

Ethnomathematics exploration in the *Mappacci* tradition of the Bugis ethnic group

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Received: 5 April 2024 | Revised: 22 April 2024 | Accepted: 6 May 2024 | Published: 16 May 2024
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Abstract

The incorporation of cultural elements into mathematics education has the potential to enhance learning outcomes. This investigation sought to identify and elucidate the mathematical concepts inherent in the *Mappacci* tradition of Bugis culture. Employing qualitative ethnography, the study discerned mathematical patterns within the ritualistic practices through a combination of observations, interviews, documentation, and literature review. Analysis of the gathered data involved qualitative methodologies including domain analysis, taxonomy analysis, componential analysis, and analysis of cultural themes. Findings revealed that the use of specific odd and even numbers, such as 1, 7, and 9, alongside those prominent in the *Pacci* presentation, conveys fundamental life principles such as perfection and integrity. Moreover, geometric forms like triangles and rectangles symbolize stability and essential virtues, reflecting the cyclical essence of life and providing spiritual guidance. The symbolic application of *Inai (Pacci)* leaves underscore's themes of unity and purification, reinforcing familial bonds. Furthermore, the adherence to numerical values like 30 and 3 in rituals reflects the influence of Islamic teachings, emphasizing the significance of triadic patterns in fostering religious and social cohesion. These cultural elements imbue both community and individual existence with profound ethical, spiritual, and cultural values, thereby enriching societal fabric.

Keywords: bugis, ethnography, ethnomathematics, *Mappacci* tradition, mathematics

Introduction

Indonesia boasts a rich tapestry of cultures, each imbued with unique wisdom and values derived from local traditions (Fatmawati, 2021). These traditions encompass a broad spectrum

of cultural expressions, ranging from elaborate ceremonies and vibrant festivals to intricate music, captivating dance forms, evocative art, diverse cuisines, enriching storytelling, and ingrained social norms (Fatmawati, 2021; Fuad et al., 2020). They play a pivotal role in both preserving and exalting the distinctive identities and heritages of the myriad ethnic groups scattered across the Indonesian archipelago. Spanning from Sabang to Merauke, this vast archipelago engenders a mosaic of cultural diversity, fostering an array of ethnicities. According to the 2020 census by the Central Statistics Agency, Indonesia is home to over 300 ethnic groups or 1,340 tribal communities. This cultural kaleidoscope manifests through a plethora of traditional houses, ceremonial practices, attire, dances, musical instruments and melodies, weaponry, and culinary delights, all of which are enriched by the country's profound cultural heterogeneity.

Culture encompasses the entirety of ideas, behaviors, and creations that constitute human life within a given society, transmitted through learning (Causadias, 2020). It encompasses a wide array of elements such as customs, etiquette, and ways of life. Particularly in Indonesia, cultural disparities are pronounced among various ethnic groups, with South Sulawesi serving as a prominent example of cultural richness. Within this region, numerous tribes and cultures thrive, among which the Bugis tribes stand out as renowned Indonesian ethnicities. The preserved cultural heritage of South Sulawesi serves as a testament to the reverence descendants hold for their ancestors, compelling them to safeguard and uphold these traditions (Sumiaty et al., 2023; Syarifuddin & Hasyim, 2022). These traditions, customs, and habits are deeply intertwined with community beliefs and rituals, collectively shaping the distinct culture of the region. South Sulawesi, renowned for its cultural diversity, boasts a wealth of traditional rituals and entertainment-focused cultural practices. It is home to four major ethnic groups the *Makassar*, *Bugis*, *Toraja*, *Mandar*, and *Luwu*—each characterized by unique lifestyles, including variations in marriage ceremonies (Juanda & Azis, 2022; Sumiaty et al., 2023).

Marriage serves as a cornerstone for establishing harmony, prosperity, and familial happiness (Agustiawan & Mutahhirah, 2023). Within the Bugis community, marriage holds profound cultural significance, representing a cherished heritage. The Bugis marriage system is intricately woven with customs and rituals, presenting one of the most elaborate frameworks encompassing pre-marriage, marriage, and post-marriage stages. Among these, *Mappacci*, also known as *Korongtigi*, stands out as a poignant pre-marriage ritual practiced by both Bugis and Makassar communities (Azis, 2021; Salam & Lapele, 2020).

The term "*Mappacci*" is commonly associated with a significant activity within the Bugis marriage customs (Azis, 2021). This tradition mandates that the bride and groom partake in *Mappacci* one day before their wedding ceremony. With roots tracing back generations prior to the introduction of Islam and Christianity to the Bugis community, *Mappacci* has been an enduring tradition (Azis, 2021; Isumarni et al., 2023). Passed down through the ages, it has become an integral part of Bugis marriage rituals, deeply ingrained in their cultural heritage (Idrus et al., 2023). *Mappacci* stands as a pivotal precursor to Bugis wedding festivities, comprising a series of rituals symbolizing the significance of maintaining familial unity and fostering enduring love within marriage (Azis, 2021).

In the discourse on education intertwined with culture, a fundamental aspect revolves around the incorporation of cultural content, a concept encapsulated by the integration of multicultural education within the curriculum (Silva, 2022). This entails addressing within the curriculum how to mitigate various prejudices inherent in the racial behaviors exhibited by specific ethnic groups and elucidating how these biases can manifest in educational materials (Costa et al., 2021; Gaias et al., 2022; Matsuda et al., 2020; Verkuyten et al., 2019). Consequently, delving into the diverse cultural backgrounds of various ethnic groups holds the potential to enhance the mathematical learning environment within educational modules.

Mathematics and culture share an intricate bond, forming two inseparable facets of human existence. Since its inception, mathematics has undergone dynamic evolution, seamlessly embedding itself into diverse dimensions of human life (Silva, 2022). This aligns with the notion that mathematics represents a cultural construct interwoven into every aspect of human existence (Gaias et al., 2022). Despite this intrinsic connection, prevalent in our societal fabric is the misconception that mathematics and culture exist as separate entities (Prahmana & D'Ambrosio, 2020; Revina & Leung, 2021). Nonetheless, communities have long been immersed in activities that inherently involve mathematical concepts, such as everyday counting practices (Mania & Alam, 2021).

In the realm of academic inquiry lies the discipline of "ethnomathematics," which serves as a conduit between mathematics and local culture, as described by Prahmana et al. (2021). This integration of ethnomathematics into both curriculum and pedagogy mirrors the ongoing advancements in mathematics education (Gaias et al., 2022; Prahmana et al., 2021). Ethnomathematics embodies an application of the contextual approach, which can be effectively amalgamated with the scientific approach to learning (Nur et al., 2021). Within the educational landscape, particularly within the framework of the 2013 curriculum, fostering ethical and moral values among adolescents stands as a primary objective (Idrus et al., 2023; Sumiaty et al., 2023). The cultivation of students' character is pivotal, as it not only shapes individual trajectories but also contributes to the collective character of the nation (Costa et al., 2021; Mania & Alam, 2021). The advancement of a nation hinges upon various factors, including the character of its populace, their cognitive abilities, the quality of their critical thinking, the effectiveness of their leadership, among others. By incorporating the ethnomathematics approach, educators aim to furnish both teachers and students with insights on how to cultivate students' conceptual and procedural mathematical knowledge, thereby enhancing their overall mathematics learning outcomes (Nur et al., 2021; Prahmana & D'Ambrosio, 2020).

Based on preliminary examination, the *Mappacci* tradition appears to embody positive meanings and values throughout its event procession, as well as in the tools and materials utilized, along with a consistent adherence to tradition. These aspects strongly suggest a potential correlation between the embedded meanings, values, and regularities within the tradition and mathematical objects. It is posited that these elements offer fertile ground for exploration, enabling the creation of realistic and contextually relevant mathematical materials rooted in the indigenous wisdom of the Bugis culture. Consequently, the primary objective of

this study is to discern and elucidate the mathematical components inherent in the *Mappacci* tradition of the Bugis cultural group residing in South Sulawesi, Indonesia.

Methods

In this study, ethnography was employed as the research method, adopting a qualitative approach. Ethnography, as described by Spradley & McCurdy (1980), is a research methodology focused on comprehensively documenting the culture of a specific community. The selection of ethnography aligns with the overarching objectives of ethnomathematics, which centers on investigating the concepts, methodologies, and techniques within a particular culture from the authentic standpoint of its members (Prahmana et al., 2021). By utilizing ethnography, this study aimed to delve deeply into the *Mappacci* tradition within the Bugis cultural group, capturing nuanced insights and understanding the intricate interplay between mathematical objects and cultural practices within this community.

The study was conducted within the Bone Regency, situated in the South Sulawesi Province, which serves as a representative setting for the Bugis ethnic group under investigation. The primary data sources for this research comprised participants or performers engaged in the *Mappacci-Korongtigi* tradition (including the wedding couple and their families), alongside local cultural experts specializing in *Mappacci* within the Bugis ethnic community.

Data collection encompassed multiple methodologies, including observation, interviews, documentation, and literature review. Firstly, observation served as a means to directly observe the *Mappacci* tradition's enactment, involving visits to the venues where the *Mappacci* events transpire, while refraining from active participation. This approach facilitated the observation of ritualistic processes and the identification of physical objects integral to the *Mappacci* performance. An observation guide sheet, outlining specific indicators relevant to the *Mappacci* tradition, guided these observational activities.

Secondly, unstructured interviews were conducted with local personalities and participants or organizers involved in the *Mappacci* events to glean essential insights. An interview guide sheet, tailored to capture pertinent aspects of the *Mappacci* tradition, guided these conversational exchanges. Thirdly, documentation played a vital role, contributing supporting data to the study. Documentation pertaining to the *Mappacci* tradition was examined, with a focus on detailed records essential for comprehensive data analysis. Photographs served as crucial documentary evidence, enabling researchers to connect the *Mappacci* tradition with the mathematical concepts and elements under scrutiny.

Lastly, a comprehensive literature review was conducted to delineate the study's focus and delve into the mathematical dimensions inherent within the *Mappacci* tradition. This review process aided in contextualizing the research within existing scholarly discourse while elucidating potential avenues for mathematical exploration within the cultural context of *Mappacci*.

Following data collection, the gathered information underwent qualitative analysis, incorporating various techniques such as domain analysis, taxonomy analysis, componential analysis, and cultural themes analysis, as outlined by Sugiyono (2022). In ensuring the scientific rigor of the qualitative study, researchers employed data validity techniques to assume accountability for the research outcomes. To validate the data, the triangulation method was utilized, as advocated by Christensen et al. (2015) and Creswell & Creswell (2023). This method involves testing and comparing data sourced from multiple avenues and observations. By employing the triangulation method, researchers aimed to ascertain the reliability of the data, scrutinizing it through diverse sources and observations. Data sources encompassed participant observation, in-depth interviews, documentation, and literature review. Subsequently, all analyzed data were meticulously documented in field notes for comprehensive record-keeping.

Results and Discussion

Drawing from the data gleaned through both observations and interviews, an extensive analysis was conducted utilizing domain analysis, taxonomy analysis, componential analysis, and cultural themes analysis. The outcomes of this analytical process spotlight the identification of fundamental mathematical concepts embedded within the *Mappacci* procession, alongside the discernment of positive values inherent in the *Mappacci* ritual.

Domain analysis facilitated the exploration of the overarching domain encompassing the *Mappacci* tradition, delineating its fundamental components and thematic elements. Taxonomy analysis enabled the categorization and classification of these components, shedding light on their hierarchical organization and interrelationships. Componential analysis delved deeper into dissecting the intricate components of the *Mappacci* tradition, identifying key mathematical elements interwoven within its fabric. Cultural themes analysis, on the other hand, unveiled the underlying cultural motifs and positive values imbued within the *Mappacci* process, elucidating its broader cultural significance and societal impact.

Overall, the results of this comprehensive data analysis not only illuminate the mathematical underpinnings of the *Mappacci* tradition but also underscore its role in fostering positive values within the Bugis cultural context. The general description of the stages of data analysis that have been carried out are:

Domain Analysis

In the initial phase of data processing for this study, the domain analysis focused on comprehensively examining the *Mappacci* cultural object as a traditional ritual signifying the commencement of the wedding ceremony among the Bugis people in South Sulawesi. Within the framework of ethnomathematics, this analysis delineated two distinct domains. Firstly, the domain of materials and equipment in the *Mappacci* procession encompassed various materials, tools, and equipment utilized throughout the *Mappacci* ritual. This involved an examination of

the physical elements employed in the procession, such as ceremonial attire, symbolic objects, and traditional instruments.

Secondly, the domain pertained to activities in the *Mappacci* procession corresponding to fundamental mathematical activities. This domain centered on identifying and analyzing the activities inherent within the *Mappacci* procession that correlate with fundamental mathematical concepts and operations. It involved scrutinizing the sequence of actions, rituals, and symbolic gestures enacted during the *Mappacci* ceremony to unveil their mathematical underpinnings and significance. By categorizing the ethnomathematics domain into these two distinct realms, the analysis sought to unravel the intricate interplay between cultural practices and mathematical concepts within the context of the *Mappacci* tradition among the Bugis community.

Taxonomy Analysis

In addition to the domain analysis, the findings of the ethnomathematics domain within the *Mappacci* procession underwent taxonomy analysis. This analytical approach involved categorizing and organizing the identified elements into two main categories. Firstly, the category focused on basic mathematical concepts contained in materials, equipment, and activities in the *Mappacci* procession. It aimed at identifying and categorizing the fundamental mathematical concepts inherent within the materials, equipment, and activities observed during the *Mappacci* ritual, dissecting various mathematical principles, operations, and relationships embedded within these elements. Secondly, the analysis centered on mathematical values contained in materials, equipment, and activities in the *Mappacci* procession. This category sought to elucidate and categorize the mathematical values encapsulated within the materials, equipment, and activities comprising the *Mappacci* procession, examining the symbolic significance, cultural interpretations, and societal implications of the mathematical elements present in the *Mappacci* ritual. By conducting taxonomy analysis based on these two dimensions, the study aimed to provide a structured framework for understanding the mathematical underpinnings and values inherent within the *Mappacci* tradition among the Bugis community, facilitating a deeper exploration of its cultural and mathematical significance within the broader context of ethnomathematics.

Componential Analysis

The ethnomathematics taxonomy within the *Mappacci* procession is further scrutinized, focusing on the components of *Mappacci* materials and equipment, as well as elements of *Mappacci* procession activities. The components of *Mappacci* materials and equipment identified as subjects of ethnomathematics studies in this investigation include: (1) Seven pieces of *Mappacci* hand mat silk gloves; (2) *Mappacci* hand mat pillow; (3) Jackfruit leaves and banana leaves; and (4) *Inai* leaf (*Pacci*). Meanwhile, the components or elements of the *Mappacci* procession activities identified as objects of ethnomathematics studies in this research are as follows: (1) *Mappasau Botting* and *Cemme Passih*; (2) *Khatammal* Qur'an; (3) *Mappacci*; and (4) *Scattering Wenno*. Through this detailed analysis, the study aims to unravel

the mathematical concepts and values embedded within these components and activities, contributing to a deeper understanding of the mathematical intricacies intertwined with the cultural significance of the *Mappacci* tradition among the Bugis community.

Cultural Themes Analysis

The ethnomathematics study of the *Mappacci* procession for the Bugis people in South Sulawesi reveals the presence of two primary cultural themes: rituals and wedding ceremonies.

The Fundamental Principles of Mathematics and the Numerical Values in Ethnomathematics Domains and Components in *Mappacci* Procession Materials and Equipment

Odd Numbers 1, 7, and 9

During the *Mappacci* process, the presence of odd numbers 1, 7, and 9 is conspicuous in the bride-to-be's handwear. The *Mappacci* hand mat, a significant piece of equipment in the ceremony, consists of a banana leaf serving as the base, adorned with nine jackfruit leaves, and enveloped by seven folds of a silk sarong. This arrangement reflects a deliberate incorporation of these specific odd numbers, symbolizing cultural significance and traditional values within the Bugis community as shown in [Figure 1](#).



Figure 1. Nine jackfruit leaves, one banana leaf, and seven folds of silk sarong for the *Mappacci* hand mat

In the *Mappacci* tradition of the Bugis tribe, the utilization of specific odd numbers carries profound symbolic meanings deeply ingrained in the values cherished by the Bugis community (Azis, 2021). The arrangement of nine jackfruit leaves atop a single banana leaf symbolically conveys the aspirations and life values envisioned for the bride and groom. The

pairing of the main prime number 1 with the number 9, representing the number of jackfruit leaves, holds significance as their sum yields 10, a symbol of completeness. This symbolic interpretation, derived from interviews, underscores the deliberate selection of odd numbers, with priority given to providing nine jackfruit leaves. This combination epitomizes the concept of life's perfection, as denoted by the pairing of odd numbers, reflecting the Bugis notion of "tepu," "pannoi," or "maggendingngi," signifying the spirit of life or victory. Additionally, the term "fortune" is employed to convey the idea of abundance or prosperity, encapsulating the Bugis ideals of ancestral reverence ("pengahapan") and honesty ("daung panasa"), which signify hope and realization of aspirations, respectively (Isumarni et al., 2023). The term "panasa," referring to jackfruit, mirrors the concept of hope, further emphasizing the symbolic depth and cultural significance embedded within the *Mappacci* procession of the Bugis tribe.

The seven pieces of silk sarong, known as *patuju* or *tujui* in Bugis culture, carry profound symbolic significance, conveying the aspiration for the bride and groom to consistently engage in righteous, beneficial, and virtuous actions (Faridah et al., 2019). The term "*sini-tujui*" encapsulates the notion that the couple should always strive to be right in their actions. Moreover, these seven layers of sarong symbolize the Bugis concept of Godliness, representing various attributes such as *lempu*, *adatongeng*, *tetteng*, *temmappasilaingeng*, *anyamengininnawangeng*, *alabong*, and *mekko*. Each layer signifies a peak of happiness, serving as a guiding principle for individuals aspiring to leadership roles, whether within the family or in governance. This symbolism extends to daily life, as the presence of these seven elements guides new families in navigating their journey together, ensuring righteousness and fulfillment in their daily endeavors.

Flat Triangles and Square Patterns

In the context of the *Mappacci* procession, the seven folds of silk sarong used as a hand mat exhibit triangular flat shape, as depicted in Figure 2. Traditional leaders strongly advocate for these seven pieces of silk sarong to be folded into triangular forms, specifically isosceles triangles. This adherence to triangular folding not only emphasizes geometric symmetry but also holds symbolic significance within the Bugis cultural context, underscoring the meticulous attention to tradition and cultural norms embedded within the *Mappacci* ritual.



Figure 2. Seven layers of silk sarong formed into an isosceles triangle

The utilization of a rectangular flat pattern in the pillow equipment holds significant symbolism during the *Mappacci* procession, as highlighted by Isumarni et al. (2023). This rectangular surface serves as the fundamental basis for the positioning of the hands of the bride and groom, marking an essential ritualistic gesture. It symbolizes the hope and aspirations for the future life journey of the newlywed couple. This symbolic representation underscores the importance placed on the foundation of their union and the auspicious beginnings of their married life.

In Figure 3, the rectangular flat pattern of the pillow equipment is visually depicted, emphasizing its central role in the *Mappacci* ceremony. The rectangular surface of the pillow serves as a poignant symbol, encapsulating the collective hopes and dreams vested in the couple as they embark on their marital journey. This symbolism reinforces the cultural significance and ceremonial importance attributed to the *Mappacci* tradition within the Bugis community.



Figure 3. *Mappacci* pillow base

The fundamental geometric property of a quadrilateral lies in its flat shape, characterized by four sides and four corner points. Within the context of the *Mappacci* tradition, the symbolic interpretation of the quadrilateral shape on the pillow surface is grounded in insights gleaned from interview data. This data underscores that the quadrilateral-shaped pillow surface, with its four sides known as "*sulapa eppa*," symbolizes the completeness of life emanating from the four cardinal directions: east, west, north, and south. Moreover, the presence of four corner points on the pillow signifies the four cornerstones of virtue deemed essential for navigating life successfully, as elucidated by Azis (2021) and Nuruddin & Nahar (2022). These cornerstones encompass *kabaraniang* (courage), *akkarungeng* (noble descent), *asugireng* (wealth), and *akkessingeng* (good looking/beauty), serving as guiding principles for individuals on their life journey within the Bugis cultural framework.

Rotational Transformation Pattern

The arrangement of nine jackfruit leaves on a single banana leaf shoot in a symmetrical circle constitutes a rotation pattern in geometric transformation, embodying a captivating symmetry reminiscent of shining sunlight. This rotational arrangement manifests in two layers: the bottom layer, comprising five jackfruit leaves arranged in a circular formation, and the top layer, consisting of four jackfruit leaves arranged similarly. Notably, symmetrical stalks composed of three jackfruit leaves adorn the left and right sides, enhancing the visual harmony of the pattern.

Beyond its geometric aesthetics, this rotational transformation pattern of nine terraced jackfruit leaves conveys profound mathematical values. It symbolizes the cyclical nature of life, wherein individuals experience highs and lows while perpetually radiating brightness for others, akin to the luminosity of the sun reflected in the circular arrangement of jackfruit leaves. This symbolism underscores the imperative for the married life of the bride and groom to be supported by two symmetrical pillars: harmonious human relationships and a devout relationship with the Almighty Creator, based on piety, to attain salvation in both worldly and spiritual realms (Idrus et al., 2023; Sumiaty et al., 2023). Thus, the geometric symbolism inherent in the *Mappacci* tradition imparts timeless wisdom about life's journey and the values essential for navigating its twists and turns with grace and purpose.

Bijection Functions: One-on-one Correspondence

The essence of the *Mappacci* procession hinges upon the presence of *Inai (Pacci)* leaves, as depicted in Figure 4, symbolizing a ritual of self-cleansing (*Mappacci*) preceding married life. As detailed by Isumarni et al. (2023), these leaves hold profound significance, signifying purification, and readiness for the marital journey. Prior to application on the palms of the bride and groom, the *Pacci* leaves undergo a meticulous preparation process. They are mashed and molded into small spheres, which are then reverently placed in a sacred container, meticulously arranged by the parents of the bride and groom, as elucidated by Azis (2021). The number of *Pacci* spheres is meticulously calibrated to match the count of family members, relatives, and select individuals invited to administer *Pacci* to the couple, ensuring each sphere corresponds to an authorized individual, as highlighted by Nuruddin & Nahar (2022).

This meticulous matching of *Pacci* spheres to invitees reflects the principle of one-to-one correspondence or bijective function, symbolizing the cardinality equality between the set of *Pacci* spheres and the set of family members designated to administer them. This mathematical concept underscores the precision and harmony inherent in the *Mappacci* tradition, ensuring that everyone invited to participate contributes meaningfully to the ceremonial proceedings. Thus, the equitable distribution of *Pacci* spheres embodies not only a symbolic gesture of purification but also a mathematical representation of familial unity and communal harmony within the Bugis cultural framework.



Figure 4. *Pacci Leaf (Inai)*

The utilization of *Pacci* leaves in the *Mappacci* tradition embodies positive mathematical values centered on the cleansing and purification of the hearts of the bride and groom, as emphasized by Isumarni et al. (2023). This symbolic purification process initiates with the cleansing of the hearts of family members and close relatives, aiming to dispel negative thoughts and animosities. The formation of *Pacci* balls, meticulously stored in a container, symbolizes harmony within both family and community life. This container assumes significance as a component of *Tudampenni* or *Pacci* night, complementing the ceremonial proceedings.

The correspondence between the set of *Pacci* balls and the set of family members designated as *Pacci* gives underscores the collective contribution of every family, whether local or distant, toward the establishment of a new family characterized by purity of heart and deed. This symbiotic relationship reinforces the family as a sacred space for communication and interaction, vital for preserving its integrity, as articulated by Rahima & Mardianti (2021). Thus, beyond its ceremonial significance, the *Mappacci* tradition exemplifies mathematical values that promote familial unity, communal harmony, and the cultivation of virtuous conduct, anchoring the Bugis cultural ethos in principles of purity and kinship.

Basic Mathematical Concepts and Mathematical Values in the Domain and Components of Ethnomathematics in the Fundamental Activity of the *Mappacci* Procession

The Use of Odd Numbers 3 in the Processions of *Mappasau Botting* and *Cemme Passih*, and Scattering *Wenno*

The *Mappasau botting* and *cemme passih* rituals mark the initial stages of the *Mappacci* tradition, as depicted in Figure 5. This ceremonial sequence typically spans three consecutive days leading up to the marriage contract day, as detailed by Saharuddin & Rahman (2021). Throughout these three days, the bride and groom participate in traditional treatments involving flower baths and the application of black powder, comprising a mixture of glutinous rice, tamarind, and lime. The *Mappasau botting* procession, central to these rituals, aims to ensure the bride and groom's self-care and preparation for their forthcoming union, enhancing their appearance for the auspicious occasion in the presence of their future spouse, relatives, and kin. This ritualistic treatment with *bedda lotong* (black powder) and bathing flowers serves as a symbolic gesture of purification and beautification.

The culmination of the *Mappasau botting* event is marked by the *Cemme Passih*, or flower bath ritual, designed to cleanse both body and spirit while invoking divine protection and guidance for the couple as they embark on the journey of married life (Saharuddin & Rahman, 2021). This concluding ritual underscores the significance of spiritual purity and divine blessings in navigating the challenges and joys of domestic life, setting the tone for the harmonious union and shared aspirations of the newlywed couple.



Figure 5. The *Cemme Passih*

At the conclusion of the *Mappacci* procession, following the application of *Pacci* on the palm of the bride-to-be, the *Pacci* giver performs a ritual of scattering *Wenno*, or fried rice, around the bride-to-be, as depicted in Figure 6. This ritualistic act symbolizes a gesture of goodwill and blessings for the bride-to-be as she embarks on her journey into married life. Each

Pacci giver participates in this tradition by scattering *wenno* three times, further enhancing the symbolic significance and collective well-wishes conveyed through this ceremonial gesture.



Figure 6. The process of scattering *wenno* three times to the bride-to-be

The significance of the odd number three in the *Mappasau Botting*, *Cemme Passih*, and *Wenno* scattering rituals reflects the deep-rooted religious values within the bride-to-be's family, particularly in adherence to Islamic teachings. As outlined by Abduova et al. (2023), families embracing Islamic beliefs prioritize performing actions in quantities of three, influenced by the teachings and recommendations of Prophet Muhammad, who serves as a revered model for Muslims. This emphasis on the number three extends to various aspects of daily life, including ablution rituals, eating customs, and expressions of respect and courtesy, symbolizing a profound reverence for religious teachings and traditions.

In the context of the *Wenno* scattering ritual, the symbolic significance of performing this act three times lies in the belief that prayers and well-wishes are most efficacious when offered an odd number of times. Each instance of scattering *Wenno* is accompanied by heartfelt prayers beseeching divine blessings and abundance for the bride and groom, as eloquently expressed by Jumino (2019). This ritualistic practice exemplifies the intersection of cultural traditions and religious beliefs, underscoring the harmonious integration of faith and cultural heritage within the *Mappacci* tradition.

Factors that Divide the Number 30 in the Qur'an *Khatammal* Procession

Khatammal Qur'an, depicted in Figure 7, signifies the culmination of the Qur'an recitation, typically conducted for the Muslim families of the bride and groom. This sacred procession involves a group of specially invited individuals who engage in the recitation of the Qur'an. Serving as a pivotal component of the ceremonial proceedings, *Khatammal* Qur'an embodies a ritual of self-purification undertaken following the completion of Qur'anic recitation. This solemn act holds profound significance within Islamic tradition, symbolizing a moment of spiritual culmination and renewal for the individuals involved, as they seek blessings and divine guidance for the journey ahead.



Figure 7. Recitation of Qur'an by the Bride-to-be

The *khatammal* Qur'an procession commences with the bride-to-be presenting two copies of the Qur'an for her own use, while another copy is handed over to the imam, as elucidated by Ulfah & Farid (2023). Guided by the imam, the procession initiates with the recitation of select surahs or verses from the Qur'an, followed by instructions for participants to conclude their recitation. The recitation typically encompasses 30 *juz*, with recommendations for varying numbers of participants, including 2, 3, 5, 6, 10, or 15 readers, each assigned a specific portion of the Qur'an to recite until completion.

In instances where there are fewer readers, each participant is allocated a larger portion of the Qur'an to recite, ensuring equitable distribution and completion of the sacred text. This symbolic act underscores the universal obligation for Muslims to uphold and cherish the teachings of the Qur'an, irrespective of life's circumstances, as emphasized by Sukar (2020). The imam's concluding remarks highlight the Qur'an's pivotal role as a guiding beacon for the impending family unit, urging its diligent study and contemplation to attain spiritual fulfillment and divine favor in both earthly life and the hereafter.

The Principle of Even Numbers in the *Mappacci* Procession

The central aspect of the *Mappacci* process revolves around the presentation of *Pacci* on the bride-to-be's palm, as depicted in Figure 8. This symbolic gesture signifies her purification and readiness for the transition into married life alongside her husband. To uphold the sanctity of this ritual, the Bugis community mandates that the *Pacci* be presented by members from both the bride and groom's families, as detailed by Isumarni et al. (2023). The number of couples invited to participate in this ceremony often corresponds to the social status of the families involved, with noble families typically expected to prepare 24 couples, although this expectation may vary.

An essential aspect of the ceremony involves ensuring an even distribution of *Pacci* grains in the container, given that each presenting couple contributes to this offering. For instance, if six married couples are providing *Pacci*, then 12 *Pacci* grains are offered. Similarly, if nine couples are involved, then 18 *Pacci* grains are provided, and so forth. Notably, the number of *Pacci* items offered remains even, reflecting the collective participation and unity of the presenting couples in bestowing blessings upon the bride-to-be as she embarks on her marital journey.



Figure 8. The process of placing the *Pacci* on both palms of the bride and groom

The *Mappacci* process, characterized by the ceremonial placement of *Pacci* on the palms of both the bride and groom by their respective families, carries profound symbolic significance, as elucidated by Azis (2021). It serves as a gesture of appreciation for the social standing of the relatives and families involved in the union, acknowledging their esteemed status within the community. Furthermore, this ritual underscores the collective responsibility shared by all family members and relatives towards ensuring the sanctity and purity of the newly formed family unit.

By participating in the *Mappacci* process, families affirm their commitment to upholding the integrity of the household and nurturing harmonious relationships within. The bride and groom, as the embodiment of this union, symbolize the completion of the family unit, charged with the responsibility of functioning as a cohesive entity and offering mutual support in navigating life's challenges. In essence, the *Mappacci* ritual encapsulates the communal ethos of shared responsibility and solidarity, reinforcing the bonds of kinship and underscoring the collective effort towards fostering a thriving and harmonious family dynamic.

Conclusion

The study delves into the intricate interplay of mathematical and symbolic concepts within the *Mappacci* procession, a revered traditional ritual of the Bugis tribe. Central to the examination are the profound implications of both odd and even numbers, geometric shapes, and bijective

functions incorporated throughout the ceremony. Notably, specific odd numbers such as 1, 7, and 9 are imbued with profound life values deeply cherished by the Bugis community.

An exemplification of this symbolism is found in the meticulous arrangement of the *Mappacci* hand mat, where nine jackfruit leaves, one banana leaf, and seven folds of silk sarong converge to convey notions of perfection, honesty, and hope. Moreover, geometric shapes like triangles and rectangles are strategically employed to symbolize stability and foundational virtues, offering a visual representation of life's cyclical nature and the illuminating influence of the sun.

The application of *Inai (Pacci)* leaves further accentuates the theme of unity and purification, with each sphere symbolizing a familial bond and a collective commitment to purity. Additionally, the use of even numbers during the presentation of *Pacci* underscores the societal significance and sanctity attributed to the impending marriage, further reinforcing familial ties and communal cohesion.

Moreover, the presence of specific numerical motifs, such as the number 30 in the *Khatammal* Qur'an procession and the number 3 in various rituals, serves to underscore the Bugis tribe's adherence to Islamic teachings and the paramount importance of triadic patterns in fostering religious and social harmony. In essence, these intricately woven elements collectively imbue the *Mappacci* procession with profound cultural richness, spiritual depth, and mathematical elegance, serving as a testament to the intricate tapestry of tradition and symbolism woven into the fabric of Bugis tribal heritage.

Acknowledgment

The authors are grateful to the Rector of Universitas Negeri Makassar for providing the necessary funding and resources. We would also like to thank the participants in this study for their cooperation and willingness to share their experiences.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript.

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