

DEVELOPING INTELLECTUAL PROPERTY CHARACTER FOR GAMES TO TEACH MUSIC THEORY BY USING BATIK PATTERNS INSPIRATION

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ABSTRACT

The research aimed to apply batik motifs to strengthen the differentiation of characters in the form of adventure games that could be an interesting and effective learning medium for introducing music theory. In order to work towards achieving its objective, developing interest in music theory by using games and animations specifically to approach more people and make this project sustainable, these games were supposed to be aimed into intellectual property. Therefore to be able to make it competitive, strong differentiation was needed as so many IP characters emerged as competitors. One of the strengths that could be added to these characters was by applying local content. It was a strong differentiator and could be developed with a deeper philosophy so that it had a wealth that could be developed more widely in the future, which in this case was using batik. To achieve goal, the research used the design thinking method and qualitative methodology to collect data. The researchers collected data through the process of document research, an observation about the implementation of batik patterns in character design for animation. The result is the characters' designs of a game to teach music theory using batik pattern application. In conclusion, the batik pattern has the potential to strengthen differences in character design.

Keywords: character design, intellectual property games, music theory teaching, batik pattern

INTRODUCTION

Understanding music theory is very important for both beginners and professional musicians. This is the main foundation for the good and right performance, arrangements, and composition of songs. Understanding how music works, it is expected that various students will be able to play an instrument to make a song better. However, teaching music theory to beginners is challenging as the students need to learn elements in music such as rhythm, dynamics, melody, harmony, tone color, texture, and form when appreciating to playing a song. On the other side, learning music theory is hard and very complicated.

However, students' tendency to pay attention to music lessons in theory requires more effort as music is mostly practical. Not only students, even some self-

taught artists or music players think music theory does not need to be considered in playing music because it is assumed can reduce the creativity of people in music. This paradigm needs to be shifted because music theory is not only limited to reading music notation or rules in classical times, but it becomes an important language that needs to be concerned. Music theory establishes an important foundation to understand how music works and open people's ears to appreciate all kinds of music that are heard or active listening.

The lack of interest in learning music theory requires a solution to make music enthusiasts or music students start to learn it in a fun way instead of being frustrated when dealing with it. There are various ways to achieve this; some people use pictures, flashcards, or even edutainment devices to facilitate the teaching

and learning process. One approach that can be done to facilitate students to make them more enthusiastic when studying music theory is through games. In this case, the researchers implement various elements of music theory into an intellectual property puzzle adventure game that aims to introduce and teach players about music with eye-catching visuals instead of boring lectures so that it is easy to understand.

Interactive animated media can respond to the developmental problems and needs of new students through the features offered. There are many advantages of the development of interactive multimedia in helping to facilitate the students' literacy skills such as the learning process becomes more interesting for students and more interactive (can bridge the concept of complete and independent learning), reduce or shorten the teaching time, improve the quality of knowledge, and form the learning flexible (education can be done anytime and anywhere) (Sukadari, Sukemi, & Sunarti, 2019).

The researchers' intention makes this game as an interactive media so that the implementation of music theory can be enjoyed by the players more. The researchers also bring the puzzle and adventure genre games into casual players instead of hardcore gamers. The researchers want more players to explore and interact directly with the music theory elements applied in the game scenario. To make this project sustainable, the researchers intend to make it an Intellectual Property (IP). In making of character under intellectual property works, strong differentiation is needed to be able to make it easier for students to recognize the character and have a high sense of ownership of the character. Character design is an important aspect to deliver storytelling and increase emotional response for stories or games. With the increasing number of intellectual property characters circulating around the world, it is necessary to design characters with strong differentiation in each design element, such as line.

The characters developed in this game are categorized by WIPO International Bureau (1994). It is included in the fictional and cartoon character merchandising, which is the oldest and best-known merchandising form. That is, the concept of character and its business model are first created in the form of fictional characters. According to White (2009) and Bancroft (2006), the process of designing a character is one of the most complicated things. In making characters, several things and guidelines need attention, such as style. It is important to deliver the characters' personalities and match the target audience. The style for children's films certainly requires more simple shapes and colors compared to styles with the target of an adult audience. Personality also must be possessed by a character. According to Pixar's story rules, each character will look alive with a different nature from the others, including the goals, desires, and needs of each character. Character traits can be formed from a variety of elements according to their expression and appearance.

According to Bancroft (2006), the designer

must be able to divide any character into a simple form because the shape of a character will show the character's nature. Knowing the basic shape of a character will help the designer in redrawing the character from different angles. The circle is usually used for friendly characters, Cuddly. The shape of the circle shows kindness and not dangerous because there are no sharp angles. While square represents strong characters, firm, sturdy, wise, and reliable. Furthermore, triangle shape can be used to show characters who are cunning, evil, suspicious, and generally represent bad antagonistic in the character design.

To provide strong differentiation in creating a character, it can be done by adding local content to the design. One of the additions is by including a batik pattern on it. However, as the researchers want to make the pattern as intellectual property, it needs to improve creativity and innovation in the batik pattern to make this property sustainable (Wahyu, Reni, and Apriatni 2018). Batik is very easy to imitate; therefore, innovation in the design, coloring, and motives become important factors. This is in line with Wahyu, Reni, and Apriatni's (2018) research as other capitals need to be explored on the intellectual capital of batik such as spiritual, social, and technology capital so that the more comprehensive intellectual capital model could be obtained especially in order to create the competitive advantage of batik.

METHODS

The research aims to develop a game's character design to teach music theory by applying batik patterns or motifs application as visual concepts. The methods applied are the design thinking method and qualitative method. In order to gather data and information, the researchers observe some literature data from online and offline writings. After collecting the data, the researchers analyze to make results and conclusions.

A design perspective can possibly accommodate the chance of creation-discovery discussion pragmatically and frame the entrepreneurship process as advancing artifact-creating process (Ding, 2019). Therefore, as Sari and Tedjasaputra (2018) have said that design thinking is not just a benefit of specific discipline any longer. In education, design thinking can help address complex problems and extension the holes between the old and new approaches for educating and learning. More particularly later discussions bring forward designs role and spotlight on value creation in the advancement of new market opportunities. According to (Windahl & Wetter-Edman, 2019), there is a solid affinity among pragmatism and design thinking, particularly concerning embodied experience and modes of inquiry.

According to Tschimmel and Santos (2018), design thinking supports change within the higher education institution culture by demonstrating educators' new approaches to create together. It is

also can be applied to reimagine educational systems and learning experiences. The design thinking process keeps individuals' learning by doing' because it moves them through the iterative stages of discovery, empathy, idea generation, experiment, and elaboration. The designers' mindset, creative, and collaborative working approach can enhance educators' reflection on their new role as 'learning facilitators'. The design thinking process begins from an apparent irregularity, problem, and after that keeps on exploring the character of this problem according to the world by connecting relevant actors and situations. As such, the design thinking process might be viewed as an instance of giving experiential learning spaces (Dalsgaard, 2014).

The research uses four from seven stages of design thinking, as described by Ambrose (2015), namely define, research, ideate, and prototype. Define is by determining what is important for the success of the project. Then, the research phase analyzes information such as root causes of design, interviews, and identification of potential obstacles that arise. The ideate process produces alternatives that have the potential to be continued. Ideas can be obtained through brainstorming or looking at references. Moreover, lastly, the prototype stage helps see the temporary results of the ideas that have been obtained, which are presented to some people first before going to the target audience.

It started by defining the problem that an intellectual property needs characters with strong differentiation and eye-catching, so it can attract the audiences to get involved in the game. By bringing the audience into game interactivity intensely, hopefully, this intellectual property's purpose of teaching the basic concepts in music theory can be realized.

RESULTS AND DISCUSSIONS

Considering the increasing number of intellectual property characters that appear in various media, a distinction is needed so that people can easily recognize them from a distance based on the silhouettes, line, color, accessories, clothing motifs, and so on. As an effort to make this game characters easily recognized and have significant differences, it takes a strong differentiation in the elements above so that in addition to having a specificity also has a novelty value. In this case, the researchers try to incorporate local content in the form of batik motifs or patterns into the game's character designs.

Usage of design thinking methodology empowers the interesting and entertaining game that is popular among students to be utilized as inspiration for educational games. It will have methodological and fun components simultaneously and will prompt the accomplishment of the proposed learning results. The educational game should be made by placing educational components in the high rating game's play concepts. Thus, the researchers can guarantee that various factors like ease to use, usefulness,

students' attitudes and motivation, and proper fitting of educational components in the game are provided, which can prompt the expanded students' quality of experience.

Define is the first stage in any design process and almost always involves making or receiving a design brief. A proper understanding of the problem and its obstacles enables more appropriate solutions to be developed. Understanding who the audience is, and the reasons why this design must be made, what are the visual factors that can attract customers, in what media this design is applied, and how this design is executed, are the first step in establishing a good design. The problem that researchers focused on in this research is the need for interesting media to teach music theory. Several game developers have already explored this market with various genres and styles in their intellectual property. With these conditions, the design will stay mediocre and be more easily skipped and forgotten. The main goal to be able to introduce music theory will not reach the desired target more.

Therefore, this intellectual property needs a design that is easily recognized to reach a broader market. While with the increasing number of intellectual property characters that emerge, the strong price characters of intellectual property are not only easy to recognize but also increases the self-belonging of the user.

The next step is to look for the right references that have strong visual characteristics and concepts but also matched with the segment as well. Just like how Art Nouveau has influenced the whole of Krypton from Alphonse Mucha, Louis Sullivan, Aubrey Beardsley, Antoni Gaudi, and more, Peter Rubin, the shield designer for *Man of Steel* looks at that movement's furniture, architecture, graphic art, and typesetting. He also looks at the things that influenced Art Nouveau; natural objects, particularly as recorded by Blossfeldt (Mitchell, 2017).

The researchers take a reference from *Journey*, an indie adventure game released in 2012. This game is known for its beautiful visuals and atmosphere that able to express a story without dialogue. This game has a minimalist and stylized 3D style with an environment that never exists in the real world or exaggerates various real-world forms to look more fantasy and attractive. It is an adventure game developed by That game company and Santa Monica Studio. This game is released by Sony Computer Entertainment for PS3 and PS4. While, for Microsoft Windows and iOS, *Journey* is released by Annapurna Interactive.

As mentioned in du Plessis (2018), the self-other relations in *Journey* that underpin the gameplay of the majority of video games assume the form of utilitarian subject-object relations. The player controls a player-character, which functions as an identifiable subject with the agency within the game world. At the same time, all the other elements of the video game, including the digital environments and the non-player characters, are presented as objects in the form of either resources or obstacles, which the player-character can

use as means to progress through the game world.

This self-other relation is presented in a beautiful visual and atmosphere that is able to express a story without dialogue. This game has a 3D style that is minimalistic and stylized, which focuses on shape exploration that does not exist in the real world or exaggerates various forms of the real world to look more fantasy and attractive. Game *Journey* uses the implied line where the line is not defined directly to the object. Lines will give a neat impression on the image without paying attention to small details on the object. Figure 1 shows the game *Journey*.

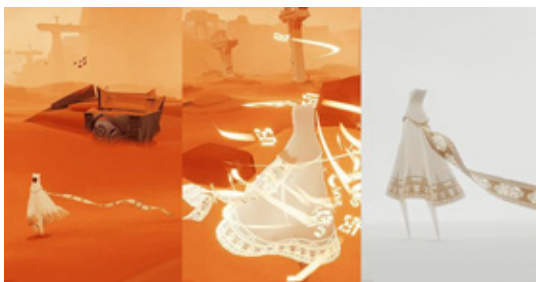


Figure 1 Game *Journey* as Reference
(Source: Thatgamecompany)

This game uses very simple shapes like square, circle, and triangle. The shape looks very geometric in composition and shows minimalism style. The researchers also find contrast in shapes such as character as the main focus has a more fluid form, while the majority of the background has a very geometric basic shape. Tillman (2019) explains that, generally, forms convey certain meanings. The meaning is obtained from the results of human thought that tends to associate forms with certain traits. Shapes are what fundamentally use to define what certain things are and what they possibly can be used for.

As mentioned by Makryniotis (2018), there are reasons why attention should be paid to digital dress, namely the relation of the appearance of a game character or avatar to the performance of an imagined identity, which evidence suggests it may have repercussions on the player's real identity, representation, and commercial potential. As stated by Kalmakurki (2018), the work of a costume designer exists in the production, although not as a separate profession. Although costume creation is tightly integrated with the character animation process, the costume's function is similar in live-action films to support the character's personality. Kutt (2018) has said that costumes are very important in all Pixar movies, as it can be an extension of the character's acting performance. It also tells the audience about the character's personalities and how they change over time and provide a visual shorthand for the story's setting. After the research step from Ambrose's design method is conducted, the step that should be prepared is ideate. It might consist of brainstorming or mind

mapping.

There are three main characters, Rhythmus, Maestro, and Tritonus, that have their own personality. The shape of the characters is matched with their traits and behavior. Figures 3-5 show each character before the batik applies.

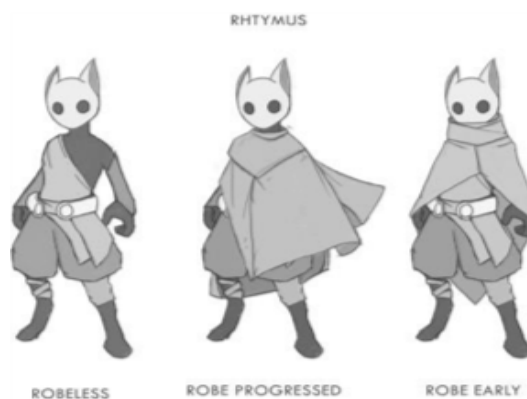


Figure 2 Character Rhythmus before Batik Applied
(Source: Jehezkiel Christian Ray)



Figure 3 Character Tritonus before Batik Applied
(Source: Jehezkiel Christian Ray)



Figure 4 Character Maestro before Batik Applied
(Source: Jehezkiel Christian Ray)



Figure 5 Other Characters before Batik Applied
(Source: Jehezkiel Christian Ray)

In this ideate process, there are patterns brainstorming that inspired by the Javanese batik pattern. To get a match between the design pattern of clothing with the character, a search is made on the visual characteristics and meanings contained in the inspiring batik pattern. In systematics of traditional Javanese batik patterns, there are geometric patterns. They are (1) Banji, the crossing bands with the bronze age pattern, maybe of Chinese origin (Banji means 10000 in Chinese). (2) Stencil patterns are stylized flower and fruit profiles; sometimes it is containing creatures, such as *ceplok* or metal ornament (rosettes, stars, squares), *ganggong*, the special form of *ceplok* (named after *cryptocoryne ciliata*, a water plant with long seed hairs), *kawung* the intersecting circles (it means fruit of *arenga saccharifera*). (3) Inclining borders *lereng* or *garis miring* (including the most popular varieties *parang* means dagger and knife). (4) *Nitik* and *anyaman* is the imitation of weaving patterns. *Nitik* word is from tik or dot, while *anyaman* means wickerwork. The shape of the ornaments of this group is similar to *ceplok* or *garis miring* types.

There are also non-geometric patterns, *semen* patterns, and *buketan*. *Semen* pattern is the arrangements of plants, creatures, and Hindu symbols without regarding the background structure. The word of *semen* is from semi, which means sprout. The *semen* pattern consists of (a) patterns of stylized plants only, (b) patterns of stylized plants and creatures, and (c) landscape-like patterns containing Hindu symbols. *Buketan* is influenced by European paintings, not too traditional.

Besides geometric and non-geometrical patterns, there are also samplers, such as *tambal*, sample-piece, and compositions. *Tambal* means patchwork, such as triangles, squares, or other shapes filled with various patterns from geometrical or non-geometrical patterns. Sample-piece is a catalogue of available patterns of a batik painter (the names of the patterns are mentioned in each field). Moreover, compositions is the new design patterns of geometrical or non-geometrical patterns that often originate with ostensible symmetry (Haake, 1989). Veldhuisen-Djajasoebarta in Haake

(1989) has said that the symbols on batik and their relative positions are regarded as a protection against evil influences. In the eighteenth century, a law is enacted that prohibited certain patterns for the public. This law is followed strictly until the Second World War.

According to Hann (1992), symmetry classification in the various cultural pattern would appear to offer the potential firstly as an indicator of cultural adherence, continuity, and change. Moreover, secondly, it is key to a further understanding of the nature of the process of cultural change itself. Based on Hardjonagoro in Haake (1989), it seems that symmetry elements reveal the principles of Javanese philosophy. It is striking to notice that even the symmetry of patterns with a tiny unit is carried out thoroughly over the whole cloth. Meditation is very common all over Asia since ancient times. Concentrating on the steady and neat repetition of a motif has a meditative effect on the creating person. The order of the pattern is transmitted to her spirit (Batik making is a female domain). Another reason for the repetition of a motif is the wish to multiply its power and transmit it to the wearer's batik cloth. In old court designs, one will not discover a hexagonal lattice. However, there are plenty of examples for the square, the rectangular (primitive or centered), and the oblique lattice. The majority of the 'inclining border' patterns follow symmetry (Haake, 1989).

Haake (1989) also mentions that the predominance of two and four-fold axes is a matter of the ancient Asian philosophy models 'Mancapat' (Mandala) and 'Dualism'. The latter has entered batik patterns in various forms beside the two-fold rotation axis. The model of Mancapat is a relic of the Hindu-Javanese era, which is ended by the entry of Islam x 1580A.D. However, it is still kept as an heirloom in the palaces and huts. Dualism is expressed in color change, the combination of Hindu symbols, and the symmetry elements two-fold axis and mirror line. The steady periodic repetition of a unit (translation) is proved to have meditative effects on the creator of a batik. Batik patterns, which are subject to foreign influences during the last century (see Pasisiran batiks), have no symbolic content. Instead of plane symmetry, they have at most band-symmetry. In Javanese batiks, loss of symmetry also means loss of symbolic content (Haake, 1989).

This fundamental symmetry element is very common in *semen* patterns. Pairs of other motifs are arranged on both sides of the line. Dualism means roughly the coexistence of opposites. The mirror is generating such coexistence. From the choice of patterns that have been determined, then the chosen batik pattern is applied to the characters' costumes in the game.

To represent Rhythmus's that persistent and honest protagonist's character, the researchers use a modified batik motif like Parang Bolodewo, which symbolizes a bold and courageous figure based on honesty. Another inspiration comes from Parang

Kreno Srimpet that symbolizes fortitude and tenacity in overcoming obstacles to achieve goals. The researchers also use Parang Tuding that illustrates the sharpness of mind and wisdom, as well as good examples (Pristiwati, 2009). The Rhythmus character after batik applied can be seen in Figure 6.

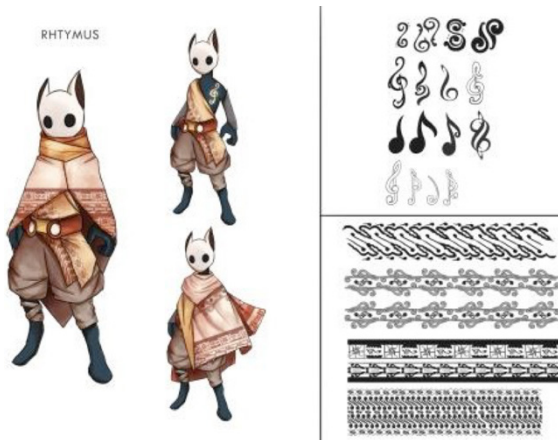


Figure 6 Character Rhythmus after Batik Applied (Source: Jehezkiel Christian Ray)

To represent Maestro's character, who has the leader characteristics, stubborn, bossy, and disciplined, the researchers use the modified Parang Barong motif as Wihardi, Pratikto, & Kristanty (2015) have said that this motif is a metaphor of waves in the ocean. It symbolizes a leader must be able to face various tests such as waves crashing against a cliff. This motif created by Sultan Agung Hanyakrakusuma symbolizes humility, wisdom, and responsibility as a leader. Besides Parang Barong, the motif used is also inspired by the Sidoluhur pattern that symbolizes reaching the highest position and being a role model for the people (Pristiwati, 2009). This character wears batik can be seen in Figure 7.

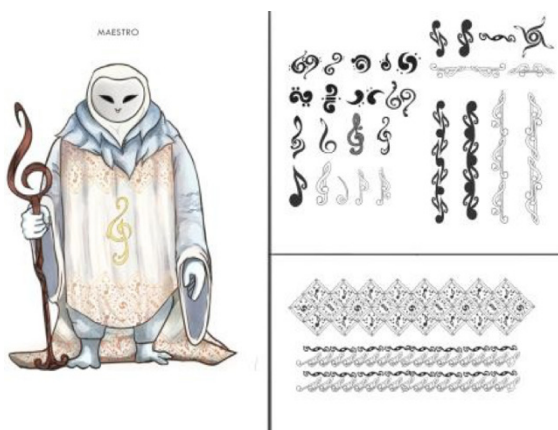


Figure 7 Character Maestro after Batik Applied (Source: Jehezkiel Christian Ray)

For the villain character of Tritonus, that is strong-willed, idealistic, forceful, manipulative, and revengeful, the researchers are inspired by Parang

Sonder's patterns that symbolize hope with a strong determination for one purpose. At the same time, the other motive that inspires is Parang Centung, which means the power of control (Pristiwati, 2009). It can be seen in Figure 8. Furthermore, Figure 9 shows the other characters after batik applied.

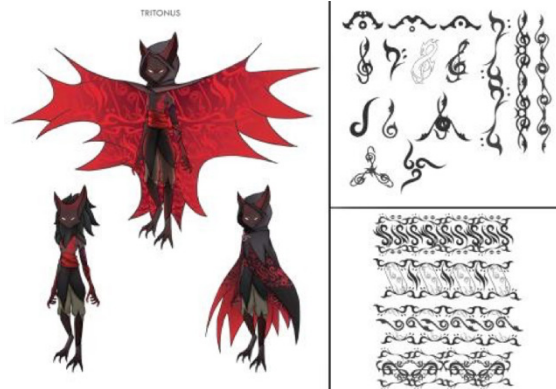


Figure 8 Character Tritonus after Batik Applied (Source: Jehezkiel Christian Ray)

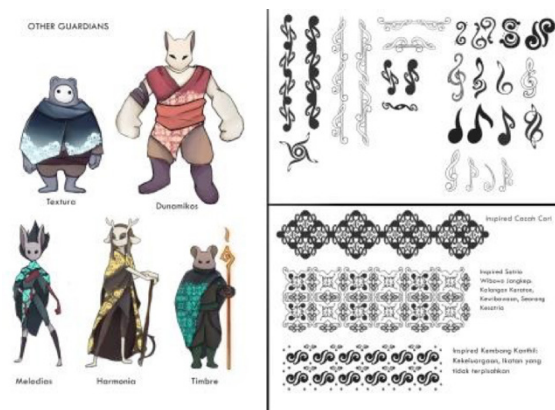


Figure 9 Other Character after Batik Applied (Source: Jehezkiel Christian Ray)

After getting the right choice, the next phase is making prototypes in the form of 3D characters that are built based on selected 2D images. Figure 10 shows the main characters in 3D rendered, while Figures 11-13 show each character in 3D rendered.

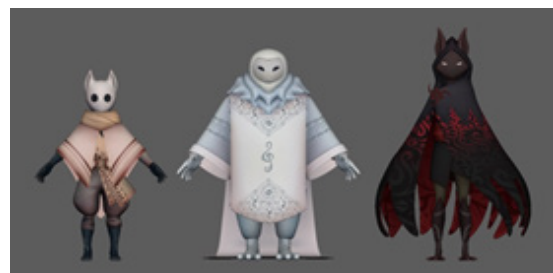


Figure 10 Main Character in 3D Rendered (Source: Jehezkiel Christian Ray)



Figure 11 Rhytmus Character in 3D Rendered
(Source: Jehezkiel Christian Ray)



Figure 12. Maestro Character in 3D Rendered
(Source: Jehezkiel Christian Ray)



Figure 13 Tritonus Character in 3D rendered
(Source: Jehezkiel Christian Ray)

CONCLUSIONS

Throughout the research process, the researchers get the results of implementing batik pattern in designing characters for intellectual property puzzle adventure game with interesting visuals. It is in order to support the introduction of music theory effectively and fun. Researchers use the design thinking approach in shaping all visual concepts by applying modified batik motifs that strengthen the differentiation and give moods and visuals in character design.

With the application of this batik pattern, the researchers are able to make interesting characters into an intellectual property puzzle adventure game as an interactive and effective media to introduce music theory that is considered boring to be interesting and enjoyable for musicians. This intellectual property game can also bring interest to people who are not musicians into the world of music to increase music appreciation. The data used can be developed, not only using the data contained in the research. It can utilize

other data that will support the next stage of the design method's process, the implementation.

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