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DESIGNING FANTASY CREATURES FOR A VISUAL NOVEL

Bachelor's thesis
Game Design

2019



South-Eastern Finland
University of Applied Sciences

Tekijä	Tutkinto	Aika
Aino Hentilä	Muotoilija	Huhtikuu 2019
Opinnäytetyön nimi		
Fantasiaolentojen suunnittelu Visual Noveliin		47 sivua 3 liitesivua
Toimeksiantaja		
Kaakkois-Suomen ammattikorkeakoulu		
Ohjaaja		
Marko Siitonen		
Tiivistelmä		
<p>Fantasiaolentoja voidaan nykypäivänä nähdä joka puolella mediassa, videopeleissä, elokuvissa ja kirjallisuudessa. Tämä opinnäytetyö keskittyy pääosin videopelien fantasiaolentoihin. Suosiostaan huolimatta fantasiaolentojen luontiin ei ole tehty paljon ohjeita. Nämä ohjeet usein käyvät läpi taiteilijan omaa henkilökohtaista tyyliä luoda fantasiaolentoja, eikä yleisiä ohjeita fantasiaolentojen luontiin juuri ole. Tämän opinnäytetyön tavoitteena on löytää tapoja luoda uskottavia ja visuaalisesti miellyttäviä fantasiaolentoja.</p> <p>Tämä opinnäytetyö käsittelee myös hahmonluonnin perusteita ja kuinka ne voidaan yhdistää ja muokata fantasiaolentojen luontiin. Opinnäytetyössä myös painotetaan tutkimuksen tärkeyttä fantasiaolentojen luonnin yhteydessä. Yleisiä hahmonluonnin perusteita, kuten muotoa, väriteoriaa ja luonteenpiirteitä käsitellään, ja pohditaan kuinka ne eroavat käytettäessä fantasiaolentoihin ihmishahmojen sijasta.</p> <p>Käytännönsuudessa suunnitellaan kolme fantasiaolentoa. Nämä fantasiaolennot suunnitellaan visual novel -peliin nimeltä 'Space Circus'. Tässä osiossa myös pohditaan, kuinka nämä fantasiaolennot tullaan liittämään pelimekaniikkaan.</p> <p>Loppujen lopuksi ei ole yhtä oikeaa tapaa suunnitella fantasiaolentoja. Niiden valikoima on niin laaja, että jokaisella fantasiaolennolla on omat tarpeet toteutuksen suhteen. Hahmonluonnin perusteiden koettiin kuitenkin olevan avuksi fantasiaolennon suunnitteluprosessissa. Tätä opinnäytetyötä ei ole tarkoitettu ohjeeksi, kuinka fantasiaolentoja suunnitellaan, vaan antamaan ideoita ja uusia näkökulmia, kuinka lähestyä suunnitteluprosessia.</p>		
Asiasanat		
fantasiaolennon suunnittelu, hahmosuunnittelu, pelisuunnittelu, visual novel		

Author	Degree	Time
Aino Hentilä	Bachelor of Culture and Arts	April 2019
Thesis title		
Designing Fantasy Creatures for a Visual Novel		47 pages 3 pages of appendices
Commissioned by		
South-Eastern Finland University of Applied Sciences		
Supervisor		
Marko Siitonen		
Abstract		
<p>Fantasy creatures can be seen everywhere in modern media, video games, movies and literature. This thesis mainly focuses on video game fantasy creatures. Despite the popularity of fantasy creatures, the number of guides on how to design them are limited. These guidelines are often very oriented towards the artist's own personal style, and there are no general guides for creature design. The goal of this thesis was to find tools for creating believable and visually pleasing fantasy creatures.</p> <p>This thesis also explores the ways character design theory can be mixed and matched with creature design. Throughout the thesis there is an emphasis on research, and how important it can be in creature design. Basic character design theories are discussed, such as the shape and figure, color theory and personality, and how they differ in the context of creature design.</p> <p>In the practical part of the thesis three different fantasy creatures are created. These creatures are designed for a visual novel project with a working title 'Space Circus'. It is also discussed how these creatures will be implemented in the game.</p> <p>In the end, there is no single right way to design fantasy creatures. The variety of different possible creatures is so huge that it is impossible to have just one way of designing them. However, character design essentials were found to be useful in the design process, but not enough on their own. This thesis should not be treated as a guide in how to create fantasy creatures, but as something to give ideas on how to approach it.</p>		
Keywords		
fantasy creature design, character design, game design, visual novel		

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1 INTRODUCTION

When choosing a game to play, most games have monsters the player must fight against, or with. More games probably have imaginary creatures than do not. However, not many guidelines exist for artists and writers on how to create monsters and creatures. These guidelines are often very specific, and tell how the artist personally designs creatures, and does not explore the possibilities any further. Character design has developed over time and has several books and other sources with guides on how to start creating your own characters. Fantasy creatures could be classified as characters as well but have some different needs in their creation. This thesis will explore how to implement those guidelines in creature design and will add from existing guides on how to design creatures. The goal is to explore how to create believable and visually interesting fantasy creatures, and what is the best method to work on in the future.

This thesis will also describe the process of creating three fantasy creatures for a visual novel, with the working title 'Space Circus'. The visual novel is still an ongoing project, mainly produced by the writer of this thesis. Visual novels are heavily text and image oriented and are not known for having monsters or creatures in them, so this thesis will have some deliberation on how the designs will be implemented in the game.

2 FANTASY CREATURES

In this thesis fantasy creatures mean any imaginary creatures, whereas mythical beings are fantasy creatures that have appeared in stories throughout human history. As a term fantasy creature is quite broad, so this thesis will mainly focus on non-humanoid creatures. In this thesis the term fantasy creature will often be shortened to creature. Humanoid fantasy creatures, such as angels, demons or vampires, require a different approach in design and the topics of this thesis might not apply to them.

Mythical beings have always been a part of our world. They have always been in our stories, and sometimes thought to be real. Most people grew up believing that St Nicholas, or Santa Claus was a real being, but cease to believe when they grow older. Different cultures have their own mythical creatures, deities and boogeymen. However, there is one common aspect in our myths and legends; the creatures are always based on real beings. The creatures can be anything from humans to different animals, or a mixture of those. Many creatures are based on what travellers have encountered on their journeys, some are based on extinct animals. Knowledge travelled slow, and there was no instant access to information, so these stories shaped over time and became the myths and legends known today. (Breverton 2011, 6–7.)

Humans have always been fascinated by stories of mythical creatures, and most likely will always be. In our modern life creatures are presented in many different media, including movies, games and comics. These different medias present a wide range of different creatures. The most used are probably the monster-type creatures, for example Kaiju from the Godzilla universe (Pacific Rim 2013). These monster creatures are not humanized in any way, they act like their own species and are often used as the enemy. Movies also present creatures that are more relatable for people, such as Toothless, from the movie How to Train Your Dragon (2010). Toothless is very sympathetic and shows human emotions, even though he is not human at all. On the other hand, creatures like Na'vi, from the movie Avatar (2009) are very human like, in their emotions as well as their anatomy. These stereotypes are widely used in other media as well.

2.1 Creatures of video games; enemies, worldbuilders and companions

Just as in any other media, fantasy creatures have multiple different purposes in video games. Probably the most popular way creatures are utilized in games are enemy monsters, which the player must kill in order to survive. Monsters are widely used by game developers, because they are non-existent in the real world, and they are not human, with human emotions, so the player will most likely not feel guilty of killing them (Brion 2017). Monster enemies have been appearing in

video games since the very early days. For example, Space Invaders, which came out in 1978, had aliens that the player had to shoot to survive.

Even if the enemies are mindless monsters, their designs should convey some information to the player. Games usually have several enemy types, and with the enemy design it is possible to inform the player how this particular enemy works. For example, Kingdom Hearts (2002) has a variety of different looking creatures called heartless (Figure 1). The small black heartless is the basic enemy, the big one is slow but strong, and the small red one uses fire magic. These creatures are very differently shaped and colored, so they are easily distinguishable from each other.



Figure 1. Heartless from Kingdom Hearts franchise. (Square Enix 2002)

There are also games with monsters that battle alongside the player, such as Pokémon (Pokemon Red Version 1998), Ni No Kuni: Wrath of the Witch (2011) and Yo-Kai Watch (2013). These games are usually more colorful and have more simple designs to their monsters, and are usually marketed towards children. Pokémon, for instance, includes hundreds of different designs, but the player will most likely be able to tell what the element of the Pokémon is just by looking at it. The player can easily see that Vaporeon is a water type because of the blue color, fish tail, and fin-like ears; whereas Bellsprout is a grass type because it resembles a flower; and Onix is made from stone, so it is quite obviously a rock type (Figure 2). Pokémon is based on a rock-paper-scissors kind of mechanic, where one element is effective against some elements, and weak to some. Giving the element information through the designs of the Pokémon's is essential

for the game mechanics. With the information it is possible for the player to strategize and use the most efficient element against a Pokémon they encounter.

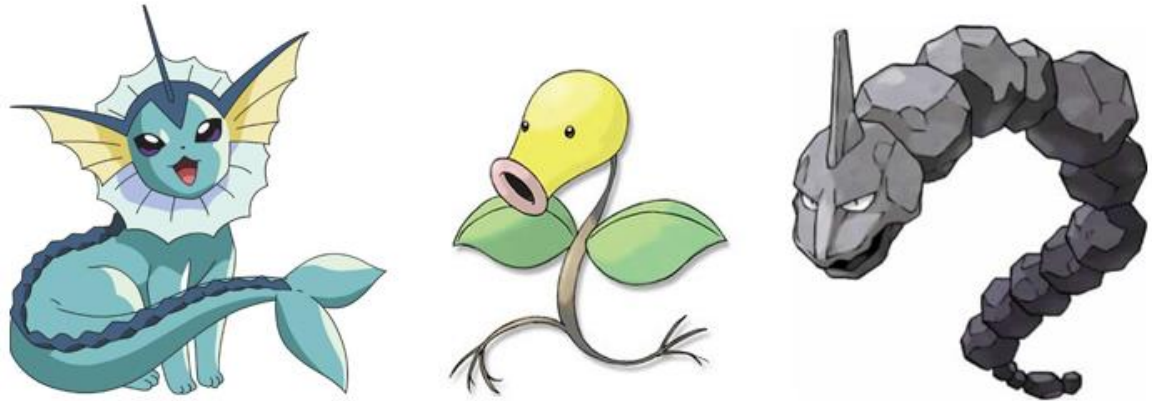


Figure 2. Vaporeon, Bellsprout and Onix from the Pokémon franchise. (Pokémon Red Version 1998)

Like in any other media, video games can use fantasy creatures in world building purposes only. An illustrative example of this is the game Apex Legends (2019), where the Leviathans in the background basically serve no other purpose than giving players information of the world they are in (Figure 3). The Leviathans are not interactable, and at the moment do not affect the gameplay in any way.



Figure 3. Creatures as a background element. (Apex Legends 2019)

A fantasy creature can also be a companion. An illustrative example of this is Trico from the game The Last Guardian (2016). In this game the playable

character, co-operates with Trico to solve puzzles and escape the ruins of a castle. Trico and the playable character slowly build up a friendship throughout the game. The Last Guardian is a prime example of a game that is capable of creating a strong emotional attachment between the player and a fantasy creature.



Figure 4. Companion creature Trico. (The Last Guardian 2016)

From these examples it is possible to categorize creatures in games to monsters, battle pets, world builders and companions. Of course, other implementations and mixtures of these categories are possible. In the practical part of this thesis, the creatures designed for the visual novel are best categorized in the world builders and the companions categories.

2.2 Fantasy creatures presented in visual novels

The creature designs in the practical part of this thesis are made for a visual novel game, which is not a very common platform for fantasy creatures, at least for non-humanoid fantasy creatures. Visual novels are usually heavily story driven games with a lot of text and still images, so including fantasy creatures in the story might be a little difficult. Humanoid fantasy creatures are becoming more common in visual novels, they are used for example in Monster Prom (2018). Monster Prom includes multiple playable characters, as well as multiple possible love interests, which are all humanoid creatures (Figure 5). With these

creature characteristics it is possible to convey more personality and variety to the characters. Visual novels rarely have complicated animation, so it is important to consider what the character's design tells about their personality, and how well the design fits to the written text.



Figure 5. Monster prom characters (Monster Prom 2018)

The fantasy creatures designed for 'Space Circus' are not humanoid and need a little different approach than humanoid creatures. Any illustrative examples of visual novels that have the same type of creatures could not be found. The way fantasy creatures of 'Space Circus' are implemented in visual novel platform will be discussed more in the practical part of this thesis.

3 CHARACTER DESIGN THEORY FOR CREATURE CHARACTERS

Character design is used widely in many different media, such as movies, games and literature. Essentially every form of a story has characters in them. These characters have their own personality, home, friends, likes and dislikes. A character's purpose is to connect with its audience and carry them through the story (Lewis et al. 2018, 10). To visually present any kind of character, it is useful to know their personal story and background, otherwise the character could

become only an empty shell. It might be easy to draw good looking characters on paper but giving them depth is another matter. The same point concerns fantasy creatures. It is possible to quickly draw a fantasy creature entirely out of your own imagination, but to create something that is believable and something people can identify with, needs research and practice. (Whitlatch 2015, 9.)

When designing human characters, it is rather easy to identify with them, and think what a humane character would do, and how they would act. When designing creatures, it might be just as important to give them personality and think of them as an individual. However, in creature design you must think of the species as a whole and about their imaginary natural history. It is essential to know how the species behaves, and what their natural environment is, in order to build a believable character. (Whitlatch 2015, 9.)

Not many books or references discuss specifically how to design creatures. Character design and fantasy creature design are fairly close to each other, but still have some differences and nuances to them. It could be said that creature design is a subclass of character design. The next chapters will explore the ways character design theory could be utilized in creature design.

3.1 The idea and research

Behind every character is an idea. To execute the idea, it needs research. For example, when designing a character that is a watchmaker living in 1920's Italy, it is necessary to do research on what Italy was like in the 1920's and understand what the watchmaker's profession was like back then. The more knowledge the designer has about the surroundings of the character, the easier the character is to build and make more relatable. This concerns creature design as well. In creature design it might not be as necessary to see them as an individual, as it is to think of their species. Depending on the case, creatures can be designed like normal characters, but before adding personality and characteristics, it could be beneficial to think of the species first. It should be taken to consideration how the species has evolved to be what they are now; what made them survive to this day, and what are their diet and environment.

If humans try to imagine a world outside of their own, it will most likely end up being very earth-like. It is nearly impossible for a human to imagine non-existent worlds. If we look at any popular fantasy world created, for example J.R.R. Tolkien's Middle-earth (*The Hobbit* 1937) or the Star Wars universe (*Star Wars: Episode IV – A New Hope* 1977), there are always connections to earth. Design-wise it is not even preferable to create something so alien, that people cannot feel any connection to it or find any way to relate to the being. (Whitlatch 2015, 9.)

For creature reference, it is common to use our animal kingdom and prehistoric animals. Mixing and matching different animal species is a good way to give the creature personality and make it more relatable for us. The internet is always a good source for references, but references can be taken from our day-to-day lives as well. Reference can also be taken from other elements in nature, like flora, rocks or even the sky. Fundamentally any and all things on earth are viable references, there really are no limits to creature design. To create something extraordinary, it is important to look at the ordinary. (Lewis et al. 2018, 69–70; Whitlatch 2015, 51; Thacker 2017.)

Gronkle, from the movie *How to Train Your Dragon* (2010), is a good example of a creature with a mixture of machine and animal references (Figure 6). The design is a mix of boulder shapes, a bumblebee, a helicopter and a motorcycle (Cowell et al. 2010, 36). The machine reference does not have to be literally a part of the design, it is possible to use it as inspiration for shapes or textures, or to give the creature personality. When building a reference library for a character, it is useful to start from too many references, and narrow it down as the process goes on (Lewis et al. 2018). This enables trying multiple variations and seeing what fits the creature best.



Figure 6. Concept art of Gronkle (How to Train Your Dragon 2010)

Knowing the anatomy of the reference used is quite important in creature design. Even if the design is heavily stylized, understanding the basic anatomy can be very helpful for creating believable and relatable characters. Doing sketches of the structure of bones and muscle of the reference animal can be helpful for the final design. Different species of animals, even humans, share a quite similar structure that is comparable to each other (Figure 7). All the species seen in Figure 7. have similar bone structure even when they are very distinct from each other. With understanding how different species are structured, structuring original creatures becomes much easier. (Lewis et al. 2018, 14; Santala no date)

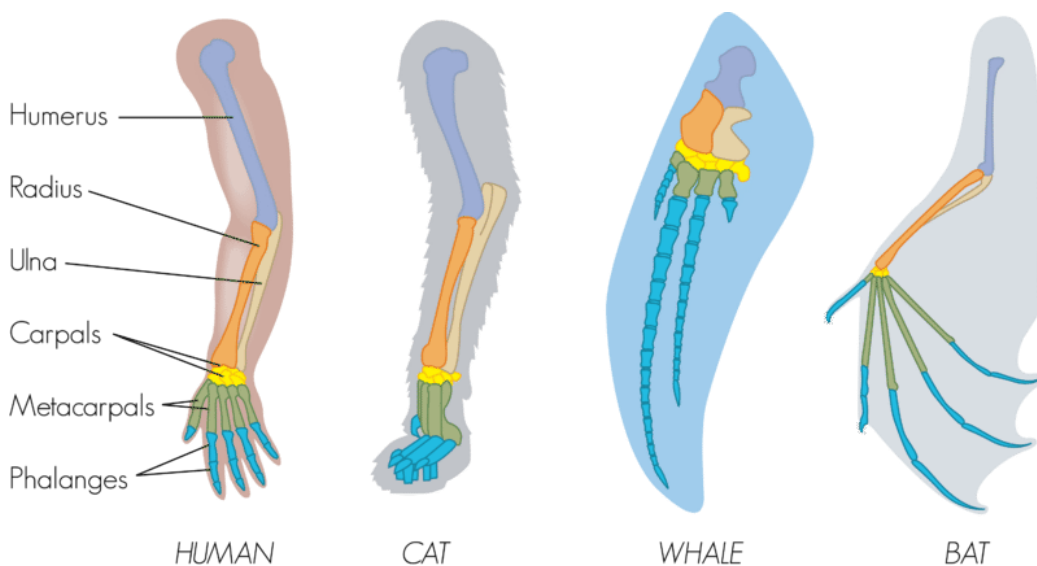


Figure 7. Comparable anatomy. (Auyeung no date)

Taking another look at Gronkle, it is still possible to imagine bones and muscle underneath its scales even though it is a very heavily stylized character (Figure 6). Regardless of character stylization or complexity of the design, the anatomy should still be somewhat comparable to the anatomy of existing species.

When designing any character, it is crucial to understand the character's universe; not only biological and geographical information, but also the art style and what the overall look of the product is (Blaise 2017). This can also help with the process of designing the characteristics of the creature and to determine how realistic the design needs to be.

3.2 Figures and shape

To build a good base for any character design, it is common to start from big shapes and advance to smaller details later. Without knowing the anatomy and shape of a character it can be counterproductive to start from the small details, for example the eyes or the pattern on their fur, when they do not really matter at the early stage of the design. (Lewis et al. 2018, 15.)

With shape language it is possible to enhance characteristics of the design. Humans have associations with basic geometric forms and those are commonly used in character design. A triangle has sharp edges and can be described as dynamic, aggressive and it can bring tension to the design. A circle is soft and cute, often used in young characters, it can also mean completeness and protection. A square is solid and stable and is often used in strong masculine characters. (Lewis et al. 2018, 19; Tillman 2011, 67–72.)

The fact that humans associate different ideas with different shapes plays an important part in creature design as well. An example of this is seen in Figure 8. With sharp edges and triangle shape it is possible to construct intimidating looking creatures, whereas round shapes can turn into cute and soft beings, and square shape can give stability to the design. These basic shapes are also seen in our wildlife, for example the square creature resembles a bear and a bull. Both animals could be described as strong and stable, which are both connected to

the shape. This could be used for advantage when researching for inspiration by thinking what the animal is shaped like, and what the association to that animal is.

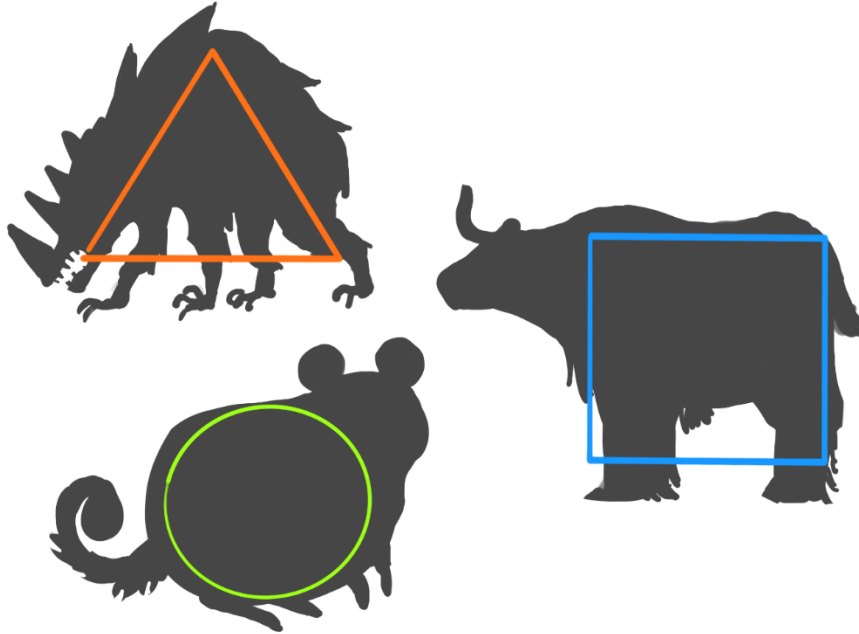


Figure 8. Basic shapes applied to creatures.

Drawing multiple different silhouette thumbnails of the character can be useful to decide the final figure of the design. With silhouettes it is easy to see if the character is recognizable and easy to read just from the outline (Figure 9). When starting to build a character without knowing the shape, it is easy to get lost in detail and forget the final outline and readability of a character. Silhouette thumbnailing is a quite fast way to develop multiple ideas without having to worry about the rest of the design. When the final shape is chosen, it can be a good idea to try and draw it from several angles and see if the design is still recognizable. (Corriero 2011.)



Figure 9. Silhouette thumbnailing.

With silhouette drawing, it is quite easy to see in the very early stage of designing, if the character is in balance. The character should not feel like it is going to fall over when it walks. This does not mean that the designs need to be symmetrical, but the design still should feel natural in their asymmetry. In Figure 10, the first creature example is very asymmetrical and looks like it is going to tip over shortly. In the second example, by giving the creature sturdier feet and with some alteration to the pose, it already feels much more balanced. In the third example, the pose is almost the same than it is in the first one, but a bigger tail is added, and the legs are more parted from each other. This way the weight balances over the whole body of the creature. Balancing the creature can bring more believability to the design and make it feel like it has weight and mass. This also relates to the research part of the design. When doing research, it should also be considered how the reference animals balance themselves; this could make the shaping process easier.

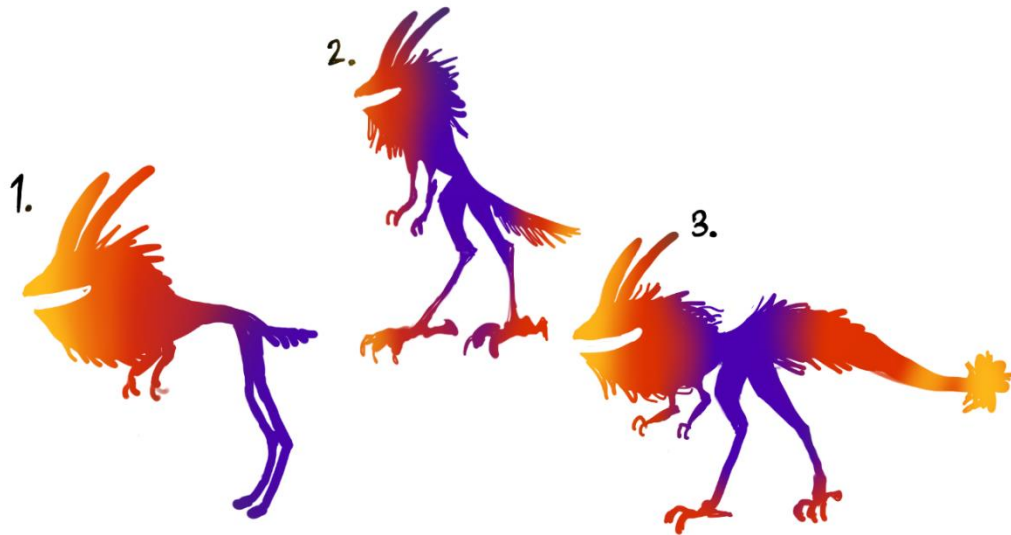


Figure 10. An example of balance in creature design.

When the wanted silhouette is achieved, it might be practical to break it down to smaller shapes. If the character needs to be drawn multiple times, and in some cases by multiple people, sustaining the right proportions is essential.

3.3 Color theory

There is no single right way to use color in design, but with the right choices it is possible to represent certain emotions, characteristics or enhance the atmosphere of the design (Lewis et al. 2018). When creating human characters, the possible skin colors already exist in our world, so the color variation usually comes from clothing, accessories and hair. Generally, in creature design, there are no apparel to color, the color comes from the being itself. It might be useful to think of the questions; Why is this creature colored this way? How does it help it to survive? It is not only a question of what looks good, but the meaning behind the coloration should be taken in consideration.

In the animal kingdom, the colors are crucial for any animal's survival. Animals have different reasoning for their colors and patterning. Some use bright colors to find and impress a mate, some use muted colors for camouflage, and some use highly contrasted colors for a warning signal. If the creature is desired to be a

believable being, using the colors and patterns from the nature could be beneficial. (Olsson 2017; Metheney 2013.)

The animal kingdom provides a nearly unlimited range of colors and can give some great inspiration for fantasy creatures. However, relying exclusively on the animal kingdom is not the only possible way to choose a creature's colors. The color scheme should also be in connection to the world the creature is from. If the world is parallel to Earth and is supposed to feel realistic, then taking color schemes from existing animals could be beneficial. If the world has very little integrity with Earth, it might be useful to explore different color theory methods in order to find harmonious and fitting color schemes for the creatures of that world.

The color wheel is a very useful tool; it can be used to determine what color combination works best for the design. The color wheel can be used in many ways and has many possible color schemes (Figure 11). Complementary colors are on the opposite sides of the wheel and can give a strong contrasted design. Analogous colors are colors that are next to each other on the color wheel, creating harmonious designs. Split-complementary is a little different version of the complementary color scheme. It uses different sides of the color wheel, two on the other side and one on the other side of the wheel, never directly using complementary colors. Split-complementary has less tension than a complementary color scheme, but still has a strong visual contrast. Triadic color scheme uses three colors evenly spaced throughout the color wheel. Tetradic color scheme combines two sets of complementary colors. (Lewis et al. 2018, 50–51; Dutcher 2015.)

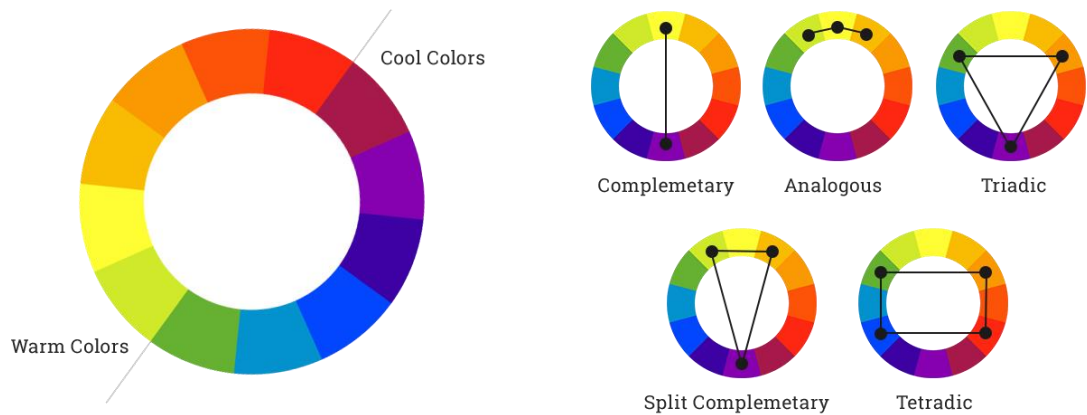


Figure 11. Color schemes. (Dutcher 2015)

These color schemes can be found in the wildlife as well, for example in a Scarlet Macaw (Figure 12). If the bright blues, yellows and reds that are seen on this parrot are placed on a color wheel, they create a triadic color scheme.



Figure 12. A triadic color scheme seen in nature. (Anderson 2017)

When creating a color scheme, it very rarely needs to be all bright colors. With bright and vibrant colors, it is possible to create beautiful color schemes, like seen in the Scarlet Macaw (Figure 12), but it might be more beneficial to use one or two bright colors, mixed with muted colors. Using colors of different value brings variation to the design and highlights the brightest colors. This is also a way to emphasize certain aspects of the design, since human eye tends to find the brightest colors first in an image. (Lewis et al. 2018, 51.)

Humans have strong emotional connections to color. For example, red can mean danger, passion, anger and love, whereas blue can mean loyalty and wisdom. Different color schemes can easily change the whole character and the feeling it produces. It is important to know what the colors are trying to express. (Lewis et al. 2018, 53; Tillman 2011, 112.)

When creating color schemes for fantasy creatures it is highly dependent on the situation, but it is essential to understand the colors and meanings behind them. The meaning can come from biological or emotional background. For example, when designing a creature with yellow as the main color, the creature could easily become poisonous and evil, or it could become happy and energetic. This is dependent on how the colors are mixed and placed on the design.

3.4 Personality

When looking at a character, it should be possible to get a sense of its personality from the design only. Like stated before, the shape and color have a lot to do with the personality and the feeling of a character, but the gesture and expression plays a big part in it as well. Posing the character in different situations can give a clearer image of what their personality is like.

Showing personality of a creature can be done in different ways. Depending on what level of realism the creature design is aiming for, the personality could be approached from animal or human point of view (Figure 13), or something in between. Both illustrations in Figure 13 give an image of a bad-tempered personality, but with different approaches. The first one has a gesture of an aggressive animal, and the second one uses human-like gesture to convey emotion.



Figure 13. Different approaches to show creatures personality.

Referencing the emotions of real-life animals, or humans, makes the creature more believable and relatable, and grounds them to reality. From the two creatures in Figure 13., the second posture is more relatable for humans, because of the human gestures. People, especially children, tend to relate to animals, which has made animal characters very popular in animated films (Barajoun 2015). Creatures could also be relatable for people, if the design is not set too far from reality.

4 EXECUTION OF THE DESIGNS

The fantasy creatures designed during the process of this thesis are for a visual novel, with a working title 'Space Circus'. The project was started May 2018 by the author of this thesis. The project was mainly worked on during the summer of 2018. A lot of the story was written and many of the art assets were done during that time. In the end, there was no time left for designing the creatures that would be one of the focal points of the visual novel.

'Space Circus' tells a story about a group of childhood friends, who are gathering up for one of their birthdays. One of the friends ends up disappearing during a mysterious meteor rain. The meteor rain was actually a space ship falling apart

when hitting the Earth's atmosphere. This space ship had been transporting creatures that belonged to the Space Circus, and now these creatures are scattered around the wilderness and towns of the area. The main character will pair up with the pilot of the space ship in hopes to find the lost friend and to help find these creatures in the meantime.

'Space Circus' needs four creature designs altogether, three out of four will be discussed in this thesis. These creatures had been very vaguely designed during the Summer 2018 to fill the story, but there was no visual material, or any research done. The visual novel project by itself would not necessarily need such precisely designed creatures, but in addition to being part of the visual novel, these designs are meant to be used as a part of a portfolio and a learning process.

4.1 Research

In the beginning, the creature designs were merely vague ideas that needed a stronger starting point. The three designs were put into three categories: herbivore, carnivore and omnivore. This gave a clearer idea of the creatures and just enough limitations to what they could be based on. If there were no limitations for each creature, the amount of possibilities could get overwhelming. This was also a way to differentiate the creatures from each other and make them more diverse.

The designing process started from making mood boards for each creature and doing research on the animals they are based on. The creatures will be discussed individually.

The first one in production was the carnivore. In this thesis this creature is referred to as Mantis, since the main inspiration for this creature was a praying mantis. It was already decided that this creature would be creeping in the shadows, waiting for its prey to show up. A common way for a praying mantis to hunt is to camouflage to the surroundings and wait patiently for their prey (Breyer 2017). To make Mantis more interesting, elements from deep sea fish and

carnivorous plants were added. Mantis's mood board ended up having mixture of bugs, fish and plants (Figure 14).



Figure 14. Mood board for Mantis.

The final idea for Mantis has bioluminescent parts in its body that work as beacons of light in the darkness and attract small flying creatures. This is comparable to moths that are attracted to light. When these small creatures get close enough, Mantis will strike them with its sharp claws. This creature would need a lot of research on praying mantis, as it is the main source of inspiration and the author of this thesis had no previous experience in the field of drawing bugs. Since bugs have very distinct anatomy from mammals, dividing the bug in different sections gave a clearer idea of the structure and anatomy (Figure 15).

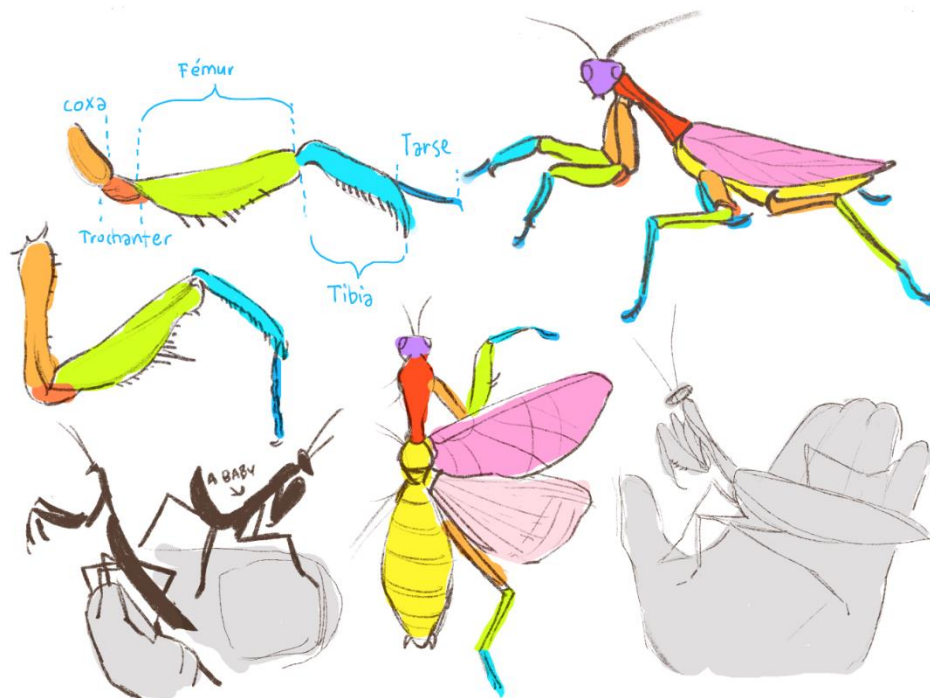


Figure 15. Anatomy sketches of praying mantis.

After having a clearer idea on how the anatomy of mantis works, it was possible to start sketching out different species of mantis (Figure 16). This gave new ideas for the shape of the body and what the head could possibly look like. The mantis family has many interesting, almost alien looking species that proved to be useful later in the design process.

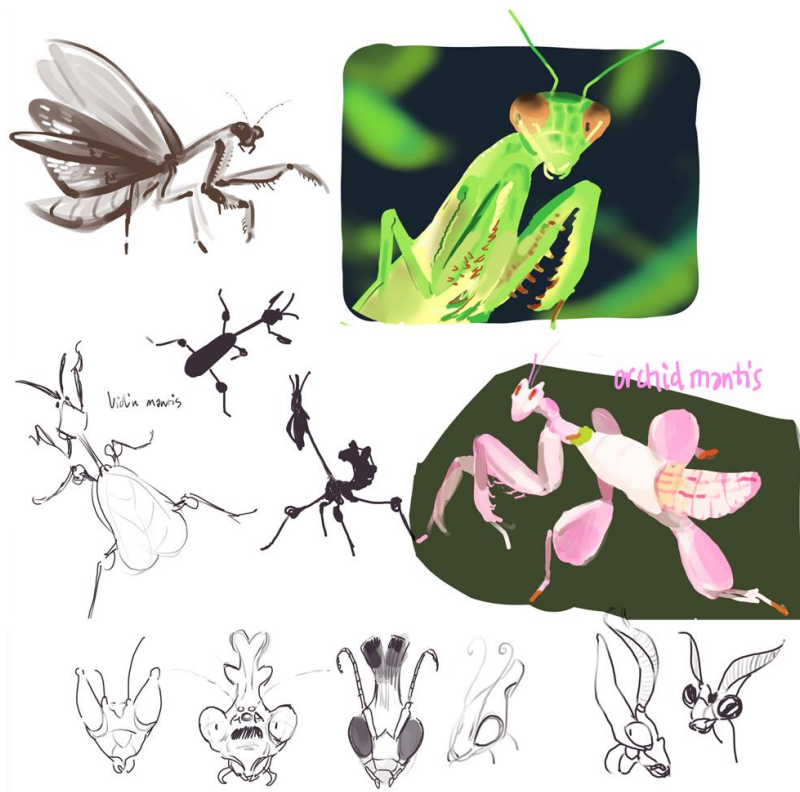


Figure 16. Research sketches of different species of mantis.

The herbivore creature is referred as Tova in this thesis. In Tova's case, the idea was still very unclear when starting the design. Tova ended up having references from dinosaurs such as Apatosaurus and Brachiosaurus, a fox, some even-toed ungulates and a circus elephant (Figure 17). The idea was to make Tova so big, that she could carry audience seats on her back. Tova would need to appear calm and stable for this purpose.

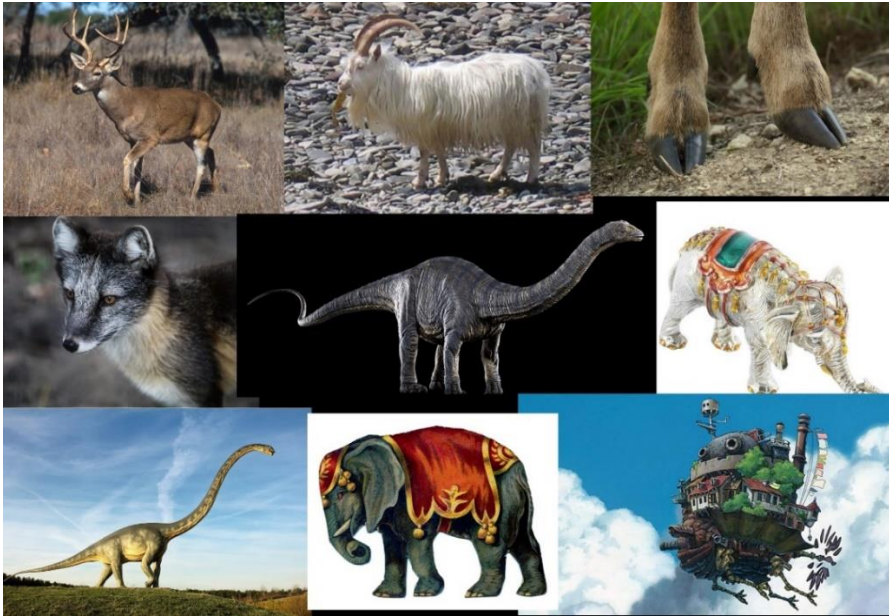


Figure 17. Mood board for Tova.

Tova's anatomy is heavily based on big animals like the elephant, and different dinosaurs, but with the gracefulness of a deer. To mold a working combination of all these animals it was necessary to do research on their anatomy (Figure 18). It was observed that usually larger animals tend to have a rising silhouette, the hip being lower than the shoulder blades. Some aspects, like the horns, thin legs and hoofs from a deer were combined to the final design. Combining these elements and making the creature stable enough to carry audience was a challenge.

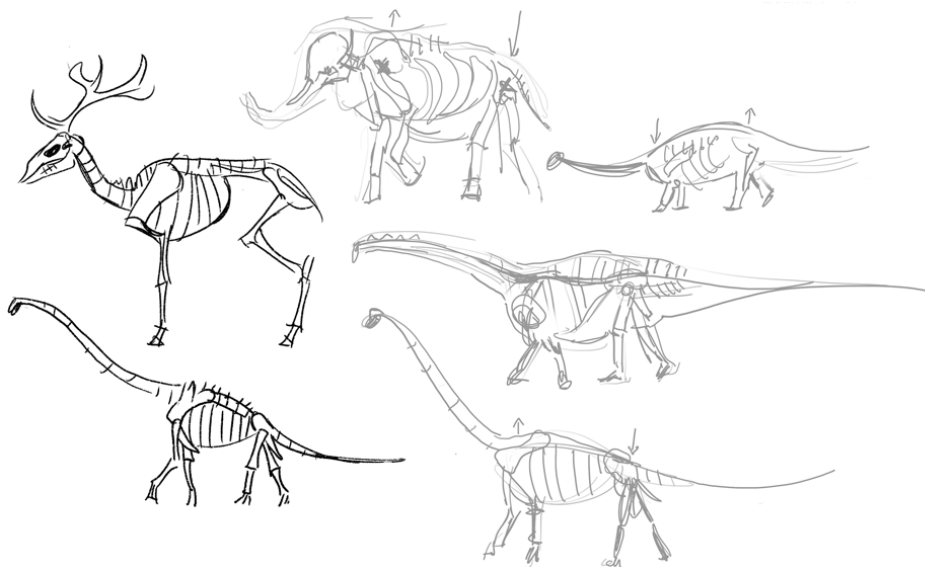


Figure 18. Anatomy research for Tova.

The third creature, omnivore, is referred as Mox in this thesis. Moxes are gregarious animals, but the story highlights one Mox in particular. Moxes usually live in huge hordes, flying around in formations like a school of fish, but this one Mox has gotten lost. The mood board for Mox includes small and cute animals, a mouse, moths, small birds, fennec foxes and a Pomeranian puppy (Figure 19). Manta ray was also included in the mood board, to give inspiration for the possible shape of the wings.



Figure 19. Mood board for Mox.

In the case of Mox, it was not necessary to do a lot of anatomy research, since the reference to the animal anatomy is so vague. It was more important to observe what makes these animals cute, and how to apply that to the design. The claim that these animals are cute, of course, is entirely opinionated. Some people might find the moths to be even repulsive. However, the animals that people usually find cute, have similarities, and these similarities can be seen in the animals in the mood board. Big eyes, big head compared to the body, softness, and small size are usually associated with cuteness (Micu 2018).

Humans have a tendency for wanting to protect small, innocent beings, which is called the “baby schema”. This has evolved from the natural instinct of protecting

helpless babies. The baby schema has evolved to be so strong that it can be triggered by baby animals and even inanimate objects. (Smith 2018.)

Mox has a quite big role in the story of Space Circus and could be specified as a companion creature. The other two are more in a worldbuilder category and do not have a close relationship with the player. It would be important to make the player attached to this small being. Using the baby schema in advantage would help in creating a relationship between the player and Mox.

4.2 Sketching phase

After the creatures had the basic ideas written down and the mood boards ready, it was time to do some brain storming in sketching form. The right shape for Mantis was quite difficult to find. In the beginning the idea was heavily revolving around the praying mantis, but this creature was not supposed to be able to fly, so keeping the bottom shape of praying mantis was out of question. The mood board for Mantis (Figure 14), had the praying mantis as the base, and the other references were only minor additions to the design. Thus, creating an entirely new shape from the praying mantis alone proved to be difficult. While trying to figure out the shape for Mantis, the shape kept repeating itself and variation to the design was difficult to discover. This was until the bug-shape was broken with a longer, snake-like shape (Figure 20). This was an important breakthrough with the design, that was stuck in being just a slightly different version of a praying mantis.



Figure 20. Shape experiments for Mantis.

After the snake-shape was discovered, it was possible to start shaping the final look for Mantis. The first version of Mantis's final design can be seen on the left side of Figure 21. This version felt heavy and unbalanced. Mantis was supposed to be able to climb walls and wrap around trees, and to stay still for long periods of time, and this would require a lighter, more agile body. To create balance between the body and bioluminescent parts of the tail and antennae, the body was heavily slimmed down, and the bioluminescent parts were enlarged (Figure 21). Mantis was intended to be beautiful, but creepy at the same time, which is expressed through the shape language. The sharp edges of the fur, teeth and limbs, combined with the flowy motion of the body and roundness of the bioluminescent parts of its body should create tension and contrast to the design.



Figure 21. Early versions of Mantis.

The mistake of not having enough references in the beginning of designing Mantis led to uncertainty and time lost. This was taken in consideration while designing Tova. Tova had a set of animals that its anatomy was based on and it was quite clear what direction the design would go. Despite this, it was beneficial to experiment with different shapes and ideas (Figure 22). Some of these shapes seen in Figure 22 do not follow the mood board and are experimenting with other possible animal references.



Figure 22. Silhouette drawings of Tova.

In the end, the design for Tova followed the first idea of deer-like dinosaur. In the sketches seen in Figure 23 Tova had teeth showing under the fur, but those were removed entirely from the final design. The teeth gave Tova too much of creepiness, which was not desired for this character. In these sketches Tova did not appear as huge as it was supposed to be, so in the final design its head was shrunk down, and the legs were drawn even thinner. The sketches seen in Figure 23 gave a good direction for the design, but some more sketching before doing the final drawing would have been beneficial.

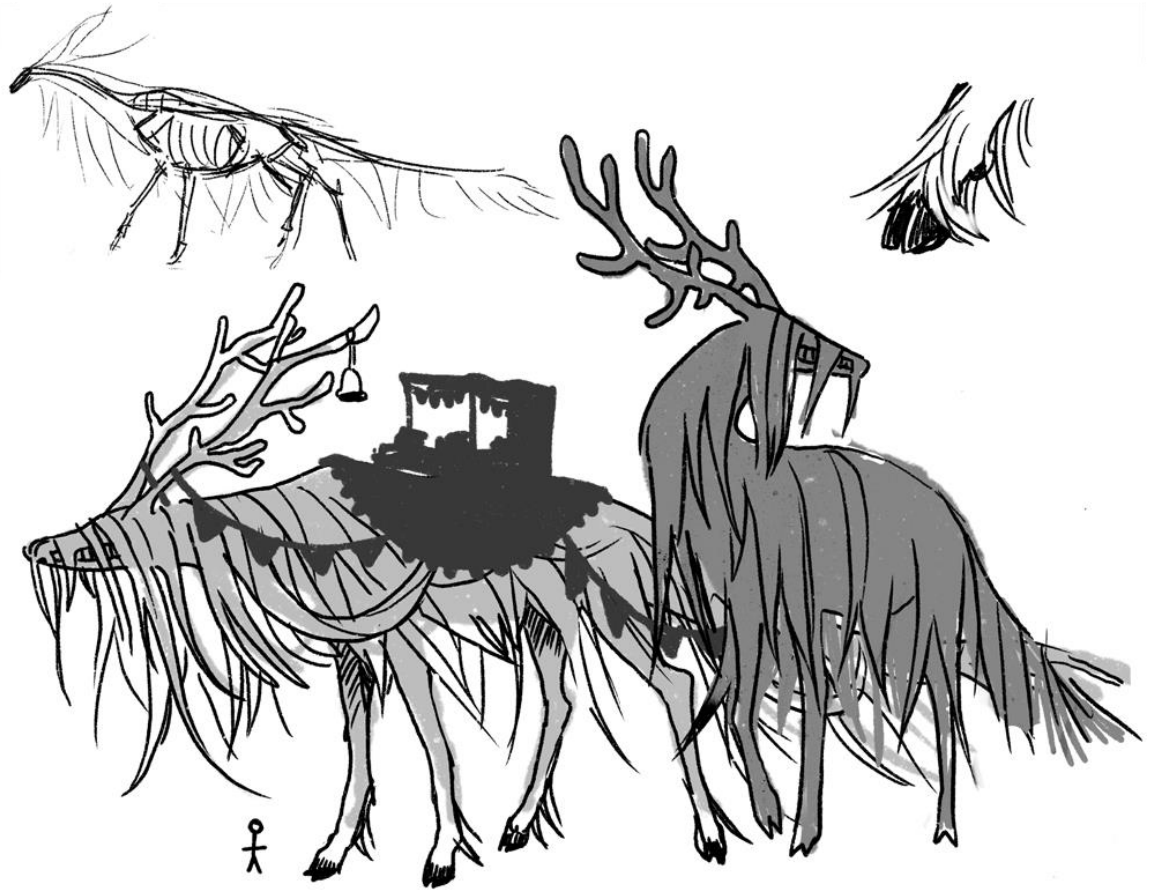


Figure 23. Final sketches of Tova.

For Mox, several small creature designs were drawn on top of silhouette drawings (Figure 24). Mox needed more experimenting with the shape and appearance, finding the right shape was difficult for such a small creature. Keeping the right proportions is important in conveying cuteness in a design. Some of these designs had too big wings, making the whole design unbalanced

and the cute aspects less noticeable. Also, different kind of eyes were experimented with, but big eyes were still found the most efficient approach to expressing cuteness. None of these drawings seen in Figure 24 ended up being the final design, but most elements of the final design can be seen here.

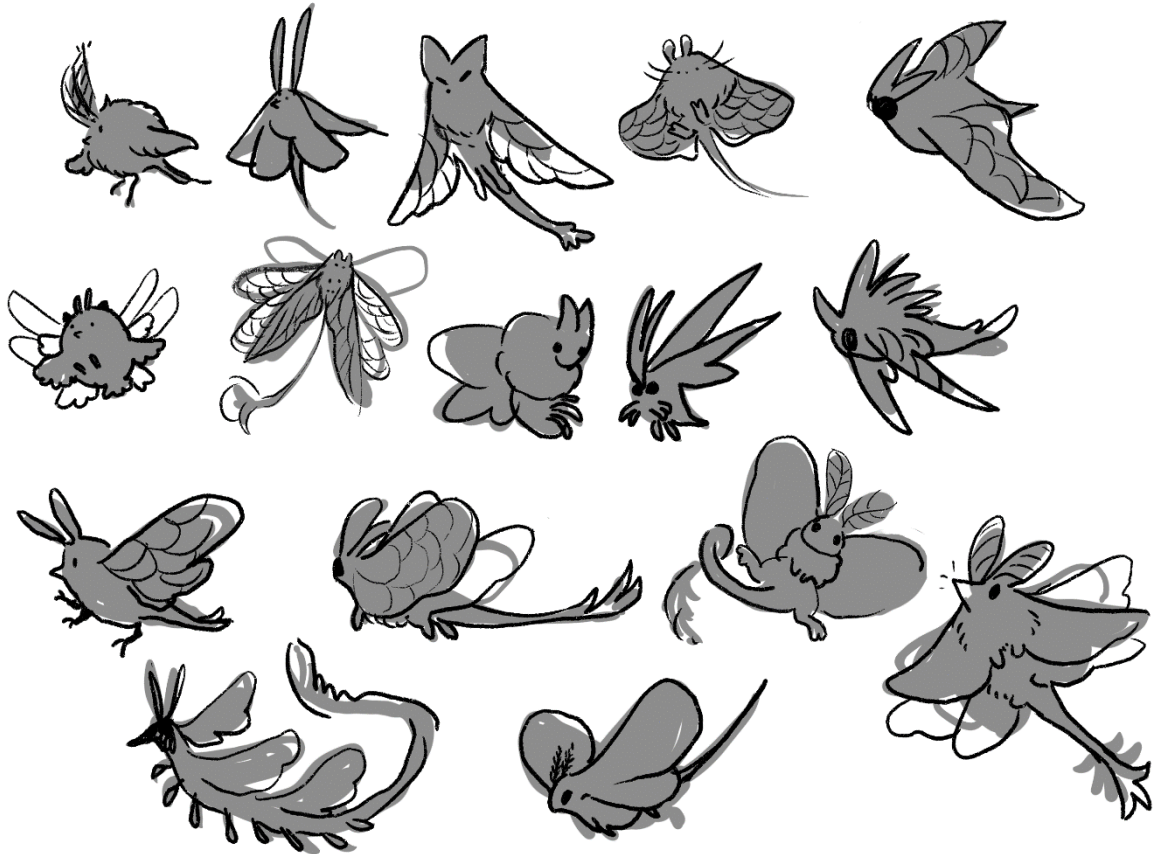


Figure 24. Mox concept sketches.

These three creatures ended up having different approaches to the sketching and silhouetting phase. This was dependent on how precisely the researching part was conducted. Tova was examined in more detail than the others and thought out thoroughly beforehand, saving time in the sketching phase. Mantis, on the other hand, was only a vague idea, leading to problems while sketching. Mox had a quite good research base and just needed a lot of brainstorming on how to implement those elements together.

4.3 Final artwork

The final art was created in Procreate, with an iPad and an Apple Pencil. However, the final touches were made in Photoshop, since Procreate does not have as broad of a selection of editing tools. These drawings are meant to be used as images in the 'Space Circus', so they are drawn to fit the game's art style. The game has quite a simple art style, with chalk-like outlines, flat colors and simple shadings. Each design has three different color variations, from which the final coloration will be chosen.

The final design for Mantis had some elements changed from the sketching phase, as seen in Figure 25. The pose needed to be fit for a 16:9 aspect ratio, so Mantis was drawn in a horizontal composition. The long body needed to be twisted, so it would fit the screen better. The biggest change from the sketches is probably the antennae. The antennae needed to switch direction from the front to the back of the head. This change was done entirely for the benefit of the composition. If the antennae would have stayed pointing forwards, all the big focal points would have been in front of the Mantis. Now, the bright colors are more evenly balanced around the design.



Figure 25. The final design and color variations for Mantis.

The possible color combinations used for Mantis all follow different color harmonies (Figure 25). In each color variation, the body is colored dark, to highlight the bright colors of the bioluminescent parts. The first one uses complementary colors of pink and lime-green. This one is quite a bold color scheme and it gives a certain twist to the design. The combination of pink and lime-green does not feel very natural and is probably not seen in any existing animals. Highly contrasted animals in nature communicate poisonous traits, and that is not desired for this design. The second color combination is analogous, using different shades of blue and purple. This color scheme is much more harmonious. The bioluminescent colors in nature are usually seen as blue or green, so this color scheme would be the most natural option. The third option is a split-complementary color scheme, with cyan, red and orange. This combination has less color contrast than the first one, but still has tension between them. The choice ended up being between the second and third option. Even though the third option might have been the more interesting one, it did not

really tell anything about the design itself. The second one was found to be the best option for Mantis.

There was one visible mistake made while drawing the final version of Mantis, which was noticed after the multiple color variations were already done. The front legs ended up having only Femur and Tibia, missing the Coxa entirely, which can be seen in the anatomy research sketches (Figure 15). This mistake was made when drawing the outlines over the silhouette sketch and proves that the anatomy should be double checked before drawing the final design. This was corrected in the final art (Appendix 1).

Tova had some changes in the design. Because of Tova's size and shape, it was difficult to come up with a working composition for the final drawing and the final pose did not end up quite as desired (Figure 26). Tova ended up looking too light in the drawing and somehow not as gigantic as was originally desired. However, the arrangement of the circus booths on Tova's back fortunately give a hint of its scale. The horns had a big change from the original sketches, and were changed to lighter-looking horns. It was noticed that if the horns were too big, they would crash to the circus booths when Tova turns its head. It would seem even more dangerous if the horns were pointy.



Figure 26. The final design and color variations for Tova.

From the color variations seen in Figure 26, the third one was found to be the most fitting. The colors in the third version are very down-to-earth and suit Tova's personality the best. First color variation is quite fresh and has a pleasant contrast. However, it gives the impression of an arctic animal, which was not the desired result in Tova's color scheme. The second color scheme was built to highlight the lightbulbs attached on the straps wrapped around Tova's body. This one ended up being rejected as well, because of how dark and ominous it looks. Despite the circus being from space, the booths use a very traditional circus color scheme of red, yellow and blue. The aim is for the player to be able to associate the design to circus without further explanation. The final version ended up having some more alterations to the colors, which can be seen in Appendix 2.

The Moxes fly in a swarm just like a school of fish swim in the water; they create formations and move in unison. This had to be taken to consideration in creating the coloration for Mox. The wings have a very reflective and bright, scale-like

surface, which makes the swarm shine in different colors (Figure 27). The wing color was already chosen, but the body coloration still needed to be decided. From the three possible variations seen in Figure 27, the second and third options were the most considered options. The first option was meant to look natural, but in the end was found uninteresting with the lack of contrast and color. The second option has more tension between the body and wings, enhancing the brightness of the wings. The third option does not have a strong contrast but is more harmonious in its colors, since the shades of the body can be seen in the wings as well. The fact that these creatures fly in swarms meant that they probably should not be separable as individuals. Based on this, a more harmonious color scheme would make sense, so the individuals would blend in the swarm. As the third option has the most coherent color scheme, it was chosen to be the one used in the game. A bigger version of the final art of the Mox can be seen in Appendix 3.



Figure 27. The final design and color variations for Mox.

When drawing these final designs, it was essential to keep in mind that they had to look like a coherent group of creatures. They had to feel like they could come from the same universe. This was achieved by using same techniques while drawing. Each drawing used the same brush sizes and settings and had the same color of blue in shadings. The designs also use similar shape languages. Mantis and Tova both have dark faces, with round empty eyes. Mox has round eyes as well, but it was essential for Mox to have irises, in order to enhance the relatability of the character. Mantis and Tova both have similar round, flowy shape language in parts of their bodies, Tova in its horns and Mantis in its bioluminescent parts. Mox is standing out the most of the three designs, but it is not really a problem, because Mox has a more important role in the story.

4.4 Implementation

The engine used for the project is Ren'Py, which is a free program for creating visual novels. The engine uses Python programming language and is quite simple to use. The game itself is very text and image heavy, with some animated scenes and player choices.

The final creature art was loyal to the style of the game, so they are ready to be used when they are needed in the production. Within the timeframe of this thesis it was not possible to finish the creature scenes, but the art of Tova was tested inside the engine (Figure 28). From this test it was possible to see that the original colors were too gloomy for the bright background, so the contrast was strengthened and some color corrections were done. All the character drawings in the game also have a white translucent outline, to separate them from the background better. From this test it was also possible to see how much of the design would be covered by the UI. The UI seen in Figure 28 is not final but gives an idea what it could look like.

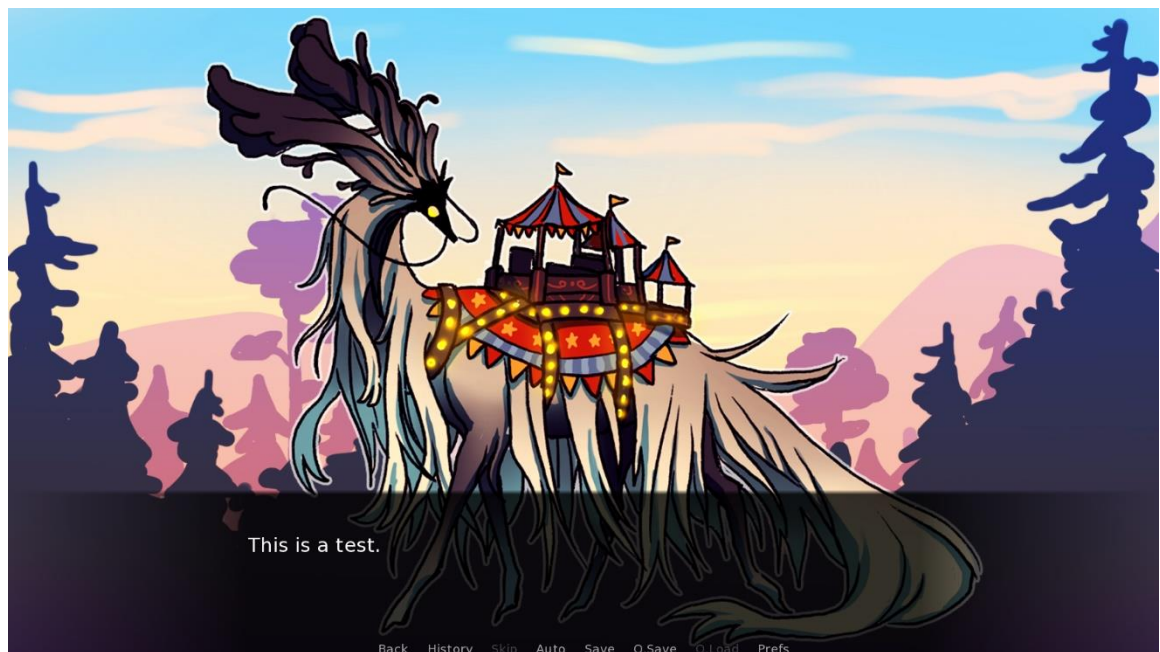


Figure 28. Art test inside the game.

The interaction between the player and these creatures is going to be hard to implement because of how text and image heavy the game is. The original idea

was to have some simple mini games where these creatures would appear. This idea was discarded for being too ambitious and time consuming. In the end the implementation will be a mix of animated scenes, narrative text and choices the player must make in order to capture these creatures.

5 CONCLUSION

This thesis was successful in finding useful tools for creature design and in analyzing the possible ways that character design theory could be used and blended with creature design. It was discovered early on that is not possible to find a single right way to design fantasy creatures. This is because of the amount of different kinds of creatures is so vast, so the creatures in various categories need a different approach in design. However, it was possible to find some connections with all creature designs. All fantasy creatures should have a bond to the real world, to make them more believable and easier to identify with. This can be achieved with anatomy, coloration and body language.

The practical part of this thesis was successful in producing three cohesive creature designs. Their appearances represent their personalities and natural aspects of the species. Their creation process for the most part follows the design steps that are discussed in this thesis. These three designs are also a good example of how sometimes creatures need a different approach in their design process, and it is not set in stone how creatures should be designed. Some of these designs could still be improved, but they fill their role and are ready to be implemented in the game. Within the timeframe it was not possible to execute the implementation, or do any animation work, as it was originally planned.

This thesis is not meant to be a guide for designing creatures but can hopefully provide ideas on how to approach creature design. With the basics of character design and thorough research on animals it is possible to create visually interesting creatures that are believable in their own world.

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