

Huw Catchpole-Davies

Deus Est Machina

For GMGEn and AI Narrator

Deus Est Machina (a.k.a. NARRATIVE SYSTEMS) Preface

A video programme note for this work can be found on the accompanying DVD.

The video discusses all the detail that can be found here.

This work was designed to exploit the GMGen (Game Music Generation Engine) instrument that is described during Chapter Two of the critical writing submission accompanying this portfolio of musical works.

The instrument is designed to accompany scenes with short-term (less than two minutes) musical personalities (described in Chapter Two of the critical writing submission) which are generated on-the-fly by the program. The instrument can also dynamically transition between these musical personalities through path-finding mechanics I designed into the program. These mechanics traverse the musical space between styles to create an unbroken through-composed generative work of automatic music. Described further in Chapter Two of the critical writing submission are the processes involved in the creation of the underlying engine as well as some of the artistic constraints and freedoms I have imposed on the instrument. Important in this discussion is the chance for unsuccessful transitions and the artistic choice behind not creating an engine capable of purely “successful” transitions (this discussion can be found final paragraphs of Chapter Two of the accompanying critical writing submission).

On top of this instrument is a narrative of my own creation. The narrative is designed to have a non-linear structure and to take the player to specific locations. Due to the non-linear structure, many concerns had to be taken when writing a non-linear narrative that inevitably must be heard linearly. I found a solution to this chiefly

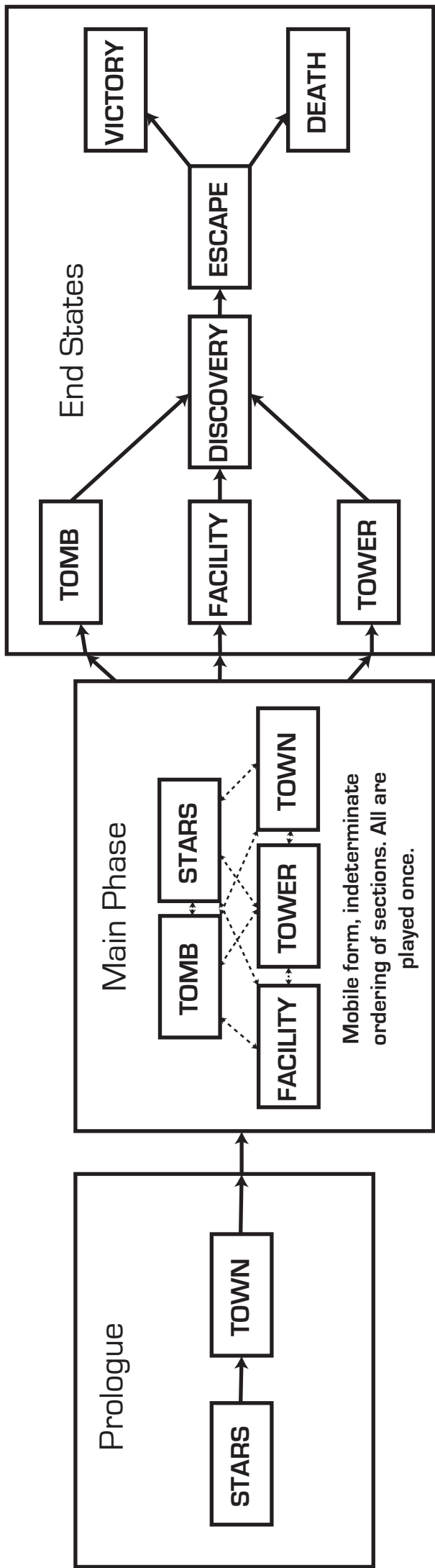
in creating a predominance of descriptive passages rather than expositional portions in the writing. These descriptive passages directly exploit the state-based nature of the accompanying GMGEn instrument. While greater narrative exposition would have required generating music capable of directly following the, what here would be temporally indeterminate action, conversely creating largely descriptive passages of text supported the descriptive scene-painting output of GMGEn.

The visual design concept for this work is reminiscent of JRPG's of the late 80s and early 90s, which I played in my youth. The player is shown scrolling passages of text, which they read to garner information about the imagined world of the narrative, while accompanied by music generated by GMGEn. In this format the player has the choice to move on through the text at their leisure, by clicking CONTINUE buttons. In other words, this text can now be read, or reread, by the user at any speed. This creates a atmosphere and temporal space in which the musical generation of GMGEn can thrive.

While this work fully utilises GMGEn's functionality in generating static material and triggered transitional material, I also believe it's successful at invoking the god in the Machine, which can be read on several levels. In a self-referential way PAMiLa *is* the titular machine of the story while also being that story's fictional creator, its 'god'. This functions within itself (the piece: *Deus Est Machina*) and without by reinforcing the meta-narrative of PAMiLa as flawed storyteller to the onboard pilot (you, the listener). You may interact with the work in some scenes allowing you to decide your choice of exploration; however, it is the AI (PAMiLa) who will decide your ultimate fate throughout the story. Some sections of the narrative form a mobile structure and some are branches of potential options, which

are decided by the listener. A detailed version of the sections and their structure are provided in the score with a full narrative script (of all possible options) also included.

Deus Est Machina Score



Deus Est Machina – Full Script

Start

STARS

START_STARS_BEGINNING

Your trance breaks as the fluid shards of light ripple across your skin. The real-fire is a welcome pause from the trek of the last few days. The brotherhood of rock and ice, and more rock, that was the spinward mountain pass, gave little chance for even the most seasoned of adventurers to let their mind wander as freely as that mind might wish. Lying back, the sky-lights resonate with the same crackles and ripples as your own light, making the sky-lands seem far closer than you know they are. Surely, your fire must seem like any other sky-light to a being on the other side of the sky. The vast chasms of distance are less than a single step in thought. The pinpoint of light, its own sky-light, that was your goal a few days ago is now just at the bottom of the, by day, lush green valley. The inverse curvature of the earth allowed you to watch the town gradually ease closer as you traversed the pass. The same curvature now rewards you a second time with a view of the infinitely nestled valley town. It's true that any point on the surface of this world is infinitely nestled, however, with the quilting of the surrounding farmland and the geography of the slow, pillow, valley, this town seems to be curled up drifting to sleep. The town's lights deeply breathe their own display across the sky. One which your own fire cannot compete with.

START_STARS_T

Not only in exploration has your quest brought you to this town. Many years ago in a tavern far anti-spinward you heard tales that an artifact of the world-builders existed beyond the spinward mountains. An old companion once told you that "the greatest sky-rivers all start at the smallest source". In fact, he was wrong, all rivers, great and small, start from the everfalls, the point at which the gravity, due to the spin of the world, is zero and the floating falls find flow from vacuum. While his science was incorrect, his message was sound. Its essence brimmed of discovery. You'd even told some of the children back home your own version: "the smallest clues yield the greatest treasure", and you'd tried to live your life by this mantra. This artifact needed to be discovered! The next morning you would ask around town for information.

START_STARS_M

Not only in exploration has your quest brought you to this town. Many years ago in a tavern far anti-spinward you heard tales that a deranged sentinel of the world-builders existed beyond the spinward mountains. The tale went that its decayed, or simply bored, artificial intelligence had maligned the second evolution of life on the world and that it would occasionally appear as a reaper of destruction. An old companion once told you that “the greatest sky-rivers all start at the smallest source”. In fact, he was wrong, all rivers, great and small, start from the everfalls, the point at which the gravity, due to the spin of the world, is zero and the floating falls find flow from vacuum. While his science was incorrect, his message was sound. Its essence brimmed of discovery. You’d even told some of the children back home your own version: “the smallest clues yeild the greatest hunts”, and you’d tried to live your life by this mantra. This creature needed to be hunted! The next morning you would ask around town for information.

TOWN

START_TOWN_BEGINNING

You woke just before the sunlight breached the enormous two-thirds spherical shell surrounding the sun. The shell gave the world day and night. In more ancient times, people had thought the shell was a giant bird, a phoenix, clinging to the sun for warmth before its rebirth. They’d named the bird Arqx, the great phoenix. Though unworthy of such a romantic name, the shell inherited it from the bird. The lights were still on in the town and you begin to pack up and leave for the day.

START_TOWN_T_INFO_1

Later, over a drink, you strike up a conversation with the barman of the central tavern who informs you that the rumour of the world-builder artifact is very well established in town. He explains that he’s heard many locations mentioned where the artifact might be found, however, the one that seems to be the most frequent is that of the research station located beneath the town itself. The town’s scientifically inclined had ongoing expeditions into the further depths of the world-builder facility. Intrigued, you quickly finish your drink to discover more.

START_TOWN_T_INFO_2

After a short walk through the streets, you take the opportunity to ask a young lady for information on the artifact. Though back home, a stranger would be greeted with mild discomfort and suspicion she seems to happily oblige by pointing towards a tower, slightly node-spinward over your shoulder. For some

reason you'd not noticed it before. The tower was quite tall and extremely thin, needle-like, reaching Arqxward, with a very minute thickening of the support at the bottom. You wondered whether some illusionary optical property had been the reason for your previous blind spot. It did seem vaguely translucent like a massive salt crystal. Perhaps this was excuse enough. While you both bid farewell it was obvious that the lady's previous warmth seemed to have cooled.

START_TOWN_T_INFO_3

One of the largest buildings in town was the inn. You asked the keeper whether any other adventurers had sought the artifact. Some had, they said, but not for a while as several had gone missing while searching for a Tomb in a graveyard, slightly outside of town, directly antispin. You were initially unconvinced by this information as that was the direction which you had travelled into town. Surely you would have noticed the graveyard? On past adventures, you had shrugged off similarly inconsistent information only to find you were wrong later. The inner logician had learnt from this mistake! There *was* truth in tales. Onwards.

START_TOWN_M_INFO_1

Later, over a drink, you strike up a conversation with the barman of the central tavern who informs you that the rumour of the world-builder Sentinel is very well established in town. He explains that he's heard many locations mentioned where it may be found, however, the one that seems to be the most frequent is that of the research station located beneath the town itself. The town's scientifically inclined had ongoing expeditions into the further depths of the world-builder facility. Intrigued, you quickly finish your drink to discover more.

START_TOWN_M_INFO_2

After a short walk through the streets, you take the opportunity to ask a young lady for information on the Sentinal. Though back home, a stranger would be greeted with mild discomfort and suspicion she seems to happily oblige by pointing towards a tower, slightly node-spinward over your shoulder. For some reason you'd not noticed it before. The tower was quite tall and extremely thin, needle-like, reaching Arqxward, with a very minute thickening of the support at the bottom. You wondered whether some illusionary optical property had been the reason for your previous blind spot. It did seem vaguely translucent like a massive salt crystal. Perhaps this was excuse enough. While you both bid farewell it was obvious that the lady's previous warmth seemed to have cooled.

START_TOWN_M_INFO_3

One of the largest buildings in town was the inn. You asked the keeper whether any other adventurers had sought the Sentinel. Some had, they said, but not for a while as several had gone missing while searching for a Tomb in a graveyard, slightly outside of town, directly anti-spin. You were initially unconvinced by this information as that was the direction which you had travelled into town. Surely

you would have noticed the graveyard? In the past, you had shrugged off similarly inconsistent information only to find you were wrong later. The inner logician had learnt from this mistake! There *was* truth in tales. Onwards.

Generic Main Phase

STARS

MAIN_STARS_BEGINNING

Your rest is earned after the long day. You get a room in the town's inn.

MAIN_STARS_DESC_1

Outside, the spin of the earth moves into the shadow of the sun-shell and the sky-lights are visible again. The faux-fire, flicker, of the town's lights reflect off the marble smooth floor of the street. While the stone resonates with the same lights the whole image is quite discordant to you. You always saw the combination of modern technology with ancient architectures as a clash, even if the faux-fire *was* an aesthetic nod to this past time. Nevertheless the same drowsy aura afforded each slab its slumber.

MAIN_STARS_DESC_2

In your room, the walls were a soft milk blue with the same smooth marble texture matching the rest of the town. Considering its fieldy agricultural surroundings, you begin to really question the civic composition of the town. Soft quilted pastures and cold marble stone. You suppose it was intended to be an interesting artistic juxtaposition that perhaps was more concept than substance. Some kind of jewel of the grassy desert? You gauge your tiredness, and agree that an adventurer may know little about civic planning. Conceding, you think: perhaps those pastures wrapped around the cold stone and warmed it. You could see how they could be a complementary couple. Let the architects be architects.

MAIN_STARS_T_PLOT_1

In your head you analyze some of the earlier clues. Why hadn't you noticed the crystal needle? How can you enter the deeper facility? Where was this Tomb? And which one was the Artifact in?

MAIN_STARS_M_PLOT_1

In your head you analyze some of the earlier clues. Why hadn't you noticed the crystal needle? How can you enter the deeper facility? Where was this Tomb? And which one was the Sentinel in?

MAIN_STARS_EXIT

Rested you wake up, again before full day. While you decide where to go you have a small breakfast, provided by the inn. You were ready for the sun.

SERANADE

MAIN_SERANADE_BEGINNING

The task at hand seemed simple but the lack of clear objectives demanded more mental preparation.

MAIN_SERANADE_DESC_1

Sanctuaries could be found in all towns and provided a place of mental relaxation. In the past these unique buildings had been used for religious purposes and thus many of the traditional behavioral conventions were observed. Silence, or at most whispering, was expected. Sometimes music could be heard, the dense marble walls here providing exceptional space for reverberation. While deserted, this town's Sanctuary was no different.

MAIN_SERANADE_DESC_2

In the grand entrance of a relatively meek, pure white marbled building stood a tall and slim man with equally pure white attire. The man, flanked by the overly large, wooden, probably faux-wooden, doors crowned the entrance to Sanctuary. When passed the man would whisper: "You have found Sanctuary, and Sanctuary has found you", the stock phrase spoken to all, if any, visitors. Despite its tradition, the line was always welcome.

MAIN_SERANADE_TM_PLOT_1

Music had always helped you to defragment your thoughts and find your next move.

MAIN_SERANADE_EXIT

The emptiness of sanctuary absorbed the fog-hidden jagged edges in your thoughts. Now suitably refreshed, you felt able to continue with your quest.

TOMB – CLOAKED TOMB

MAIN_TOMB_BEGINNING

Your questioning of the inn keeper's clues aside, you went to check the location he described.

MAIN_TOMB_DESC_1

The air was filled with an abundance of aromas that mingled together in such rich ways to form continuum after continuum of different blends as you move closer to one source and away from another. The sources were varied sizes of yellow or purple ornamental faces as deep in hue as the aromas they produced. You assume these flowers must have been genetically enhanced to produce such powerful sensations.

MAIN_TOMB_DESC_2

The headstones were varied in size, shape and colour. One was a giant everfall-blue sphere, that was at least two-meters in diameter. Another had two tall cylindrical columns angled at about thirty degrees in a "V" shape with the point meeting at the ground. The top of these columns was deep red and flowed to bright yellow down the length of each column. The presence of gloom still seemed prevalent despite the garden's prismatic.

MAIN_TOMB_T_PLOT_1

After walking around the graveyard for a short time you do not notice any new leads towards the artifact, nor do you know why people supposedly ever went missing. You resign that this part of the inn keeper's story may have been sensationalized.

MAIN_TOMB_M_PLOT_1

After walking around the graveyard for a short time you do not notice any new leads towards the Sentinel, nor do you know why people supposedly ever went missing. You resign that this part of the inn keeper's story may have been sensationalized.

MAIN_TOMB_EXIT

You leave the graveyard wishing you'd listened to your initial inner trepidations about the information.

LAIR – CRYSTAL NEEDLE

MAIN_LAIR_BEGINNING

The crystal needle tower would surely provide some progress.

MAIN_LAIR_DESC_1

Just outside the needle, the ground was ashen and scorched. No plant-life grew in a radius of between fifteen to twenty meters from the glassy walls. The glassy walls were not glassy at all for one moment they would be solid, opaque and textureless and another they would be translucent and misty. From the outside, the entire building phased into and out of existence at a slow rate not noticeable in a moment's glance. When shifting out, the translucent walls showed nothing of the insides of the structure.

MAIN_LAIR_DESC_2

Inside the main door was a large clear helix stairwell that went up one storey and then ended. A pulpit for a from-memory preacher. A few further meters and the light had dimmed beyond requirements for vision. You'd seen this clear material before and knew it was a world-builder fabrication. It was made of a highly malleable, clear plastic, with some amazing properties. It had an enormous tensile strength and running different microcurrents through it could reshape it to many different solid states. These states could be set into its molecular memory.

MAIN_LAIR_TM_PLOT_1

No surface inside or in the surrounding area of the needle had any controls to access.

MAIN_LAIR_EXIT

Seeing no immediate solution you decided to think back to this dark staircase if progress in the needle was required later.

DUNGEON – RESEARCH FACILITY

MAIN_DUNGEON_BEGINNING

You'd come across the entrance to one section of the research facility while exploring the town.

MAIN_DUNGEON_DESC_1

The underground passageways twisted and turned like a human-sized ant nest. Many LED lights and control surfaces were accessible. Like underbelly sewage

systems where rats once ruled humans now did their research in their own scientific underworld. The confusion of this world was in quite stark contrast to the tranquility of the town above. Any tourist would claim this a shadow on the idyll of the surface, the adventurer however only sees light.

MAIN_DUNGEON_DESC_2

A hive of activity, it seemed like more than double the town's population were here underground. Bleeps and Bloops could be heard from the many drone assistants that followed their human or carried out errands on their own.

MAIN_DUNGEON_T_PLOT_1

You find it difficult to know where to start. Nobody seems phased by your presence. They're too busy to be phased! While trying to avoid the hustle, from within a large opening down one of the more deserted tunnels you are asked "What do you seek". Turning around you find you are still alone. After combining this information with the unusual intonations in the sentence you realize it was a computer system's voice protocol, probably activated by your proximity. You respond that you are searching for a world-builder artifact. The wall replies "Yes, useful." "I am small yet my mouth is wide, I will trade you piece-of-mind for minding your peace, who am I?" You gamble... then hesitate, on a correct answer the computer may open the way, however an incorrect answer may bar your voice signature forever. Time, for computers, is not as it is for humans. Their days are short, and their memory is infinite!

MAIN_DUNGEON_M_PLOT_1

You find it difficult to know where to start. Nobody seems phased by your presence. They're too busy to be phased! While trying to avoid the hustle, from within a large opening down one of the more deserted tunnels you are asked "What do you seek". Turning around you find you are still alone. After combining this information with the unusual intonations in the sentence you realize it was a computer system's voice protocol, probably activated by your proximity. You respond that you wish to battle the Sentinel. The wall replies "Yes, useful." "I am small yet my mouth is wide, I will trade you piece-of-mind for minding your peace, who am I?" You gamble... then hesitate, on a correct answer the computer may open the way, however an incorrect answer may bar your voice signature forever. Time, for computers, is not as it is for humans. Their days are short, and their memory is infinite!

MAIN_DUNGEON_EXIT

You don't want to risk the wrong answer so you move away to muse on the question.

Endings

TOMB – CLOAKED TOMB

END1_TOMB_BEGINNING

You felt like you gave up too easily on the graveyard area so decide to head back.

END1_TOMB_MIDDLE

A few minutes later you wander into a corner of the yard that has very few monuments. Each one is a deep purple and no flowers populate this area. Wandering further up the row a great purple stoned tomb appears right in front of you. This town seems to be full of things that wander, which shouldn't. Above the entrance was a very short memorial: "Though you are no longer seen, you are always still here". You wonder whether perhaps this is not just a figurative message, but a literal one too. Many world-builder objects of high value or purpose had been found hidden behind cloaking fields. Perhaps this was the tomb of an actual world-builder or at least the memorial to them, cloaked in a mark of high respect for the departed. It was also possible that this was a vault of possessions or perhaps a tribute to the life's work of this being. A soft blue light could be seen deep inside the large open doorway which entered the tomb. Just inside there was a stairway which descended further into the flowing blue light. You submerge into the blue light and descend the staircase.

END1_ALL_END

About one minute later the stairway stops. You see it!

LAIR – CRYSTAL NEEDLE

END1_LAIR_BEGINNING

You must have missed *something*. You decide to give the Crystal Needle a more thorough look.

END1_LAIR_MIDDLE

Built by the world-builders it must be a very likely place to find something else of world-builder origin. You take a few steps up the clear stairway. Gaining a flight you look back down through the clear stairs. From this angle they appear to not exist and your human instincts fill you with a momentary vertigo causing you to clutch the handrail in counter. Suddenly the section of the stairway you were

standing on starts to rush upwards, helixing into the darkness. You hold on tighter but the stairway moves faster. In the rush you notice that the light from the bottom has also followed you up and you see a thin strand at the top of the shifting staircase. The clear headedness you'd gained from visiting Sanctuary allowed you to match this situation to that of a past memory. You'd seen how touch could affect this material before. Holding the handrail is giving the structure enough current to change form, therefore, the stairs weren't actually moving upwards, they were transforming and producing their apparent movement. Fighting the instinct to hold even tighter you release your grasp slightly and the stairway moves at a steadier pace.

END1_ALL_END

About one minute later the stairway stops. You see it!

DUNGEON – RESEARCH FACILITY

END1_DUNGEON_BEGINNING

Sanctuary! That was the answer to the riddle! You headed back to the door within the research facility.

END1_DUNGEON_MIDDLE

Arriving at the deserted passageway with the opening you pronounce "Sanctuary". A low frequency hum emerges from the background noise of the active facility. The hum changes pitch, first higher, then lower, then a final deep throb as the whole wall of the alcove slides upwards into the ceiling. Inside, a blue light accompanies a staircase that tunnels down further into the depths of the facility. You wondered how many people may have found this passage recently. The long retired religious practice and the general preoccupation people had with their own lives meant that most may not be familiar with the practices of sanctuary in this town. Though the riddle was quite simple, you thought that the lack of enthusiasm in Sanctuary here may make this passage a lost relic. You follow the blue light and descend the staircase.

END1_ALL_END

About one minute later the stairway stops. You see it!

DISCOVERY

END2_DISCOVERY_T_PLOT_1

The small orb nestled inside an alcove in the wall produces a soft yellow light that complements the blue following lights of the staircase. This must be the artifact!

END2_DISCOVERY_T_PLOT_2

You walk closer to the orb and the yellow light begins to pulsate. As you reach out to touch it, several beams of yellow light track your hand and, by this light, connect it to various places around the wall of the room.

END2_DISCOVERY_M_PLOT_1

A large white rock in the center of the room with pulsing blue circles evenly spaced around the central, wider horizontal plane. Was this the Sentinel?

END2_DISCOVERY_M_PLOT_2

Edging over towards the rock the pulsing quickens and the rock begins to change shape. Four arms fold out from the shape and each pulsing light circle extends on a long slender limb. A blue light beam connects the left side of your chest to the center of one of the now extended circles.

ESCAPE / BATTLE

END2_ESCAPE_T_PLOT_1

From all around you hear a mid-range alto hum that slowly starts to glissando upwards. After scaling three octaves a shrill burst white noise commingled with electrical crackle accompanies a rich heavier yellow light aimed directly at your hand. You flinch! The artifact was trapped! The first spark was just a shock, the second, two seconds later, hurt! This had escalated fast. The computer responsible probably thought it had given eons for the appropriate concession.

END2_ESCAPE_T_PLOT_2

You pick up the artifact and roll it into your hands. The floor starts to vibrate while enormous bass throbs pulse the air breaching the pain threshold of your human ears. The wall laser's glissando plus accent gestures, continue percussing your limbs, making any getaway progress negligible. Any adventuring instinct was wholly deprioritized as you grasp for any hope of defense or escape. You do not want to find out how far this machine will go to protect the artifact. The stairs provided no line of sight for the lasers and inverse squared whatever distance you managed against the bass throbbing. Aiming directly for the stairs you run!

END2_ESCAPE_M_PLOT_1

From the limbed rock you hear four mid range pulses at different pitches that slowly start to accelerate. After changing from pulses at five hertz to just above twenty the four pitches converge on a single perfect fifth, quickly shift down by an octave and explode with a massive flare of heavy blue light which thumps your chest hard. The sentinel was attacking! If the first spark was a punch, the second, two seconds later, knocked you to the ground sliding several meters back! This foe was beyond you.

END2_ESCAPE_M_PLOT_2

An enormous mass of noise made up of hundreds of individual sounds with familiar speech formants blanketed the room. The wordless voices howled at you while the main laser continued to accelerate and punctuate the sonic net. Aiming straight for the stairs you run! You are hit two more times in the back. Being ready for the punch, the third didn't knock you down although the increasing power of the fourth drives you into the floor regardless of readiness. You do not want to find out how far this machine will go to causing you pain. The stairs provided no line of sight for the lasers and inverse squared whatever distance you managed, against the voice wall.

DEATH

END3_DEATH_T_PLOT_1

Meters away from the stairs a final crushing blow hits you straight in the back of the head and you are knocked out. The artifact's protection systems were final. Your last senses are of the slow, descending, diminishing whirrings of the defense mechanisms.

END3_DEATH_M_PLOT_1

Meters away from the stairs a final crushing blow hits you straight in the back of the head and you are knocked out. The Sentinel's wrath was final. The voices disperse into the air as your vision fades to black.

END3_DEATH_END

You never made it back to town. Perhaps somewhere in the multiverse there is another you. Maybe it is there that your quest will be fulfilled.

VICTORY

END3_VICTORY_T_PLOT_1

Meters away from the stairs a final crushing blow aimed at your head glances off the nearest step just as you leap for the handrail. The artifact's protection systems were finally out of sight and nearly out of sound. As you make your way back to the surface the rumbling, too, subsides. You were safe!

END3_VICTORY_M_PLOT_1

Meters away from the stairs a final crushing blow aimed at your head glances off the nearest step just as you leap for the handrail. The Sentinel's wrath was finally out of sight and nearly out of sound. As you make your way back to the surface the rumbling, too, subsides. You were safe!

END3_VICTORY_END

Back in town you wonder how many adventurers never made it out. Perhaps in some other universe you yourself were not so lucky. However, luck *was* with you this time. Leaving the town behind, you aimed your sights for the next target. The adventurer's heart is never fulfilled.