

Animation in the Demoscene. From Obfuscation to Category (Or: How to Demonstrate Skills without Adhering to the Real-Time Principle).

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Abstract

Animation is not described as a dichotomy, but as an essential part of demoscene practices and productions. Focusing on the stand-alone animation category and the related scene-internal discussions, the article will shed light on the status of animation and animation artists within the scene. As a starting point, I will have a look at some general definitions of animation as a term and a technique in order to show some parallels and differences between demoscene productions and other forms of animation. The following sections will shed light on the altered usage of the term animation in scene-internal text through the ages and trace back how animation developed into a stand-alone category. Based on these analyses, some conclusions about the role of animation artists for today's demoscene can be drawn. Finally, I will connect animation-related demoscene productions to more general criterion of demoscene's practices and attitudes.

Keywords: demoscene, animation, real-time, CGI, community, aesthetics, tradition, scene internal discussions, scene ethics

Introductory Statement

This article aims to clarify the emergence of animation in the context of the demoscene, both as a term, technique and aesthetic artefact through the ages. Such an effort requires us to consider different data and material. Previous demoscene research on its technological history can explain which role animation played in the scene and why it was deprecated at times. But in order to understand the social circumstances and aesthetical development of demoscene animation, it is necessary to dig deep into the scene-internal discussions on the topic. Hence,

these texts are used both as data and as a theoretical resource. However, this is well-founded in the fact that most of the demoscene research originates from demosceners themselves. Additionally, the related artefacts themselves, their rating, and the altered structure of the demoparties have to be taken into account.

Defining ‘Animation’

Most of the portrayals of the demoscene focus mainly on *one* of the aesthetic artefacts the scene produces, namely the demo itself. Public attention to the demoscene is connected to these “[e]xecutable programs which produce, in real time, engaging computer graphics and music”, as Vincent Scheib puts it as an answer to the question “What are Demos?” in his much-quoted Five Ws article (Scheib n.d.). As a matter of fact, the scene does not only produce demos, but also stand-alone graphics, music, diskmags and animations. This paper puts a spotlight on the different forms of animation produced by the scene both as part of the real-time executables and as stand-alone category.

‘Animation’ is an umbrella term for different kinds of imagery that are generated out of single pictures and played back at an adequate speed in order to make them move for the human perception. One of the simplest forms of animated images is the flip-book. The etymological roots of animation stem from the Latin word ‘animare’ meaning ‘to enliven’ and – closely connected – from the Latin ‘anima’ meaning ‘soul’.

Both traditional animation techniques and computer generated animation (CGI) follow the aim to entertain the audience, to make them laugh, cry and feel (cf. Lasseter 1987), mainly by focussing on the credibility of the animated characters. Thus, animators try to breathe life into the lifeless, giving characters empathy and emotion, for example, via facial expression (cf. Buchanan 2007). Demos, on the contrary, do not try to animate characters, but most often show abstract graphic effects and more-or-less lifeless material. Narration and realistic character design are not a primary intention of demoscene productions. Whether or not this is due to limited personal and temporal resources, this characteristic may count as valid to differentiate between demos and (pre-rendered) CGI animation or real-time tech demos.

Furthermore, in the CGI context the term ‘animation’ has an additional meaning. In the current academic discourse on digital filmmaking, it becomes obvious, that definitions of animation are often based on technical distinctions and thus are somehow tautological. Lev

Manovich stated that “digital cinema is a particular case of animation which uses live action footage as one of its many elements” (Manovich 2001, 302). Accepting this statement means: “Animation is all film – since everything is technically possible in digital film, so all digital film is technically animation”, as Caroline Parsons pointed out (Parsons 2013). Demos, by definition, are not filmed; they show digitally generated moving images, animation if you will. In the context of the demoscene there seem to be some differences.

Thus, another definition may be instructive that is based on content rather than on technical distinctions. Philip Denslow asks “What is animation if not the desire to make real that which exists in the imagination?” (Denslow 1997, 4). Here, animation is neither seen as a technique nor as a narrative charged with emotions, but “a specific genre that privileges the unique characteristics of animated storytelling, for example metamorphosis, [or] the transgression of physical laws” (Parsons 2013).

Having these definitions in mind, I will take a closer look at the occurrence of animation in the demoscene and especially on the connections between real-time and pre-rendered animation in order to clarify the emergence of animation as a term, technique and (aesthetic) artefact in the context of the scene.

‘Animation’ in the Context of the Demoscene

It becomes apparent that a lot of the authors writing about the demoscene avoid using the term ‘animation’, when they are defining what demos are. Instead, demos are circumscribed as “real-time generated audiovisual works” (Carlsson 2009, 16), “real-time multimedia presentations” (Reunanen 2010, 46) or as “a small file that executes” (Montfort 2012). The reason for this is not only that these descriptions focus on the real-time demo artefacts (not on pure animations works), but – as I assume – that the term ‘animation’ has a somehow pejorative meaning in the context of the scene.

When explaining the term ‘executable programs’ of his aforementioned definition, Scheib states: “A program is different than just an animation. An animation is simply a pre-recorded set of images played back for you.” (Scheib n.d.) Animation in this sense indicates pre-recorded or pre-rendered images with real-time generated graphics as a counterpart.

Evidently, most of the definitions strictly avoid to identify connections between real-time and pre-rendered animation. Lassi Tasajärvi points out: “It’s important to understand how demos

differ from videos or 3D-animations. In a demo, the objects and effects you see on screen are created in real-time, calculated and generated by the computer as you watch.” (Tasajärvi 2004, 17). More recent descriptions do not adhere so rigidly to this ‘splitting of terms’, as the definition of demos as “real-time audiovisual animation[s]” (Hastik and Steinmetz 2012, 43) exemplifies.

The origins of this divide between pre-rendered, animated and real-time sequences date back to the early demoscene’s usage of 8-bit machines, which weren’t capable of handling animated sequences due to, for example, their limited memory size and processing power, as well as the fairly simple graphics chips, and small and slow mass storage. Real-time was considered the only option to bring moving objects onto the computer screen. Tasajärvi emphasizes this tight connection between real-time and the limited technological resources as characteristic for the production methods of the early demoscene: “The memories of the first home computers were laughably small. [...] Besides, the same memory has to also have room for the code and the music. For this reason, anything with any degree of complexity to it had to be realized via code and in real-time” (Tasajärvi 2004, 17). Thus, the difference between the two is an ontological one: real-time demos are live, they are generated anew every time they are executed, whereas pre-rendered animations are just played back.

While it is import to draw this ontological distinction, it does not explain why the demoscene keeps it up so rigidly. One main reason may be that with today’s significant enhancements in hardware and programming interfaces, handling complex graphics animation in real-time became possible for the demoscene as well as for the professional CGI industry. The latter gratefully integrated real-time 3D animation into their production processes, whereas the demoscene adheres to their principle of minimizing the amount of animated sequences. Based on their surface, the artefacts may not be told apart and, thus, the viewer has to be made aware of the different kinds of production modes. Demoscener’s careful usage of the terms probably adheres to this concern.

Connections between Animation and Real-Time Presentations in the Demoscene

Knowing about these technological and historical circumstances, one could assume that the demoscene’s real-time principle excludes animation. But this is not the case: Animation is part of the demoscene almost since its beginning and it has appeared in different kind of

forms, as previous demoscene research has already pointed out. For instance, early demosceners already cheated their audience with animated graphics that were pre-calculated in the background while other effects were shown (cf. Reunanen 2010, 47 and Leonard 2006) or with effects that were calculated only once and then played back as animations. Especially on the Amiga 500/OCS in the late 1980s and early 1990s this cyclic structure was commonly used without being disapproved by the scene (cf. Botz 2011, 293).

Because of the minimal RAM of the Commodore 64, animations initially did not seem possible on this platform. Daniel Botz pointed out that less spectacular text/logo animations can already be found in the cracktros of the late 1980s (Botz 2011, 110–111). However, it was not before the second half of the 1990s, when demosceners managed to realize fluid and thus plausible animations on the C64 with the help of mathematically complex compression and vector-based techniques (cf. Botz 2011, 291 and 301–302). At large, animation was used to show astonishing effects which the hardware system couldn't handle in real-time. So, real-time and animation cannot be seen as a dichotomy, but as necessarily connected – at least for the early scene productions.

According to Tasajärvi, the “cheats and ‘magic tricks’” (Tasajärvi 2004, 25) were accepted as long as they were obfuscated for at least some time. This is why programmers are occasionally compared to magicians: both trick their audience, which in turn evaluates the magician by his/her skills in cheating and hiding his/her tricks for a maximal duration (cf. Botz 2011, 291). The aim of the magician as well as the programmer is to astonish their audience. In return, the spectators like to reveal how these effects are made. Therefore, Botz describes watching demos as a perpetual process of seduction and unravelment (cf. Botz 2011, 293).

Furthermore, the animations had to be combined with programming skills in order to be accepted. Tasajärvi writes: “By combining a suitable number of magic tricks and true programming prowess, you can generate controversy while remaining credible.” (Tasajärvi 2004, 25–26; cf. Botz 2011, 292–295). A well known example are the works of the Norwegian group *Spaceballs*. For their demo *State of the Art* (1992) they used pictures that were remixed on the basis of film or video material. These “3d vector graphics are fake – just an animation”, as Jim Leonard aka trixter put it (Leonard 2006). The video sequences were extensively edited in order to get this two-dimensional silhouette look. All pictures were

laboriously vectorized by hand, which means that each single video frame was traced; one second of animation meant one hour of drawing (cf. Leonard 2006).

The demo led to controversial discussions. The main reproach against this production was that not enough programming work had been done. But this critique is not really valid. Although the pictures and animations were not computer-generated in itself, creating this demo meant digging deep into the platform specifics. *Spaceballs* had to hack the Amiga's chip architecture in order to use the processing power of the hardware to full capacity. The demo used memory of an additional extension port rather than request memory from the original Amiga 500 platform (cf. Steapleton 2008, 77).

Additionally, *State of the Art* has to be seen as a pilot scheme to a huge programming project that the group started for their following demo, *9 Fingers* (1993). The programmers of *Spaceballs* developed a vector drawing application that automatically vectorized the outlines out of the digitised video material. It is important to point out again, that these animations could only be produced with the help of elaborate programming techniques and thus, necessarily needed to be evaluated in relation to the technological restrictions of the hardware they were made for (cf. Botz 2011, 303). Regardless of that, the opinions oscillated between the positions 'real classic' and 'no demo' (cf. Pouet 2000–2013).

Animation as a Stand-Alone Category

Parallel to the pre-rendered add-ons to real-time generated demos, animation has developed into a stand-alone category. "Since the emergence of so-called wild compos (competitions with flexible rules) at parties the demoscene has increasingly produced video clips, with 3D animations and amateur short films being among the most common types." (Reunanen 2010, 78). In the first years after their emergence (foremost at the *Assembly* demoparty in 1995), these 'pure' animation videos were released in the combined competitions which were called 'wild' or 'animation'. This led to the following situation: A wide range of works were positioned next to each other.

Real-time demos on extraordinary platforms (e.g. gaming consoles, mobile phones, old home computers, LCD displays, cash machines etc.) were put right beside digital films with different degrees of post production, or fully animated works. So it came to pass that real-time productions, that did not fit into another competition and were shown in video format (only

due to the lack of the specific hardware needed for running the real-time executable), had to be compared and voted for or against funny reports of the party events, traditional stop motion animations or digital generated imagery.

Demoparty organizers became aware of the situation and successively changed the competition categories and rules. First of all, the *Assembly* split up their ‘animation’-compo into two separate competitions. While it comprised pre-rendered animation as well as ‘wild’ platform demos before, these entries were separated into ‘animation’ and ‘wild demo’ in 1998. Surprisingly, they re-combined the compos (tagged ‘shortfilm compo’) again in 2004. In 2008 (until today) they returned to their split compo model for either ‘shortfilm’ or ‘wild demo’.

Nowadays, many demoparties maintain separate non-real-time animation competitions.¹ For instance, the German Demoparty *Evoke* (taking place in Cologne every August) separated the ‘animation compo’ from the ‘wild compo’ in 2005. *Demodays* (formerly *Buenzli*, taking place in Olten/Switzerland) host a ‘Mini-Animation’ as well as a ‘Non-real-time’ compo since 2011. According to their rules, the entries have to be pre-rendered and non-interactive. In their compo descriptions the *Demodays* organizers stated whom they want to address with these categories: “You might have a whole story line for a demo in your mind, but you’re no programmer? Get your animation software started and create that production anyway” (Echtzeit n.d.). Based on this statement, one could ask if animation videos have become kind of storyboards for real-time demos. Probably the answer has to be ‘no’. But the scene is interdisciplinary, and two main activities involved in being part of the scene are contributing to its cultural archive of (aesthetic) artefacts and gaining reputation for their productions. Therefore, it was just a matter of time – or rather of technological enhancements – that animation artists started to release their solo works in addition to their participation in real-time demo releases; among graphicicians (graphic artists) and musicians this was common practice for a long time already.

So, animation has its place in the demoscene today – not only as an obfuscated part in real-time demos but as well as a stand-alone competition category with a notable amount of releases. Hence, it seems interesting to have a look at how the demoscene’s perspective on the topic of animation has changed since its beginnings.

Altering Opinions throughout the Years

In August 2012, there was a discussion on the demoscene forum Pouet.net about the question “How about adding an ‘Animation’ Genre here?” (daXX 2012). The thread dealt with the problematic situation of the wild category mentioned above and its transfer into the patterns of the digital archive. The question was, if the non-real-time category ‘wild’ should be split up into (a) pre-rendered computer animated productions done with 3D tools and (b) digitally filmed productions made with a camera and different degrees of post production.

Concerning the available categories for the uploads on Pouet.net, the discussion does not seem to be so necessary, since there are already possibilities for separating the productions: pure pre-rendered animation videos can be grouped as type ‘wild’ and platform ‘wild’ and a demo coded on an extraordinary platform can be categorized as type ‘demo’ and platform ‘wild’.ⁱⁱ However, apart from the remotely relevant question regarding the possibilities the archive offers, it is pretty insightful to have a closer look at this online discussion in order to get an idea of the current state of opinions on animation in the demoscene.

Do the animation-related discussions within the scene still oscillate between affirmation and rejection? Most of the sceners nowadays endorse good stand-alone animation pieces. There are only few demosceners arguing against animation.

Rudi B. Stranden (in the scene also known as rudi), one of the anti-animation-advocates, posted the following comment: “the point of real-time would be meaningless if pre rendered animation existed (as an important platform)” (Stranden 2012a). Further down he states: “doing things in real-time is such a big thing in the demoscene for it to take animation too seriously” (Stranden 2012b). Unsurprisingly, these arguments met opposition from most of the other sceners. The author of the *PC Demoscene FAQ*, Thomas Gruetzmacher, was right on target in answering: “Just because there’s cinema, doesn’t mean live theater is dead. Different mediums will always be complementary and coexist” (Gruetzmacher 2012a).

The dispute between the opponents and the advocates of animation is one of fairness of comparison. The demoscene is interdisciplinary and integrates a lot of disciplines which all have to cope with different limitations and challenges. The discussion quoted above put focus on the necessity to set up precise rules for any form and to steadily realise the distinctions of the creations. The point is not that some form will replace the other only because of

technological developments. Both may coexist within the demoscene, but need to be judged differently in order to fit the scene's competitive nature.

Maybe this criticism towards the narrow skills of the animators can be explained historically and again in connection to the demoscene's real-time principle. In explaining the specific features of demos, Lassi Tasajärvi once stated that “[t]he viewer has to have an understanding of the real-time nature of the works, otherwise the viewer may demand the same things from a demo that they do from a video or animation” (Tasajärvi 2004, 20). Turning this statement upside down can give a hint on how some demosceners judge pure animation works. It could be that some expect non-real-time animations to show more complex and elaborate audiovisual quality, since they do not generate effects in real-time, as demos do, and thus have to consider fewer challenges.ⁱⁱⁱ

Obviously, there is a clash of opinions on the assumption, that animation is a possibility for people with less skill to participate in the demoscene. In the above-mentioned Pouet-discussion on demoscene animation, Thomas Gruetzmacher stated: “Learning to code is not in any way more expensive or time consuming than learning to properly use a 3d animation package [...] there's no reason to not take it [non-real-time animation] seriously or dismiss it, because 'democoders are not into it'.” (Gruetzmacher 2012b). Actually, it is not very prudent to make generalizations about who has to be more skillful, since the works created are pretty diverse. More proper would be to say that both face different problems and do require different skills.

Oliver Borgardts, the creator of the non-real-time CGI animation *The Lacquerer* (2011) posted a quite long statement in the thread, which can give a first-hand insight, not just on the issue of skills, but as well into the working process and the status of animation artists in the demoscene. Borgardts states:

it was a one man production and - trust me - really hard work to do [...] the techniques / principles of animation - the knowledge you need to create something like that - in real-time or rendered - are the same. please don't get me wrong. i have the deepest respect of the coders and groups doing the greatest stuff in real-time. but... doing quality stuff prerendered [...] is not less valuable than doing stuff in real-time.

so show some more respect please - or you'll end up without good gfx artists and welcome back to coder colors ;) (Borgardts 2012)

Disregarding the somehow abrasive undertone in his defense, Borgardts touches a central issue in his closing sentences: the important role that animation artists (and new sceners in general, who do not have a coder background) played for the development of demo design.^{iv}

On Some Peculiarities of the Demoscene's Artefacts and Practices

At a first glance, the design of demoscene animations does not seem to vary so much in form, style, design, content or function compared to other CGI. Concerning the fully pre-rendered computer-generated animation works (and leaving out filmed party reports and the like), there are a lot of visual references to digital productions from outside of the scene that can hardly be told apart from each other.

Borgardts' *The Lacquerer* has tight visual reference to Chris Cunningham's music video flex (2000) as well as to the morphing scenes of the character Mystique in the movie *X-Men* (2000). A lot of demos – due to their technological basis – do not distinguish from cutscenes or the game engine aesthetic of machinima films (see Dead on Que's *Fake Science* (2002) or Tomislav Bezmalinovics *Engine* (2005)). And obviously, there are tight connections to the renowned CGI company *Pixar*, that is a sponsor of the scene's server Scene.org. The people at *Pixar Animation Studios* do appreciate the work of the demoscene: they invited demosceners to visit the company in 2007, which is why demosceners gave the company's mascot Luxo Jr. a 'real-time life' and brought it as a special gift. Finally, the visuals of the demo *Elevated* (2009) convinced *Pixar* to hire its programmer Iñigo Quilez for becoming 'their gardener', developing the scenery for the CGI movie *Brave* (2012).

As the references (may) illustrate, the skills of a demoscener are not only appraised and voted for inside of the scene but as well from the outside creative industries. This observation is accompanied by the conclusion that there is no aesthetic principle that counts as valid for the scene only and in its entirety. The demoscene is much too diverse and their productions are influenced by a whole lot of things. However, there are examples from the demoscene's subcategory of animation that can unearth some general aspect of demoscene artefacts and practices.

Experimenting with geometric, abstract forms or typography and the physical (mis-)behaviour of these elements seem to be an essential ingredient in a lot of demoscene animations. Many demoscene animations make use of classic demo effects in order to ‘win the hearts’ of their audience, as e.g. the stop-motion works of *Gaspode* can illustrate.^v In his productions, he uses demo effects as a topic by analogously re-building them (see Noodles (2010) or *Sugar Shock* (2013)). These productions are very popular within the scene, certainly for reasons of self-perception.^{vi} On the contrary, non-demoscenish computer-generated works and digital film productions put focus upon storytelling.

Nevertheless, this is not to say that a canonical set of effects has necessarily to be shown in demoscene-related animations in order to be appraised by scene members. The beforehand mentioned *The Lacquerer*, for instance, does not show demo effects but is without exception voted with ‘thumbs up’.^{vii} Rather, another aspect of successful demoscene animations seems to be operative in this case: synchronisation between audio and visual effects. This is perhaps the most central criterion for appraisal, which is hardly surprising since it is a main aspect of real-time demos as well. *JCO*’s animation work *Visual Approach to the Aesthetics of Sampling* (2013) may serve as an example here.

Another characteristic trait is non-commerciality and that animations have to be done for the scene only – thereby animations follow the overall demoscene ‘ethic’. This, too, marks a main difference to other CGI festivals (such as the *Ars Electronica Animation Festival*), where commercial pieces are voted side-by-side to amateur works. The problem, though, is not that demoscene productions cannot compete with professional works; albeit such an approach is somehow untenable. Instead, the social context of the community and the non-commercial DIY production method play a central role in the demoscene. Perhaps this is a central reason, as to why some CGI artists decide to release their animation videos in the demoscene and not elsewhere. The aim not to be subsumed by other real-time 3D animation scenes may count as valid for the animation antagonists as well. From their point of view, the wish to maintain the purity/clarity of the demoscene can be better achieved by sticking to the social circle/structure of the scene, than by fulfilling the historically necessitated aesthetic principles.

Summing It up

Real-time in itself is an important attribute for executable demos and intros, but – concerning the context of the scene – cannot count as an all-dominant criterion labelling the demoscene in its entirety. More than that, the eponymous demonstration seems to be the aim in effect here. All the demoscene works exemplarily show how the scene’s urge to continually outdo each other is constituted by at least three factors of demonstrating: demonstration of the maker’s technical skills, of their innovative concepts, and of exploiting the technological possibilities up to levels never seen before. Additionally, sceners like to see some ‘scene tradition’, for instance, canonical effects or insider stories or jokes. These are the things that demosceners appraise and that count in the positive or negative voting of a production – be it a pre-rendered or a real-time animation work. These are the parameters that serve as the demarcation of demoscene-related productions from other forms of digital animation.

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Notes

- i Whereas the Scene.org Awards dropped this category.
- ii Matt Westcott aka gasman, one of the makers of the new platform <http://demozoo.org>, said that they implemented an even better categorization ontology (in daXX 2012, August 14, 01:49 p.m.).
- iii In any case, this should not be mistaken as an apology for worse quality productions as – for example – the early machinima community argued.
- iv The same thing can be said about/on the influence that musicians have on scene productions.
- v Interestingly, this even works the other way around: When 3D artists (by using tools as 3ds Max or After Effects) show visual effects similar to the kinds of demoscene effects, there is a good chance that sceners will like it (e.g. see the videos of Korean artist Ishu Yoon). Another example is the ‘import’ of works from fractalforums.com to the Evoke 2013 compo timeline.
- vi Party reports, that are as well released in the animation-category, are appraised for exactly this same reason.
- vii Voting behaviour at parties as well as the difference with regard to the forum could be a topic for a whole article, though I do not dare to say too much about it here.