Performance of puppets' skin material:
The meta-diegetic narrative level of animated puppets' material surface.

Abstract: In his book "Narrative Discourse. An Essay in Method" (1980), Gerald Genette describes the relationship between narrative levels, and defines 'meta-diegetic' the level that occurs in parallel with the primary narrative. Genette does not specify who or what the narrator has to be in the meta-diegetic narrative level, it could be also something lifeless, like an object, or a material. This observation is particularly suitable if applied to stop-motion animation technique, and in this article I suggest that in stop-motion films the superficial qualities of the materials that compose the puppet perform a meta-diegetic narrative. Exploring the definitions of performance in both design and puppetry, and the qualities of material skin, I apply these theoretical assumptions to the analysis of animated puppets and formulate the concept of "performance of puppets' skin material". The analysed performer, therefore, is neither the actor/animator/puppeteer, nor the actant puppet itself, but the puppet's material skin, and its performance is defined through qualities that the viewer can haptically experience through the screen. Approaching puppets' skin from an interdisciplinary perspective, the article provides a definition of its performance based on qualities ("functional", "processual", "active", "pervasive", "ritual", "evocative" and "multi-dimensional") that describe puppets' skin's power to satisfy technical aspects of our experience of the object moving on screen, to engage our senses, allowing us to haptically experience the objects, and to stimulate our thoughts and memories. The article aims at providing a theoretical premise to the analytical approach that considers animation to be a powerful expressive material medium that opens up possibilities of analysis through design tools.

Keywords: Stop-motion animation, puppets, meta-narrative, skin, performance, material design

Introduction: the *meta-diegetic* level of narrative

In the book *Narrative Discourse. An Essay in Method* Gerald Genette (1980, 227–234) argues that in Abbé Prévost's novel *Histoire du chevalier des Grieux et de Manon Lescaut,* when Des Grieux in the 'Lion d'or' recounts to the Marquis de Renoncourt his journey to meet his brother and his loves, "the story has overtaken the narrating" (227), and in this narrative there is a difference of levels. He thereby defines his idea of narrative levels: 'Any event a narrative recounts is at a diegetic level immediately higher than the level at which the narrating act producing this narrative is placed' (228).

These horizontally related levels, according to Genette, can be of three kinds*: intradiegetic/diegetic* (events presented in the primary narrative), *extradiegetic* (narrative act external to any diegesis), and *meta-diegetic* (narrative embedded within the intradiegetic level) (228). *Meta-diegetic* levels of narrative are the ones I take into account in order to define a new narrative act that occurs in parallel with the diegetic one in puppet films. In Genette's analysis, meta-diegetic narrative can have three types of relationship with primary narrative, and he defines them as functions. The first function is "explanatory", and it happens when there is a "direct causality between the events of the diegesis and those of the metadiegesis"; so, the meta-diegetic narrative is "the Balzacian 'this is why'" (232). The second function is "thematic", and consists of a relationship of "contrast [or] analogy" (233) between levels, as in an *exemplum* or in *mise en abyme*, with a possible effect of the metadiegesis on the diegetic situation. Finally, when the meta-diegetic narrative works independently from the diegetic level without an explicit relationship to its narrative, its function is "narrational" (233–234).

In all the three relationships cited above Genette does not specify who the narrator has to be: he can be anyone, and there is no prescribed relationship between narrators (of the primary and

secondary narrative) in different levels (diegetic and meta-diegetic). I argue, therefore, that the narrator can also be something lifeless, like an object, or a material and I call this act of narrating 'performance'. The performer I suggest in this article is puppets' skin, and so the puppet is performing as an actor at the diegetic level of the story, whereas the meta-diegetic narrative level is narrated by the superficial qualities of the materials that compose the puppet, those that the viewer can experience through the haptic approach.[1]

Following, I will explore the concepts of material performance and puppets' material skin from an interdisciplinary perspective, and then suggest a definition of the material performance acted by puppets' material skin that I call 'performance of puppets' skin material'.

Puppets' material skin's ontologies

Italian designer Ezio Manzini (1987, 62–71) reflects that in nature it is possible to find living organisms without structure, although it is impossible to find those without skin, because, as he writes, at each biological scale organisms are provided with "a membrane that divides an interior from an exterior" (translated by the author, 70). Everything has a skin and it can be interpreted in several meanings according to different contexts of analysis and disciplines: biology, sociology, psychology, art, technology, fashion. All of these disciplines suggest a double nature of the skin: a two-dimensional surface, and a communicative interface between human beings and the world, and human beings and objects.

Skin, therefore, is not just a physical boundary. It is also a witness of identity and personality, "a mirror reflecting moods, an intersection between subject and the world whose inspection is the basis of the processes of structuring and subjectivity" (translated by the author, Del Curto et al. 2010, 48). Both the concepts of physical threshold, and identity interface that allows communication through its recognisability and its specific features can arguably be proposed for puppets' skin, which tells the story of its' fabrication, the story of its manipulation and the history of the materials it is made of.

Skin is the material element of puppets. When we look at a puppet moving on-screen, we actually see its skin. Puppets' skin is a barrier, a point of contact, and the superficial membrane where the puppet, in different moments, meets the puppet maker, the animator, and the viewer, in a perspective of haptic perception of the filmic experience that involves the skin as a medium of communication between the puppet and our sensory apparatus. Finally, puppets' skin is an organ of simulated touch. In order to analyse the numerous functions of the puppet's material skin I will first detail the material components that reveal the process of realization and the variety of kinds of puppets, then I will address the tendency of some directors to emphasise the illusion of the sensory skin of the inanimate object, and I will finish with the analysis of the puppets' skin as a medium of communication during the interaction with the spectator who visually experiences it. The investigation of the ways in which the puppets' skin communicates with our sensory apparatus will be better explored in a later section, in which I describe the skin as an active constructor of meta-narratives experienced by the user.

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[1] Laura U. Marks (2000, 162–167), through the concept of *haptic visuality,* suggests an immersion of spectators in the cinematic experience, which causes an embodiment and involvement more than a distant identification with an image. She wrote that "Film is grasped not solely by an intellectual act but by the complex perception of the body as a whole" (162). Indeed, she suggested that in the visual experience the body plays out a perceptive attitudes and she calls this embodied visuality "haptic". Naturally she recognises that film technically can't represent all senses but it can elicit them through the eyes: "Eyes themselves – according to Marks –become organs of touch" (162), and she defines this new function of the eyes as *haptic visuality*, in which the eyes can make the viewer feel able to touch and participate in what is happening on the screen. The concept of haptics comes from psychology, and it is defined as a "combination of a tactile, kinaesthetic and proprioceptive function" (Marks 2000, 162). Particularly interesting in Marks's analysis is the moment in which this embodiment and multi-sensitive involvement happens: the object touched by the viewer is neither the one that exists outside of the film, nor the concrete object-film, but the material image of the object, and the viewer perceives its presence and 'touches' it with his/her eyes through the filter of the screen, according to a process of participation based on the concreteness of the world designed beyond the screen (163).

The Material Dimension of Puppets' Skin

Puppets consist of different layers, which, starting from the interior, are: armature, bulk and skin, and those layers relate in different ways according to used materials. Puppets' bodies, therefore, can have:

- Skin and bulk of the same material. This occurs, for instance, in puppets made of clay, plasticine, polymer clay, wood, and silicone. Most of these materials are directly modelled and manufactured with an additive sculpting process. Wood and Styrofoam (if not covered) are carved and worked on, in a subtractive sculpting process. Silicone, like foam latex, is used in an indirect process of material injection, and involves a material composed of two liquid agents casted in hard moulds.

- Skin and bulk of two different materials. In build-up puppets,[2] for instance, the most common elements for the bulk are cotton, padding or upholstery foam covered by liquid latex milk (either brushed or sponged on, depending on the desired texture), fabric, and sometimes leather or other stitched materials.

- Skin and bulk of the same material that show different physical behaviour and aesthetic appearance according to the layer it is applied to. The main case is that of latex foam, used in a process that involves plaster moulds and casted liquid material. Ken Priebe (2010, 106) defines it as a "soft, spongy material" that, inside, looks and behaves like upholstery foam "once it is cured by baking it in a convection oven." The surface, instead, is significantly less porous than the bulk, it imitates the smoothness of human skin, and has a flesh-like appearance.

An interesting case of crossing skin technology happens when puppets are dressed up with fabric. The only visible parts of the skin of these puppets are, generally, hands and head, which have to be properly sculpted. As Berry Purves argues in *Stop-motion Animation: Frame by Frame Film-making with Puppets and Models* (2014, 98), "clothes over a puppet remove the need for detailed sculpting of body, [because] with costumed puppets, there's not much skin on display."

The Puppets' Sensory Skin

The puppet with his own skin interacts with the context and becomes more credible as this interaction is more accurate. The puppet 'touches' the surrounding environment as we would touch the puppet with our fingers if our interaction were direct, and the puppet's action of touching stimulates our sight to behave in the same way, to 'caress' its material surface as their own surface 'caresses' the world to which they belong. The Brothers Quay, in the short film *Street of Crocodiles* (1986), staged an emblematic example of puppets that simulate a sensory approach by performing the gesture of touch.

I focus on scenes in which the material dimension of puppets is accentuated by their behaviour and action of touching. In several moments of the short film, puppets touch and caress surfaces emphasizing the material dimension of their world and metaphorically alluring the viewer to use the sense of sight in the same way. Puppets' touch and viewers' sight are clearly interwoven senses in the Quays' film, and the more the puppet explores its own world by

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[2] Tom Brierton in the book *Stop-motion puppet sculpting. A manual of Foam Injection, Build-Up and Finishing Techniques* (2004: 48-65) describes the build-up puppets' manufacturing technique as a multi-step process that requires model makers to craft both the musculature and the skin of the character, directly over the armature. These puppets are soft, malleable, but resistant, obtained by covering the armature with rubber or upholstery foam, which can be glued or fixed with a thread and then moulded to assume the desired shape. Alternatively, foam can be cut into components that simulate the puppet's muscle, then assembled together with contact mastic. Once the character's muscle is defined, the process ends with the application of either latex milk with a brush or sponge, or tissue such as fabric and leather.

touching the real surrounding matter, the more the viewer's touch is elicited and his experience becomes indirectly tactile. This indirect elicitation happens, for instance:

- When the father is drawn into the shop by the tailor's assistants who repeatedly touch the father's head and body: they removes the wooden head of the father, "replace it with a dummy head stuffed with cotton, and begin to refurbish the father's look, […] by reconstructing his body in a different way" (Miller 2003, 96);
- When the tailor "seems to conjure a slab of liver on a table, […] smooths tissue paper over its wet surface, and rows of pins […] proceed to insert themselves into the paper and flesh" (Buchan 2011, 115) (Figure 1);
- When the tailor caresses the surface of kidneys pierced by pins and placed at the bottom of an illustration of a vertical penis. The kidneys seem to breath when he touches them (Figure 1);
- When the tailor's assistant touches the surface of fabric gloves laying on the table and hanging on the wall (Figure 1);
- When the assistant caresses the father's body before the tailor's cabin gets closed and the father finds himself in the place where he was at the beginning of the film (Figure 1).

Figure 1: Touching puppets in Brothers Quay's *Street of Crocodiles* (1986).
Source: Street of Crocodiles (DVD), 1986 © British Film Institute (BFI)

A similar act of touching and caressing is staged by the touching and assembling hand in Jan Svankmajer's short film *Light, Darkness, Light* (1989). In this short film, a pair of 'seeing and hearing hands' progressively assemble a clay body. At the beginning the blind hands crawl on the floor, and make their way by touching the surface of the claustrophobic room in which they are moving (Figure 2). Then a couple of eyes and ears appear and take their place on the surface of the hands (Figure 2). The interaction of the three senses, symbolically represented by the organs suitable for their functioning, makes the hands autonomous and allows the slow assembly process. First the head gets completed with all its elements (eyes, ears, tongue, brain) (Figure 2),

then comes the legs, the genital organs and a lump of clay, which is sculpted by the same hands until the body is completed (Figure 2). Again Svankajmer, in the second episode of the film *Dimensions of dialogue* (1982), stages clay characters whose hands first touch and caress the material skin of the interlocutor, then disassemble and destroy its body.

Figure 2: Jan Svankmajer, *Light, Darkness, Light* (1989).
Source: Jan Svankmajer – The Complete Short Films (Disc two, DVD), 2007 © British Film Institute (BFI)

The Puppets' Narrating Skin

Skin reveals everything about the puppet. Kenneth Gross (2012, 150) considers it a "boundary that forms [the puppets] from the outside" and that allows us to identify a puppet as "a thing that is always itself, a pure surface." A puppet, therefore, can't hide anything because it is "nothing but appearance, […] and with that, honest" (151). By making a puppet unequivocally honest about its nature as a real object, skin provides a great quantity of information. It informs the viewer about the matter which the puppet is constructed with, it conveys significances about style and the narrative that the puppet is acting, and evokes feeling, sensations and memories.

I argue thus that skin matter performs all these narratives in a diegetic level different from that of the plot. In this narrative the visible puppets' skin qualities communicate tactile narratives perceived haptically. In the last section I will thoroughly describe the attributes of the narratives performed by the skin, and I name 'performance' the action of the communicating puppets' material skin.

The interdisciplinary concept of *performance* in design, puppet theatre and animation

Before describing the performance staged by puppet's skin, I need to provide an interdisciplinary overview on the concept of 'performance' and, in particular, clarify the meanings of "material performance" and "material performativity". The concept of performance is potentially applicable in different fields of study and with different meanings. The term "comes from the Anglo-French word *performir*, which means 'to carry something into effect'" (Kapchan 1995, 497). Richard Schechner (2013, 31) recognises eight kinds of performances that occur in eight separate - or occasionally overlapping - situations: "in everyday life – cooking, socializing, 'just living'; in the arts; in sports and other popular entertainments; in business; in technology; in sex; in rituals - sacred and secular; and in play." He lists these eight to indicate the large territory covered by performance, but also specifies that it is impossible to list all cases that the definition of performance can be applied to. In a working context, for instance, to perform means doing a job efficiently, with maximum productivity. In the performing arts, sports, popular music, or everyday life, performance consists of ritualized gestures and sounds (33). In the essay *Animation Studies as an Interdisciplinary Teaching Field,* Paul Ward (2013, 324–325), defines the concept of performance as "interdisciplinary", "post-disciplinary", "inter-connected" and "pervasive," and performance studies as a field of research that analyses the "whole human existence […], because any human action could be read […] as a *performance*" (325).

Designers and engineers speak about the performativity of objects, devices and materials, and the concept of 'performative material' refers to an inherent quality of matter itself. Design literature, discussing material performativity, also refers to the quality of the two-way relationship between material and environment. In the book *Performative Materials in Architecture and Design,* Rashida Ng and Sneha Patel (2015, 4) describe the adjective "performative" as a quality of "the physical, sensory, and perceptual interaction of organized compositions of matter with their immediate and expanded environments." In the two-way relationship between material and environment, material is performative if it is adaptable to the environment. 'Adaptability' is a key concept in the material design field and in the description of material performativity. Performativity, therefore, describes the dynamic interface between materials and context, and is more than a purely technical requirement. The adaptable and all-inclusive dimension of material performativity suggests that it describes a quality of the path and the process, and not the final product. Julio Jacucci and Ina Wagner have developed a similar idea in their article *Performative Roles of Materiality for Collective Creativity* (2007). Among numerous 'skills' described by material performativity, such as providing accountability, affordances, coordination, being persuasive, experiential, evocative, stimulating and reminding, they state that it refers to the action and the process, not to the final outcome. They write: "A central performative aspect is the relevance of the process rather than a final product (a final digital/ physical configuration). The process allows experiencing the metamorphosis of representations" (Jacucci and Wagner 2007, 79). By shifting the focus to the process, they emphasize materials' intrinsic power of metamorphosis. In this perspective, the more the material allows for actions of interventions and transformation, the more it can be defined as performative.

A further definition of material performativity has been provided by the philosopher and scientist Jane Bennett in her book *Vibrant Matter* (2009). She argues that all matter, even that not technically alive, contains agency and efficacy, which she terms "vitality."[3] She describes matter as an "actant", "a source of action that can be either human or nonhuman; it is that which has efficacy, can do things, has sufficient coherence to make a difference, produce effects, alter the course of events" (p. VIII). Bennett, therefore, draws a bridge between the mechanical concept of material performativity and that of materials acting out a performance.

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[3] In the book *Vibrant Matter,* Jane Bennet (2009) recognises that the idea of vital matter has strong philosophical roots in Western culture and traverses claims, thoughts and theories developed by "Baruch Spinoza, Friedrich Nietzsche, Henry David Thoreau, Charles Darwin, Theodor Adorno, Gilles Deleuze, and the early twentieth-century vitalism of Bergson and Hans Driescb" (p. VIII).

In the field of puppetry, Dassia Posner, Caludia Orenstein, and John Bell, in the introduction of their book *The Routledge Companion to Puppetry and Material Performance* (2014), recognise that "Bennet describes the agency of the inanimate material world in terms that are similar to how puppeteers have long articulated their interplay with puppets" (6). They revise the common statement that by moving marionettes on stage or manipulating puppets between frames, the performer is the animator, and suggest considering the puppet itself the protagonist of a "material performance," acted out by material objects (i.e. puppets) that "contain life, will, and intent by virtue of their design and inherent nature" (6).

In animation studies digital animation has been used in recent years in combination with live performance to create "immersive animation projects integrating live components" (Tomlinson, 2013). In the article *Animation and Performance* (2013) Lynn Tomlinson mentions several artists who use the digital manipulation of images to create an immersive artistic experience for live performing actors.[4] The "crossovers between animation and performance," however, are described as "places where animation and performance overlap" (Tomlinson, 2013), i.e. animation and performance still remain distinct components of the same event, nothing more than two interacting disciplines. According to Derek Hayes and Chris Webster (2013: 29), 'performance' also refers to the "aesthetic phenomenon" in which a character acts a "constructed - but – truthful" narrative by moving. This performance, therefore, is staged by the animated character and implies a set of twelve principles that were introduced by Disney animators Ollie Johnston and Frank Thomas in their 1981 book *The Illusion of Life: Disney Animation,* and are still in use throughout the animation industry. The main purpose of these principles was to explain how to produce an illusion of living characters adhering to the basic laws of physics and movement. Another set of principles has been recently identified by Tom Brierton, who lists nine principles, some of which coincide with the previous classification.[5]

I now draw attention away from puppets as whole acting objects to puppets' skin materials as actants, arguing that puppets' material features are performing a narrative parallel to the one performed by puppets as whole objects. I take advantage of the afore-explained statements to build a bridge between design studies and the artistic fields of puppetry and animation, and provide an idea of performance that describes both the mechanical qualities expressed by the puppets' skin material, the characteristics of the illusion it produces, and its power to communicate with our sensory apparatus.

The performance of puppets' skin material

I suggest that materials act independently from the animator's performance and the puppet's narrative in a horizontal relationship that I previously defined as 'meta-diegetic narrative'. In order to explain the concept of 'performance of skin material', I consider all previously mentioned definitions of performance in both design and puppetry, and I evaluate chemical, aesthetic, and emotional qualities as features of this performance acted by puppets' skin. In particular, I describe this performance by defining qualities and specifying, in conclusion, the spatio-temporal dimension in which the performance of puppets' material skin expresses these qualities. Identified qualities are: *functional, processual, active, pervasive, ritual, and evocative.*

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[4] Digital artists and collective of performers, technologists and visual artists mentioned by Tomlinson (2013) are: Kathy Rose, Eva Hall, Miwa Matreyek, Enra, Dandypunk, Shadows, Quixotic fusion, Leo the Anti-Gravity show, and Birgitta Hosea.

[5] The 12 Principles of Animation listed by Thomas and Johnston (1981: 47-69) are: "Squash and Stretch, Anticipation, Staging, Straight Ahead Action and Pose to Pose, Follow Through and Overlapping Action, Slow In and Slow Out, Arc, Secondary Action, Timing, Exaggeration, Solid drawing, Appeal." Brierton (2006: 33) provides a list of nine principles, that are: "Key poses, Anticipation, In-between, Ease-out, Ease-in, Follow-through, Overlapping action, Holds, Squash and Stretch."

They could be further divided according to the way they elicit our senses and stimulates our thoughts. Therefore I distinguish:

- performance's attributes that describe technical aspects the puppet has to satisfy (i.e. credibility or artistic and aesthetic values of the object), and I categorize qualities in this way as *functional* and *processual;*
- qualities that engage our senses, allowing us to haptically experience the objects moving on screen, in this sense the performance is *active* and *pervasive*;
- features that permit the performance to stimulate our thoughts and help us find meaning, and I call these qualities *ritual* and *evocative*.

Functional

> At the heart of every piece of practical design, whether it be a website, product package, office building, manufacturing system, piece of furniture, software interface, book cover, tool, or anything else, there is a function, a task the item is expected to perform (Wax 2008).

This definition of function creates a relationship between an item's function and the act of performing. The concept of function is largely used in design studies in order to define something that serves to achieve a goal efficiently. The term becomes a meaningful aspect in order to appraise both the practical usability and aesthetic qualities of a product/service. Andreas Burghart (2012) recalls the Latin derivation of the term 'function', that is 'fuctio' and means 'accomplishment' in the widest sense. In this perspective, function describes several properties of an item: it "defines for which purpose something can be used, [but it also] describes products that work well to perform their assigned tasks, [and] a set of practices guided by the principles that produce a positive outcome". Donald Norman (2005, 37) describes function as one of the three components of the efficiency of an object, "function, performance, and usability," which we evaluate behaviourally by interacting with it. He writes: "A product's function specifies what activities it supports, what it is meant to do—if the functions are inadequate or of no interest, the product is of little value" (37). 'Function', therefore, appears intrinsically connected with both the mechanical efficiency and the visual appeal of something.

In my definition of "functional" as a quality of the performance of the puppets' material surface, I suggest that it describes both the mechanical parts of any design and the qualities of its aesthetic. Performance of puppets' skin material, therefore, can be judged as functional by the viewer if it is able to answer, in technical, physical and aesthetic aspect, its final aim: making the puppets able to move and belong to the environment by credibly interacting with it.

Processual

This quality of the performance is related to the previous one, but describes technical features of the process rather than those of the final outcome. In the afore-mentioned article, Ward (2013) defines "processual" as the activities of performance studies, due to their goal of expressing the complexity of human existence, as well as their being also relational and dynamic. Another definition of "processual" has been argued by Jacucci and Wagner (2007), who suggest considering the process a fundamental phase of the work practice, that produces physical models, building elements, and is a crucial part of the assignment of aesthetic attributes to the object. This definition is extremely useful for my description of material performance, because it refers to the manufacturing dimension of production and describes the process before the final shape, something not visible, but intrinsically belonging to the object and inscribed in the DNA of the object's surface, the series of operations that occur before the final configuration of the object which affect the final look of its material surface. If functionality is the quality of the performance that allows us to say that a material surface satisfies aesthetic and technical requirements through its being smooth, rough or porous, "processual" describes the process of

fabrication that material has been subjected to in order to achieve an exact final configuration. The viewer evaluates this configuration based on different aspects: functional, aesthetic, emotional and speculative. As Eleonora Fiorani argues in her book *Leggere I Materiali. Con l'Antropologia, con la Semiotica* (2000), it is possible to construct conceptual and perceptual maps based on the study of fabrication processes, and, she adds, a relevant aspect of these maps could be the development of an aesthetic sensibility that stems from the analysis of the cultural and social context in which specific kinds of materials, tools, machines and techniques occur to be used.[6]

Active

"And so, far from being neutral and mute presences, [materials] are active and pervasive" (translated by the author, Fiorani 2000, 13). Active and pervasive are two sides of the same coin in describing the performance of puppets' material surface, in the sense that active and pervasive describe two points of view of the same moment, the one in which the skin performs in the meta-diegetic narrative and the spectator perceives it. I first explain the term active.

'Active' describes the puppets' skin as an independent performer that breaks the wall of the screen and permits us to perceive and experience it haptically. 'Activity' of the puppet's skin follows the meaning that Bennet applies to concepts of "vital" and "actant" matter when she argues about materials being intrinsically alive and powerful. In her perspective, vitality describes their capacity "to act as quasi-agents or forces with trajectories, propensities, or tendencies of their own" (Bennett 2009, VIII). And matter holds this quality, it is a source of action with its own power and efficacy. By stating that puppets' skin performs actively, therefore, I mean that it does something separate from the movements and actions that the puppet carries out in the *diegesis*, in which the 'material performance' argued by Posner takes place due to the interplay between puppet and puppeteer.

Pervasive

'Pervasive' is a key quality of the performance that I am explaining, and stems from apparently distant points of view which I attempt to link together. Suzanne Buchan, in the introduction of the book *Pervasive Animation* (2013), provides multiple ways of thinking of animation as a "pervasive" discipline. She argues that animation is pervasive, firstly because of the device through which we experience animated films - the screen - that is today a "part of [our] everyday lives", and for this reason it significantly influences "our understanding of how we see and experience the world visually" (1). In addition, animation is pervasive because of the "pervasive impact [that it can have] in visual culture" (9). Animation is pervasive because of its relation with several disciplines and practices, i.e. because it is interdisciplinary: It contains various genres and techniques, and at the same time is analysable by different disciplines. Animation studies, in fact, have "intimate relations with fine art, literature and other creative practices" (8). Animation is also pervasive, mostly in the analysis of its materiality, due to its ability to suggest and "express social constructions of the human-natural relation" (12), i.e. due to its being a representation of human experience/perspective/idea of surrounding environment.[7] 'Pervasive', therefore, in my definition of skins' material performance, means relational. Furthermore, Paul Ward (2013, 325) argues that animation is pervasive because it can be considered a kind of "performance [and an]

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[6] "Lo studio dei procedimenti di fabbricazione e dell'impiego e dell'uso dei materiali si accompagna allora alle mappe percettive e cognitive, alla sensibilità estetica. L'utilizzazione di un attrezzo, di una macchina o l'impiego di una tecnica sono solidali all'interno di una cultura e di un contesto sociale, e si accompagnano a determinati materiali" (Fiorani 2000, 44).

[7] Buchan refers here to the argument provided by Sean Cubitt (2013) about "three major modes of animation technology: direct, pro-filmic, and vector" (95). In all forms Cubitt recognises animation as an agent of relation between human and, respectively, "environment, […] production modes and methods, [and] physics and math of vectors" (Buchan 2013, 12).

open, multi-vocal, self-contradictory" play. Therefore, by quoting Schechner's discourse on performance in play, Ward argues that animation, like play, is pervasive because it is spontaneous and free of rules, and embodies "the 'as if', the [fictional] make-believe" (Schechner 2013, 31). This idea is particularly true in puppet animation, in which animated characters, real objects beyond the screen, break the boundary between the state of performer and that of "a category of *soulless* being that is rooted in a material objecthood" (Buchan 2013, 13).

This last statement better explains my definition of 'pervasive' puppets' skin performance. I define it as 'pervasive' because it breaks the barrier between the performance on screen and the viewer's consciousness of the 'material objecthood' of the moving actants and, for this reason, makes the material a relational medium. The spectator grasps the performance through an experience of the puppet's materiality previously designated as 'haptic looking'. The 'pervasive' performance of skin, therefore, involves not only the eyes, but the whole body, as if viewers participate in what they see also using the other senses, especially the sense of touch. Similar to Marks' haptic visuality, the pervasive performance "tends to rest on the surface" and allows viewers to "caress […] the material characteristics of the [puppet]" (Marks 2002, 8).

Ritual and Evocative

Rituality and evocativeness are a performance's qualities that belong to a deeper level of the experience of puppets' material surface, the level that turn sensations into thoughts. I explain them together, specifying their respective differences. According to Donald Norman, in our "reflective level of processing",[8] we tend to create a mediated interaction with objects that makes us able to trust in them, because we use them, anthropomorphise them, sometimes we assign them emotions, opinions, and we consider them part of us, an extension of our personality, something to show the world, but also to treasure (2005). This 'special' interaction arises from object's materiality, i.e. from the material relation users build with it, and this relation makes object's uses 'ritual' and 'evocative'.

In order to explain 'ritual' as a quality of the performance of the skin, I will consider the definition proposed by Schechner (2013) regarding the rituality of the performance. He argues that rituality is one of the core qualities of the performance, because in every kind of performance we have several "ritualized gestures and sounds" that unconsciously shape our actions and interactions. He defines these ritualized gestures as "collective memories encoded into actions" (2013, 52). I state that materials with the same superficial characteristics, and used in the same context, stimulate viewer's memories. Similarly, a performance can be 'ritual' because it includes a repetition of memories that appears in similar ways, whenever and wherever the viewer experiences it. Fiorani (2000, 14) argues that "materials have a story, they can be fashionable, they can be changed and transformed" (translated by the author), and interestingly, she compares stories of materials with human history. The material design field has thoroughly analysed the relationship between cultural memories and material, focusing on the unconscious feelings we experience when interacting with them. The performance of puppets' skin materials, therefore, is 'ritual,' because during the haptic interaction between puppet and human being, it

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[8] Donald Norman, in his book *Emotional Design. Why We Love (or Hate) Everyday Things* (2005), explores several ways in which our interaction with design objects takes place, and identifies "three levels of processing" to shape our experience of an object. Every product elicits an instinctual and primitive reaction through its appearance, and he calls this level "visceral," consisting of unconscious responses to situations in which we are able to determine if there is a threat or an opportunity. This system is common to most animals, and is instinctive due to its relationship with muscular responses. The second level is "behavioural," which is activated by using or directly experiencing something. This is the site of our behaviour, where we automatically store, analyse and process events and situations. Finally, experiencing an object causes conscious thought, learning new concepts about the world based on cultural and personal images and memories, and all of these actions happen in the "reflective" level, the highest level of processing that does not have direct access to sensory perception, but rather watches over our behaviour and tries to lead it (Norman 2005, 21–24).

stimulates collective feelings or historical memories. An important adjective used by Schechner referring to ritual plays is "collective" (2013, 52). I want to emphasize this due to the difference between the 'ritual' and 'evocative' performance. They are, in fact, closely related, but I argue that the rituality of the performance engages cultural and historical memories, because it is connected to habits and universally recognised behaviours. Evocativeness, on the other hand, describes skin's performance quality that arouses subjective and personal meaning of the gestures connected with that material surface.

The concept of evocativeness is related to personal memories that human beings tend to develop through interaction with objects. Design studies and performance studies have analysed materials' evocativeness during interaction (tactile and visual, respectively) between human being and object. Jacucci and Wagner (2007, 73) argue that "being evocative" is the ability of an artefact to "stimulate, remind, constrain" because of its material qualities. 'Evocative', therefore, is a quality of the performance of matter that describes its ability to stimulate and arouse thoughts and personal memories.

Multi-dimensional

Multi-dimensionality is a further feature of the performance of puppets' skin material, and concerns the dimensions in which it occurs and exhibits its qualities. The dimensionality, in fact, doesn't describe a performance's quality but focuses on places and times. Multi-dimensional describes the *spatio-temporal* dimensions in which the above-described performance qualities occur. I name these three dimensions: 'on-screen', 'off-screen' and 'beyond-the-screen'. Vivian Sobchack (2004, 67) uses "on-screen" and "off-screen" to discuss "the position of the viewer's body in his relationship with the film" where his body expresses "its capacity to function both figuratively and literally."

My analysis focuses on the dimensions and moments in which the performance of the skin expresses its qualities. I argue, therefore, that the whole process of puppet construction takes place in the 'beyond-the-screen' dimension, i.e. puppets' skin performs its 'functional' and 'processual' qualities; in the 'on-screen' dimension the visual interaction between viewer and puppet happens, that is the 'active' performance of the skin; and finally in the 'off-screen' dimension the performance becomes 'pervasive', 'ritual' and 'evocative', i.e. the viewer haptically experiences puppets' skin and creates an interpretation according to both personal and cultural memories.
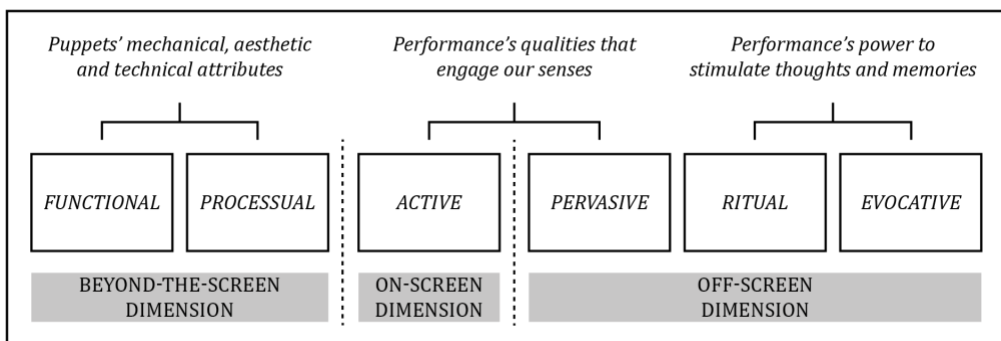

Figure 2: Puppets' skin performance qualities and dimensions
Source: Vincenzo Maselli, 2018

Conclusion

By defining a new kind of performance based on puppets' materiality in stop-motion animation, this article demonstrates that stop-motion animated films are powerful, expressive mediums that open up possibilities of analysis and interpretation through material design tools. The attention to evocative qualities of materials has been one of the main challenges in the material design field. In the last decade, material design has focused on intangible aspects of the relationship between materials and the user, or, in other words, on meanings and invisible personal emotions that a material can evoke. Concepts such as subjectivity, interpretation and, in the practical-based path, products' customization, have been at the centre of the debates recently developed in this field (Karana, 2010; Karana, Hekkert and Kandachar, 2009, 2010; Karana, Pedgley and Rognoli, 2013; Rognoli, 2003; Levi and Rognoli, 2005, 2011; Zuo, 2003, 2010; Zuo et al., 2001, 2016).

In the field of film studies puppets' materiality has been addressed as a vehicle of significance and meaningful in the analysis of stop-motion films by Suzanne Buchan, Peter Hames, Barry Purves, and Jane Batkin. By studying animated puppet films such as Stephen and Timothy Quay's *Street of Crocodile* (1986), Jan Švankmajer's *Darkness light darkness* (1989), Barry Purves' *Achilles* (1996) and Adam Elliot's *Mary and Max* (2009), they suggest recognizing puppets' material quality to have an essential role in the interpretation of those films. In Elliot's film, for instance, according to Batkin (2017, 130), themes of "Otherness, disability and stigma" are emphasized by puppets' appearance and by the physical qualities of their imperfect plasticine skin.

What if the arguments and the attempts of analysis provided by Eleonora Fiorani and other scholars in the field of material design could become new tools of interpretation of puppet animated films? I suggest that it is worthwhile to apply an analysis based on the discussed qualities of puppets' material surface to stop-motion films, in order to reach further meanings of objects usually considered valuable only within the limits of the fictional context in which they "come to life".

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