Mundane Sounds in Miraculous Realms: An Auditory Analysis of Fantastical Games

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The starting point for this article was to carry out a collaborative real-time analysis aimed at assessing the levels of sound of which a modern video game may be comprised. From October 2010 until February 2011, I held a class at the University of Cologne entitled *Scoring the Game* with undergraduate students of musicology between the ages of 20 and 25. After discussing various approaches to and theories of musical composition as well as sound design for video games, we wanted to put our knowledge to the test in concrete game situations. I thus prepared an experiment in which one of the participants was to play a game of his or her choice for a reasonable amount of time, while the others were assigned the task of monitoring one of the following four dimensions of game audio: a) music, b) sound effects, c) voice an dialogue, d) overall soundscape[1] (i.e. the totality of sonic elements in relation to each other).

By a fortunate coincidence, the selected games happened to share the common factor of being embedded (both thematically and iconographically) in fantastic scenarios. Drawing upon the test results, this gives me the opportunity to call attention to a few sonic idiosyncrasies of fantastical games in general and of sci-fi, fantasy and horror games in particular, especially in relation to other media.

1 Am I fantastic, or what?

For the purpose of this investigation, I prefer a broad understanding of the generic term "fantastic". Whether in literature, radio drama or film, one can observe a strong tendency towards the amalgamation of the genres of science fiction, fantasy and horror. Obviously the same is true for video games, encouraging gamer communities to come up with designations such as "sci-fi-survival-horror-shooter". This is certainly not to say that each genre in itself lacks distinct narrative authority or, in other words, a set of features and rules originating from its history with all the

[1] A neologism first coined by R. Murray Schafer during the 1960s to describe both the specific traits of an acoustic environment and its preservation through a field recording, which can then be utilised as material and further transformed into all sorts of audio art. The term was later adopted for game studies in a rather broad sense (see Järvinen 2002; Friberg and Gärdenfors 2004; Ekman et al. 2005; Chan 2007; Collins 2007; Grimshaw 2007a, 2007b; Grimshaw and Schott 2007, 2008).

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relevant storytelling conventions. Taking up this matter, Simon Spiegel (2007: 28-53) conceives science fiction as a specialised mode of erecting fictitious future worlds, especially with regard to the way in which the genre would have us believe that there is (or might be) a reasonable relationship between our empirical, day-to-day reality and the reality of the story. This mainly happens through the introduction of scientific novelties which, on closer inspection, may appear as far-fetched as the magical devices employed in fairy stories or fantasy tales, but which, nonetheless, backed up by technological rhetoric and imagery, fulfil the function of naturalising the narrative in all its aspects. Consequently, Spiegel concludes that it is a dearth of such particular "reality effects" which sets fantasy apart from science fiction.

To my mind, a delineation of the two genres which centres either on the presence or on the absence of continuity with the empirical world can become problematic under certain circumstances. The tendency to naturalise can be observed just as much in the fantasy repertoire as in science fiction, even though magic (in the sense that a rational explanation is not necessary) forms a supplementary category in fantasy which remains mostly ignored in sci-fi. If it is true that science fiction stories predominantly project current combinations of ideas into the future, why then cannot a retrospective procedure in fantasy be stressed, in which the future is omitted but, however, the present and, in particular, the past are placed in alternative worlds? Here are a few points capable of supporting these thoughts:

1. The social structure, rites and requisites most notably found in sword-and-sorcery fantasy are the constituents of pre-modern society and have left their mark throughout history. There are kings, peasants, itinerant merchants, travelling entertainers, shamans, burial mounds, courtly ceremonials, balls-and-chains, armour, horses, etc. And yet things occur which never were a part of human experience and which at no time ever will be, as for example, when the apparently medieval hero climbs from the back of a horse onto that of a dragon.

2. Magical machines are encountered as an ingredient of numerous fantasy scenarios. What is interesting about this concept is that a coupling of physical reality (mechanics, hydraulics) and sorcery (e.g. magic lightning as a source of energy) takes place. As well as the currently very popular Steampunk adventures, one can cite one of the best-known examples of the game scene: the dwarf machinery in the *Elder Scrolls* episodes *Morrowind* (2002) and *Skyrim* (2011).

3. The opposite world, in both science fiction and fantasy tales, can be explicitly established in a parallel universe or, perhaps, in several universes. Possibly stimulated by the many-worlds interpretation of quantum physics, the placement of this narrative strategy was registered in both genres no later than in the 1960s. Almost every *Star Trek* spin-off since the *Original Series* continues the plot of the mirror universe, which was introduced in 1967 in the *Mirror, Mirror* episode. The basic story therefore remains almost always the same: due to either a successful or a

backfiring stroke of 'technical magic' (e.g. a transporter accident) the figures are transferred from their own world into a parallel world in which, however, although superficially exactly the same as their own (hence representing the same kind of future), all the characteristics of the known protagonists and, thus, all the social constellations as well as the political systems appear false. Similarities are found in fantasy. Roger Zelazny, in his novel cycle *The Chronicles of Amber* (1970-91), designed a 'multiverse' in which numerous worlds (our known universe also among them) are manifest, as it were, as shadows of the original world of *Amber*. The starting point of the chronicle is a conflict between two aristocratic houses which is carried out on each of the worlds in this multiverse. What is significant is the simultaneously currently-compatible and historically-oriented motifs which are supplemented by fairy-tale elements: state-of-the-art computer technology encounters magic portals, seemingly medieval armies are equipped with contemporary quick-firing weapons and LSD-hallucinated mythical creatures exist side by side with actual unicorns.

Bearing in mind the combinations outlined above, it seems appropriate to emphasise still further the chronological factor in Spiegel's explanation. In brief, one can establish that the existence of fantasy depends on an anachronistic style of narration coupled with magical ideas, while, in the science fiction genre, the futuristic projection of technical ideas dominates. This formula can only survive, however, if one takes into account the principal porosity between the genres and, consequently, all the possible permutations. In the 'pure' development of both genres, the nature of the imagined historicity is nevertheless fundamentally different. For example, when one moves his avatar through the post-apocalyptic wasteland of *Fallout: New Vegas* (2010), sooner or later one encounters The King, the leader of a gang clothed in rockabilly style which resides in a building known as *The King's School of Impersonation*. Although the punch line is beyond the characters in the game, for the player it is an obvious reference to Elvis Presley, or rather to the phenomenon of his countless imitators (after all, a period of 304 years, together with a destructive nuclear war, lie between Presley's death and the time of the story, so that, apart from a few fragments of his biography, not a single substantial name remains). Nevertheless, such lax and humorous dealings with historical personalities and conditions do not invalidate the plausibility of the portrayal. In the context of 'serious' fantasy games of the *Dungeons & Dragons* type, such a gag can, at best, be used as an Easter egg, but cannot be utilised as the fundamental plot.[2]

However, one can experience the previously-mentioned reality effect (or even the absence of any reference to reality) within both modi and, by the way, independent

[2] However, in amusing representatives of the genre, which are far less about the unity of the narrated world and far more about the inclusion of parodical effects, breaks in continuity of this kind seldom chafe. The virtual guest appearances of the metal band In Extremo in *Gothic* as well as Blind Guardian in *Sacred 2: Fallen Angel* fit this concept and cause one to consider whether both groups, due to their pseudo-medieval musical performances, employ a different type of continuity.

of the imaginary epoch of the current story. On the one hand, stories by both fantasy and science fiction authors are based on trusted conventions of action and interaction between life forms and things: magically-driven airships and spaceships with time-warp energy are means of conveyance which transport their inmates from A to B. Shining portals and wildly-blinking transport chambers function as doors enabling access to other areas. Energy pistols and evoked fireballs are both deadly weapons used to kill humans and other beings in spectacular ways. Following an important insight of Spiegel's, there is, on the other hand, no general difference between science fiction and fantasy with regard to the introduction of unrealistic connections. The food replicator is removed from our everyday experience (but not, mind you, from our powers of imagination!), as is the table which lays itself.

As I can only briefly touch upon here, one could quite easily combine all of the above with uncanny effects and supernatural encounters to add the element of horror[3], as the horror genre does not necessarily need to be furnished with an imaginary history to provide its specific identity. Simply speaking, a ghost can be put in space with fewer unlikely narrative reasons than a UFO among elves.[4]

From what has already been said, it can clearly be seen that the willingness of the recipient to take wondrous things for granted is not made on the basis of empirical evidence, but is created by each individual narrative: in science fiction through the sphere of technology (in which the materialisation of the technical knowledge must not inevitably be explained: the know-how, as a rule, is simply there) and in fantasy through the presence of magic (which is mostly indissolubly associated with the fictitious world, and so more or less reigns as a law of nature and thus can be actively mastered). Strictly speaking, the genre borders, even regarding this last point, and above all, in a medium such as that of video games can be watered down from one moment to the next, seeing that a large amount of activity happens on the side of the player. Considered from a formal standpoint, it makes no difference whether one enhances one's avatar with genetic implants, as in *Bioshock*, so that he can uninhibitedly shoot flames, lightning and columns of ice from his hands, or whether one, as in *The Witcher*, has a sword forged from newly-acquired runes in order to make putting an end to the approaching horde of monsters even more effective with the help of the same forces of nature. In both cases, the idea of the power-up dominates. In terms of gameplay, the techniques to obtain such supplementary capabilities are well-nigh identical.[5]

[3] For a comprehensive discussion of the nature of horror games, see Kirkland 2009.

[4] In fact, the former happens quite frequently: for instance, in the novel *Solaris* (1961) by Stanislav Lem, in films such as *Event Horizon* (1997), *Ghosts of Mars* (2001) and *Sunshine* (2007), and in the still to be discussed video game series *Dead Space*.

[5] Such equivalences are either anchored in the visual style of the individual game or are manufactured from correspondences between recently produced games of different origins. For example, many parts of the *Final Fantasy* cycle mix elements of fantasy and science fiction per se, while a detail such as the optical enhancement of the sorcery in *The Elder Scrolls V: Skyrim*, in contrast to its precursor *Oblivion*,

Returning to the experiment at hand, it should be noted that even if many of the devices that have been exposed by the students may be presumed to apply to almost any recent video game, there are, as we shall see later on, certain musical and sonic features that can be understood as being extremely distinctive of fantasy, sci-fi and horror-themed games, including every combination thereof.

2 Prerequisites and central questions

To allow for a better understanding of the analytical results, I shall give a quick overview of the three games in question. *Dragon Age: Origins* is a character-driven and dialogue-filled role-playing game set in a typical, pseudo-medieval fantasy world crammed with warriors, witches, magi, elves, dwarves and all kinds of demons. Developed by BioWare around 2009, it continues to explore a number of principles, such as class specialisations or turn-based combat with a party of several playable characters, that have proven successful in earlier titles emanating from the same studio (e.g. *Baldur's Gate*, *Neverwinter Nights*, *Star Wars: Knights of the Old Republic*, *Jade Empire*). The opulently-orchestrated soundtrack, composed by Inon Zur (*Prince of Persia*, *Crysis*, *Fallout 3*), makes use of a large brass section, archaic-seeming percussion and a mixed choir for the more dramatic ingame sequences. Intermittently, this instrumentation is enriched by subtle electronic timbres.

Spore (2008) is best described as an omnium-gatherum of five self-contained but interrelated games, each associated with a unique way of playing (2D arcade, real-time strategy, action role-playing and life simulation). The overall goal is to conduct the evolution of an alien species from its very first emergence as a micro-organism (cell stage), through its shift to land (creature stage), the development of social capacities (tribal stage), up to the founding of a nation (civilisation stage) and ultimately a period of interstellar colonisation (space stage). Designed by Bill Wright, who is also the originator of the two renowned series *SimCity* and *The Sims*, the game puts the player in a god-like position and can, at least in this respect, be compared to other 'sandbox' titles such as Peter Molyneux's *Black & White* (2001) and Éric Chahi's *From Dust* (2011). According to a conversation between Wright and composer Brian Eno (2006), the capital aim of the game's audio design was to create an adaptive musical ambience matching different gamescape situations by means of generative composition. In the above case, generative means that the specific nature of a piece follows a stock of rules which the composer has defined in regard to forming musical and sound parameters. Composition software thereupon 'improvises' within the boundaries of these parameter guidelines.

creates comparable trans-genre moments only in relation to the first-person aesthetic in the *Bioshock* series.

Dead Space has become a thriving multimedia franchise, including a variety of games for different systems, two animated films, comic books and a novel. In the lead-off video game, released in 2008, the player takes control of an engineer named Isaac Clarke, who embarks on a mission to salvage a stranded spaceship. Due to an unforeseen collision, he quite violently ends up aboard the vessel, whose crew has been infected with an alien virus and, as a result, transformed into zombie-like abominations. It goes without saying that the player has to help Clarke fight his way through hordes of monstrosities, being responsible for countless severed limbs and blood splatters in the process. An important prerequisite in Clarke's survival is his versatile spacesuit, which, so to speak, becomes the story's unsung hero, even more so since the countenance of the protagonist remains invisible until the very end of the game. Not unlike the *Silent Hill* series, it is at times virtually impossible to draw the line between the game's score, composed by Jason Graves, and the remainder of the sounds, crafted by Dave Feise, Andrew Lackey and Dave Swenson in close collaboration with the composer (cf. Isaza 2009).

Although the student participants were encouraged to find their own point of view or, more accurately, of listening, I deemed it useful to provide them with a few observation criteria in each category, mainly to serve as a memory aid concerning the key concepts that had been examined throughout the semester. As was to be expected, not all of these factors were taken into account in the individual analyses. However, seeing that an outline of the central questions may prove beneficial for further investigations, I would like to catalogue them here.[6]

2.1 Music

2.1.1 Locale

- Diegetic? Non-diegetic? What are the differentiating features? Cases of doubt?
- If music appears to be diegetic, then how is it integrated with on-screen events? Is it made to fit the spaces/topographies depicted in the game? Is there any interaction with non-diegetic music?

2.1.2 Temporality

- When does music sound, when does it not?
- Are there specific actions or situations that trigger music?

[6] The types of questions have, in part, been derived from Grimshaw and Schott 2008, Zagal and Mateas 2007, as well as from a very insightful lecture given by GameSoundCon founder Brian Schmidt in 2010. Most issues, however, emerged during class projects and debates.

- Are there separate domains of ingame time/temporal frames to which certain music is attached?
- How do musical transitions come about?

2.1.3 Character and disposition

- Musical style or idiom (e.g. military march, folk music, dance music, lullaby)?
- Following up on this: What emotive effect might be intended?
- Instrumentation, musical material and sound?
- Mood and texture?
- To what extent is the setting of the game reflected in the music?
- Is there a transfer of practices/conventions from film music?
- Music as a means of characterisation (e.g. through leitmotifs)?
- Style or character in relation to function: Are there differences or similarities between music composed for cut-scenes, dialogues, menus, actual gameplay, opening sequences and closing credits?
- Ornamental or through-composed music?
- Musical form and compositional technique in general?
- Does music enhance the narrative of a game?

2.2 Sound effects

- Types of sound, especially in relation to the player's actions and the corresponding ingame occurrences?
- Composition of auditory scenes (i.e. the sonority of specific places like jungles, wastelands, swamps and so on, also at different times of the day)?
- Are sounds treated dynamically (i.e. proportionate to the intensity of the events that trigger them)?
- Localisation: Do sounds inform the player about the position/trajectory/ magnitude of their sources? Does this affect gameplay?
- How do sounds contribute to storytelling and to the mood of a game?

2.3 Voice and dialogue

- Function of speech sounds/vocal utterances (indicative, instructing, narrative, misleading)?
- Linguistic style of a certain character (diction, dialect, vernacular, sociolect)?

- Kind of voice/timbre/gender (e.g. childlike, butch, lascivious, otherworldly, monstrous)?[7]
- Location of voices? Embodied or disembodied voice?
- Are voices being transformed? How and why?
- Does the player's character have a voice?
- What is the relation between written and spoken language?

2.4 Overall soundscape

- How do the different dimensions of game audio intertwine?
- Are there deliberate ruptures between categories of sound, or rather seamless transitions?
- Is there a peculiar sonic style analogous to the visual style?
- What kind of listening is induced during particular portions of the game (alarmed listening, casual listening, semantic listening)?

Having received around 150 completed questionnaires[8], it would go beyond the limits of the following section to render every single annotation. Hence, I will settle for a recapitulation of the most frequently made remarks on the one hand, and the most comprehensive analytical insights on the other, in an attempt to synthesise them into more or less coherent trains of thought. It goes without saying that the specific context from which the experiment arose cannot provide any representative data regarding game audio. To make such a claim would certainly be inappropriate as the aim of our group experiment was to combine individual aesthetic experience with previously-acquired theoretical knowledge in order to sharpen the awareness of essential procedures for the tonality of video games. Nonetheless, the fact that highly-informative insights and competent discussions were produced from this is owed only to the keen sense of observation of the course participants.

[7] The importance of both linguistic style and vocal typecast for the way in which a game is to be perceived must not be underestimated. In order to illustrate this, it is sufficient to take a brief glance at the *Dragon Age 2* add-on *Mark of the Assassin* (2011) which introduces a jovial sub-plot to the otherwise battle-oriented main game. For the sake of comic relief it exploits, not unlike numerous Hollywood comedies, various cultural stereotypes. Since the story unfolds around a location called Château Haine, almost every single supporting character has been furnished with an outré, extremely smug French accent. A festivity at the castle eventually leads up to an encounter that plays on the popular notion of 'all French men are gay'. Another dialogue situation employs the stylistic device of inversion as two of the leading characters make the acquaintance of a young female elf, only to hear this delicate person articulate herself in a booming baritone voice.

[8] The number of participants per session fluctuated between 48 and 53. It must not go unmentioned that the composition of the class has been relatively gender balanced (ca. 45% female and 55% male students).

3 Listening to games: participant feedback

3.1 Dragon Age: Origins, played on a laptop PC for approx. 70 minutes

3.1.1 Music

It appears as if the title theme, which could be heard in the main menu, served as a starting point for several variations throughout the score (motivic/melodic inversion, augmentation, diminution, sequencing, re-orchestration and the like). So basically, we have here a 'classical' approach to composition. Perhaps this fits best (or is a cultural convention?) with the 'ancient' scenery of the game.

The song featured in the title screen, with its pseudo-folkloristic (oriental?) female vocalisation, bears resemblance to a certain idiom known from recent sword and sandal movies (*Gladiator*, etc.). It could be interpreted as a modern-day manifestation of musical exoticism.

Gameplay music is fairly monotonous. The few variants thereof are quickly memorised, removing any element of surprise.

Transitions between different types of gameplay music are virtually nonexistent. After each combat situation, the march-like accompaniment stops abruptly and is superseded by low-key incidental music. The contrast can be very violent. Nevertheless, music plays a major role in sensitising the player to the course of the game.

The soundtrack keeps vanishing in many loading screens, thus breaking immersion. In some instances, however, music can be heard during loading breaks so as to anticipate on-screen occurrences. To give but one example: right before the cut-scene in which the party encounters the old witch Flemeth for the first time, a particularly gloomy portion of the score creates a feeling of suspense (high string notes set against a drone-like texture of low string crescendi, tubular bells and airy voice pads, all punctuated by deep percussive thumps and snare drum rolls).

There is some signal-like, ornamental music that contributes to the game's atmosphere by characterising certain locations aurally. While moving about a military camp, one hears a recurring horn motif which, although the instrument remains unseen, clearly does not belong to the score. In this capacity, musical elements do not differ from non-musical sounds (e.g. the barking of dogs or the crackling of firewood).

3.1.2 Sound effects

All sounds of motion (clatter of armour, rubbing of cloth, footsteps) tend to be awfully loud. This seems odd in relation to the tiny characters, especially when the camera is set to bird's-eye-view by the player.

In a type of game where there are containers to be searched and items to be found, it has become common to leave sonic clues all over the game world. Here it is the buzzing of flies around corpses that indicates loot.[9]

Against the mystical/'medieval' backdrop of the game, some page-turning sounds during saving and loading are meant to introduce a sense of written work (within an intrinsically digital medium). The same illusion is created when opening the world map.

3.1.3 Voice and dialogue

The impression of a fairly stereotypical character design is greatly enhanced by voice acting. Morrigan, the witch's daughter and an aspiring witch herself, is introduced as a kind of leather-clad femme fatale, displaying dark hair, piercing eyes and a fair amount of bare skin. She has a haughty, self-confident body posture, and walks around with casual indifference. Accordingly, her voice is gendered to have an arrogant and patronising tone sustained by a dark and husky vocal timbre.[10]

Both diction and accent differ very much among the 'races'. Dwarves sound Scottish, which makes them appear gruff, whereas humans and elves lean towards Received Pronunciation. American English has apparently no place in fantasy realms.

The player's main character does not have a voice in conversations, supposedly because the numerous dialogue options would have called for a considerable amount of voice acting (most likely hindered by economic factors and disk space). However, there is the attempt to give him (or her) a vocal identity, at least during combat, in the form of stylised exclamations.

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[9] Author's note: Other prominent examples would be the ethereal hum of a plant called nirnroot in *Oblivion* and *Skyrim* or the gentle chime around treasure chests in the *Assassin's Creed* series.

[10] Author's note: The player opted for the original voice files. In the unlocalised, anglophone version of the game, Morrigan is portrayed by Australian actress Claudia Black, who is well known among science fiction fans for her roles in television series such as *Farscape* and *Stargate SG-1*. She has also lent her voice to many female video game characters, most notably Chloe Frazer in the *Uncharted* series and Samantha Byrne in *Gears of War 3*. As with Morrigan, both these characters resemble a highly-clichéd type of woman which is to be found in various instances of popular culture from film noir up to certain gender representations of heavy metal (cf. Bronfen 2004; Walser 1993: 114-119). Interestingly enough, the 'German' Morrigan, Tanja Dohse, who, when voicing radio and TV commercials, does so in a silky smooth tone quite close to her natural register, significantly modifies her vocal timbre in the game in order to match Morrigan's daunting appearance. From an intercultural perspective, albeit beyond the scope of this chapter, it could be instructive to study processes of vocal gendering across different game localisations.

3.1.4 Overall soundscape

The entire sound world is very much influenced by the individual's playing style. Basically, one may either choose to move and fight in real-time or to interrupt events at any given time. The latter option results in a sudden auditory shift, since all diegetic sonic elements disappear in favour of various clicking sounds from the selection menus, with the game's score being played faintly in the background. The considerable leap in music volume somehow interferes with the fantasy look and feel of the game.

The cut-scene leading to the onslaught of the demon blight is quite representative of the alliance between game and film aesthetics. Simply put, it is an adaptation, both visually and aurally, of comparable sequences found in Peter Jackson's *The Lord of the Rings* movies: from the reconstruction of camera perspectives, musical mood and orchestration (at first, chilly strings and eerie vocals to excite tension, then the rolling thunder of war drums) up to exclamations like "Archers!", immediately followed by a volley of howling arrows and exaggerated sounds of bursting flesh.

Dialogue content is sometimes emphasised by musical events. During an early cut-scene, a character relates to "ancestors from the past" while, at the same time, a remote male choir makes its entrance (with lots of reverberation to suggest distance). Likewise, certain keywords are paired with slight musical gestures ("attention" → gong).

In order to increase intelligibility, environmental sounds are greatly reduced during dialogues. This can lead to strange effects: for instance, when a conversation takes place in front of a huge bonfire that does not seem to diffuse any sound at all. Such non-realistic balancing of audio content is reminiscent of similar procedures in mixing for film.

3.2 Spore, played on a laptop PC for approx. 80 minutes[11]

3.2.1 Music

The parts of generative music during the cell stage are rather discreet and repetitive in nature. Their pattern-governed structure lets one think of American minimal music. Given Brian Eno's personal interest in the works of Steve Reich and Terry Riley, this does not come as a surprise. It might indicate that the seemingly objective concept of generative composition is not to be viewed as being independent of a composer's individual socialisation.

[11] The playing time encompassed the first two stages of the game (cf. the summary of *Spore* above).

Instrumentation is simple: soft timbres are preferred (chimes, smooth e-piano, acoustic guitar, analogue sub-bass, low kick drum). Whenever the player's microbe runs into danger, the music gradually takes on a more dramatic tone. Here it is the timpani-like beating in particular which, due to symphonic convention, invokes feelings of turmoil and fatefulness.

There also appear to be passages guided by the idea of tone painting. For example, some up and down arpeggios could be understood as imitating the undulations of water, although it is hard to tell whether such correspondences are intentional or rather a chance product of the generative approach.

The music's frequency range seems to be adapting to the size of the organism, seeing that it 'grows' with the character.

The creature stage is barely accompanied by music, which might be related to the fact that gameplay becomes more complex from then on. If music sounds, it is no longer repetitive, but rather comprised of distinct musical figures (e.g. glissandi, fanfares, isolated chords). As much as most of the sound effects, musical elements are being used to direct the player's attention or to underscore certain behavioural patterns. It is worth mentioning in this context that crucial forms of interaction are combined with very telling types of music. When, for instance, two creatures enter a mating ritual, an easy-listening, bossa nova kind of tune is triggered to musically recreate the atmosphere of vintage porno movies. Furthermore, the hatching of the offspring is accompanied by a musical-box cradle song, while achieving a new level of development is rewarded with an orchestral tutti.

3.2.2 Sound effects

Although *Spore* may visually differ from many other games, its use of effect sounds adheres to basically the same principles as, for example, *Dragon Age*. This becomes particularly apparent during the turn-based fights throughout the creature stage, where sonic markers indicate the activation of deferred abilities or perks. An even higher degree of standardisation is reflected in the sound that suggests the imminent demise of one's space critter: who would have thought that inside its chest beats a human heart?

The noises from the environment are quite customary. Depending on the time of day and the specific locale, one hears birdsong, frogs, bees, cicada and a variety of other small creatures. Such auditory scenes do not differ from the ones used in more 'realistic' games. Perhaps they are taken from the same sound libraries?

3.2.3 Voice and dialogue

Consistent with the cartoonish look of the game, the little beasties populating the primordial soup produce cute, high-pitched noises. All utterances are human-like (anthropomorphisation) and informatory in terms of gameplay situations (impending doom → "yieks!", success → "yippie!", etc.).

All creature noises during the second stage are composed of familiar animal sounds. One can make out gabbling geese, braying donkeys, squeaking guinea pigs, ape cries, wild cats and the like. These sounds, though unprocessed, are assembled to form a kind of meta-voice. Given the alien environment, it is still weird to be constantly reminded of our own ecosphere.

Becoming friendly with another species is presented in the form of mutual singing. But since the creatures' voices are no more than animal cries, musicality has to be suggested by other means. As in comic strips or cartoons, this happens via depicting elements from musical notation.

3.2.4 Overall soundscape

Changes between types of music occur almost indiscernibly, except when particular game situations call for chunks of pre-composed music (e.g. orchestrated cut-scenes or 'iconic' commentary music). The result can be a sudden break of style which sometimes contradicts the otherwise 'organic' sound design. This notwithstanding, it is first and foremost the conventionalised and therefore semantically-charged pieces of music that contribute to the game's sense of humour.

Listening to the underwater soundscape of the primeval soup makes quite clear that game audio does not necessarily need to abide by the laws of physics. Sure enough, its continuous bubbling suggests liquidness, yet it is the kind of bubbling that one would normally hear on the water's surface. So the emphasis is obviously on the typification of the scenario, very much as in space operas, where it is crucial to have jet propulsion, cannon fire and loud explosions in outer space, irrespective of the fact that sound waves cannot travel in a vacuum.

3.3 Dead Space, played on an Xbox 360 for approx. 75 minutes

3.3.1 Music

The late-romantic-sounding piece composed for the cinematic opening sequence clearly underscores the scene's dramaturgy. For as long as one is presented with a breathtaking space panorama outside the ship's viewport, one gets to hear a string

orchestra playing mostly suspended harmonies. This gives the scene a floating character at first. When the ship starts to crash, both instrumentation and musical texture change significantly towards brass sforzati and syncopated percussion (although the musical sounds very much blend with the ship's wailing siren and an incessantly beeping alarm tone).

Nerve-racking encounters are accompanied by sequences of atonal music. Their arrangement comes across as a somewhat clichéd version of avant-garde composition: piercing string tremoli set against dissonant crescendi in the brass and deep piano clusters (or sometimes noises produced inside the piano) are complemented by a vast array of percussion instruments.

The treatment of the string section strictly obeys the principles of horror-film music. Almost every time a monster appears, one is presented with a shrill string sforzato. When Clarke becomes involved in hand-to-hand combat, the strings perform swarms of glissandi whose constant ups and downs create an unstable musical texture and thus exemplify the uncertain outcome of the situation, which, should the player fail to press particular buttons in quick succession, is that his character will die a gruesome death. These death scenes, in turn, are earmarked by the music falling silent. Such musical ruptures draw special attention to the remaining sound emblems (body slamming to the ground, limbs being cut off, last breaths or heartbeats, soggy sounds of bleeding to death, etc.).

3.3.2 Sound effects

Many environmental sounds hold the player in suspense, be it the distant howls of zombies, some clatter from the ship that cannot be localised, or the faraway ringing of human voices. All these sounds give the impression of the next uncanny encounter being just around the corner. The fact that the expectations aroused often remain unfulfilled makes things even queasier.

It remains unclear whether the sounds that can be spotted throughout the spacewalk sequences are supposed to come from the outside or from within Clarke's suit. Perhaps we have here a light-hearted interpretation of the old problem of physical reality versus artistic freedom. In fact, there is a mix of extrinsic and intrinsic sounds, since space seems to be characterised by a sub-harmonic drone while, at the same time, one is made aware of various bodily sounds transported through the spacesuit's atmosphere (heavy breathing, the throbbing of the heart, as well as deep resonances from running across the ship's outer hull in magnetised boots).

3.3.3 Voice and dialogue

The voice of the sentient on-board computer creates a significant contrast to every other voice within the game. Whereas the few human characters are constantly agitated, out of breath or screaming in agony and the fiends simply keep growling, bellowing or gargling, the indifferent alto timbre of the female computer suggests placidity. However, this calmness begins to feel sardonic as the computer's apathetic comments are also heard during some of the most horrific incidents. A similar effect is achieved with the HAL 9000 computer in the screen adaptation of *2001: A Space Odyssey*, since HAL's voice retains its soothing touch even when the machine starts to liquidate the ship's crew.

To a certain degree, it is incomprehensible why the protagonist of the game does not speak at all. Especially in conversations, this circumstance makes him appear a passive and rather dull character. Seeing that his face stays concealed behind a helmet as well, one possible explanation for this muteness could be that the game designers wanted to stress Clarke's isolation in an eerie and hostile environment (it should be noted that all communication with other human characters takes place via intercom or terminals).

3.3.4 Overall soundscape

In terms of audiovisual style, the exposition of the game literally screams "science fiction". The key component here is static in every possible way. Right after the presentation of a formal status report, a storytelling device which presumably became popular with Ridley Scott's *Alien*, we see and hear a warped transmission with interference, noise, crackle and strangely-distorted voice fragments[12].

The sound quality in general is metallic, which is consistent with the idea of being inside a stranded, malfunctioning spaceship. It also adds a permanent sense of danger. By contrast, most of the noises emanating from Clarke's spacesuit are quite thin (such as the com beeps and other feedback signals). Psychologically speaking, this makes him appear even smaller in relation to the awe-inspiring surroundings.

Although there are quite a few moments in which music can be perceived as a separate entity, *Dead Space* displays a high degree of blend between different categories of sound. In a scene where the protagonist is faced with the problem of getting through a broken hydraulic door, the rhythm that is produced by the door's banging against the wall becomes an integral part of the music. Such and similar

[12] Author's note: The frequency-modulated vocality that is referenced above can also be heard throughout George Lucas' *THX 1138* (1971; see Murch 2010). It later made its way into the *Star Wars* films. In *The Empire Strikes Back* (1980), for example, suchlike speech sounds form the basis for the adamant chatter of the imperial probe droid.

combinations of diegetic and non-diegetic sonorities might call into question the very concept of diegesis.

4 Of contemporary futures and scary sounds: a conclusion in progress

A point of view, which was again and again emphasised by the participants in the experiment, concerns the conventionality of the music as well as of the other sound categories. This was initially hardly surprising as video games have for a long time advanced into being an obvious part of mass culture and, as culture commodities, are not the goals of the creators alone, which are subjected to the involvement of the manufacturer, but which are additionally subjected to the requirements of the market. It would therefore be easy to resort to Ardorno's criticism of the culture industry and blame the game studios and publishers for the eternal reproduction of the same. In the final analysis, such a viewpoint seems to me disagreeable, because indiscriminate, although one can little deny that the comparison with already successful, or rather, top-selling games, often induces the industry to imitate proven models. On the other hand, one is tempted to assume that, in the context of fantastic portrayal alliances for the formation of music and sound, there is space in which familiar schemata need not categorically be followed.

As was stated at the beginning, the worlds of science fiction and fantasy differ, first and foremost, due to the privilege of a particular style of historicity. Consequently, the tendency is that the story is embedded in either a technologically-futuristic scenario or in that of a magical prehistoric past. This fact throws up a series of questions regarding the status as well as the format of music in both genres, every one of which, depending on the medium in which the genres appear, must be differently formed. Are there, to initially examine the subject in general, fundamental differences between science fiction and fantasy in the field of reference to music, or rather, by means of music? What role does the overall framework of the plot play in the manner in which music is utilised? Can one assume that 'science fiction music' accentuates the moment of innovation, while 'fantasy music' – as was formulated in one of the students' remarks – is based more on traditional 'time-honoured' musical contexts? According to which conditions does the description of music in fantastical literature and, in turn, its tonal tangibility in film, in radio drama and in video game take place? Can there actually be a form of fantastical music in acoustic and audio-visual media (for, in the end, something is made audible there, which, on the pages of a book, remains relatively abstract and only comes to life through the imagination of the reader)? In film and in video game especially, the number of problem positions increase as a consequence of the differentiation between, as well as the meshing of, diegetic and extra-diegetic sound levels. Is it the score which musically holds the portrayed world together? Does the score require a

connection to the contents, particularly as it stands almost autonomously outside of the time in which the narration is set, or is its musical style basically independent of the prevailing genre? Does the task of acoustically supporting the fiction possibly fall more on the characters who sing and play various instruments? And which contribution produces, in this connection, all the sounds of the on-screen and off-screen objects?

Without doubt, to provide a basic answer to these questions demands an independent study. Nevertheless, I will here make an attempt to give at least an initial indication regarding the ways in which diegetic music is used by comparing specific inter-media examples. It has already been said that making the narrative of fantastical realms plausible often takes place, in this respect, by means of an inter-relationship with the empirical world, since the most miraculous incidents frequently refer back to the mundane. One of these prosaic experiences insists that there are places in our culture in which music is played for social amusement and for dancing. Cantinas, dance clubs and other comparable noisy establishments are placed in futuristic settings with absolutely remarkable persistence. How closely the accompanying musical ideas are allied to each other from fiction to fiction will be exemplified on the basis of comparing three productions.

Some 17 minutes after the beginning of the film *The Matrix Revolutions* (2003), the audience is abducted into the interior of the virtual nightclub *Hel*. The attire and the styling of the dancing figures, although somewhat overdrawn, remind one of the insignia of very familiar subcultures. The music sounds no less familiar: stylistically it levels off somewhere between EBM and German rave with its steady 'four-to-the-floor' beat, with layers of sequencer arpeggios and diffuse male voices whirling around in stereo. It was composed by the electronic trio Pale 3, consisting of Johnny Klimek, Reinhold Heil and Tom Tykwer, who are not only responsible for numerous music in Tykwer's films, but, in addition, have achieved, as a DJ team, a certain reputation within the international club scene.

About a year after the release of *The Matrix Revolutions*, Hessian Broadcasting commissioned a multi-part radio drama adaptation of Tad Williams' novel tetralogy *Otherland*. Within this dystopia there are also locations in cyberspace which are visited by a pleasure-addicted public or rather their avatars. The so-called Inner District belongs to these, including the exquisite nightclub *Mister J's*. The entire area is musically characterised in the first part of the radio play (*Stadt der goldenen Schatten/City of Golden Shadow*) by means of constantly changing techno-beats with electronically-transformed snatches of voices placed above them, as well as by extremely low and obstinate bass figures.

On a space station in the action role-playing game *Mass Effect* (2007) are two similar establishments, a strip bar and a club, which come to life by means of the music. The first of the two is, among other things, the showplace for an inter-galactic lap dance, while, in the second, the dance floor is populated by a crowd of

humans and aliens. There, the same piece is played every time, the stylistic roots of which lie unmistakably in the field of minimal techno (the plot is, please note, set in the year 2183).

That the future projections of science fiction are always orientated on the present is clearly shown by the analysed examples. It is equally clear that the specific qualities of fictional places, actions and sounds are not formed in a cultural void, but can be seen as the remodelling of a previously created style. The first filmed accentuation in the direction of a futuristic techno-aesthetic is assumed to be *Blade* (1998). Although this vampire film in modern dress is only conditionally attributed to the sci-fi genre, due to its high-tech look and the excessive martial arts sequences, it can be placed within the immediate proximity of the *Matrix* trilogy. The popular opening sequence, known as 'Blood Rave' – fuelled by the lashing sounds of the Roland TR-909 and TB-303 synthesizers, the, so to speak, long-term instruments of techno-culture – combines all the characteristics of the later, and frequently repeated, club setting.

Such updating of cultural semantics can, naturally, also be discovered in the domain of fantasy. With reference to processes of appropriation between fantasy films and video games, the connection with *Dragon Age: Origins* has already been mentioned. One realises, in addition, that the tavern or the inn corresponds to the futuristic cantina, so that one can hardly miss the figure of the bard, since his existence belongs to the character inventory of both tabletop role-playing games and computer-based RPGs. Equipped with seemingly archaic instruments such as lyres, lutes, drums and flutes, bards, minstrels or gleeman – often by means of irrelevant plonking – provide a pleasant ambience at places of rest and relaxation and occasionally allow themselves be encouraged to sing a song of praise to the actions of the hero. As game characters, they incidentally preserve the antique notions of ethos, by which either the fighting spirit of their companions is strengthened through music, or the souls of their adversaries are poisoned by damaging sound sequences.

While certain topoi – just like the resurrection of minstrelsy in fantasy – prove themselves as extremely durable, they are, within the parameters of their portrayal, definitely subjected to time-specific modes. The coupling of electronic or electronically transformed music with futuristic contents is certainly one of the most prominent science fiction shibboleths[13]. Significantly, the otherwise very typically-directed cantina scene in the 1990 film *Total Recall* differentiates itself from the

[13] For the sake of completeness, it should be added that this connection can be far more subtle than is shown by the selected examples from the cultural mainstream. Thus, for every journey sequence in Tarkovsky's *Solaris* (1972) and *Stalker* (1979), Eduard Artemiev created electroacoustic compositions with recourse to the tradition of musique concrète by utilising sonic objects (the noise of car engines in *Solaris*, of railways in *Stalker*) as the starting point of a surrealistic musical process, which results in an ambiguous semantic relationship between picture and sound.

previous examples due to its own chronologically-qualified materiality. Admittedly electronic dance music can also be heard here, but it is presented in such a way that allows it to be identified as a retrospective view of the electro-pop idiom of the late 1980s. Further measures of proof correspond to this sound, thereby presenting the fictional world as an extension of an empirical present, among them, the features of the Martian red-light district Venusville, where the scene is set, complete with Pepsi Cola advertising placards.

Genre immanent musical conventions – or, to use a more neutral term, traditional relationships – which are grounded in projections and transformations of the familiar, must not, however, be compellingly tied to specific plots. In constant dialogue with fantasy films of different complexion, horror films, in particular, have produced a sound language in which, analogous to the narrative dismantling of intact worlds, the ominous is only capable of being expressed by the distortion of well-known and, often, well-liked music (cf. Hentschel 2011: 182-217). It was, so to speak, only a question of time, or rather, overcoming audio-technical limitations, until such effective decomposition of 'normality' would take hold in horrifying video games. "From what I can tell, something bizarre is going on", says the policewoman Cybil Bennett at the beginning of *Silent Hill* (1999). This remark, although it does not refer to the tonal dimension of the game, could, however, be considered valid for all the disruptions, blurrings, distortions and inversions of sound which, not only in the parts of the aforementioned series, but also in game franchises such as *Fatal Frame*, *Siren*, *F.E.A.R.*, *Condemned* and *Dead Space*, make the acoustically sinister an equal partner to the visually distressful.

In individual cases it is remarkable how much vitality composers and sound designers of horror games apply to them, even the shortest game segments being so acoustically created that the total auditory information when playing is capable of evoking a kind of perceptive frenzy. In *Dead Space 2* (2011), it leads the protagonist Isaac Clarke to a previously densely-populated space station, where he is faced by what are essentially the same challenges, which were discussed enough in this text in connection with the first part of the said franchise. I would like to draw attention to the third chapter of the game, inasmuch as there, the classic horror theme of destroyed family life and lost childhood innocence is, tonally, perfectly realised. In this episode, Clarke's route leads through a blood-smeared shopping centre whose motto "Dining Shopping Family Home" emblazoned on bright advertising placards serves as a scornfully-laughing fulfilment of a consumer-oriented and, simultaneously, secure mode of life. After one has shot one's way with Clarke through a group of wild screeching, but still-living corpses of mutated schoolchildren, one finds oneself in the middle of a row of shops which, before the catastrophe happened, could have been the main point of attraction for families with children. This 'children's paradise' is now presented as a thoroughly sinister and abandoned location in which a few still-functioning front lamps give off light. Musically, how-

ever, it is extremely lively. When one as player is confronted, as after every major fight, with a relatively peaceful phase, the acoustic atmosphere gains a conciseness, even though it hardly allows one to become calm. The first and foremost impression is one of a sort of nursery-rhyme chaos. It is only with the increasing movement of the avatar that one gradually becomes aware of the composition of this auditory scene. As in many places in the *Dead Space* game, there is a considerable, but difficult to unravel, integration of diegetic and extra-diegetic sounds. The following can be determined as consistent elements: Firstly, a diffuse, dull rumbling in constant wave-like crescendo and diminuendo. Secondly, a musical-box melody, which over an extended span manages without a tonal reference point, but from which occasionally arise fragments of Johannes Brahms' *Wiegenlied* op. 49/4, which, in different versions of the text, has become worldwide one of the most trusted symbols of the realm of childhood. Thirdly, vocalised sounds such as the soft laugh of a woman, the boisterous laughter of children playing and the satisfied gurgling of a baby (all three, as it were, the echo of a once intact world), together with (as a representation of the dreadful) a couple of time-stretched and transposed voices, a clipped, cartoon-like voice reciting a counting-out rhyme, and a monstrous growling. Various other sounds are also apparent which seem to emanate from the interiors of the shops and, depending on the position of the avatar, are sometimes soft and sometimes loud, with the cheerfully effective tunes from arcade games, including cute laser sounds, supplying a near-macabre commentary on the happenings in the *Dead Space* series. In addition to all this, one hears a song – again accompanied by a musical box and intoned by a children's choir – that continually falters, breaks off and starts again from the beginning.

On the level immediately above the children's shops is a mezzanine mall that is lined with corpses. Tonally, this floor is similarly designed. An ear-shattering department store bossa nova is interwoven with an emergency broadcast as well as with strongly stereotyped music and sounds from various retailers: hip dance music from a hairdresser's salon (again in techno-idiom), koto sounds from an Asian shop, esoteric tootling in front of a bed centre, recordings of cheering crowds coming from the loudspeakers of a sports shop. And in order to complete the horror, one finds out, in the midst of all this noise, that one of Clarke's human adversaries, after going mad, had killed wife and child in a bestial manner.

In comparison with other representatives of the genre, the wealth of variation of these soundscapes is extraordinarily large. While the player is steering his/her avatar from one point to the next, the different acoustic impressions flow constantly into one another. A fluctuating collage of sound is thus created, sometimes marked by polytonality and musical dissonance, sometimes by noise accumulation. Their prominent characteristic, however, remains the despoiling of homely music as the compositional process for the creation of unsettling effects. To take a last example: In the course of the paranormal shooter *Condemned: Criminal Origins*

(2006), one must fight for one's own survival in a labyrinth-like and totally weather-beaten department store which is, nevertheless, still decorated for Christmas. This is accompanied by music comprised of a single texture of aerophone synthesizer sounds. It runs, virtually unaltered, throughout the total level, but is, however, at chosen times, coupled with snatches of the popular Welsh Christmas Carol *Deck the Hall*. Obviously, in this hopeless situation, the carol does not convey the Christmas spirit, but instead provides, in a permanently out-of-tune, acoustically-blurred and persistently broken-off manner, a dismal reflection of the joyful season. However, the totally iterative sound architecture relates to a structural problem, not only with this game, but with numerous other modern video games. Owing to the incessant repetitions of pre-composed musical phrases and blocks, the player's initial nerve-racking experience can develop into one of noticeable enervation – despite all the internal trade euphoria regarding adaptive and dynamic audio.

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