

EZUMEZU DEONTIC LOGIC: AN AFRICAN-INSPIRED FORMAL FRAMEWORK FOR NORMATIVE REASONING

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Abstract

Artificial intelligence systems increasingly operate in normative domains where ethical and legal obligations must be formally represented. Standard Deontic Logic (SDL), a central reference point in formal treatments of normative reasoning, presupposes bivalence and deontic necessitation, and its structural commitments make the simultaneous representation of conflicting obligations formally impermissible. These commitments limit SDL's capacity to represent normative conflict, the source-relativity of normative claims, and ethical tensions in which every available resolution eliminates an obligation of genuine standing. This article proposes Ezumezu Deontic Logic (EDL), an African-inspired alternative grounded in Jonathan O. Chimakonam's Ezumezu logic, a system that introduces a third truth value representing the stable coexistence of affirmation and denial within a single proposition. EDL evaluates deontic claims relative to world-context pairs that represent conflicting obligations without triggering logical explosion, and rejects global deontic necessitation. Its application to end-of-life medical ethics demonstrates that EDL can represent forms of normative plurality that standard bivalent frameworks structurally exclude.

Keywords: Ezumezu deontic logic (EDL), ezumezu logic, standard deontic logic (SDL), artificial intelligence (AI), medical ethics.

Introduction

Artificial intelligence (AI) is increasingly deployed in normative domains such as law, healthcare, and governance, where automated decision-making systems support or constrain decisions shaped by ethical and legal norms (KOLKMAN 2024). In such settings, these systems encode representations of obligations, permissions, and prohibitions, and use them to generate, constrain, or evaluate decisions. Which formal framework should underpin such representations has therefore become a pressing question, one that sits at the intersection of deontic logic, legal theory, and AI ethics (CIABATTONI 2023).

Standard Deontic Logic (SDL) has become the central reference point in formal treatments of normative reasoning, shaping how obligations and permissions are formalised across philosophy and computational logic (McNAMARA & VAN DE PUTTE 2021). SDL's vocabulary of obligation, permission, and prohibition provides the conceptual baseline from which formal approaches to ethical and legal reasoning in AI have been developed, even where those systems do not directly implement deontic logics (BENZMÜLLER 2020). Its clear and rigorous grounding in classical logic has made it an attractive foundation for such work, but SDL rests on commitments to bivalence, deontic necessitation, and strict consistency. As the following section argues, these commitments do not merely constrain SDL's expressive range but structurally exclude certain forms of normative complexity from representation altogether.

Such constraints become apparent in plural normative environments, where obligations arise from multiple normative sources and cannot be straightforwardly reduced to a single determinate outcome. In many ethical and legal contexts, obligations from distinct sources may

be simultaneously valid yet not mutually reducible (NAVARRO & RODRÍGUEZ 2014), and a more adequate account of ethical reasoning would recognise their coexistence rather than eliminating one before formalisation. SDL forces premature resolution of such tensions, because its commitment to strict consistency provides no internal mechanism for representing conflicting obligations as simultaneously valid (McNAMARA & VAN DE PUTTE 2021). As a result, normative reasoning that is coherent in practice may be rendered inconsistent or ill-formed when forced into a strictly bivalent structure, as the following section illustrates.

This article proposes Ezumezu Deontic Logic (EDL), an alternative framework grounded in Jonathan O. Chimakonam's Ezumezu logic. It illustrates its application through a case study in medical ethics to show how it can represent normative conflict and plurality that standard bivalent frameworks structurally exclude. The article proceeds as follows: the first section examines the structural limitations of SDL and the broader class of bivalent deontic frameworks; the second develops the formal commitments of EDL; the third applies EDL to a medical ethics scenario; and the conclusion identifies directions for future work.

Standard Deontic Logic (SDL) and Its Limitations

SDL has long served as a central reference point in formal treatments of normativity. Developed as an extension of modal logic, SDL offers a precise framework for analysing obligations, permissions, and prohibitions by evaluating normative statements relative to accessible states of affairs, commonly interpreted as idealised situations in which all obligations are satisfied (McNAMARA & VAN DE PUTTE 2021). This semantic structure lends SDL a high degree of internal coherence and has made it attractive for formal and philosophical analysis. At the same time, it embodies a particular conception of normativity that imposes structural limits on the kinds of normative phenomena that can be represented within the logic.

A defining feature of SDL is its commitment to determinacy. Normative evaluation is designed to assign each proposition a precise modal status: an action is obligatory or not, permitted or not, forbidden or not. This determinacy is secured through classical logical commitments, including bivalence and the requirement of consistency. In particular, SDL treats the simultaneous holding of an obligation and its direct negation as formally inadmissible. As a result, situations involving normative ambiguity or conflicting obligations cannot be represented without rendering the system inconsistent, leaving such conflicts as logical failures rather than representable states within the logic (McNAMARA & VAN DE PUTTE 2021).

By evaluating obligations with respect to ideal worlds, SDL abstracts away from the concrete circumstances in which norms are interpreted, negotiated, and sometimes contested. Obligations are assessed independently of social roles, relational contexts, or competing normative sources. As a result, normativity is treated as universal and context-independent, even in situations where ethical reasoning is neither.

The limitations of this approach become apparent in plural normative environments. In many ethical and legal contexts, obligations arise from multiple sources, such as statutory law, customary norms, professional duties, or communal expectations (NAVARRO & RODRÍGUEZ 2014). These sources may generate obligations that are simultaneously valid yet not mutually reducible (NAVARRO & RODRÍGUEZ 2014). In such cases, a more adequate account of ethical reasoning would recognise the coexistence of competing obligations and the tension between them, rather than eliminating one in favour of another prior to formalisation. SDL, however, lacks the formal resources to represent this kind of normative coexistence. Because contradictory obligations are not tolerated within SDL, situations of genuine normative tension must be resolved before formalisation.

As a consequence, SDL forces premature resolution in which one obligation must be prioritised or negated before the situation can be represented at all. What appears as inconsistency from the perspective of SDL may be entirely coherent within lived normative

practice, precisely because the competing obligations arise from distinct normative sources with independent validity sources that do not cancel each other but operate in parallel within the same situation.

These observations do not undermine the internal consistency or usefulness of SDL as a formal system. On the contrary, SDL is well suited to domains in which norms are explicitly codified, hierarchically ordered, and intended to yield determinate outcomes. A paradigm case is statutory traffic regulation, in which obligations such as ‘vehicles must stop at a red light’ are unambiguous, universally applicable within the jurisdiction, and admit no competing obligations of equal normative standing. In such settings, considered in isolation, bivalence and consistency are not idealisations but accurate first-order descriptions of the normative structure. The difficulty arises when SDL is treated as a general model of normative reasoning. In contexts where ethical judgment is context-sensitive and tolerant of normative plurality, the very properties that make SDL elegant become limitations.

It is worth noting that SDL is not the only formal framework for normative reasoning. Deontic logic is a broad field that encompasses dyadic logics of conditional obligation, input/output logics, paraconsistent deontic logics, and STIT-based approaches to action and agency (McNAMARA & VAN DE PUTTE 2021). Some of these systems already move beyond the strictest commitments of SDL, for instance, conflict-tolerant deontic logics explicitly permit normative inconsistency without explosion (VAN FRAASSEN 1973; HANSEN 2008). The critique developed in this article is therefore directed not at a single monolithic system, but at the structural assumptions shared by a broad and influential class of deontic frameworks, namely those that treat obligation as bivalent, globally applicable, and mutually consistent. What distinguishes EDL from those existing systems is not primarily the technical move of tolerating contradiction, but the epistemological grounding of that move in a substantive metaphysical commitment to complementarity (CHIMAKONAM 2019); this distinction is developed in what follows.

The deontic logic literature has independently recognised many of SDL’s limitations, which point to the need for foundational rather than merely technical revision. Roderick M. Chisholm’s (1963) paradox of contrary-to-duty obligations demonstrated that SDL cannot consistently represent situations in which a primary obligation is violated and a secondary, remedial obligation arises. Similarly, the rule of deontic necessitation, which makes every logical tautology obligatory, has been widely acknowledged as normatively counterintuitive (McNAMARA & VAN DE PUTTE 2021). These problems are symptomatic of SDL’s underlying commitments to bivalence, consistency, and context-independence that foreclose the representation of normative complexity at the level of the system’s design. Piecemeal revision through additional priority rules or exceptions addresses the symptoms without reconsidering the commitments that generate them. What is needed instead is a framework that can represent normative tension without treating it as a logical defect, and that can accommodate coexistence where classical deontic logic demands resolution. This motivates the turn to Ezumezu logic, whose principles of complementarity and non-bivalence provide conceptual resources for modelling forms of normativity that SDL excludes by design.

Ezumezu Logic: Core Logical Commitments

Developed by Jonathan O. Chimakonam, Ezumezu logic is a formal system grounded in African philosophical thought, particularly Igbo metaphysics, that reconceptualises truth, contradiction, and logical coherence (CHIMAKONAM 2019). Rather than treating non-bivalence and normative tension as logical defects to be eliminated, Ezumezu logic recognises them as constitutive features of reasoning in contexts where values, obligations, and perspectives genuinely compete. At the core of Ezumezu logic lies a rejection of strict bivalence. Classical logic assumes that every proposition must be either true or false. Ezumezu logic challenges this assumption by introducing a third truth value, termed “ezumezu”

(CHIMAKONAM 2019, 94). This third value does not represent indeterminacy, vagueness, or epistemic uncertainty, but captures the complementary coexistence of affirmation and denial within a single proposition — a state that Chimakonam grounds in a metaphysics of sub-contrary rather than contradictory opposition. A statement assigned the ezumezu value embodies this coexistence without collapsing into triviality, meaning without rendering all further inference invalid.

This move is motivated by an underlying metaphysical commitment to complementarity. In Ezumezu logic, reality is not assumed to be exhaustively describable in terms of mutually exclusive oppositions (CHIMAKONAM 2019). Instead, opposites may coexist within a unified whole, each retaining significance relative to context. Logical contradiction, on this view, is not automatically a sign of incoherence. It may indicate that a phenomenon possesses genuinely co-present properties that resist reduction to a single determinate description; not merely that different observers adopt different perspectives on a single underlying fact, but that the phenomenon itself is constitutively relational in a way that no bivalent representation can exhaust. Ezumezu logic formalises this insight by allowing contradictions arising from complementary co-presence to be represented and reasoned with, rather than eliminated prior to inference.

Crucially, Ezumezu logic does not license logical explosion (CHIMAKONAM 2019). In classical logical systems, the principle of *ex contradictione quodlibet* (from contradiction, anything [follows]) holds: from a contradiction, any proposition whatsoever can be derived. Ezumezu logic explicitly rejects this principle. The coexistence of affirmation and denial does not render the system trivial, because inferences from contradictory premises are licensed only when both premises share the same contextual conditions of evaluation. Where a proposition is affirmed under one set of conditions and denied under another that are simultaneously operative, this requirement is not met, and explosion is blocked. As a result, Ezumezu logic preserves meaningful inference while accommodating states that classical logic would deem inconsistent.

A further defining feature of Ezumezu logic is the indexing of evaluation to “context” (see CHIMAKONAM 2019, 99–100). Standard possible-worlds semantics assigns a single truth value to each proposition at each world. Where modal operators are in play, their truth conditions are determined by quantifying over a set of accessible worlds, each of which independently receives a classical bivalent evaluation. Ezumezu logic introduces a structurally different move, in which the same proposition can receive different truth values relative to different contexts that are simultaneously operative within a single situation, and these differing evaluations are preserved as co-present features of the logical state rather than foreclosed by the requirement that each proposition receive a single determinate value. This is not perspectivalism in the sense that truth is merely observer-relative; rather, the co-presence of differing evaluations reflects a genuine feature of the domain being described, one in which a proposition may be correctly affirmed within one operative framework and correctly denied within another, with both frameworks retaining independent normative standing within the same situation.

Formally, this motivates evaluation relative to world-context pairs (w, c), where the world w fixes the factual circumstances and the context c encodes the specific framework (whether logical, social, communal, or otherwise) from which the proposition is assessed. Context is thus not an external parameter appended after the fact but an integral component of the logical architecture, and the same proposition may receive a complementary evaluation across multiple contexts operative within a single world. Taken together, these commitments (i.e., trivalence, the block on explosion, and context-relative evaluation) position Ezumezu logic as a formal framework that begins from the recognition that reasoning typically takes place under non-ideal, contested conditions. Rather than requiring that a domain be rendered

consistent before it can be formally represented, Ezumezu logic provides a formal space in which contradictions and context-dependent evaluations can be represented as such.

The implications of these features extend naturally across domains where competing evaluations arise from simultaneously operative and independently grounded sources, whether those sources are social, legal, epistemic, or otherwise. Classical bivalent frameworks must resolve such tensions before representing them, typically by imposing a priority ordering or excluding one of the competing inputs. Ezumezu logic suggests a different approach, in which the coexistence of competing evaluations can itself constitute a stable and intelligible logical state, one that calls for representation rather than elimination. An agent or situation may be correctly characterised by conditions that resist reduction to a single verdict, and this irresolvability need not be treated as a failure of the framework but rather as a substantive feature of the domain.

Importantly, Ezumezu logic does not claim to “replace” all other logical systems (CHIMAKONAM 2019, 109). Its point is not that classical logic is mistaken, but that it is limited in scope. Classical bivalent systems remain well suited to domains in which determinacy and consistency are appropriate idealisations. Ezumezu logic extends the logical landscape by offering an alternative set of commitments tailored to forms of reasoning in which “complementarity,” “relationality,” and “tension” are central rather than exceptional (CHIMAKONAM 2019, 109–110). It is these commitments — the formal recognition of complementarity, contextual grounding, and non-explosive contradiction — that Ezumezu Deontic Logic (EDL) seeks to carry into the normative domain.

Ezumezu Deontic Logic (EDL)

This section develops Ezumezu Deontic Logic (EDL) as an alternative deontic framework. The aim is not to present a complete axiomatic system or a fully worked proof theory, but to articulate a formally constrained prototype that revises the core assumptions of SDL in light of non-bivalent, contextual, and relational commitments drawn from Chimakonam’s Ezumezu logic. EDL should therefore be understood as a purposive adaptation rather than a direct transcription of the Ezumezu logical system, designed with normative modelling and AI-relevant reasoning in view.

Formal Commitments of Ezumezu Deontic Logic

Although this article does not provide a full semantic or proof-theoretic development, EDL rests on explicit formal commitments that distinguish it from Standard Deontic Logic and justify its status as a genuine logical framework. Three structural departures from SDL define this architecture. First, evaluation is indexed not only to possible worlds but also to world-context pairs, where contexts encode the specific normative frameworks, such as legal, customary, communal, that bear on the situation under consideration. Deontic status is thus always assessed from within a situated perspective rather than from a context-independent ideal world (CHIMAKONAM 2019). Second, the valuation domain is trivalent: propositions may be affirmed (T), denied (F), or assigned the complementary value C (ezumezu), representing the stable coexistence of affirmation and denial across distinct normative perspectives. Third, EDL incorporates two inferential principles drawn from supplementary laws of thought in Ezumezu logic. The first, “Njikoka,” holds that obligations do not possess deontic force in isolation but derive it from their embeddedness within a broader normative network, such that the significance of any duty is determined relationally, in light of the other obligations and values with which it coexists (CHIMAKONAM 2019, 100). The second, “Nmekoka,” holds that when two opposing obligations arise from within the same normative situation, rather than producing a contradiction that collapses the system, the logic assigns both the complementary status C – allowing them to coexist as a meaningful and intelligible moral tension rather than a logical failure (CHIMAKONAM 2019). EDL incorporates Njikoka and Nmekoka as its core

inferential principles. “Onona-etiti,” the third supplementary law, is not adopted as a separate inferential principle, since EDL operates at the level of deontic operators applied to normative propositions rather than at the level of propositional truth values directly. The insight Onona-etiti expresses (that the middle position between affirmation and denial is logically significant) is incorporated into EDL’s architecture through the trivalent valuation domain itself, which treats C as a stable third value available to deontic propositions.

Deontic propositions are evaluated relative to world-context pairs (w, c) , where w fixes the factual circumstances and c encodes the operative normative framework. Three deontic operators are primitive: O (obligation), P (permission), and F (prohibition). Their interdefinability relations are preserved in form from SDL but operate, as a stipulation of EDL’s architecture, over a trivalent negation: when a proposition has complementary status C, its negation also receives C rather than T or F, meaning that permission and prohibition may both receive C when the grounds for each are simultaneously operative within c . The world–context pair notation has precedent in contextual deontic logic, where evaluation relative to a context has been used to block unwanted derivations in contrary-to-duty reasoning (VAN DER TORRE & TAN 1999). EDL, however, encodes the co-presence of multiple normative frameworks within a single world, grounding the C-value in genuine normative plurality rather than derivational constraint.

The C-value is not an epistemic placeholder but a substantive deontic status, grounded in Chimakonam’s explicitly realist reading of the third value as capturing genuine co-presence rather than uncertainty (CHIMAKONAM 2019). It holds when a proposition is affirmed relative to at least one normative perspective encoded in c and denied relative to at least one other, both perspectives being simultaneously operative within the same world w . Crucially, C is locally stable relative to a specific (w, c) rather than a global truth value across all contexts. The world–context pair architecture, the behaviour of trivalent negation, and the decomposition of c into distinct normative components are EDL’s own formal elaborations, developed to make ‘contextual semantics in Ezumezu logic precise within a deontic setting. The blocking of explosion, however, follows directly from Chimakonam’s own treatment of *ex contradictione quodlibet* (from contradiction, anything [follows]) in Ezumezu logic. The inference from $O\phi \wedge O\neg\phi$ to an arbitrary obligation $O\psi$ does not hold in EDL, because $O\phi$ and $O\neg\phi$ are grounded in distinct context components within c rather than evaluated at one and the same index. Since no single (w, c) carries a classical contradiction, the *ex contradictione quodlibet* (from contradiction, anything [follows]) inference finds no foothold. EDL therefore does not require that conflicting obligations be resolved before they can be represented.

EDL also rejects global deontic necessitation. Deontic force is always contextually grounded: $O\phi$ holds at (w, c) only when ϕ is affirmed by the normative content of c at w , not whenever ϕ is a tautology (McNAMARA & VAN DE PUTTE 2021). Logical validity alone does not generate obligation.

A question naturally arises at this point: given that paraconsistent deontic logics already exist within the Western tradition, what distinguishes EDL from those systems? The answer is not primarily formal but epistemological. Existing conflict-tolerant frameworks treat contradiction-tolerance as a technical accommodation to a recognised logical problem. EDL, by contrast, does not merely permit the coexistence of opposing normative values as a formal device; it treats complementarity as a substantive feature of reality grounded in an African metaphysical commitment to relational coherence and the co-presence of opposites (CHIMAKONAM 2019). The C-value in EDL is not an indeterminacy marker or a default when resolution fails. It is a stable and meaningful deontic status in its own right, reflecting the view that some normative tensions are not failures of reasoning but features of ethical life. This epistemological grounding is what makes EDL an African-inspired logic rather than a technical variant of existing paraconsistent approaches.

The inferential structure of EDL is shaped by the two reasoning methods that Chimakonam develops within his Ezumezu logical framework and the broader Conversational School of Philosophy: “arumaristics and ohakaristics” (CHIMAKONAM 2019, 117–119). These methods articulate how agents reason across the context-components that the (w, c) architecture makes available. Arumaristic inference is a bottom-up movement from deontic verdicts generated at specific context-components $c_1, c_2, \dots$ within a world w toward a complementary overall assessment, licensed not by formal necessity alone but by contextual relevance and relational position. It proceeds through the interaction of three dialogical roles: the “nwa-nsa,” who proposes or affirms a deontic claim from within one context-component; the “nwa-nju,” who challenges or re-contextualises it from within another; and the “nwa-izugbe,” who mediates and articulates a complementary outcome, which in EDL may be the assignment of the C-value where no unilateral verdict is available (CHIMAKONAM 2019, 116–119). Ohakaristic inference moves in the opposite direction: from a shared communal principle to its particular expression at specific (w, c) pairs. Together, these methods replace axiom-based derivation with a model of reasoning as structured dialogue across normative contexts. Deontic force is established through coherent contextual grounding rather than logical compulsion, and moral complementation, where it occurs, is the outcome of deliberation rather than mechanical derivation.

A Schematic Comparison: Normative Conflict in Medical Ethics

To demonstrate that Ezumezu Deontic Logic (EDL) is not limited to culturally specific cases, this section considers a familiar problem from contemporary medical ethics. End-of-life decision-making in clinical settings is widely recognised as a domain in which multiple normative principles coexist and exert authority simultaneously, often generating genuine tension rather than straightforward resolution (AKDENIZ 2021). The case thus provides a well-established setting for comparing the representational capacities of Standard Deontic Logic (SDL) and Ezumezu Deontic Logic (EDL).

Scenario Description

Consider a patient in a hospital operating within a secular pluralist legal framework who has been in a persistent vegetative state for several months following a severe brain injury. The patient left no advance directive and is incapable of expressing consent. Medical staff agree that continued life-sustaining treatment offers no prospect of recovery and may extend the dying process without benefit to the patient. The patient’s family is divided. Some relatives insist that treatment must be continued on moral or religious grounds, while others support withdrawal. National medical guidelines permit withdrawal under certain clinical conditions, but hospital policy emphasises caution due to concerns about legal liability.

The ethics committee must determine whether withdrawing life support is permitted. The situation involves several coexisting normative perspectives: a clinical context, emphasising non-maleficence and proportionality of treatment; a legal context, concerned with regulatory compliance and liability; a familial context, reflecting divergent moral commitments; and an institutional context, prioritising procedural safety and risk management. All of these perspectives operate within the same factual situation and are normatively relevant, yet they do not converge on a single unambiguous obligation.

SDL Analysis: Global Obligation and Forced Resolution

Within SDL, the natural strategy is to translate each normative perspective into an obligation or prohibition and aggregate them into a single global set. Clinical reasoning supports an obligation to withdraw treatment; some family members assert an obligation to continue treatment; legal and institutional norms introduce conditional or cautious obligations that may point in either direction.

Once translated into SDL, these prescriptions become instances of the same deontic operator, stripped of their contextual grounding. The logic itself offers no internal mechanism for representing the fact that these obligations arise from different normative sources or apply under different justificatory conditions. If both “withdraw treatment” and “do not withdraw treatment” are treated as obligations, SDL registers an inconsistency. By its own axioms, such a configuration is impermissible.

In practice, SDL-based approaches must therefore rely on external resources. A priority ordering may be imposed, for example by privileging legal norms over familial ones, or clinical judgment over institutional caution. Alternatively, the system may suspend reasoning and defer to human adjudication. In either case, the resolution does not arise from within the logic. Normative plurality is flattened, and the resulting outcome reflects an imposed hierarchy rather than a representation of the ethical tension itself. The limitation here is structural rather than contingent. SDL can deliver a determinate answer only by eliminating or overriding some of the existing obligations. It cannot represent the situation as one in which incompatible obligations genuinely coexist without collapse.

EDL Analysis: Contextual Evaluation and Complementarity

EDL approaches the same scenario differently. Rather than aggregating all normative perspectives into a single global normative space, EDL evaluates deontic claims relative to explicit contexts. Clinical, legal, familial, and institutional perspectives are treated as distinct yet co-present normative frames.

Within some contexts, withdrawing treatment is affirmed as obligatory or permissible. Within others, it is denied. These evaluations are not forced into mutual exclusivity. EDL allows the proposition “withdraw life support” to receive a complementary status, reflecting the fact that it is normatively supported and opposed across different contexts that are all relevant to the decision.

Crucially, this coexistence does not entail triviality. The presence of complementary obligations does not license arbitrary conclusions, nor does it dissolve the distinction between obligation and permissibility. Instead, EDL yields a structured deontic profile. Withdrawal of treatment may be permitted while also being omissible, which means that its non-performance is also permissible, with its overall status marked as complementary. This reflects the ethical reality faced by the committee: the decision is normatively loaded in incompatible ways, and no single obligation exhausts the situation.

EDL also avoids forcing premature prioritisation. Rather than requiring the system to determine which obligation overrides the others, it preserves the visibility of normative tension. This makes it possible to support decision-making processes that explicitly acknowledge ethical conflict, for example by motivating further deliberation, mediation, or conditional action, without misrepresenting the underlying normative landscape.

The structure of this analysis becomes visible when each context is traced individually. The clinical context affirms withdrawal as proportionate care; the legal context denies it pending regulatory clearance; the institutional context denies it on the grounds of procedural caution; and the familial context is divided, with some members affirming and others opposing withdrawal. Because at least one context affirms the proposition, withdrawal is permitted within EDL. Because at least one context denies it, withdrawal is simultaneously omissible. And because opposing obligations are each affirmed and denied within operative context-components of *c*, Nmekoka assigns the proposition a complementary status; withdrawal is normatively complementary overall. The complementary status assigned by EDL is a logically well-formed representation of the ethical situation, capturing the fact that the decision is contextually permitted, contextually omissible, and normatively complementary across the relevant perspectives. No single obligation collapses the others. SDL, which must choose

between obligation and its negation, cannot represent this state without first eliminating one of the operative normative perspectives that generate it.

Conclusion

Standard Deontic Logic's (SDL) structural commitments, namely bivalence, global obligation, and mutual exclusivity of duties, reveal their inadequacy in plural normative environments, where multiple legitimate perspectives coexist without clear precedence, and SDL can proceed only by suppressing conflict or imposing external priority rules. Ezumezu Deontic Logic addresses this by introducing context-sensitive evaluation indexed to world-context pairs, a three-valued domain in which the complementary value C represents genuine moral tension rather than logical failure, and inferential principles, Njikoka and Nmekoka, that ground deontic force in relational context while tolerating opposing obligations without explosion. The result is not a replacement of deontic reasoning but an expansion of its expressive capacity, suited to the irreducible normative complexity that bivalent frameworks exclude by design.

The comparative analysis of end-of-life decision-making in medical ethics illustrated that the motivation for EDL is not culturally restricted. Even in settings distinct from African philosophical contexts, normative authority is often distributed across clinical, legal, institutional, and personal perspectives that do not converge on a single obligation. In such contexts, EDL can model ethical tension as a stable logical state rather than as an inconsistency to be eliminated. This supports the broader claim that Ezumezu-inspired logical frameworks can offer general tools for modelling normativity in complex decision environments.

Several limits of the present proposal should be made explicit. EDL is introduced here as a prototype rather than as a complete formal system. No claims are made regarding soundness, completeness, decidability, or computational tractability. The logic is not intended to automate ethical decision-making or to determine outcomes. Its role is representational and deliberative, making normative plurality explicit and logically tractable rather than resolving it by fiat.

In contexts where SDL serves as the reference framework for formalising obligations in rule-based AI systems, its bivalent structure forces a resolution of normative conflict that may not reflect the actual structure of the domain. EDL provides an alternative representation layer that can preserve normative tension as a logically well-formed state, making it available for deliberative or explanatory processes rather than suppressing it at the point of formalisation. It is most naturally suited to systems designed to support human judgment in ethically complex settings, such as decision-support tools, ethical auditing frameworks, or systems that must represent and explain competing normative perspectives, rather than to systems that must output a single determinate verdict.

Future work may proceed in several directions. A full proof system for EDL could be developed and studied with respect to standard meta-logical properties. Its relation to other non-classical deontic logics, including conflict-tolerant and context-sensitive systems, merits systematic comparison. In particular, a comparison between EDL and established conflict-tolerant deontic logics would clarify the extent to which EDL's formal properties overlap with or diverge from those systems, and where its epistemological grounding generates genuinely distinct inferential behaviour, including conflict-tolerant and context-sensitive systems, deserves systematic comparison. Finally, computational implementations of EDL-style reasoning could explore how complementary deontic evaluations might be operationalised in practice without sacrificing transparency or interpretability.

More broadly, this article suggests that the logical foundations used to model normativity in computational systems deserve scrutiny. SDL's prominence as a reference point in that space reflects genuine virtues, but its structural commitments carry costs that become visible precisely in the domains where automated decision-making is now being deployed. By

grounding an alternative in Chimakonam's Ezumezu logic, this article draws on underrepresented epistemological resources to expand the formal repertoire available for that task.

Declarations

*The author declares no conflict of interest or ethical issues for this work.

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