today focus their attention on the analysis of objects, conveying theoretical speculation from different points of view. I also specify the typologies of object that each of these disciplines tends to focus on. I list, therefore, objects as technological prosthesis, symbols of something comprehensible only through a

philosophical and semiotic approach. An object is, then, a commodity, a social indicator, a fetish and a psychological construction created by our habits of projecting memories onto them. At this point I concentrate on the idea of objects in the design and filmic dimensions, respectively as functional material items, and as entities that “live” in a different dimension from the cinematic experience, raising questions about their sensory perception. I then introduce the object under examination, the puppet, but before explaining what the animated puppet is, I specify the contexts and the multiple functions that puppets as objects hold in human history. This is an important section of the chapter, because I define here the “categories” of puppets that will support the classification provided in the fourth chapter of the book. These “categories” are idols, homunculi, golems, automata, marionettes and dolls, and the contexts they belong to, are, respectively: religion, alchemy, technology, theatre, and toy design. In the second chapter, I analyse the feature of puppet materiality I consider to build my classification criteria on: puppets’ skin. I briefly introduce the concept of skin, and then focus on its meaning as a physical boundary, a sensorial surface and a communicative interface. The first section of the chapter, therefore, is dedicated to an interdisciplinary overview, by specifying what the term “skin” means in biological, psychological, sociological, and technological perspectives. After that, I describe three identities of the skin: a surface that covers, contains and separates; a sensory membrane that perceives other skins; and a reactive interface that communicates through features like marks, colour, and texture. In this section, I briefly explain how our body is able to experience the materiality of the puppets’ skin by indirectly interacting with it through the screen and to *haptically* sense its surface. I consider here the theoretical assumptions provided in film studies, in particular Laura Marks’ concept of *haptic visuality* and Jennifer Barker’s *tactile looking*, in order to scientifically justify the viewer’s capacity to experience, recognise and find significances in indirectly experienced material traces. In the second part of the chapter, I focus on the communicative power of traces, fingerprints and stylistic signatures left by the puppet-maker on the skin of the puppet, and signs of the fabrication process used to create the it. Here I argue that traces suggest meanings, and let the observer easily experience the puppets’ ontological ambiguity as both visual representation and real object.

The second part of the book consists of three more chapters in which I draft the idea of stop-motion films categorization based on puppets’ manufacturing processes. In the third chapter I outline the main aspects of the existing animated puppets classification. I consider manuals of the stop-motion puppets manufacturing processes in order to analyse the different attempts

to catalogue all known puppets' fabrication techniques. I investigate different sources, such as Bruce Holman's book *Puppet animation in the cinema. History and technique* (1975), Peter Lord and Brian Sibley's *Cracking animation: The Aardman book of 3D animation* (2015), Susannah Shaw's *Stop motion: craft skills for model animation* (2004), Stefano Bessoni's book *Workshop di Stop-Motion. Il Burattino* (2016), and the two books published by Ken Priebe: *The Art of Stop-Motion Animation* (2006), and *The Advanced Art of Stop-Motion Animation* (2010).

Holman (1975, 57), by describing puppets' bodies, divides them into three typologies:

- ❖ animated toy, when the puppet's body is carved from solid materials;
- ❖ padded-body puppets, which have a metal armature covered with padding and costumes, with head and hands made with wood, rubber or plastic;
- ❖ moulded puppets, when the rubber or plastic body is indirectly fabricated through moulds.

In *Cracking Animation* (2015, pp. 80-91), Lord and Sibley distinguish the model-making categories of clay animation, object animation, and the more general category of other animation techniques. Susannah Shaw (2004, pp. 51-100) first distinguishes two kinds of model makers, the beginner and the professional, and in both cases she describes different typologies of fabricated puppets, which are, in the first case «plasticine puppets» and «durable clothed puppets», in the second case «casted plastic puppets». In all cited processes, she describes tools, procedures and possible variations. Another classification has been made by Stefano Bessoni in his book *Workshop di Stop-Motion. Il Burattino* (2016, pp. 22-55). He identifies puppets in plasticine, in polymer clay, in mouldable resin, in padding and fabric, puppets made of found and existing materials, upholstered foam puppets covered with milk latex, silicone puppets, and foam latex puppets.

A different classification has been made by Ken Priebe in his two books *The Art of Stop-Motion Animation* (2006, pp. 129-179), and *The Advanced Art of Stop-Motion Animation* (2010, pp. 96-150). In the former he describes the puppets' fabrication techniques based on a manual manipulation of matter (clay puppets, latex build-up puppets and found material puppets). In the new version of the book, he concentrates on «indirect puppet fabrication methods». He therein distinguishes the silicone body, foam latex body and the plastic body, and he accurately describes faces, classifying three kinds: faces with an internal armature, the replacement head, and the replacement face elements built with a 3D printer. All these provided descriptions leave out elements, processes, or materials less commonly used. Considering only

the most recent categorizations provided by Priebe and Bessoni, for instance, their main problem is defining and placing the new technology of rapid prototyping and 3d printed resin. Bessoni briefly mentions it, without explaining technical details, Priebe, on the other hand, considers this technique a material variation of the replacement pieces method. Furthermore, the replacement technique describes a method of animation rather than a method of fabrication. These references constitute my theoretical assumptions of puppets' typologies, and I use them to define, in the following chapter, my new categories of puppets design-driven, by juxtaposing the systematization of categories of the fabrication processes - as suggested by William Cromar in his article "Metaphor to Sculpture" (2013) - and the "categories" of puppets provided by Victoria Nelson and already analysed in the first chapter.

In chapter four, I explain "design-driven categories" by bringing together the existing animated puppets material typologies, the material features of the six categories of puppets that I identified in the first chapter, and the objects' fabrication processes described by William Cromar in the article *Metaphor to Sculpture* (2013). I delineate, therefore, five design-driven categories of puppets and, accordingly, stop-motion films:

- ❖ assembled materials' skin puppets (i.e. detritus, found materials, metallic stuffs);
- ❖ *modelled materials' skin puppets* (i.e. skin made of Polymer clay, plastiline, wax);
- ❖ *carved materials' skin puppets* (i.e. puppets made of wood or other solid materials sculpted with subtractive methods, like Styrofoam);
- ❖ *casted materials' skin puppets* (i.e. polyurethane foam, silicone, casted plastic, 3D printed resin);
- ❖ *layered materials' skin puppets* (i.e. leather, fabric, liquid latex).

The last chapter is the conclusion of the book and I call it "future perspectives", as I imagine two possible ways to keep analysing puppets' manufacturing processes. In the first part of the chapter I admit the possibility to integrate my categorization with other characteristics not considered in the book, as the digital technologies in the processes of animation and puppet making, which alter the way to process and perceive films' material aspects. The second part suggests a possible application of formulated categories in order to provide new interpretations of stop-motion films. Stemming from the emotional and anthropological meanings material and manufacturing features can communicate, I propose that puppets' material details can tell meta-narratives.

1. From objects to puppets

How many things can be a puppet? In this first chapter I try to answer this question by providing an interdisciplinary and anthropological reconstruction of this particular kind of object. I analyse puppets as objects, manufactures made of material and processed according to specific techniques, produced by human beings in order to satisfy different needs. These objects have always mirrored the specific purposes they have been used for, and the historical periods they have been designed in. Puppets will be described, therefore, in their historical, technological and material features. The challenge of this introductory chapter is to place the analysis of the puppet in the more general and interdisciplinary investigation of objects of design. Technology, psychology, anthropology, sociology, semiotics, art and cinema have their specific objects, and provide different definitions of them. Puppets in their dimension of objects, reveal an interesting attitude to cross the above mentioned disciplines, revealing in each of them specific shapes, characteristics and meanings. The history of puppets happens to be one the one of human evolution, because puppets have inhabited human religious rites, human technological experiments, human artistic purposes and have been used as human entertainment tools. In this book I focus on a specific typology of puppets, the ones used even today by protagonists of stop-motion films.

1. Objects' significations

To define an object could seem like a simple exercise, however, the multitude of analysable factors and the coexistence in this definition of both subjectivity and objectivity, make the task hard, all the more so due to the multidisciplinary approaches that we can use to conduct this investigation. The dictionary, for the term "object", provides this definition: «Any concrete and

material thing, which can be perceived by senses. [...] That has a shape and that is made by human work»¹. Following this, there are other definitions that apply this word to different fields of human knowledge: grammar, computer science, psychoanalysis, and law. The general definition is the starting point in this study. An object, in the most general definition, is a material thing, with a shape, that satisfies a function, made and used by men. Because of these reasons the first image that comes to mind is a consumer good, still and lifeless, a commodity with technical, functional and aesthetic features.

Objects have always been invested with deep meanings and values. In ancient cultures objects were something mystic; they had a shape given by human beings, who in this manual act of material manipulation felt closer to God, imitating the Creators' power². Human beings shaped objects in their own image. They chose material, colour and anthropomorphized them. In this way, the object was considered living, moving and changing. It renewed, developed, and expressed the sense of passing time, playing witnesses to the past, of which it preserved valuable information. Stefano Follesa in his book *Design & Identità. Progettare per i luoghi* (2013, p. 23) identifies a moment in human history in which the «Mutual dependence» between humans and objects weakens, and objects became items of the experimental sciences, physics, biology and mechanics, confined to the task of commodity, losing their relationship with social dynamics. In this context, meanings and emotions related to objects become marginal and sometimes disappear. This is a typical characteristic of the modern age, in which things are no longer «active presences in daily life, so much as consumer goods, whose transformations are related [...] to their success in increasingly large markets» (Follesa 2013, p. 23).

However, recent decades gave birth to a new phenomenon, a re-discovery of a bibliography of objects, due to the analysis conducted between 1960 and 1970 by sociologists, philosophers, and designers. Barthes, Baudrillard, Eco, Munari, de Fusco, Maltese, Dorfles, Maldonado and others rejected «the classic empirical functionalism of objects, favouring a symbolic vision of

¹ *Object*, in Merriam Webster online dictionary. Retrieved from <https://www.merriam-webster.com/dictionary/object>

² Several cultures provide theories about the existence of entities acting midway between human being and God, by manipulating inner matter and giving it the breath of life. The Italian scholar Arturo Umberto Samuele Schwarz in his book *Cabbalà e alchimia* (2004), wrote an exhaustive argumentation about these cultural behaviours, philosophies, and religions, providing examples like the Karaka (creator) developed in the Indian Vedica culture in the II millennium a.C., the Demiurgos in the pre-Socratic Greek and the Jewish myth of the Rabbi alchemist and the Golem. See S. Schwarz (2004), *Cabbalà e alchimia. Saggi sugli archetipi comuni*, Garzanti, Milano, 19-22.

objects and of how to use them» (Marrone & Landowski 2002, p. 12). Objects became something material, symbolic, and also magical and irrational, and, according to Gianfranco Marrone (2002, p. 12), they become able to create an interaction of the «traditional dichotomy shape/function with the linguistic dichotomies between signifier/signified, denotation/connotation, code/message and so on».

In this process of objects' re-evaluation, several disciplines have considered them, applying different tools of analysis, and interpreting aspects of both their functional qualities and relationship with human society. Semiotics, technology, economy, psychology, sociology, anthropology, and philosophy provide the theoretical assumptions of object analysis, and the design field stems from all of them in order to suggest a comprehensive understanding of an objects' existence.

1.1 Technology: objects as prosthesis

Within the meaning of functional things, objects are thought of as “prosthesis” of the body, of which they represent a kind of extension. This is the reason why designers and engineers want to make them more efficient using the most up-to-date technologies. The idea of object prosthesis was born with the advent of mechanization, industrialization and industrial design. In this scenario, technology, virtual reality, cyberspace, transplants, new cosmetics, plastic surgery, prostheses of inorganic materials that weigh in our flesh, have changed our physicality and our way of life. However, the human body has always been “modified” by instruments, prostheses and apparatuses that have extended and multiplied the possibilities of both cognitive and practical interaction with the world. According to Tomàs Maldonado (1997, p. 141) prosthesis is any artefact classifiable as «artificial structures that supersede, complement or potentiate, in part or in full, a given performance of the organism». On the other hand, Umberto Eco (1997, p. 317) replied that even a pair of shoes is prosthesis, so far as they «enhance action and strength of the foot».

An articulated taxonomy was developed around the categories of prostheses that, by enhancing functions like motor, sensory-perceptive, intellectual or syncretic³, evaluate the object in its industrial dimension, including

³ Tomàs Maldonado in *Critica della ragione informatica* (1997) distinguishes four types of prosthesis: He defines “motor prostheses” (*protesi motorie*), those «designed to increase