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Embodied Technology: The Hybrid Cultural Materiality of the Tempayan in Hulu Sembakung

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Abstract

Technology in anthropological inquiry is not understood merely as an instrumental device, but rather as embodied materiality relations, movements, and meanings sedimented within an object. Drawing on Martin Heidegger's notion of technology as enframing, this article explores the tempayan in the culture of the Hulu Sembakung community as a form of embodied technology enacted through ritual practices and social life. The tempayan emerges as a hybrid cultural materiality, the product of a historical synthesis between Chinese porcelain ceramics and local systems of meaning reproduced through ritual. Through the process of enframing, the tempayan is positioned as a ritual technology detached from the logic of its material origins, in contrast to the way porcelain is understood within Chinese culture. The Hulu Sembakung community engages in a process of revealing the tempayan through cultural rites that reinforce social cohesion, including within the context of cross-border relations. By employing a materiality-based approach across space and time, this article demonstrates how the mobility of the tempayan records historical networks and human movements that often diverge from the state's territorial logic. Such mobility of cultural materiality generates friction with state materiality—that is, the state's attempt to produce sovereignty through static territorial regulation. The findings of this article affirm that embodied cultural materiality, as exemplified by the tempayan in Hulu Sembakung, is capable of penetrating and unsettling the mythologised boundaries of sovereignty imposed by the state.

Keyword:

Technology, Enframing,
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1. Introduction

The natural morphology shapes movement pathways that often disrupt the static territorial boundaries of the state. This condition is experienced by the Hulu Sembakung community, located along the Indonesia–Malaysia border and connected through transnational river systems. The Pensiangan River from Malaysia, which flows into the Kuala Sungai Sembakung in Indonesia, cannot be dammed, making the restriction of population movement nearly impossible. In this

context, cross-border mobility becomes part of everyday life, and local residents continuously develop various strategies to circumvent administrative boundaries imposed by the state.

Residents of Hulu Sembakung devise diverse tactics to navigate boundaries that, in state regulations, are positioned as “sacred” and impermeable. The natural morphology supporting cross-border mobility not only facilitates physical movement but also unites ritual practices and cultural interactions. Through the ritual exchange of *tempayan*, the community forges kinship ties while simultaneously constructing social boundaries that operate beyond, and often in disregard of, state territorial limits.

Exchange practices among the Hulu Sembakung population are governed by a set of gifting principles, as articulated by Mauss (1992). Exchanged objects carry sacred value, with ownership passed down across generations. These sacred objects primarily include *tempayan*, gongs, and antique beads (*bungkas*). Their presence plays a crucial role in maintaining social integration within the community. Nonetheless, the presence of state borders often exerts a disintegrative effect, as the rules imposed have the potential to obstruct social relationships and constrain exchange practices that form the foundation of community cohesion.

Exchange practices among the Hulu Sembakung community are conducted according to the principles of gifting as articulated by Mauss (2002). Objects exchanged carry sacred value for local residents, and their ownership is transmitted across generations. These sacred objects primarily include *tempayan*, gongs, and antique beads (*bungkas*). Their presence plays a crucial role in maintaining social integration within the Hulu Sembakung community.

Administratively, the Sembakung River is located within Nunukan Regency, North Kalimantan. The river serves as the estuary of two main tributaries: the Sedalir River, flowing from the Tau Lumbis region in Indonesia, and the Pensiangan River, originating in Sabah, Malaysia. The confluence of these rivers forms the settlement of the Labang Village group, known as a borderland community. In addition to these two main rivers, several other large rivers—including the Sumalumung, Saludan, Samalad, Sumentobol, and Sulon Rivers—also flow into the Sembakung River, creating a water network that supports both mobility and social life for local communities.

According to local accounts, the ancestors of the Hulu Sembakung people once lived in communal stilt houses called *baloi aduat*. Each *baloi aduat* consisted of several *lamin*, or units, with each occupied by a single household. Within a *lamin*, there were no partitions, so nuclear families slept together in one space, while each *lamin* maintained its own kitchen. As new families formed, the number of *lamin* increased. In this context, one *baloi aduat* could be understood as a settlement unit equivalent to a village (*sampangun*). When the number of *lamin* became too large to manage, a new *baloi aduat* was typically established, marking the formation of a new *sampangun*.

In 1970, the government introduced a policy aimed at transforming the communal *baloi aduat* dwellings into single-household homes. However, despite houses being allocated for individual households, many residents of Hulu Sembakung continue to live with more than one household in a single house. Around 1982, the government issued another policy addressing the conditions of upstream river communities, whose members had to row for days to reach Mansalong to obtain food and clothing. Under this policy, the government distributed Johnson outboard engines with a capacity of 40 HP to upstream villages and 15 HP engines to downstream villages. However, only four units of the 40 HP engines were available, far short of the 28 upstream villages in need. Budgetary constraints prevented the provision of additional engines, leading the government to propose the consolidation of upstream villages into four groups to

facilitate shared use of the engines. These four groups are now known as Tau Lumbis, Panas, Sumentobol, and Labang Villages.

Generally, the residents of Hulu Sembakung rely on swidden farming to meet subsistence needs, cultivating cassava, vegetables, fruits, and upland rice. Beyond agricultural activities, men occasionally enter the forest to harvest agarwood (*Gonystylus macrophyllus*) or hunt wildlife such as hornbills (Bucerotidae) and pangolins (*Manis javanicus*) as supplementary sources of income. In addition to relying on natural resources, some residents earn income by serving as guides during Border Security Troop (Pamtas) patrols in Labang.

The main economic activities of Hulu Sembakung residents encompass several sectors: (a) swidden agriculture, (b) hunting and fishing, (c) agarwood collection, and (d) trade. Beyond these activities, a small number of residents have begun cultivating long-term commodities, such as rubber trees (*Hevea brasiliensis*), the harvest of which is sold in Tenom, Malaysia. Other forest resources, such as rattan (*Calamus trachycoleus*), are used to produce household items and work tools. Rattan is woven into mats (*mamatik and buduy*), a type of basket for carrying garden produce, typically made by women. Meanwhile, men produce other rattan tools, such as kalong, a container for carrying firewood, and bikut, a bag used by agarwood gatherers.

The smallest economic unit within the Hulu Sembakung community is the household, which is often occupied by more than one nuclear family. Within a single house, these families meet their food needs collectively. Domestic activities, such as gathering firewood, are generally carried out jointly by women to support a shared cooking hearth. Consumption patterns are also communal, characterised by shared meals within the household. Nevertheless, the head of each family retains economic autonomy over supplementary sources of income, such as proceeds from agarwood collection and trade activities, which are managed individually.

2. Literature Review

The *tempayan* constitutes a central element of material culture in the life cycle of the Hulu Sembakung community, North Kalimantan, extending to the Pensiangan region in Sabah, Malaysia. Although the *tempayan* does not originate from indigenous knowledge or materials, it undergoes a process of cultural appropriation, enabling it to function beyond its status as a utilitarian object. Within Heidegger's phenomenology of technology, as interpreted by Risse (2019), technology is not understood merely as a set of tools, but as an entity that shapes how humans live, relate, and perceive one another and the surrounding world. In this context, the *tempayan* emerges as an "embodied" technology, endowed with moral status through its association with ritual, values, and social relations among the Hulu Sembakung community.

Moreover, the *tempayan* undergoes a process of enframing as a hybrid technology. This interpretation aligns with Donna Haraway's (1991) notion of the hybrid creature in the concept of the cyborg, understood as both an intermediary entity and a medium that transcends rigid categorical boundaries. As a cultural material, the *tempayan* connects the inland communities of Hulu Sembakung with broader cosmopolitan networks through trade routes, ritual exchanges, and cross-border mobility. This process renders the *tempayan* not merely a foreign artefact adopted by the community, but a medium that shapes hybrid social subjects—borderland inhabitants living amid intersecting state boundaries, cultures, and value systems.

Latour and Woolgar's (1986) concept of the construction of a fact provides a relevant analytical framework for understanding the role of the *tempayan* in Hulu Sembakung society. From this perspective, a fact is not inherent in an object, but emerges from social construction processes that detach the object from its production context. Latour and Woolgar emphasise that attention should focus not on the material origin of an object, but on how it is stabilised as a hard fact through social

practices. Accordingly, Chinese ceramic material transformed into sacred *tempayan* in Hulu Sembakung can be understood as a particular concrete—a singular fact endowed with social meaning and authority through processes of construction. In line with this, de Abreu (2013) refers to this process as particular signification, in which an object is interpreted in a specific social context regardless of its production history.

Noboru Ishikawa, in *Between Frontiers: Negotiation and Identity* (2010), introduces the concept of the mental map and borders as liminal spaces. Drawing on Victor Turner's notion of liminality as "the liberation of human cognitive, affective, volitional, and creative capacities from normative constraints inherent to status sequences" (Turner, 2009; Ishikawa, 2010), Ishikawa regards borders as spaces where the relationship between state governmentality and individual agency becomes most visible. In these areas, everyday practices of local residents often reveal tensions between state logic and local social logic, generating anxiety within the state regarding the erosion of territorial authority. In other words, borders function as arenas where state sovereignty claims are continuously negotiated through the daily practices of inhabitants.

Within this framework, Ishikawa (2010) cites Migdal's (2004a) concept of the mental map as a semiotic problem rooted in the imagination of nationhood taught through official maps in schools. In such representations, areas beyond the official national boundary—often depicted as empty or white spaces—are constructed as "outside the state." However, the reality of Indonesia's borderlands shows that these boundaries are largely imaginary and a colonial legacy. This aligns with Schendel and Abraham's (2005) argument in *Spaces of Engagement: How Borderlands, Illegal Flows, and Territorial States Interlock*, which asserts that borders constitute overlapping spaces of legal and illegal flows. They distinguish between illegal flows from the state's perspective and illicit flows from the community's perspective. Movements perceived by the state as legal violations are often rationally understood by local communities as knowledge-based economic and social strategies, oriented toward commodity hubs and market opportunities.

The issue of "smuggling" commonly observed in borderlands resonates with Brenda Chalfin's (2010) analysis in *Toward an Anthropology of Neoliberal Sovereignty*, particularly in the chapter "Anthropology of the State: Marrying Ethnography and Political Economy." Chalfin demonstrates that smuggling practices in the Ghanaian borderlands cannot be understood solely as violations of law but are part of the configuration of neoliberal sovereignty, in which the state is not absent but present selectively and fragmentarily. Interactions between state "actors" and cross-border economic practices reveal a mutual dependency between territorial sovereignty logic and market dynamics. In this context, borderland practices illustrate what this study terms the interdependence of territorial sovereignty, where state authority does not operate absolutely but is negotiated through economic relations, material conditions, and actors operating within border spaces.

The issue of borders, therefore, cannot be separated from the ways in which the "modern state" (Verdery, 1996; Scott, 1998; Migdal, 2004a) perceives and manages landscapes through demarcation. This perspective, a legacy of colonialism, is referred to by Migdal (2004a) as the mental map—a territorial imagination that positions the state as a stable and closed spatial entity. Through formal education, such as the teaching of geography in schools, the public is encouraged to envision Indonesia as a cohesive space with rigid boundaries that align strictly with the territories of neighbouring states. In practice, however, this territorial imagination frequently clashes with the fluid, layered realities of borderlands, shaped by the mobility of people, goods, and cultural materials across borders.

Referring to Haraway's (1991) conception of the hybrid cyborg, such entities represent subjects in a state of continuous liminality, with social organisation tending toward fluidity and egalitarianism. Rigid social stratification and identity categorisation can, in fact, constrain the very human institutions they aim to structure. The gap this study seeks to address is the lack of empirical research framing borderland communities as hybrid and humanist subjects, whose scalar knowledge is formed through

cross-border lived experiences. Rather than reproducing myths of sovereignty and the simplification practices inherited from colonial legacies (Scott, 1998), state institutions should learn from the logic of the border zone. The state needs to create space for subaltern counterpublics, allowing discursive contestation to occur on a more equal footing with the dominant or representative public (Fraser, 1990), which, in the context of border communities, is typically centred within the core territory of the state.

The movements of the Hulu Sembakung community, legalised through contextual agreements, create alternative discursive spaces within practices of nationhood and statehood. These spaces do not exist in formal institutional forms of the state but emerge through socially negotiated practices at the local level. In her critique of Habermas's normative ideal of the public sphere, Fraser (1990) emphasises that the presence of the state can, in fact, perpetuate inequality when the public sphere is reduced to a singular and homogeneous entity. In contrast, social reality demonstrates the existence of multiple publics, or subaltern counterpublics, arising from differing experiential contexts. In Hulu Sembakung, cross-border practices, including the movement of people and goods, can be understood as a matter of concern—a discursive arena in which claims of citizenship, legality, and sovereignty are situationally negotiated.

3. Method

This study employs a digital spatial observation approach to the Hulu Sembakung community as its research focus. The author's relationship with the community was established during previous ethnographic research and has continued to the present through social media, particularly Facebook, which serves as the primary medium for interaction and information exchange. Through this platform, the author routinely observes posts, conversations, and forms of digital interaction among community members who previously acted as informants in earlier ethnographic studies (Hastuti, 2014). The continuity of social relations and the author's engagement within this digital space allow for the observation of social practices, everyday narratives, and cross-border dynamics mediated digitally. Methodologically, therefore, this research is positioned as a digital ethnography of a borderland community.

Within the interpretive anthropology framework, this study draws on the imperative of doing ethnography as articulated by Geertz in *The Interpretation of Cultures* (1973), which emphasises the importance of producing a thick description—an in-depth account that not only records what is done but also how and why social actors interpret their actions. Geertz (1973) stresses that doing ethnography is a complex endeavour, as the researcher does not merely categorise data but also captures behavioural patterns across time. In the context of digital ethnography, this requires the researcher's reflective capacity to read traces of interaction, symbols, and narratives that emerge temporally in the online space. Consequently, the research process involves practices of thinking and reflecting as well as the thinning of thoughts (Ryle in Geertz, 1973), to interpret the social meanings articulated through the community's digital practices.

Within the digital space, the author explores social practices according to the same principles as direct fieldwork. Entering the digital fieldwork environment, the author positions themselves simultaneously as both observer and observed participant (Cassell, 1980)—a stance in which the researcher not only observes the behaviour of research subjects online but also becomes part of the interactions being studied. In this context, the relationship between the author and research subjects is reciprocal: the author observes the community's online activity, while the subjects also monitor and respond to the author's presence. The interactions that unfold in this digital space occur on a relatively equal basis, thereby enabling a more dialogical and reflective exchange of meanings.

Although conducted within digital spaces, this study employs a multi-sited ethnographic strategy. Drawing on George E. Marcus's (1995) methodological conception, multi-sited ethnography requires the researcher to follow networks of relationships, objects, and narratives that extend beyond a single location. Marcus proposes six main strategies for conducting multi-sited ethnography: (1) follow the people, (2) follow the thing, (3) follow the metaphor, (4) follow the plot, story, or allegory, (5) follow the life or biography, and (6) follow the conflict. These principles are operationalised in the digital field by tracing the connections between accounts, narratives, and material objects emerging through online interactions. Practically, the research begins with a single Facebook account as the initial key informant, which then leads the author to observe other informants and the wider social network within the digital space. 17

The implementation of multi-sited ethnography in this study allows for the exploration of Actor-Network Theory (ANT) as developed by Latour (2017) to uncover nodes of materiality that shape social relations. Within the materiality approach, the *tempayan* is not treated merely as a figurative representational medium but as a non-human actor actively engaged in networks of social relations. Consequently, the analysis does not seek a singular symbolic meaning, but traces how relations between humans, objects, rituals, and territorial boundaries are interconnected and form networks. To achieve this, the author applies what Latour (2005) terms flattening, an effort to level analytical hierarchies in order to restore the complexity of social phenomena without preemptively privileging any particular actor.

4. Result and Discussion

The *tempayan* is a material artefact rooted in Chinese ceramic traditions, particularly porcelain. Referring to Finlay in *The Pilgrim Art: The Culture of Porcelain in World History* (1998), porcelain is understood as a "central symbol of Chinese culture," an artefact that accompanied the mobility of Chinese people and reached diverse regions where cross-cultural interactions occurred. Chinese porcelain captivated communities across the world and became an important medium for both material and symbolic exchange. As noted by Orlina and Stroeber (2016), Chinese ceramics, gold, and silver were distributed by merchants via the Maritime Silk Route from the late Tang Dynasty (8th–10th centuries) to the Nusantara region as part of exchanges for natural commodities. In this context, local communities were not merely passive recipients but actively adopted, adapted, and repositioned the craftsmanship and its functions within their own cultural repertoire.

Within these interaction trajectories, the *tempayan* manifests as an artefact whose meanings are translated according to local socio-cultural contexts. In the Agabag community of inland North Kalimantan, the *tempayan* is not merely a utilitarian object but a material that performs cohesive functions within collective life. Inland communities of North Kalimantan and into Sarawak have long known the production of earthenware and melting bowls used for gold panning. Unlike ceramic production traditions in royal or aristocratic patronage contexts, local pottery was not oriented toward producing "high-quality ceramics" in the elitist aesthetic sense. Therefore, Chinese artisans did not intensively transfer glazing techniques to the Kalimantan communities. This difference in production orientation underscores that the *tempayan* does not appear as a direct continuation of Chinese porcelain traditions but as an artefact rearticulated within the local material ecology.

Finlay (1998) notes that as early as the Han period, Chinese traders sailed to Kalimantan to exchange ceramics and other commodities for pearls, gold, iron, camphor, hornbills, agarwood, and bird's nests, which held high value in elite consumption. In this study, the distribution map cited from *The Pilgrim Art: Porcelain Culture in World History* (Finlay, 1998) is presented not

merely as a historical illustration but as an analytical device to show how porcelain culture circulated and networked across Asia. This network enabled the *tempayan* to traverse space and time, while also opening a space for the transformation of meaning and function when the artefact encountered the social practices of borderland communities, such as those in Hulu Sembakung.



Figure 1. Map of the distribution of Chinese porcelain material
(Source: Finlay, 1998)

In northern Borneo, the pottery industry began to be introduced more systematically in the mid-19th century, coinciding with the arrival of Chinese immigrant artisans in Sarawak, who established commercial-scale production operations to meet local market demand. Skilled pottery artisans migrating to Kalimantan were predominantly from the Teochew group, particularly from the Fujian region (Fukkien), China. They had previously mastered pottery craftsmanship through experience in kilns in their place of origin before sailing to the region they referred to as the “Southern Seas” (Nanyang) in search of economic opportunities and social mobility.

Some of these artisans settled permanently in Sarawak and established family-based pottery businesses. Pottery production skills were then transmitted genealogically—from fathers to sons or nephews—and continued across generations. This pattern of transmission demonstrates how technological knowledge and craft skills not only moved geographically but also became institutionalised within kinship structures. To this day, pottery makers in Sarawak are almost entirely Teochew, traceable as direct descendants of the pioneers of the pottery industry. This fact underscores that the materiality of pottery in northern Borneo is the product of a historical network of migration, technology transfer, and local adaptation, rather than merely a static artefact of a single cultural tradition.



Figure 2. Ngee Pottery Factory, Kuching, Sarawak, Malaysia
(Source: www.facebook.com/BorneoOracle/)

Pottery production in Sarawak demonstrates significant local adaptation, both in terms of materials used and its social functions. The materials employed in pottery-making were adjusted to locally available resources, resulting in technical modifications that differ from classical Chinese porcelain. Functionally, local pottery was not positioned as prestigious artefacts, as antique Chinese porcelain was in its place of origin, but rather as utilitarian objects that carried cultural and symbolic value in everyday life.

Although locally produced jars were not perceived as equivalent to high-value imported antique jars, the existence of a local pottery industry carved out its own market niche by offering products at more accessible prices. As noted on the Borneo Oracle website, it is common to find jars and decorative plates inside longhouses; although not antique imports, they were still highly valued and interpreted by their owners as markers of status, memory, and social relationships. Therefore, the value of the *tempayan* is determined not solely by age or provenance, but by the cultural signification processes attached to it.

Locally manufactured *tempayan*, including smaller jars used among the Agabag community, are commonly incorporated into dowries. In addition, new jars also serve as containers for storing and consuming local alcoholic beverages, such as *tapai*. While the symbolic value of local *tempayan* is not as elevated as Chinese porcelain within Chinese cultural traditions, its use remains within a similar functional spectrum, namely as drinking vessels. In this context, the *tempayan* is not understood merely as a material object but as an artefact whose meaning is continually reinterpreted according to local social needs and cultural practices.

In ritual and cosmological dimensions, the *tempayan* attains a far more sacred significance when used as a burial container among the Agabag people. Couderc and Sillander (2012), in *Ancestors in Bornean Societies: Death, Transformation, and Social Eternity*, explain that heirloom jars function as sacred vessels representing deep respect for ancestors. In this framework, death is not understood as an end but as a process of transformation toward social eternity. Accordingly, funeral rites do not conclude with the placement of the deceased into the jar but continue through a series of complex ritual proceedings. These rituals include the sacrifice of buffaloes, the presentation of heirloom jars, hunted animals, and specific monetary offerings, delivered from the male lineage to the female lineage. This sequence of practices emphasises that the *tempayan* functions as a material node connecting inter-lineage relations, ancestral

cosmology, and ritual economy, while also demonstrating how the meanings of this hybrid artefact are continually reproduced through the social practices of the Agabag community.

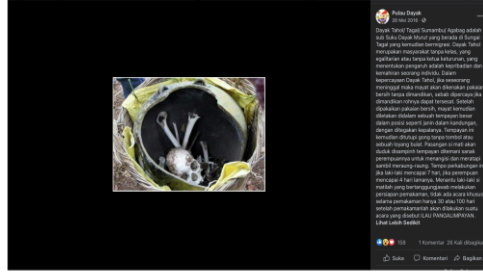


Figure 3. Human skull within a *tempayan*
(Source: www.facebook.com/PulauDayak/)

Within the cross-regional commodity exchange network, the Tidung people play a key role as mediators, enabling *tempayan* to reach the Agabag communities in the interior, which geographically lack direct access to coastal areas. Historically, the Tidung have dominated the coastal regions of Tarakan and Nunukan, positioning them strategically as intermediaries between maritime and inland trade. Okushima (2003), in *Tidung Ethnic Background: Investigation of the Coastal Rulers of North East Kalimantan*, notes that the Tidung inherited territories long situated within “contested zones” of overlapping sovereignties, ranging from British influence via the Sultanate of Sulu to Dutch colonial expansion from Kutai. Within this historical dynamic, the Tidung not only survived but consolidated their position as central actors in the trade and distribution networks supplying interior communities, including the Agabag.

This intermediary role renders the *tempayan* more than a transferable commodity; it becomes part of a chain of social, economic, and symbolic relations. The *tempayan* emerges as an artefact shaped by trajectories of power, trade, and cross-border mobility. In this context, as noted in the conceptual framework, the *tempayan* can be understood as an embodied technology within a Heideggerian phenomenological perspective. Drawing on Risse’s (2019) interpretation, Heideggerian technology is not merely a set of tools but a process of enframing (Gestell), an instrumental mode that actively shapes how humans live, relate, and interpret the world.

As a technological medium, the *tempayan* functions not only as a material intermediary but also as an agent shaping the lifeways of the communities that employ it. Through the process of enframing, the *tempayan* releases itself from its original material composition and production context, emerging as an entity endowed with social and moral significance. As Heidegger (1982) emphasises, technology is a way of revealing—a mode through which the world is disclosed to humans. In this sense, the attachment of the Hulu Sembakung community to the *tempayan* produces not only specific cultural practices but also ethical orientations, interhuman relations, and connections to ancestors and the cosmos.

Thus, the *tempayan* as a component of material culture has become profoundly embodied in the life cycle of the Hulu Sembakung communities, spanning North Kalimantan to Pensiangan, Sabah, Malaysia. Although the *tempayan* does not originate from indigenous materials or knowledge, and is not merely understood as a technical device, it emerges as a Heideggerian technology: an artefact that “shapes the way we live and how we perceive fellow humans and other entities in the world” (Risse, 2019), while simultaneously acquiring moral status within the social order of borderland communities.

Objects produced through the barter of Bornean forest commodities—mediated by the Tidung since the 14th century—have linked the Hulu Sembakung community to Chinese trade networks. While the objects and their constituent materials are similar, the essence of the *tempayan* undergoes a distinct process of enframing (Heidegger, 1982) when it enters the lifeworld of the Hulu Sembakung, compared to its significance in the production and exchange context of Chinese merchants. Following Heidegger (1982), the Hulu Sembakung's way of revealing transforms the material technology of the *tempayan* into sacred cultural objects. Its presence subsequently shapes the community's way of life, emerging as a hybrid material culture that binds communities across river and national borders.

Unlike the rigid, territorial logic of modern state administrative boundaries, the Hulu Sembakung's way of life, intertwined with the moral status of the *tempayan*, manifests as bricolage (Lévi-Strauss in Haraway, 1991). In practice, residents creatively reinterpret material technology to meet their cultural needs. The *tempayan* is not positioned solely as a utilitarian artefact but as a sacred object serving as a medium for social cohesion and as a binding element in inter-individual and intergenerational relations.

In this sense, the *tempayan* is enframed by the community as a hybrid technology. Drawing on Donna Haraway's (1991) concept of the hybrid creature in the cyborg framework as a medium of liberation, the *tempayan* integrates the Hulu Sembakung interior communities into cosmopolitan networks without severing their local rootedness. The borderland population thus emerges as a hybrid social entity, living amidst riverine routes, state boundaries, and interwoven regimes of meaning.

Interestingly, this condition originates from a mechanism that, from a Marxian perspective, can be understood as the role of the fetish in commodity exchange: forest commodities are traded for foreign objects that initially hold no cultural significance for the local community. However, humans—both individually and collectively—possess the capacity to enact a rhetoric of indeterminacy. While de Abreu (2013) identifies this logic in the context of the temporal medium of threat, this study interprets it as a form of creative indeterminacy arising from the encounter between communities and foreign material technology.

It was never imagined by the *tempayan* makers or by the cultural collective in which this artefact was produced that the object would one day function as a burial vessel containing an intact human body without cremation, positioned in a crouching posture to fit its material confines. Similarly, the *tempayan* plays a crucial role for young couples in Hulu Sembakung to legitimise sexual relations in accordance with customary law. Thus, ceramics that initially emerged as material technology within Chinese trade networks have become inherent to the life cycle of the community, embodied in practices of birth, marriage, and death, ultimately shaping a cohesive cultural system.

The movements of Hulu Sembakung communities, legalised through contextual agreements—in the sense of licit (Schendel & Abraham, 2005)—create alternative discursive spaces in the practice of nationhood and statehood. These spaces are not fully subject to the legal-formal logic of the state but operate through situational social negotiation. In her critique of Habermas' normative ideal of the Public Sphere, Nancy Fraser (1990) emphasises that the presence of the state may perpetuate inequality when only a singular, homogeneous public sphere is recognised. In the borderland context, the discursive practices of Hulu Sembakung residents reveal the existence of multiple publics operating as matters of concern, rather than merely matters of fact.

To explicate the causal logic underlying the dynamics of *tempayan* movement, it is crucial to differentiate between the "spirit" and the "matter" reified in the material artefact. The

movement of material artefacts does not solely generate dyadic causal relations but entails indeterminacy and contingency. Within the framework of Peircean semiotics, as interpreted by Keane (2003), this dimension is understood as Thirdness—a realm of possibility that enables actions and meanings that cannot be fully predicted. Accordingly, a strictly Saussurean semiology, which emphasises only the sign–signified relation, is insufficient for understanding the dynamics of materiality in Hulu Sembakung. In contrast, Peirce’s triadic semiotics provides a more adequate analytical tool to accommodate the relations among sign, object, and interpretant, while opening a spectrum of possible actions generated through material movement.

Referring to Haraway (1991), this condition allows the residents of Hulu Sembakung to be understood as hybrid humans, metaphorically framed as cyborgs. This metaphor becomes increasingly relevant in the era of social media, where previously peripheral border experiences now resonate even in the political and administrative centres of the state. The concept of the hybrid-cyborg human represents a social entity perpetually situated in a liminal condition, with social organisation tending toward egalitarianism. Rigid social stratification, conversely, risks constraining the social structures that have been consolidated within borderland life. Therefore, the key question posed in this article is how the state positions entities in the border-zone, explored here through a synthesis of Peirce’s triadic semiotics and Latour’s Actor–Network Theory.

To explicate the causal logic underlying the movement of the *Tempayan*, it is crucial to distinguish between “spirit” and “matter” reified in the material artefact. The movement of the *Tempayan* material artefact does not merely produce dyadic causal relations but also entails indeterminacy and contingency. Within the framework of Peircean semiotics, as interpreted by Keane (2003), this dimension is understood as Thirdness. Thirdness encompasses the logic of signification, revealing the inherent vulnerability of material artefacts to causal relations, such that the *Tempayan* is not reducible to a static object but is a socially active and processual entity.

The materiality of signification operates not only at the level of sign interpretation by subjects but also generates and transforms modalities of action and subjectivity. Consequently, within triadic semiotics, the relation between sign and object does not stop at iconicity and indexicality. The presence of Thirdness enables symbolic–ontological relations, explaining how meaning operates through causal logic that is open-ended and prospective.

Thirdness mediates the relationship between sign and object into the realms of potentiality and futurity. While iconicity is limited to resemblance without certainty of actuality, and indexicality is tied to past occurrences, Thirdness provides a space in which the vulnerability of causal relations can be continuously negotiated. In this sense, semiotic ideology is not merely about signs but also concerns agentive subjects and their relations to world objects, producing what Peirce describes as a general law governing possible instances. This general law manifests through quali-signs inherent in the particular material, bundled with other qualities.

The *Tempayan* becomes a particular material bundled with nodes of customary rituals that traverse rivers and national borders. Keane (2003) refers to this condition as bundling, aligning with Kopytoff’s concept of conditions of possibility and Appadurai’s notion of the biography of things. In this context, the *Tempayan* acquires a sensuous quality, as the quali-signs associated with it continually shift in relative value, utility, and relevance across social contexts.

This sensuous quality is also evident in the presence of the state at the border, which produces distinctive materialities through a combination of regional development projects framed as “isolated” and nationalistic imaginaries of Indonesian-ness. Noboru Ishikawa (2010), citing Migdal, refers to this construction as a mental map that shapes the way the state perceives the border as a liminal space. Such imaginaries generate perceptions of border vulnerability to

annexation and frame borderlands as empty spaces requiring security. Representations of Indonesia's borders in maps—often depicted in white, as critiqued by Migdal (2004a)—constitute a semiotic problem embedded since formal geography education, shaping the subconscious of citizenship in interpreting national boundaries.

The concept of state image functions to represent the integration of state, society, and territory as a single sovereign entity. In borderland contexts, the state has a strategic interest in establishing clear demarcation lines to assert territorial sovereignty, both internally and externally, including for recognition in international affairs. Therefore, the state image demands representations of homogeneity—where the state, its population, and interests appear aligned. However, such representations often create epistemological problems, especially when they co-opt social science methodologies. Schendel and Abraham (2005) refer to this condition as methodological territorialism, which traps borderland analysis within embedded statism and the territorial trap, as if the state were always the sole legitimate frame of reference.

The laws that apply in border regions generally derive from central authorities and frequently inherit colonial-era logic. Indonesia, despite independence, has not fully shed this legacy. Migdal (2004a) terms these inherited cognitive constructions as mental maps, instilled since primary education through geography lessons, where the national territory is visualised as a coherent entity bounded by land and sea, while areas outside the state are represented as blank spaces. Within the framework of formal state law, peripheral territories—particularly borderlands—are reduced to symbols of sovereignty that must be guarded, monitored, and controlled.

Borderlands become sacralised spaces because they intersect directly with sovereignty contestations. In *The Art of Not Being Governed*, Scott (2009) demonstrates how the state seeks to assert power not only over territorial spaces but also over the inhabitants of peripheral regions, given the political value at stake, especially in relation to other states. The state, in this framework, is often constructed as a monomorphic entity (Thelen et al., 2014). As Scott (1998) further elaborates in *Seeing Like a State*, the modern state tends to standardise, regulate, and surveil populations. However, these efforts frequently confront a fluid social reality, particularly in borderlands, where local practices exceed and relativise formal administrative boundaries.

The state's interest in homogenising its population is implemented through formal legal frameworks and administrative apparatuses. However, as Scott (1998) argues in *Seeing Like a State*, state law and policy simultaneously produce what he terms legibility—an effort to render society “readable” and administrable by the state. This process of legibility operates through various forms of simplification of social reality, which in practice is complex, heterogeneous, and context-dependent. Such simplifications often generate new problems because many dimensions of social life are overlooked and cannot be fully accommodated within formal state law. Consequently, the logic of modern state governance frequently confronts its own limitations when attempting to translate social complexity into uniform administrative categories.

Scott's (1998) notion of state simplification entails at least two analytical spectra of caution. On one hand, there is the potential co-optation of a state-centred perspective, following Max Weber and structural Marxism, which relies on a nomothetic theory of power and views the state as a relatively autonomous organic entity. On the other hand, Scott's approach risks falling into a society-centred orientation, akin to Karl Marx, which interprets society as a structure of values and norms moving toward harmony or equilibrium. In reality, however, social structures are never fixed; values and norms exist within arenas of contestation, negotiated by actors within dynamic socio-cultural contexts. Therefore, analyses of the state and society must be situated in a dialectical relation that acknowledges tension, uncertainty, and conflict as inherent conditions.

In the Indonesian context, the shift from feudal governance systems to the modern state has introduced a series of challenges in governance practices. The primary challenge for the modern state is not merely to discipline subjects but to guide them to be governed through mechanisms of consent. Tania Li (2012) refers to this process as the conduct of conduct, which involves shaping subjects to actively recognise, accept, and endorse the consensus of governance. This logic is also relevant for understanding borderland societies, as will be elaborated in subsequent sections. Subjective awareness and agreement with the governance consensus are central to modern statecraft. Whereas in feudal governance the primary goal was sovereign rule—based on coercion and compliance—in the modern art of government, the objective is the management of populations that produces aggregates of autonomous, rational, and reflective subjects. Within this framework, society is never passive; rather, it actively responds to, negotiates, and even diverts the practices of state governance.

Nonetheless, semiotic issues lead the state to maintain a strong interest in ensuring that ideas of “nationalism” are preserved among borderland communities. This interest is realised through various development projects that introduce state-specific materialities in border regions—from the Garuda Monument, PLBN offices, and border posts (Pos Pamtas) to cross-border tourism initiatives. These materialities are not merely functional; they operate as moral and symbolic representations of what Li (2007) terms state governmentality. In this context, a triadic relation (Peirce in Keane, 2003) emerges among local ritual practices, borderland communities, and state instruments, wherein the meaning of nationalism is produced, negotiated, and interpreted situationally.

The temporal migration activities of Hulu Sembakung residents are marked by the movement of *Tempayan*—ritual artefacts that also signify social relations. Inter-village alliances established through cross-regional marriages tie Hulu Sembakung inhabitants into kinship networks stretching along the riverine corridors toward the upper reaches known as Sungai Sedalid and Pensiangan, Sabah, Malaysia. These kinship networks constitute social boundaries that traverse formal state borders and are continuously reproduced through the life-cycle rituals of *Tempayan* exchange (Hastuti, 2014). At the same time, these practices frequently encounter friction arising from the multiplicity of state governance schemes operating in the borderlands.

The Sembakung River, which cuts across the state border, serves as a natural morphological materiality and the main medium for population movement, simultaneously uniting residents through ritual interactions. In this context, *Tempayan*, as a sacred object, is present in bundled co-presence with the riverine pathways, population mobility, and the presence of state actors in the border region. The transposition of *Tempayan*, which is always accompanied by its surrounding material contexts, becomes a crucial element for maintaining social integration among Hulu Sembakung villages, as well as a medium for articulating cross-border identities.

Within the arena of ritual practices, *Tempayan* functions as an actant that catalyses discursive actions among actors embedded in cross-border social networks. Hulu Sembakung thus becomes a space animated by nodes of tension and controversy, stemming from the discourse of state sovereignty that continuously clashes with local ritual practices. These tensions and frictions can be understood through Anna Tsing’s (2005) metaphor of friction, which describes how local relations are always connected to, and collide with, global logics. In the framework of Actor-Network Theory (ANT), friction constitutes the core of network dynamics—nodes marking the entanglement of heterogeneous entities that interact and confront one another (Keane, 2003). Through *Tempayan* exchange rituals, borderland

communities not only forge kinship ties but also construct social boundaries that simultaneously produce and sharpen tensions with state governance practices.

5. Conclusion

Understanding technology in the context of Hulu Sembakung entails apprehending materiality—that is, the movement, relations, and capacities embodied within hybrid cultural objects such as *Tempayan*. This perspective serves as a point of departure for analysing and reinterpreting the nodes of borderland realities through a lens that does not treat cultural materials as passive entities, but rather as relational media mediating social practices, ritual life, and state governance. Consequently, borderland communities should not be conceptualised within a singular, homogeneous space, but as part of intersecting multi-sphere publics. Within this framework, the voices of subaltern actors in borderlands need to be amplified and granted equal opportunity to enter public spheres (Warner, 2005), allowing the issues they face to be articulated as common concerns at the level of the national centre.

Drawing on the multi-sited ethnographic principles proposed by Marcus (1995), the genealogical tracing of historical conflicts and the examination of negotiated economic, social, and cultural interactions—conducted through the principle of playing the same game (Barth, 1969)—provides an argumentative basis for understanding cross-ethnic alliances forged by borderland residents in asserting claims over their inhabited lands. In this context, *Tempayan* emerges as a hybrid cultural technology that has become deeply embodied in the lives of Hulu Sembakung communities, simultaneously serving as a symbol of social alliance networks that positioned them as cosmopolitan subjects long before the imposition of modern state borders. Ironically, the dynamics of development and modernity projects often situate Hulu Sembakung residents in conditions of inequality, marginality, and even criminalisation of their own living spaces. This situation, in turn, becomes a catalyst for conflicts among individuals, groups, and between communities and state or industrial actors—continuously reproducing tensions in the borderlands.

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