

Ethics of Aid, Volunteering, and Support under Heterogeneous Subject Conditions: Subjectivity Uncertainty, Recognition, and Revisable Assistance

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Abstract

Ethical assistance is often discussed as if the identity, interests, communicative capacities, and moral standing of the recipient were sufficiently settled before practical deliberation begins. Cases involving heterogeneous subjects weaken that assumption. Human beings with atypical communicative access, nonhuman animals, artificial systems, and hypothetical alien subjects may present different evidence of adversity, different forms of agency, and different grounds for moral considerability. Building on a prior Generative Relational account of support-relevant recognition, this paper develops a preliminary ethics of aid, volunteering, and support under such uncertainty. Its central proposal is that ethical assessment should preserve the provenance of recognition, distinguish uncertainty about adverse states from uncertainty about moral status and normative theory, and evaluate assistance through typed constraints on benefit, harm, communicative engagement, autonomy, dependency, helper burden, third-party effects, and revisability. The framework treats revisable assistance as a design property of ethical response under incomplete knowledge: interventions should, where the relevant reasons support it, remain monitorable, contestable, corrigible, and capable of responsible withdrawal or repair. Human, animal, artificial, and hypothetical alien cases function as heterogeneous stress tests across different evidential, agential, communicative, and relational conditions. The paper remains within normative ethics; humanitarian doctrine, legal standing, adjudicative authority, and institutional responsibility are reserved for subsequent work.

Keywords: ethics of assistance; aid; volunteering; support; heterogeneous subjects; moral uncertainty; revisable assistance

Discussion Paper Note

This manuscript is Paper XI in an extended Generative Relational research programme on heterogeneous subjects, assistance, ethics, humanitarian protection, and jurisprudence. Its immediate predecessor, *Suffering Recognition in Aid, Volunteering, and Support among Heterogeneous Subjects*, developed the analytical interface through which possible adverse states become support-relevant under subjectivity, communicative, and cross-domain uncertainty [6]. That paper established the recognition-to-response boundary that supplies the starting point for the present manuscript.

Paper XI studies ethical justification and constraint once support-relevant recognition has entered practical deliberation. Its object is a focused normative architecture for assistance with a bounded scope relative to comprehensive moral theory. The paper asks how reasons for assistance should be interpreted when the recipient's subjectivity, interests, communicative signals, or moral status remain uncertain; how aid, volunteering, and support can create benefits and burdens for recipients, helpers, and third parties; and how assistance can remain revisable as evidence and relations change.

The division of labour with the later papers remains explicit. Paper XII addresses humanitarian protection across heterogeneous subject classes. Papers XIII–XVI address legal subjecthood and responsibility, adjudicative and enforcement authority, heterogeneous social-contract membership, and the jurisprudence of aid and humanitarian protection. The present paper therefore develops ethical reasons, permissions, constraints, and obligations at the level needed for a preliminary normative ethics of assistance. Positive law, legal competence, institutional jurisdiction, sanctionability, and public enforcement remain objects of the later papers.

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Notices

Status. This manuscript presents a preliminary ethics of aid, volunteering, and support under heterogeneous subject conditions. It develops a provenance-preserving framework for moral considerability, typed stakes, ethical response status, communication, response design, relational autonomy and dependency, helper-side constraints, multi-recipient allocation, revisability, and downstream extension boundaries. The framework remains preliminary and open to critical development and domain-specific testing.

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Statement on the use of language models. OpenAI’s ChatGPT was used for exploratory dialogue, formal reconstruction, source discovery followed by source verification, argumentative criticism, and drafting in $\text{\LaTeX}$. The author selected the research questions, directed and approved the theoretical commitments and epistemic status of the claims, verified the cited sources, and bears sole responsibility for the manuscript, including its definitions, formal constructions, arguments, conclusions, and errors. Verification records for cited external sources are maintained in the accompanying source ledger.

1 Introduction

This paper develops the ethical layer of a broader inquiry into assistance among heterogeneous subjects. Its role is to begin where support-relevant recognition ends: once an adverse condition has entered practical deliberation as a possible reason for aid, volunteering, or support, ethical judgment must still determine what kinds of response are justified, constrained, optional, required, revisable, or inappropriate. The objective is to develop a typed normative interface for assistance under uncertainty about subjectivity, interests, communication, moral considerability, consequences, and the normative standards by which those consequences are assessed. The paper takes support-relevant recognition as an upstream input and leaves comprehensive moral theory beyond its present scope. The method is constructive and comparative. It draws on established debates about beneficence, moral uncertainty, care, relational autonomy, and uncertain minds while preserving the Generative Relational commitment to ontological suspension and historically revisable relational analysis.

Questions about assistance often appear simple when the morally relevant facts are stipulated in advance. A person is suffering, another person can prevent the suffering at modest cost, and the ethical problem concerns whether intervention is required. Singer's influential discussion of famine and preventable suffering provides a canonical strong-beneficence formulation of that family of problems [14]. Real assistance settings are frequently less determinate. The possible recipient may communicate only partially; the observer may be uncertain whether an apparent adverse state corresponds to pain, preference frustration, functional impairment, dependency failure, relational injury, or another kind of loss; and the moral significance of those states may itself remain contested. These problems arise within familiar human contexts, but heterogeneous-subject cases make the underlying assumptions unusually visible.

Consider four broad stress-test domains. A human recipient may possess clear moral standing while lacking ordinary communicative access, leaving preferences or refusal difficult to interpret. A nonhuman animal may present rich behavioral and physiological evidence of an adverse state while the extent or form of relevant subjective experience remains uncertain. An artificial system may exhibit persistent self-protective behavior, reports of distress, or functional disintegration while the relation between those manifestations and phenomenal experience is disputed. A hypothetical alien subject may combine agency, communication, embodiment, or vulnerability in ways that do not fit inherited human categories. These cases contain several ethically material uncertainties that can coexist and move independently, including questions about subjectivity, adversity, communication, interests, agency, and normative standing.

The preceding paper in this programme, *Suffering Recognition in Aid, Volunteering, and Support among Heterogeneous Subjects*, developed a support-relevant-recognition architecture that keeps those uncertainties separate [6]. It distinguished adverse-state recognition from subjectivity attribution, communicative interpretation, precautionary response, and later normative or legal conclusions. It also treated aid, volunteering, and support as overlapping but non-identical analytical lenses on an assistance episode. That separation is the starting point here. Paper XI asks what additional ethical structure is required after a possible reason to assist has become intelligible.

1.1 Ethical uncertainty after recognition

The transition from recognition to ethics introduces at least three forms of uncertainty that should remain analytically distinct. First, *empirical or interpretive uncertainty* concerns what adverse state is present, what the recipient is communicating, and what consequences a response may produce. Second, *status uncertainty* concerns which properties or relations are morally relevant to the recipient's considerability, interests, claims, or standing within the ethical analysis. Third, *normative uncertainty* concerns which moral principles, values, or priority rules should govern the response. Moral-uncertainty theory explicitly addresses the problem of action when the agent is uncertain about what morality requires [8]. Heterogeneous-subject assistance can involve that problem together with unresolved factual and status questions.

This distinction matters because one uncertainty cannot be allowed to do the work of the others. Uncertainty about phenomenal consciousness, for example, does not establish the absence of ethically

relevant functional disruption, relational dependency, expressed preference, or vulnerability. Conversely, evidence of functional disruption does not by itself establish full moral status, a duty to intervene, or permission to override an apparent refusal. Danaher’s analysis of relationships with “unknown minds” illustrates the wider ethical-epistemic problem: uncertainty about minds and moral standing can create asymmetric risks, but a practical resolution still depends on how the relevant risks are specified and grounded [4]. Birch’s precautionary treatment of animal sentience provides a domain-specific example of the same broad need to decide under incomplete evidence while avoiding the claim that uncertainty has a single universal ethical solution [1].

Paper XI therefore treats ethical assessment as a second-stage construction over the Paper X interface rather than as an automatic continuation of recognition. Let $\mathcal{I}_X$ denote the carrier of provenance-preserving support-relevant records supplied by Paper X, $\mathcal{B}_E$ a carrier of explicitly stated ethical bridge packages, $\mathcal{C}_E$ a carrier of ethically relevant contexts, and $\mathcal{V}_E$ a carrier of ethical assessment records. The preliminary architecture is set-valued because live ethical interpretations can remain plural. Equation 1 states the interface.

$$\text{Eval}_E : \mathcal{I}_X \times \mathcal{B}_E \times \mathcal{C}_E \rightrightarrows \mathcal{V}_E. \quad (1)$$

Equation 1 does not encode a substantive moral theory. Its analytical function is to prevent an illicit collapse between a recognition record and an ethical conclusion. An element of $\mathcal{I}_X$ may include a recognized adverse-state family, support salience, defeasible response reasons, communicative interpretations, uncertainty descriptors, feasible responses, and anticipated or realized relational consequences. The bridge package carrier $\mathcal{B}_E$ supplies the ethical commitments that connect those objects to a normative assessment. The context carrier $\mathcal{C}_E$ contains features whose ethical relevance depends on the selected bridge, such as role, relationship, available alternatives, resource constraints, prior commitments, third-party effects, or the recipient’s expressed or inferred preferences. Section 2, *Ethical Interface from Support-Relevant Recognition*, will refine this architecture.

The use of a set-valued relation also expresses a substantive discipline. When several live ethical specifications remain defensible, the framework should preserve that multiplicity until a further argument resolves it. Moral disagreement or uncertainty is not automatically a defect in representation. MacAskill, Bykvist, and Ord show that uncertainty among moral theories creates its own decision problem and that the structure of comparison matters for what forms of aggregation or decision are available [8]. Paper XI uses the narrower methodological lesson that ethical uncertainty should be represented explicitly when it materially affects action, without committing the framework to one universal decision procedure.

1.2 Relational structure of assistance ethics

Assistance is an interaction that can change both the recipient and the relation in which the recipient is situated. Ethical evaluation therefore needs more than a before-and-after measure of recipient welfare. An intervention may reduce one adverse state while narrowing the recipient’s future options, increasing dependency on the helper, displacing another support relation, creating new expectations, or altering who controls access to resources and information. Conversely, assistance that appears modest in immediate outcome may expand agency, reduce vulnerability to future harm, or improve communicative access. These effects can be ethically relevant even when they resist reduction to one common scalar.

This relational emphasis is compatible with several established traditions without claiming identity with them. Held’s account of care ethics treats caring relations, trust, mutual consideration, solidarity, and the moral significance of particular ties as central ethical concerns rather than residual considerations after abstract impartial reasoning [5]. Work on relational autonomy similarly examines how social relations and conditions shape agency, self-conception, and the practical possibility of autonomous action [9]. Paper XI draws on those literatures as intellectual neighbors. Its distinctive task is to construct a bridge-compatible formalism for heterogeneous assistance while retaining uncertainty about the nature of the recipient and the correct ethical theory.

A relational perspective also helps clarify why aid, volunteering, and support should remain distinguishable. Aid can be typed by its response to an adverse state or need. Volunteering concerns the participation mode and the helper's relation to compulsion, compensation, role, and commitment. Support concerns the sustaining or enabling function of an ongoing relation. One episode may instantiate several of these descriptions simultaneously, but the ethical questions need not coincide. The ethics of responding to urgent need differs from the ethics of voluntary participation in an organization, and both differ from the ethics of sustaining a long-term dependency relation. Paper XI therefore retains the multi-axial typing inherited from Paper X and asks which ethical reasons and constraints attach to each axis.

1.3 Revisable assistance

The paper's central constructive proposal is to treat *revisability* as an ethically significant design property of assistance under incomplete knowledge. Revisability concerns the capacity of an assistance process to respond responsibly to new evidence, changing preferences, altered consequences, and shifts in the relation between helper and recipient. Depending on the case, revisability may involve monitoring, opportunities for the recipient or a representative to contest the intervention, staged commitment, reversible components, explicit review points, modification of goals, withdrawal, or repair after an intervention produces unexpected harm.

Revisability should not be treated as a categorical requirement that overrides every other ethical consideration. Some emergency actions are time-sensitive and partly irreversible. Some forms of care derive value from reliability and continuity, so excessive provisionality can itself be harmful. Some recipients may reasonably prefer stable commitment over repeated reassessment. The ethical value of revisability is therefore context-sensitive. The claim developed here is narrower: when material uncertainty remains and assistance can alter the recipient's options, dependencies, or relational environment, the degree and form of revisability become legitimate objects of ethical assessment.

This proposal follows from the conjunction of two observations. First, heterogeneous-subject cases make recognition and interpretation especially revisable. Evidence about animal sentience, artificial consciousness, communicative competence, or unfamiliar forms of agency can change as scientific and relational knowledge develops. Second, assistance is itself generative: it changes the field from which later evidence and choices emerge. A support arrangement can increase communicative access, create dependence, suppress alternative relations, or alter the manifestations through which an adverse state is recognized. Ethical evaluation therefore has to address the temporal architecture of the intervention rather than only the justification of its initial moment.

Revisability also creates a bridge between uncertainty and restraint without reducing ethics to inaction. A framework that responds to uncertainty only by withholding assistance can expose recipients to avoidable harm. A framework that treats initial assistance as normatively self-validating can entrench error. Revisable assistance occupies a third analytical position: response can be justified under incomplete knowledge while the design of the response preserves appropriately structured opportunities to learn, contest, correct, and, where warranted, stop or repair the intervention. The relevant structure will be developed in Section 11, *Revisable Assistance across Relational Time*, after the paper has separately examined consent, intrusiveness, autonomy, helper burden, and allocation.

1.4 Heterogeneous stress tests and ontological restraint

Human, animal, artificial, and hypothetical alien subjects enter the paper as heterogeneous stress tests. Their purpose is methodological. A framework that works only because all recipients are tacitly assumed to have ordinary adult human embodiment, language, social membership, preference expression, and institutional recognition may conceal the conditions on which its conclusions depend. Heterogeneous cases expose those dependencies and force the ethical bridge to state them. The examples have different evidential status: human and animal cases can draw on established empirical and institutional literatures,

artificial-system cases remain architecture-dependent and rapidly developing, and alien cases are explicitly hypothetical boundary probes. Cross-domain use therefore tests structural portability rather than implying equal empirical maturity across domains.

This use of heterogeneous cases does not imply that the categories are ethically equivalent. It also does not imply that one scale of moral status orders all members of each category. The framework permits different bridge packages to assign significance to sentience, agency, relationships, vulnerability, communicative participation, flourishing, rights, role, or other ethically relevant properties. It also permits uncertainty about those assignments. The GR commitment to ontological suspension remains active: a relational or formal representation of a possible subject does not establish what that subject ultimately is.

The same restraint applies to cross-subject comparison. Ethical decision can require choices among recipients even when welfare, autonomy, relational goods, or harms are only partially commensurable. The paper will therefore distinguish comparison sufficient for a local decision from a claim that heterogeneous values share a complete common metric. This distinction is particularly important for allocation among humans, animals, and artificial systems, but it also arises within human assistance whenever goods such as pain relief, autonomy, attachment, dignity, opportunity, and long-term dependency resist simple aggregation.

1.5 Contribution and scope

Paper XI makes five preliminary contributions. First, it defines an ethical interface that preserves the provenance of support-relevant recognition rather than allowing recognized need to become duty by abbreviation. Second, it separates adverse-state, subjectivity, moral-status, and moral-theory uncertainty so that each can affect deliberation through an explicit bridge. Third, it develops a typed representation of ethical stakes that can preserve partial commensurability and relational effects. Fourth, it treats assistance as a temporally extended relation whose ethical quality can depend on consent, autonomy, dependency, helper burden, third-party effects, and the distribution of control over future revision. Fifth, it develops revisable assistance as a context-sensitive ethical design object for action under incomplete knowledge.

The paper is preliminary in two senses. Formally, the proposed objects are structural representations that require domain-specific interpretation and do not by themselves establish a moral theory. Normatively, the paper seeks a framework within which different ethical bridges can be compared, audited, and constrained; it does not claim to derive one universally valid ordering of all assistance episodes. Established normative traditions enter as sources of questions and bridge candidates, not as theories silently absorbed into GR.

The scope boundary is equally important. Paper XI remains within ethics. Humanitarian protection as a distinct normative and institutional practice is reserved for Paper XII. Legal subjecthood, responsibility, sanctionability, procedural standing, adjudicative authority, enforcement power, social-contract membership, and institutional duties are reserved for Papers XIII–XVI. Ethical conclusions developed here may become inputs to those later inquiries, but they do not settle them.

The remainder of the paper follows the architecture recorded in the project outline. Section 2 formalizes the ethical interface from Paper X. The next sections separate moral considerability from subjectivity and normative uncertainty, develop typed ethical stakes under partial commensurability, and distinguish ethical statuses across aid, volunteering, and support. Later sections analyze consent and communicative uncertainty, response intrusiveness and reversibility, autonomy and dependency, helper-side burden and capacity, and multi-recipient allocation. Section 11 then develops revisable assistance across relational time. The penultimate section states the boundary conditions for humanitarian, legal, and institutional extension, and the conclusion synthesizes the resulting architecture.

2 Ethical Interface from Support-Relevant Recognition

This section defines the formal handoff from support-relevant recognition to ethical assessment. Its role is to convert the generic extension boundary inherited from Paper X into a specifically ethical interface while preserving the upstream distinctions among recognized adversity, defeasible response reasons, assistance types, communication, uncertainty, and relational consequences. The objective is to identify the minimum additional objects required before an assistance response can receive an ethical status. The discussion first defines the Paper X input record used by the present paper, then introduces ethical contexts and bridge packages, specifies a set-valued ethical assessment relation and its provenance record, states several non-entailment and non-transport results, and closes with an audit of the interface. The method is formal and reconstructive. The section makes visible where substantive ethical commitments enter and identifies the additional specifications required for stronger conclusions; selection among complete moral theories remains a later or external task.

2.1 Paper X Records as Ethical Inputs

Paper X concluded with a generic interface record that can preserve the objects established for an encounter or assistance history without converting them into a stronger normative verdict [6]. Paper XI adopts that record as its upstream input. Let $\mathcal{I}_X$ denote the carrier of Paper X interface records and let $\varpi \in \mathcal{I}_X$ denote one such record. Depending on the application, ϖ can preserve a recognized adverse-state set, support-salience states, a reason profile, the assistance-relation labels under which those reasons were generated, subjectivity and communicative uncertainty, precautionary-response analysis, realized assistance episodes, relational consequence witnesses, and the provenance needed to revise any of those objects.

The ethical layer does not require every element of that record in every case. An encounter can enter ethical deliberation before assistance occurs, so realized consequence data may be absent. A continuing support relation can contain rich trajectory information but little uncertainty about recipient identity. A mediated interaction can make communicative provenance central while leaving other dimensions comparatively settled. The relevant ethical input is therefore an application-specific projection that preserves the Paper X information materially relevant to the ethical question without strengthening unresolved upstream claims.

Definition 2.1 (Ethics-relevant projection). For a declared ethical question q_E , an *ethics-relevant Paper X projection* is a partial projection that preserves source provenance. Its type is stated in Equation 2.

$$\pi_{q_E} : \mathcal{I}_X \rightrightarrows \mathcal{I}_E, \quad (2)$$

where $\mathcal{I}_E$ is a carrier of ethics-relevant input records. Every element of $\pi_{q_E}(\varpi)$ retains the upstream status and provenance of the Paper X objects selected from ϖ . The projection may omit an upstream object only when the application justifies its irrelevance to q_E ; it may not replace an unresolved or weaker upstream object with a stronger ethical premise.

Equation 2 treats relevance as question-indexed. The same Paper X record can support different ethical inquiries. A question about whether a low-intrusion monitoring response is permissible can require different information from a question about whether long-term support creates problematic dependency or whether a volunteer has an obligation to continue a burdensome relation. The projection is partial because an application can fail to establish a responsible ethics-relevant record when information that the declared question makes material is absent.

The projection also preserves the analytical difference between absence of evidence and a negative ethical conclusion. If a Paper X record contains no reliable interpretation of a recipient's preference, Equation 2 can preserve that absence as uncertainty. It should not silently convert missing preference information into consent, refusal, indifference, or incapacity. Likewise, an unresolved subjectivity hypothesis can remain unresolved while other features of the record, such as functional disruption or dependency failure, still enter ethical deliberation.

Proposition 2.2 (Upstream uncertainty preservation). *Within Definition 2.1, an ethics-relevant projection does not resolve an upstream Paper X uncertainty merely by selecting that uncertainty for ethical analysis. Any stronger premise concerning the unresolved object requires an additional justified bridge or evidential update.*

Proof. Definition 2.1 requires the projection to preserve the upstream status and provenance of selected objects and prohibits replacing a weaker or unresolved object with a stronger premise. Selection therefore changes which information is carried into the ethical question, but it supplies no rule whose output is a stronger classification of the selected object. Such a classification requires an additional operation justified at the evidential, interpretive, or normative layer where the strengthening occurs. $\square$

Proposition 2.2 prevents a common form of normative compression. Ethical urgency can make an unresolved empirical or interpretive question practically important, but urgency does not itself answer that question. The ethical framework can respond to uncertainty through precaution, burden allocation, reversible response design, or another declared method; those are normative treatments of uncertainty rather than retroactive proofs about the recipient’s underlying state.

2.2 Ethical Contexts and Bridge Packages

An ethics-relevant input record still does not determine what should be done. Ethical assessment also depends on features whose normative relevance is not exhausted by Paper X’s recognition architecture. These can include the identity and role of the prospective helper, available alternatives, recipient-related commitments, the voluntariness and competence of the parties, foreseeable burdens, effects on third parties, resource scarcity, temporal urgency, institutional background, and the normative standards through which those features are interpreted.

Let $\mathcal{C}_E$ denote a carrier of declared ethical contexts. An element $\kappa_E \in \mathcal{C}_E$ records application-specific facts or relational conditions that a proposed ethical assessment treats as relevant at the normative layer. The carrier is intentionally broader than the contextual variables used by Paper X. A factual item can appear in both layers while serving different analytical roles: for example, a recipient’s expressed refusal can affect the recognition of a communicative state upstream and can also become an ethically significant condition through a later account of consent or autonomy.

The normative rules by which an ethics-relevant record and an ethical context acquire ethical significance are represented by bridge packages. Let $\mathfrak{B}_E$ denote a carrier of declared ethical bridge packages and let $\beta \in \mathfrak{B}_E$ denote one package. A bridge package can contain one or more components concerning moral considerability, the normative significance of recognized interests or adversity, the treatment of uncertainty, role- or relationship-sensitive reasons, permissible means, consent or refusal, proportionality, burden, priority, aggregation or non-aggregation, partiality, revision, or another declared ethical rule. The present section fixes the place of those components in the architecture while leaving their substantive content to later sections.

Definition 2.3 (Ethical bridge package). *An ethical bridge package $\beta \in \mathfrak{B}_E$ is a declared, provenance-bearing specification of the normative premises and resolution rules by which an ethics-relevant Paper X record and an ethical context are assessed. A package should identify its scope of application, the ethical objects or statuses it can generate, any priority or compatibility rules among its components, and the conditions under which its conclusions are revisable.*

Definition 2.3 is compatible with substantive ethical plurality. A consequentialist package can give one role to benefit and harm, a deontic package can encode side constraints or status-based requirements, a care-oriented package can emphasize relationships and dependency, and a pluralist package can retain several irreducible normative dimensions. Moral uncertainty can also be represented through a family of bridge packages rather than through premature selection of one package as uniquely correct [8]. The architecture requires the package to be declared and auditable; it does not assume that all packages can be reduced to the same metric or meta-rule.

Bridge applicability should also remain explicit. Let App_E be the relation in Equation 3.

$$\text{App}_E \subseteq \mathfrak{B}_E \times \mathfrak{I}_E \times \mathcal{C}_E. \quad (3)$$

A tuple $(\beta, \iota_E, \kappa_E) \in \text{App}_E$ means that the application claims bridge package β to be applicable to ethics-relevant record $\iota_E \in \mathfrak{I}_E$ in ethical context κ_E . Equation 3 prevents a bridge from functioning as an unrestricted universal rule merely because it exists in the analyst’s normative vocabulary. A principle can be intelligible yet inapplicable to a particular actor, relationship, response type, or uncertainty configuration.

2.3 Ethical Assessment Records and Status Space

The output of the ethical interface should preserve more structure than a single scalar score. Ethical assessment can concern a candidate response, an omission, a continuing relationship, a withdrawal, or a revision of prior assistance. It can also remain conditional or unresolved. The present framework therefore uses a set-valued assessment relation whose outputs are typed records rather than unique decisions.

Let Σ_E denote an application-defined vocabulary of ethical status types. Illustrative statuses can include all-things-considered requirement, permission, optionality, impermissibility, defeasible endorsement, defeasible objection, or unresolved status. The examples are not stipulated to be exhaustive or logically independent. Section 5 will analyze the status structure in more detail. At the current interface, Σ_E identifies the codomain vocabulary that a bridge package is licensed to use.

Let $\mathfrak{V}_E$ denote a carrier of ethical assessment records. Each record $v \in \mathfrak{V}_E$ should identify, at minimum, the response or assistance object under assessment, the relevant assistance label where one applies, the status token or tokens assigned from Σ_E , and a pointer to the provenance by which the assessment was generated. The central assessment relation is stated in Equation 4.

$$\text{Eth}_\beta : \mathfrak{I}_E \times \mathcal{C}_E \rightrightarrows \mathfrak{V}_E, \quad \beta \in \mathfrak{B}_E. \quad (4)$$

Equation 4 is set-valued for two reasons. First, a declared bridge package can leave more than one ethically admissible response or status open. Second, incomplete information can justify retaining several conditional assessments rather than forcing a unique verdict. Set-valuedness does not by itself represent moral uncertainty across different bridge packages; that additional plurality arises when more than one package is treated as live.

Definition 2.4 (Ethical assessment certificate). An *ethical assessment certificate* is a tuple

$$\chi = (\varpi, q_E, \iota_E, \kappa_E, \beta, v), \quad (5)$$

where $\varpi \in \mathfrak{I}_X$, $\iota_E \in \pi_{q_E}(\varpi)$, $(\beta, \iota_E, \kappa_E) \in \text{App}_E$, and $v \in \text{Eth}_\beta(\iota_E, \kappa_E)$. The certificate records the upstream Paper X record, the ethical question, the ethics-relevant projection, the ethical context, the bridge package, and the resulting assessment record.

Equation 5 records the components of the certificate, and Definition 2.4 makes ethical disagreement decomposable. Analysts can disagree about the upstream Paper X record, about which parts of that record are material to the ethical question, about the context, about the applicability or content of the bridge package, or about the assessment generated under an agreed package. These are different disagreements and need not be resolved by the same method.

The certificate also protects provenance across later revision. Suppose a recipient’s communication becomes more intelligible or a support arrangement produces a previously unforeseen dependency. A later assessment can retain the earlier certificate while updating the relevant input, context, or bridge. Ethical revision can then be represented as a change in a documented assessment path rather than as an unexplained replacement of one verdict by another. Section 11 will develop that temporal structure directly.

2.4 Bridge Dependence and Ethical Non-Entailment

The first formal consequence of Equation 4 is a typing boundary. Support-relevant recognition and standing reasons can make a case ethically salient without fixing its all-things-considered status. This boundary is especially important under heterogeneous-subject conditions because a compelling adverse-state representation can otherwise acquire more normative force than the declared ethical premises warrant.

Proposition 2.5 (Bridge dependence of ethical assessment). *An ethics-relevant Paper X record $\iota_E \in \mathfrak{I}_E$ does not, within Equation 4, determine an ethical assessment record $v \in \mathfrak{V}_E$ without a declared ethical context κ_E , an applicable bridge package β , and an output of Eth_β .*

Proof. The domain of Eth_β in Equation 4 is $\mathfrak{I}_E \times \mathcal{C}_E$, and the relation is indexed by β . Applicability additionally requires $(\beta, \iota_E, \kappa_E) \in \text{App}_E$. An ethics-relevant record alone therefore supplies neither a complete input nor a justified assessment rule with codomain $\mathfrak{V}_E$. $\square$

Proposition 2.5 is stronger than the ordinary observation that moral theories can disagree. It identifies the location of the additional normative work. Recognized adversity, a standing reason to respond, or a recipient’s vulnerability can remain ethically important while the permissibility, obligatoriness, or design of a particular response depends on further premises concerning means, burden, consent, role, distribution, uncertainty, or another relevant dimension.

A second boundary concerns response specificity. Paper X can record more than one response that fits a recognized adverse state. Ethical evaluation should not transfer automatically from one response to another merely because both are directed toward the same condition.

Proposition 2.6 (Response-indexed ethical status). *Within the present interface, an ethical status assigned to one candidate response supplies no status for a distinct response unless the applicable bridge package contains a rule that justifies the transfer or comparison.*

Proof. An assessment record in $\mathfrak{V}_E$ identifies the response or assistance object under assessment. Equation 4 contains no default projection that removes response identity while preserving ethical status. A status transfer therefore requires an additional rule in the bridge package or another declared relation connecting the two response objects. $\square$

Proposition 2.6 prevents benefit-oriented reasoning from collapsing distinct interventions. Offering information, transferring resources, restraining a recipient, modifying an artificial system, separating an animal from an environment, or entering a long-term support relation can address the same recognized adversity while differing substantially in intrusiveness, consent conditions, reversibility, burdens, and third-party effects. Later sections analyze those differences directly.

A third boundary concerns assistance labels. Aid, volunteering, and support can coexist in one episode, yet their ethical interpretation can depend on different role expectations and temporal structures. The interface therefore retains the assistance label carried by the upstream response object rather than converting all helping behavior into one undifferentiated moral act.

Assistance-label provenance remains upstream: ethical assessment of a response typed under assistance label τ does not itself generate a distinct label τ' . Any cross-label comparison or transfer therefore requires an explicitly justified relation.

The practical importance of the assistance-label provenance condition is that similar outward behavior can occupy different normative relations. A transfer of food can be emergency aid, fulfillment of an institutional support role, or a voluntary act performed outside role obligation. The physical act can overlap while the relevant commitments, expectations, burdens, and possibilities of withdrawal differ.

2.5 Plural Ethical Bridges and Moral Uncertainty

The bridge-package representation also provides a place for moral uncertainty. Let $\mathfrak{B}_E^{\text{live}} \subseteq \mathfrak{B}_E$ be a nonempty family of bridge packages that an application treats as sufficiently credible or decision-relevant.

The framework does not assume that every package in $\mathfrak{B}_E^{\text{live}}$ is mutually translatable or that a common numerical credence can always be assigned. What matters initially is that the plurality is visible.

For ethics-relevant record ι_E and context κ_E , define the live assessment family in Equation 6.

$$\mathcal{V}_E^{\text{live}}(\iota_E, \kappa_E) := \left\{ (\beta, v) : \beta \in \mathfrak{B}_E^{\text{live}}, (\beta, \iota_E, \kappa_E) \in \text{App}_E, v \in \text{Eth}_\beta(\iota_E, \kappa_E) \right\}. \quad (6)$$

Equation 6 preserves bridge identity with each assessment. The family can nevertheless be empty even when $\mathfrak{B}_E^{\text{live}}$ is nonempty, because a live package may be inapplicable to the present record or may generate no assessment. Such absence does not count as agreement. Any convergence claim should therefore identify the nonempty subset of live packages that are applicable and output-generating, while separately reporting materially live packages that remain inapplicable or vacant. A later decision procedure can search for agreement, identify conflict, apply a meta-normative rule, or retain unresolved plurality. The present section does not assume that one of those procedures is universally correct.

Proposition 2.7 (Bridge-relative assessment dependence). *Let $\beta_1, \beta_2 \in \mathfrak{B}_E^{\text{live}}$ be distinct applicable bridge packages. An assessment $v \in \text{Eth}_{\beta_1}(\iota_E, \kappa_E)$ does not, within the present architecture, determine an assessment under β_2 unless a justified meta-level relation connects the two bridge packages or their outputs.*

Proof. Equation 4 defines a family of relations indexed by β . The codomain carrier is shared, but the generating relation can differ with the bridge package. No mapping from Eth_{β_1} to Eth_{β_2} is supplied by the shared upstream record alone. A cross-bridge conclusion therefore requires additional meta-normative structure. $\square$

Proposition 2.7 keeps moral uncertainty distinct from empirical uncertainty. Additional evidence about the recipient can narrow the Paper X record without deciding which ethical bridge package should govern. Conversely, agreement on a moral bridge does not eliminate uncertainty about the recipient's adverse state, preferences, or subjectivity. Section 3 will analyze those uncertainty axes in detail.

Plural bridge packages also make agreement more informative when it occurs. If several materially different applicable and output-generating packages converge on an assessment of a low-intrusion response, that convergence can be recorded without claiming theoretical identity. Packages that are inapplicable or vacant remain part of the uncertainty record rather than silent votes for convergence. Such agreement can be practically useful while the reasons supporting it remain distinct. The framework therefore treats cross-theory agreement as a relation among outputs rather than as evidence that the underlying ethical theories have become equivalent.

2.6 Ethical Context Sensitivity and Actor Indexing

Ethical conclusions about assistance are often actor-sensitive. A recipient can have a serious claim to assistance while the corresponding burden falls differently on a nearby individual, a trained professional, an institution, a prior promisor, a volunteer organization, or a public authority. Paper X already distinguished response relevance from authority. Paper XI adds the more general ethical point that reasons and obligations can be indexed to roles, capacities, relationships, and histories even before legal authority is considered.

The ethical context κ_E should therefore identify the prospective actor or actor class whenever the assessment is actor-relative. It can also record role, competence, feasible alternatives, prior commitments, exposure to burden, available institutional support, and other features material to the applicable bridge package. These variables will be analyzed substantively in Section 9.

When a bridge package treats helper identity, role, capacity, relationship, or burden as normatively material, the corresponding actor information is part of the conditions for an adequate assessment. Omitting it leaves the assessment incomplete relative to that declared bridge.

The actor-relative completeness condition does not imply that every ethical theory is strongly agent-relative. It states a data-dependence condition: when a theory or bridge treats actor identity, role, or

burden as normatively relevant, the interface must carry that information. The same structure applies on the recipient side when a bridge treats relationship, preference, history, vulnerability, or agency as normatively material.

2.7 Conditional Assessment, Vacancy, and Revision

A set-valued ethical interface should permit a responsible absence of verdict. Let $\emptyset$ in Equation 4 mean that the declared bridge package and context do not presently yield an assessment record for the question at issue. Such vacancy can arise because required information is missing, the bridge is inapplicable, the question exceeds the package's scope, or the application has not specified a rule for resolving a relevant conflict. Vacancy should therefore remain distinguishable from an ethical verdict that the response is optional, permissible, or impermissible.

Conditional outputs provide another option. An assessment record can state that a response has status $\sigma \in \Sigma_E$ under an explicitly recorded condition whose satisfaction remains unresolved. Conditionality is especially useful when the ethical significance of a response depends on a recipient preference, a subjectivity hypothesis, a burden threshold, an expected consequence, or another variable that later inquiry can update. The condition should remain linked to the certificate so that a change in evidence or context identifies which assessment requires reconsideration.

Definition 2.8 (Ethical interface vacancy). For applicable β , record ι_E , and context κ_E , an *ethical interface vacancy* occurs when

$$\text{Eth}_\beta(\iota_E, \kappa_E) = \emptyset. \quad (7)$$

Equation 7 records absence of a generated assessment under the declared interface. It does not by itself assign any ethical status to the response under consideration.

Definition 2.8 is important for heterogeneous-subject cases because unfamiliarity can create pressure to substitute a familiar default. A missing interpretation of artificial distress should not automatically be converted into permission to ignore it, and uncertainty about an alien subject's communicative form should not automatically generate an obligation to intervene. The framework can instead preserve vacancy, conditionality, or a precautionary bridge whose normative justification is explicit.

Revision enters at three locations. The upstream record can change when evidence or interpretation changes; the ethical context can change when roles, resources, burdens, or relationships change; and the bridge package can be revised when the analyst's normative commitments or meta-normative treatment changes. Definition 2.4 keeps those locations identifiable. Section 11 will later ask when the assistance relation itself should be designed to make such revision practically possible.

2.8 Ethical Interface Audit

Table 1 summarizes the minimum distinctions that should remain explicit when Paper X outputs are used in an ethical argument. The table is an audit device rather than a substantive moral theory.

The audit clarifies the scope of Section 2. The section supplies a provenance-preserving interface from Paper X records to ethical assessment, together with explicit locations for context, bridge premises, moral-theory plurality, response identity, assistance typing, and revision. Moral consideration, comparison of heterogeneous goods and harms, status assignment across aid, volunteering, and support, and the roles of consent, proportionality, autonomy, burden, partiality, and revisability remain substantive questions for the later sections. Keeping them explicit prevents those commitments from entering as hidden parameters of the interface.

Research Obligation 2.9 (Ethical interface specification). An application that derives an ethical assessment from a Paper X record should identify the upstream record used, the ethical question, the ethics-relevant projection, the ethical context, the bridge package and its scope, the bridge-applicability claim, the response object under assessment, the ethical status vocabulary used, any live alternative bridge packages, and the conditions under which the assessment remains unresolved or subject to revision.

Table 1: Audit dimensions for the ethical interface from support-relevant recognition.

Dimension	Interface object	Analytical function	Failure mode if omitted
Upstream record	$\varpi \in \mathcal{I}_X$	Preserve recognized adversity, reasons, uncertainty, and relational provenance	Treating ethical judgment as detached from the evidential history
Ethical question	q_E	Determine which upstream features are materially relevant	Carrying irrelevant detail or omitting question-critical uncertainty
Ethics-relevant input	$\iota_E \in \pi_{q_E}(\varpi)$	Preserve a question-specific handoff without strengthening it	Converting uncertainty into a stronger premise
Ethical context	$\kappa_E \in \mathcal{C}_E$	Record actor, role, alternatives, burden, relationships, and other normative context	Treating the same record as ethically invariant across situations
Bridge package	$\beta \in \mathcal{B}_E$	State the normative premises and resolution rules	Allowing recognition or need to function as an implicit complete moral theory
Applicability	$(\beta, \iota_E, \kappa_E) \in \text{App}_E$	Restrict a bridge to cases within its justified scope	Universalizing a locally intelligible principle
Assessment record	$v \in \mathcal{V}_E$	Type the response and its ethical status while preserving provenance	Replacing structured assessment with an untraceable verdict
Moral uncertainty	$\mathcal{B}_E^{\text{live}}$	Preserve live bridge plurality and theory-relative outputs	Hiding normative disagreement inside one aggregate score
Vacancy or conditionality	Equation 7 or a conditional assessment	Preserve responsible incompleteness and update conditions	Treating missing grounds as permission, prohibition, or settled indifference

Research Obligation 2.9 defines the minimum audit trail for the remainder of Paper XI. Section 3 can now examine moral considerability without allowing subjectivity uncertainty to decide that question by itself. Later sections can add more substantive bridge components while retaining a common interface through which their assumptions and outputs remain visible.

3 Moral Considerability under Subjectivity and Normative Uncertainty

This section specifies the moral-considerability component of the ethical bridge introduced in Section 2. Its role is to determine how a recipient can enter ethical deliberation as a possible bearer of recipient-centered reasons or constraints when evidence about adverse states, subjectivity, and the relevant moral theory remains incomplete. The objective is to preserve four uncertainty axes that are frequently compressed in unfamiliar-subject cases: uncertainty about an adverse state, uncertainty about subjectivity, uncertainty about moral considerability or richer moral status, and uncertainty about the normative bridge by which those facts acquire ethical significance. The discussion first gives moral considerability a delib-

erately minimal interface meaning, then separates the four uncertainty axes, introduces bridge-specific considerability bases and their dependence on subjectivity hypotheses, defines a compatibility-filtered live family of considerability assessments, and closes with conditions for robust inclusion, robust exclusion, conditionality, vacancy, and revision. The method is formal and normative-reconstructive. Candidate bases such as consciousness, sentience, agency, life, vulnerability, and relationship enter only through declared bridge premises; adjudication among comprehensive theories of moral status remains beyond the section's scope.

3.1 Moral Considerability as an Ethical Interface Object

Moral considerability is used here in a deliberately narrow sense. A subject is morally considerable under a declared bridge when features attributed to that subject are eligible to ground recipient-centered reasons or constraints within the ethical assessment. This interface meaning leaves the weight of those reasons, equality of status, possession of rights, personhood, priority over other recipients, the permissibility of particular means, and obligations on particular helpers to additional bridge components and contextual information. Those questions require additional bridge components and contextual information developed in later sections.

Let $\mathfrak{B}_C$ denote the carrier of considerability bridge components that can occur within the broader ethical bridge packages $\mathfrak{B}_E$ of Definition 2.3. A component $\beta_C \in \mathfrak{B}_C$ specifies the candidate normative bases by which features of a recipient can become directly relevant to the recipient's own ethical assessment. Depending on the theory under consideration, such bases might concern phenomenal experience, interests, agency, life, vulnerability, relationship, prior commitment, or another declared property. Sentience-sensitive precaution in animal ethics and ethical discussion of uncertain artificial minds provide examples in which uncertainty about mindedness materially affects the normative problem [1, 4]. Relational approaches can assign ethical significance to dependency and caring relations that is not exhausted by an atomistic account of individual preference [5]. The present framework treats these as examples of different bridge structures rather than as a settled list of valid bases.

Definition 3.1 (Considerability record). A *considerability record* is a provenance-bearing record $c \in \mathfrak{C}_C$ containing at least: the recipient role or subject representation under assessment; the considerability bridge component β_C ; the factual and interpretive premises material to that bridge; the subjectivity hypothesis, when the bridge makes subjectivity relevant; a status tag in the declared considerability vocabulary; and any conditions under which the record is revisable. A considerability record states how a recipient enters the ethical interface under a specified bridge. It does not by itself assign a complete ethical status to any assistance response.

Definition 3.1 keeps considerability separate from the response statuses introduced in Section 2. A recipient can be ethically considerable while a proposed intervention remains impermissible because of refusal, excessive intrusion, disproportionate burden, domination, third-party effects, or another constraint. Conversely, a bridge can generate reasons concerning an entity indirectly through effects on other subjects or relationships without treating that entity as directly morally considerable in the sense used here. Applications should therefore state whether a reason is recipient-centered, derivative, relational, or generated through another declared route rather than allowing those routes to collapse into a single status label.

3.2 Four Uncertainty Axes

Heterogeneous-subject cases can involve several kinds of uncertainty at the same time. Paper X already preserves uncertainty about the existence and interpretation of adverse states and about subjectivity hypotheses [6]. Paper XI adds uncertainty about how a recipient should enter ethical deliberation and uncertainty about which normative bridge should govern that question. These uncertainties can interact, but their objects differ.

For an ethics-relevant input ι_E and ethical context κ_E , let the uncertainty profile be the typed record in Equation 8.

$$\mathcal{U}_C(\iota_E, \kappa_E) = (\mathcal{A}^{\text{live}}, \mathcal{H}_S^{\text{live}}, \mathcal{M}_C^{\text{live}}, \mathfrak{B}_C^{\text{live}}). \quad (8)$$

Equation 8 distinguishes four carriers. The family $\mathcal{A}^{\text{live}}$ contains live interpretations of relevant adverse states or their absence. The family $\mathcal{H}_S^{\text{live}}$ contains live subjectivity hypotheses, understood broadly enough to record uncertainty about phenomenal experience, forms of agency, or other subject-level capacities when the application makes them material. The family $\mathcal{M}_C^{\text{live}}$ contains live considerability or status interpretations generated under declared normative assumptions. The family $\mathfrak{B}_C^{\text{live}}$ contains the considerability bridge components that remain normatively live for the analysis.

The four coordinates answer different questions. Adverse-state uncertainty concerns what condition is present. Subjectivity uncertainty concerns what kind of experiencing, agential, or otherwise subject-like capacities are present. Considerability uncertainty concerns how the represented recipient enters ethical deliberation under a bridge. Normative uncertainty concerns which bridge or theory should govern that assessment. Moral uncertainty in the sense of uncertainty about what morality requires therefore remains distinct from factual and interpretive uncertainty even when the uncertainties are practically entangled [8].

Proposition 3.2 (Axis-preserving updates). *Within Equation 8, an update to one uncertainty coordinate does not by itself update another coordinate unless the application specifies a justified dependence rule linking them.*

Proof. The four coordinates in Equation 8 have different typed objects. An evidential update can narrow $\mathcal{A}^{\text{live}}$ or $\mathcal{H}_S^{\text{live}}$, while a normative argument can narrow $\mathfrak{B}_C^{\text{live}}$, and a bridge-dependent assessment can narrow $\mathcal{M}_C^{\text{live}}$. No cross-coordinate update rule is contained in the definition of the profile itself. A change in one coordinate therefore changes another only through an additional declared relation that connects the relevant objects. $\square$

Proposition 3.2 blocks several shortcuts. Stronger evidence of distress can increase confidence about an adverse state without proving phenomenal consciousness. Stronger evidence of phenomenal consciousness can matter greatly to a sentience-based bridge without proving that sentience is the only morally relevant basis. Acceptance of a moral theory can narrow the live bridge family without resolving whether the empirical conditions required by that theory obtain. The proposition also works in the opposite direction: normative uncertainty does not erase factual evidence merely because analysts disagree about its ethical significance.

3.3 Considerability Bases and Subjectivity Dependence

A considerability bridge should make explicit which features function as normative bases and which of those features depend on a subjectivity hypothesis. Let $\mathcal{G}_C(\beta_C)$ denote the declared family of considerability bases used by bridge component β_C . For a given application, a basis can be subjectivity-sensitive, subjectivity-insensitive relative to the live hypotheses, or conditionally sensitive because only some interpretations of the basis depend on subjectivity.

This distinction matters because unfamiliar-subject cases often encourage a single-property gate. If the analyst assumes that only phenomenal consciousness can ground recipient-centered consideration, unresolved consciousness can dominate the entire assessment. A different bridge can assign significance to interests, agency, vulnerability, relationship, life, or prior commitments, in which case some ethical relevance can survive uncertainty about phenomenal experience. The framework does not choose among those substantive positions. It requires the dependency structure to be visible.

Let Con_{β_C} be the bridge-specific considerability relation in Equation 9.

$$\text{Con}_{\beta_C} : \mathcal{I}_E \times \mathcal{C}_E \times \mathcal{H}_S \rightrightarrows \mathfrak{C}_C. \quad (9)$$

For $c \in \text{Con}_{\beta_C}(\iota_E, \kappa_E, h_S)$, Equation 9 records the considerability assessment generated by bridge β_C under subjectivity hypothesis h_S . The relation is set-valued because one bridge can permit several live

considerability records when evidence, basis interpretation, or status granularity remains unresolved. It is also permissible for the output to be empty when the bridge cannot responsibly classify the case on the available input.

Definition 3.3 (Subjectivity dependence of a considerability basis). For an application with live subjectivity family $\mathcal{H}_S^{\text{live}}$, a basis $g \in \mathcal{G}_C(\beta_C)$ is *subjectivity-dependent in that application* when the bridge's assessment of whether g is satisfied or normatively operative changes across compatible hypotheses in $\mathcal{H}_S^{\text{live}}$. It is *subjectivity-stable in that application* when that assessment is preserved across those compatible hypotheses. These are application-relative classifications, not intrinsic properties of the basis vocabulary.

Definition 3.3 avoids treating familiar words as if their normative role were fixed across domains. An interest claim can depend on a particular theory of mind in one application and on a functional or relational account in another. A relationship-based reason can remain stable across competing phenomenal-state hypotheses while still depending on disputed facts about interaction history. The classification therefore describes a dependency within a declared model rather than a universal metaphysics of interests, agency, or relationship.

Proposition 3.4 (Subjectivity uncertainty and considerability vacancy). *Unresolved subjectivity does not entail considerability vacancy when an applicable bridge contains at least one basis, or basis-combination, that the bridge treats as sufficient for generating a considerability record and whose satisfaction and normative relevance remain stable across the compatible live subjectivity hypotheses. Conversely, when every bridge-sufficient route to a settled considerability record depends on unresolved subjectivity, the bridge can yield conditionality or vacancy unless it specifies a rule for assessment under that uncertainty.*

Proof. Under Equation 9, the bridge output depends on the ethics-relevant input, ethical context, subjectivity hypothesis, and declared bridge structure. If the bridge declares a basis or basis-combination sufficient for generating a considerability record and that sufficient route remains satisfied and normatively operative across the compatible live hypotheses, variation in h_S does not remove every bridge-internal ground for a considerability record. By contrast, stability of a basis that the bridge treats as merely contributory would not be enough. When every bridge-sufficient route changes with unresolved subjectivity and the bridge supplies no uncertainty rule, conditionality or vacancy remain available outputs. $\square$

Proposition 3.4 is intentionally symmetrical about the substantive moral theory. It does not establish that subjectivity-independent bases are ethically correct, and it does not establish that uncertainty about consciousness should always increase or decrease protection. It establishes only that the logical dependence of considerability on subjectivity, including whether a stable basis is sufficient for a settled record, must come from the bridge rather than from the mere fact that subjectivity is uncertain.

3.4 Compatibility-Filtered Live Considerability Families

Moral-theory uncertainty and subjectivity uncertainty should be combined carefully. A raw Cartesian product of every live bridge with every live subjectivity hypothesis can include combinations that the application itself regards as incoherent or inapplicable. For example, a bridge can be defined only for subjects satisfying a specified capacity predicate, or a subjectivity hypothesis can presuppose an ontology that conflicts with the bridge's own basis specification. The live family should therefore contain only combinations whose joint use is declared coherent.

Let $\text{Comp}_C \subseteq \mathfrak{B}_C \times \mathcal{H}_S \times \mathfrak{I}_E \times \mathcal{C}_E$ be a declared compatibility relation. The live considerability family is stated in Equation 10.

$$\mathcal{J}_C^{\text{live}}(\iota_E, \kappa_E) = \left\{ (\beta_C, h_S) \mid \begin{array}{l} \beta_C \in \mathfrak{B}_C^{\text{live}}, h_S \in \mathcal{H}_S^{\text{live}}, \\ (\beta_C, h_S, \iota_E, \kappa_E) \in \text{Comp}_C \end{array} \right\}. \quad (10)$$

Equation 10 follows the same model-family discipline used in Paper X’s later robustness analysis: robustness is meaningful only relative to a declared family of live, compatible possibilities. The analyst should therefore state why a bridge or subjectivity hypothesis remains live, why a combination is compatible, and which serious alternatives are omitted. The compatibility filter is itself an auditable modeling choice: it should exclude a pair because the joint interpretation is incoherent or outside the bridge’s declared scope, not merely because the pair would generate inconvenient disagreement. A narrow family can yield stable outputs while still providing weak grounds for claims outside that family.

The output frontier generated by the live family is defined in Equation 11.

$$\mathcal{F}_C(\iota_E, \kappa_E) = \bigcup_{(\beta_C, h_S) \in \mathcal{J}_C^{\text{live}}(\iota_E, \kappa_E)} \text{Con}_{\beta_C}(\iota_E, \kappa_E, h_S). \quad (11)$$

Equation 11 preserves the plurality of considerability records generated by the live family. It is a diagnostic frontier rather than an aggregation rule. The frontier can show that several bridge-hypothesis combinations converge on recipient-centered consideration while disagreeing about why, or that one subgroup yields inclusion while another yields conditionality, exclusion, or vacancy. The framework does not convert that plurality into a scalar confidence score unless an application supplies and justifies a separate meta-normative rule.

3.5 Robust Inclusion, Robust Exclusion, and Vacancy

Applications often need language for cases in which every live assessment points in the same direction. Such language requires care because apparent agreement can arise from an empty live family, from an omitted serious hypothesis, or from a status vocabulary so coarse that meaningful disagreements disappear. The present framework therefore treats robustness as a declared-family property rather than as an unconditional conclusion.

Let $\sigma_C : \mathcal{C}_C \rightarrow \Sigma_C$ project a considerability record to an application-declared status vocabulary. The vocabulary can include such tags as recipient-centered inclusion, exclusion under the declared bridge, conditional inclusion, and unresolved status, provided the application defines them precisely. Let $\mathcal{J}_C^{\text{live}}$ be nonempty and require every pair in that family to generate at least one considerability record. Robust inclusion or exclusion can then be stated through unanimity of the projected statuses across all generated records.

Definition 3.5 (Declared-family robust considerability). For a nonempty live family $\mathcal{J}_C^{\text{live}}(\iota_E, \kappa_E)$, a status $s_C \in \Sigma_C$ is *robust relative to the declared live family* when every compatible pair (β_C, h_S) generates at least one considerability record and every generated record projects to s_C . Cases with an empty live family, an empty bridge-relative output, or materially omitted live alternatives remain outside this definition.

Definition 3.5 applies equally to inclusion and exclusion. The symmetry is deliberate. The framework itself does not build in a presumption that uncertainty should always favor inclusion, nor does it permit uncertainty to function as a presumption of exclusion. A precautionary asymmetry can be introduced by a substantive bridge when the expected moral costs of false exclusion and false inclusion are treated differently. Birch’s precautionary treatment of inconclusive evidence about animal sentience is one example of a domain-specific proposal that makes such an asymmetry explicit rather than deriving it from uncertainty alone [1]. Danaher’s discussion of unknown minds likewise illustrates how risk asymmetry can become ethically salient when the presence of mind is uncertain [4].

Proposition 3.6 (Vacancy neutrality). *An empty output of $\text{Con}_{\beta_C}(\iota_E, \kappa_E, h_S)$ does not, by itself, establish either recipient-centered inclusion or exclusion under bridge β_C .*

Proof. Equation 9 uses the empty set to represent absence of a generated considerability record under the declared bridge, input, context, and subjectivity hypothesis. No inclusion or exclusion status is contained in that empty output. Either status would therefore require an additional rule that interprets vacancy, or new information that permits the bridge to generate a record. $\square$

Proposition 3.6 is especially important when unfamiliarity is itself the source of the gap. An artificial system with poorly understood internal organization, an animal species with sparse behavioral evidence, a noncommunicative human patient, and a hypothetical alien subject can all produce cases in which established interpretive resources are incomplete. The resulting epistemic difficulty should remain visible rather than being converted automatically into lower ethical relevance or into an unconditional requirement of maximal intervention.

3.6 Considerability and Richer Moral Status

Moral considerability supplies only one component of ethical assessment. Even stable recipient-centered inclusion under several live bridges does not determine how strong the resulting reasons are, whether competing subjects have equal claims, how claims should be compared, or what response is permissible. Those questions concern richer moral status, heterogeneous stakes, priority, constraints, and assistance-specific reasons.

The distinction matters across subject types. Two recipients can both be morally considerable under a bridge while differing in the kinds of interests, agency, relationships, vulnerabilities, or temporal trajectories that the bridge treats as relevant. Conversely, a theory can assign equal threshold considerability while allowing different practical reasons because the represented stakes differ. Section 4 therefore treats ethical stakes and partial commensurability separately from the threshold/interface question addressed here.

Proposition 3.7 (Considerability underdetermination of response status). *A considerability record $c \in \mathcal{C}_C$ does not by itself determine the ethical status of an assistance response in the assessment relation of Section 2.*

Proof. Definition 3.1 records how a recipient enters ethical deliberation under a considerability bridge. The ethical assessment relation of Section 2 additionally depends on the response object, ethical context, and other components of the ethical bridge package, including those concerning stakes, consent, proportionality, burden, allocation, and revisability where applicable. Since those inputs are not fixed by a considerability record alone, the response status remains underdetermined. $\square$

Proposition 3.7 prevents a threshold result from carrying more normative weight than it has earned. Recipient-centered inclusion can create a reason to take the recipient's condition seriously without settling whether the appropriate response is observation, communication, material assistance, restraint, withdrawal, institutional referral, or another action. The structure also prevents exclusion under one bridge from being silently generalized into a claim that an entity has no ethical relevance under every bridge or relation.

3.7 Considerability Audit and Revision Conditions

Table 2 summarizes the distinctions that should remain explicit when heterogeneous-subject uncertainty enters a moral-considerability assessment. The table is an audit device. It does not rank the candidate bridges or determine which considerability basis should prevail.

The audit makes the section's boundary explicit. Moral considerability can be represented under uncertainty without forcing a decision about a uniquely correct theory of moral status. The framework can preserve subjectivity-sensitive and subjectivity-stable bases, conditionality, vacancy, and cross-bridge disagreement while still recording convergence when it occurs. It does not assign weights to heterogeneous benefits and harms, compare claims across recipients, or determine which assistance statuses follow from considerability. Those tasks require additional ethical structure.

Research Obligation 3.8 (Considerability specification under uncertainty). *An application that assigns or withholds recipient-centered moral considerability should identify the adverse-state interpretations treated as live, the live subjectivity hypotheses, the considerability bridge components and their candidate bases, any subjectivity dependence of those bases, the compatibility rule used to form the live*

Table 2: Audit dimensions for moral considerability under heterogeneous-subject uncertainty.

Dimension	Object or question	Analytical role	Failure mode if compressed
Adverse-state uncertainty	$\mathcal{A}^{\text{live}}$	Preserve competing interpretations of the recipient's condition	Treating stronger evidence of adversity as proof of subjectivity or moral status
Subjectivity uncertainty	$\mathcal{H}_S^{\text{live}}$	Preserve live hypotheses about phenomenal, agential, or other subject-level capacities	Allowing unfamiliar mindedness to decide considerability without a bridge
Considerability interpretation	$\mathcal{M}_C^{\text{live}}$ and $\mathfrak{C}_C$	Record how the recipient enters ethical deliberation under a declared bridge	Conflating threshold inclusion with equal status, priority, or obligation
Normative uncertainty	$\mathfrak{B}_C^{\text{live}}$	Preserve disagreement about the relevant considerability bridge	Hiding moral disagreement inside a factual classification
Bridge bases	$\mathcal{G}_C(\beta_C)$	Identify the properties or relations treated as normatively operative	Allowing a familiar property such as sentience to function as an undeclared universal gate
Compatibility	Comp_C	Exclude bridge-hypothesis combinations the application regards as incoherent	Artificially weakening robustness through impossible combinations
Live frontier	Equation 11	Preserve the range of live bridge-relative assessments	Replacing plural outputs with an unjustified scalar confidence score
Vacancy	Empty output of Equation 9	Preserve absence of a responsible classification	Treating missing grounds as either inclusion or exclusion
Robustness	Definition 3.5	State stability relative to an explicit nonempty live family	Presenting family-relative agreement as unconditional certainty
Revision	Provenance in $c \in \mathfrak{C}_C$	Identify which evidence, hypothesis, or bridge change triggers reassessment	Freezing a status after its supporting conditions have changed

family, the generated considerability records, any vacancy or conditionality, the status vocabulary used for robustness claims, and the evidence or normative changes that would trigger reassessment.

Research Obligation 3.8 establishes the provenance requirements for the next stage of the paper. Section 4 can now analyze heterogeneous ethical stakes after the recipient's entry into ethical deliberation has been typed without assuming that every morally considerable subject carries the same kinds of interests, harms, benefits, or relational goods.

4 Typed Ethical Stakes and Partial Commensurability

Section 3 specified how a recipient can enter ethical deliberation under adverse-state, subjectivity, considerability, and normative uncertainty. This section specifies the objects that can then become ethically at stake. Its role is to prevent moral considerability from being followed immediately by an undifferentiated welfare quantity. The objective is to represent heterogeneous benefits, harms, interests, agency-related goods, relational goods, dependency effects, integrity conditions, temporal trajectories, and third-party consequences while allowing only those comparisons that a declared ethical bridge can justify. The discussion therefore distinguishes stake typing from stake valuation, within-type ordering from cross-type comparison, and comparability from aggregation. The method is formal and normative-reconstructive. Comparability and aggregation enter only through declared bridge structure, and incomparability remains available as a substantive feature of the ethical problem. This positioning is consistent with the philosophical literature that distinguishes commensurability from comparability and treats failures of comparison as substantive questions of practical reason rather than mere measurement error [3].

4.1 Stake Carriers and Typed Profiles

An assistance episode can affect more than one ethically relevant dimension at once. Relief of phenomenal distress may accompany reduced agency; increased functional capacity may coexist with dependency on a helper; preservation of a relationship may conflict with a recipient's stated preference; and a response that benefits one recipient can impose burdens on third parties. A representation that compresses these consequences into a single number before their normative relations have been stated risks deciding the ethical problem inside the notation.

Let

$$\mathcal{T}_E = \{\text{phen, func, agen, pref, rel, dep, int, traj, third}\} \quad (12)$$

denote a provisional carrier of stake types. The labels respectively indicate phenomenal, functional, agential, preference-related, relational, dependency-related, integrity-related, trajectory-level, and third-party stakes. Equation 12 is not intended as an exhaustive ontology. An application can refine, split, or extend the carrier when its subject matter requires additional distinctions. The analytical requirement is that materially different ethical dimensions remain separately addressable until a justified bridge relates them.

For each type $\tau \in \mathcal{T}_E$, let $\mathcal{V}_\tau$ denote the carrier in which stakes of that type are represented. The carriers can differ in structure. A phenomenal-stake carrier might record intensity ranges and duration; an agency carrier might record option sets or control relations; a relational carrier might encode role, trust, dependency, or attachment structure; and a trajectory carrier might represent path-dependent changes over time. Nothing in the notation requires these carriers to admit a common metric.

Definition 4.1 (Typed ethical stake profile). For an ethics-relevant input record x_E , response u , affected party a , and declared ethical context η_E , a *typed ethical stake profile* is a provenance-bearing partial map

$$\text{Stk}_E(x_E, u, a; \eta_E) : D_E(x_E, u, a; \eta_E) \longrightarrow \bigsqcup_{\tau \in \mathcal{T}_E} \mathcal{V}_\tau, \quad (13)$$

where $D_E(x_E, u, a; \eta_E) \subseteq \mathcal{T}_E$ is the set of stake types for which the application has a responsible representation. If $\tau \in D_E$, then $\text{Stk}_E(\cdot)(\tau) \in \mathcal{V}_\tau$. Omission of a type means that the application has not responsibly represented that dimension; it does not mean that the corresponding stake is absent or ethically irrelevant.

Equation 13 and Definition 4.1 use a partial map deliberately. The framework should not reward an application for pretending to know a recipient's phenomenal state, preferences, or trajectory-level interests when the relevant evidence or bridge is missing. The domain D_E is therefore itself part of the provenance that an ethical assessment should expose.

A missing stake dimension remains unresolved. If $\tau \notin D_E(x_E, u, a; \eta_E)$, the typed profile supplies no basis for classifying that dimension as beneficial, harmful, neutral, or absent.

The unresolved-stake condition matters in heterogeneous-subject cases because unknown preference, agency, or phenomenal structure can otherwise disappear inside a summary score. A profile can be informative while still carrying explicit unresolved dimensions.

4.2 Stake Direction and Bridge-Relative Evaluation

Stake representation does not yet determine whether a represented change counts as ethically favorable or adverse. An increase in dependency, for example, can be harmful in one context, protective in another, and mixed in a third. The same applies to intervention into preferences when those preferences are uncertain, manipulated, unstable, or generated under coercive conditions. Ethical direction therefore belongs to the bridge, not to the type label alone.

For each live ethical bridge package β_E , let

$$\text{Eval}_{\beta_E, \tau} \subseteq \mathcal{V}_\tau \times \{\text{fav}, \text{adv}, \text{mixed}, \text{undetermined}\} \quad (14)$$

be a possibly set-valued type-specific evaluation relation. The output vocabulary in Equation 14 is deliberately coarse. An application can replace it with a richer vocabulary provided that the semantics are declared.

Definition 4.2 (Evaluated stake record). An *evaluated stake record* is a tuple recording the affected party, stake type τ , represented stake value in $\mathcal{V}_\tau$, bridge package β_E , ethical context η_E , the generated directional status or statuses under Equation 14, and the provenance of the underlying representation. The record remains bridge-relative and revisable.

Definition 4.2 preserves that ambiguity explicitly. The use of a set-valued relation allows a single represented stake to remain ethically ambiguous under a bridge. For example, a change in dependency can preserve safety while increasing control by a helper; a relational repair can also re-establish an asymmetrical role; and information-gathering can reduce uncertainty while imposing intrusion. Mixed or unresolved outputs are therefore legitimate results rather than failures to complete the model.

4.3 Within-Type Orders and Comparison Domains

Comparison should be introduced only where its conditions are explicit. For each type τ , bridge β_E , and context η_E , let

$$\preceq_\tau^{\beta_E, \eta_E} \subseteq \mathcal{V}_\tau \times \mathcal{V}_\tau \quad (15)$$

denote an admissible within-type comparison relation. It can be a preorder, a partial order, an interval comparison, a dominance relation, or another declared structure. Equation 15 does not require totality.

Definition 4.3 (Comparison domain). For a bridge β_E and context η_E , the *comparison domain* is denoted by $\mathcal{D}_{\text{cmp}}(\beta_E, \eta_E)$. It contains the ordered pairs of represented stakes for which β_E supplies a legitimate comparison rule. A pair outside this domain is *uncompared* by that bridge in that context.

Definition 4.3 makes the scope of an ordering visible. Two changes in the same type can remain incomparable because evidence is too coarse, because the bridge recognizes plural dimensions inside the carrier, or because the relation is intentionally partial. Cross-type comparisons require still more structure.

Within-type representation also leaves room for incomparability: the relation in Equation 15 is not assumed to be total unless the application separately justifies totality.

The within-type comparability condition matters when a recipient's stakes are represented qualitatively or through multidimensional objects. The fact that two agency profiles, two relational states, or two phenomenal-state intervals belong to the same carrier does not itself determine how they should be ranked.

4.4 Cross-Type Comparability Bridges

Cross-type comparison is ethically stronger than within-type ordering because it states how one kind of stake can be traded against another. A benefit in functional capacity may be compared with an intrusion on autonomy only if the ethical bridge supplies an account of that comparison. A framework that inserts coefficients into a weighted sum without such an account converts an unresolved normative issue into a numerical convention.

Let

$$\text{CrossCmp}_{\beta_E, \eta_E} \subseteq \bigcup_{\tau \neq v} (\mathcal{V}_\tau \times \mathcal{V}_v) \times \mathcal{R}_C \quad (16)$$

be a cross-type comparison relation, where $\mathcal{R}_C$ is a declared vocabulary of comparative results such as {less, equiv, greater, incomparable, undetermined}. Equation 16 permits a bridge to compare some cross-type pairs while leaving others incomparable.

Definition 4.4 (Partial commensurability). A stake system is *partially commensurable* under (β_E, η_E) when the bridge supplies legitimate comparison relations for a nonempty proper subset of the stake pairs material to the ethical question, while at least one other material pair remains incomparable or undetermined. Partial commensurability permits local comparison without requiring a universal common measure.

Definition 4.4 is especially useful for heterogeneous subjects. An application may have strong grounds for preferring one response because it dominates another across the represented functional and integrity stakes while remaining unable to compare the parties' phenomenal experiences or relational goods. The framework should preserve that local result without presenting it as a complete ordering of welfare.

Proposition 4.5 (Local comparison and global commensurability). *If Equation 16 supplies a comparison for one material pair of stake values, no global common scale over all represented stake types follows without an additional aggregation bridge.*

Proof. A single pairwise relation constrains only the pair on which it is defined. A global common scale would require additional structure assigning jointly interpretable values or order relations across the remaining stake carriers. That structure is not contained in Equation 16. $\square$

4.5 Aggregation Bridges and Their Scope

Proposition 4.5 marks the boundary between local comparison and stronger aggregation. Some applications can justify stronger aggregation. A clinical protocol might use a validated multidimensional index for a narrowly defined population and decision; a resource-allocation rule might deliberately aggregate several dimensions under an institutional mandate; or a moral theory might provide a substantive account of trade-offs. Such cases should be represented as additional bridge commitments rather than as the default form of ethical reasoning.

Definition 4.6 (Aggregation bridge). An *aggregation bridge* α_E , defined on a declared domain D_α , is a provenance-bearing rule

$$\alpha_E : \prod_{\tau \in D_\alpha} \mathcal{V}_\tau \dashrightarrow \mathcal{W}_\alpha \quad (17)$$

that maps specified combinations of typed stake values into an aggregate carrier $\mathcal{W}_\alpha$. The partial-function symbol indicates that aggregation can be undefined for some profiles. The bridge must state its domain, interpretation, dependence on the ethical context, and the normative grounds for treating the included stake types as jointly aggregable.

Equation 17 can encode a scalarization, lexicographic rule, threshold system, multidimensional dominance criterion, or another declared structure. The framework does not privilege a scalar output. What matters is that aggregation be identifiable as a substantive ethical bridge rather than concealed inside notation.

Proposition 4.7 (Scalar output requires an aggregation commitment). *A scalar ethical score for a typed stake profile is justified by the present framework only when an applicable aggregation bridge has been declared for the stake types included in that score.*

Proof. Definition 4.1 assigns values to type-specific carriers and supplies no common codomain. A scalar codomain therefore enters only through additional structure such as Definition 4.6. Without that structure, scalarization is external to the represented stake profile. $\square$

Proposition 4.7 does not deny the usefulness of quantitative ethics. It requires the quantification step to disclose the bridge by which heterogeneous ethical dimensions become jointly measurable or orderable.

4.6 Response Dominance under Incomplete Comparability

Incomplete commensurability does not imply that ethical choice must remain wholly indeterminate. Some responses can be compared through a dominance relation that uses only declared comparable dimensions while preserving unresolved ones.

For two responses u, v , affected party set A , bridge β_E , and context η_E , define the material represented stake pairs

$$\mathcal{P}_{uv}(A; \beta_E, \eta_E) = \{(a, \tau) : a \in A, \tau \in D_E(x_E, u, a; \eta_E) \cap D_E(x_E, v, a; \eta_E)\}. \quad (18)$$

Equation 18 supplies the common represented dimensions. Let $\mathcal{P}_{uv}^{\text{cmp}} \subseteq \mathcal{P}_{uv}$ be the subset for which the bridge supplies a legitimate comparison between the corresponding stake values.

Definition 4.8 (Qualified typed weak dominance). Response u *typed-weakly dominates* response v , relative to the declared bridge, context, and affected-party set, when four conditions hold. First, $\mathcal{P}_{uv}^{\text{cmp}} \neq \emptyset$. Second, every comparison in that set is at least as favorable for u as for v under the declared comparison relations. Third, at least one comparison is strictly more favorable for u . Fourth, no material stake known to be adversely affected by u is omitted merely because its type lacks a comparison rule. Any unresolved material dimensions remain attached to the dominance record as open conditions.

The defeasibility of typed dominance limits the inferential force of Definition 4.8. Condition (iv) prevents incomparability from being exploited strategically. A response cannot be declared dominant by ignoring precisely those dimensions on which it may be ethically worse. The resulting dominance claim is therefore explicitly qualified to the represented comparable dimensions. When an unresolved material dimension could alter the all-things-considered ranking, the architecture records that open condition and does not infer complete superiority from the local dominance result.

Typed weak dominance remains only one input to ethical assessment. It compares represented material stakes within the declared domain while leaving consent, side constraints, role, helper burden, third-party claims, proportionality, and unresolved dimensions independently operative.

4.7 Cross-Subject Comparison and Resolution Dependence

Cross-subject comparison raises an additional problem. Even if two stake carriers share a type label, their representation can depend on species, architecture, history, embodiment, communication regime, or analytical resolution. A functional disruption in a human, an animal, and an artificial system can be represented as the same broad type while remaining structurally different enough that a common ordering is unjustified.

Let ρ_a denote the declared representational resolution for affected party a . A cross-subject comparison bridge should therefore be indexed by the relevant resolutions:

$$\text{XSComp}_{\beta_E, \eta_E}^{\rho_a, \rho_b} \subseteq \mathcal{V}_{\tau, a}^{\rho_a} \times \mathcal{V}_{v, b}^{\rho_b} \times \mathcal{R}_C. \quad (19)$$

Equation 19 records that apparent type identity does not itself establish interpersonal, interspecies, or cross-architecture comparability.

A shared type label does not establish cross-subject comparability. Subject- and resolution-indexed carriers can differ in structure or interpretation, so Equation 19 requires an applicable comparison bridge.

The cross-subject comparability condition blocks a common shortcut in heterogeneous-subject reasoning: treating the shared word *pain*, *preference*, *agency*, or *dependency* as evidence that the underlying ethical magnitude is already common across subjects.

4.8 Conflict Records and Ethical Deliberation under Incomparability

Ethical deliberation can remain structured even when full comparison fails. A useful output is then a conflict record rather than a forced ranking.

Definition 4.9 (Ethical stake conflict record). An *ethical stake conflict record* χ_E identifies: the responses or states under comparison; the affected parties; the material stake types; the represented favorable, adverse, mixed, and unresolved dimensions; the within-type, cross-type, and cross-subject comparisons that are actually licensed; the stake pairs that remain incomparable or undetermined; any aggregation bridge applied; and the provenance and revision conditions of those judgments.

Definition 4.9 allows later sections to ask more precise questions. Section 5 can distinguish whether a conflict supports a pro tanto reason, permission, obligation, or optionality. Section 6 can add consent and refusal. Section 7 can examine whether one response is less intrusive or more reversible. Sections 8–10 can incorporate autonomy, dependency, helper-side burden, allocation, and third-party effects. The present section therefore supplies a structured stake layer rather than a decision algorithm.

Table 3 summarizes the section’s discipline. The framework permits quantitative or aggregative methods when their ethical and representational bridges are explicit, but it also supports structured nonaggregation. This flexibility is important because the ethical status of assistance should not depend on whether every heterogeneous subject can be placed on a single welfare scale.

Research Obligation 4.10 (Stake typing and comparison provenance). An application that compares ethically relevant consequences of assistance should identify the affected parties, represented stake types, type-specific carriers, omitted or unresolved dimensions, bridge-relative directional evaluations, within-type and cross-type comparison rules, any cross-subject translation or resolution assumptions, every aggregation bridge used, the material incomparable stake pairs, and the evidence or normative changes that would trigger reassessment.

Research Obligation 4.10 establishes the stake-level provenance required for response-status analysis. Section 5 can now ask when the resulting typed and only partially comparable stakes support pro tanto reasons, permissions, obligations, or optional assistance while preserving the analytical distinctions among aid, volunteering, and support.

Table 3: Typed-stake audit for heterogeneous assistance ethics.

Audit item	Required object	Analytical purpose	Failure mode if omitted
Stake type	$\tau \in \mathcal{T}_E$	Keep ethically different dimensions separately addressable	Prematurely treating heterogeneous goods and harms as one quantity
Representation domain	D_E	Record which dimensions are responsibly represented	Treating unknown stakes as absent
Type-specific carrier	$\mathcal{V}_\tau$	Preserve the structure appropriate to each stake	Imposing a common metric through notation
Bridge-relative direction	Equation 14	State why a represented change is favorable, adverse, mixed, or unresolved	Building ethical direction into descriptive labels
Within-type comparison	Equation 15	Permit local ordering where justified	Assuming totality merely because values share a type
Cross-type comparison	Equation 16	Make trade-offs between different stake kinds explicit	Hiding trade-offs inside coefficients or informal intuition
Aggregation bridge	Equation 17	Declare when multidimensional stakes enter a common output	Treating scalarization as methodologically neutral
Cross-subject bridge	Equation 19	Control interpersonal, interspecies, and cross-architecture comparison	Inferring comparability from shared vocabulary
Unresolved dimensions	Conflict record χ_E	Preserve material incomparability and uncertainty	Converting incomplete comparison into an unjustified ranking
Revision conditions	Provenance of Stk_E , comparisons, and bridges	Trigger reassessment when evidence or normative commitments change	Freezing a ranking after its support has changed

5 Ethical Statuses of Assistance across Aid, Volunteering, and Support

This section specifies the response-status layer that follows from the considerability and stake architecture developed in Sections 3 and 4. Its role is to distinguish the ethical force of reasons from the all-things-considered status of a response while preserving the multi-axial assistance typing inherited from Paper X. The objective is to formalize pro tanto reasons, permissions, requirements, prohibitions, and optional assistance in a way that remains actor-, response-, context-, and bridge-relative. The discussion first introduces typed ethical reason tokens, then defines a feasible decision frame and its core status record, analyzes response-level and assistance-level optionality, and finally examines how ethical

status behaves across the aid, volunteering, and support lenses. The method is formal and normative-reconstructive. The section supplies structural relations among ethical statuses; it leaves the substantive criteria concerning consent, proportionality, autonomy, burden, allocation, and temporal revision to later sections.

5.1 Typed Pro Tanto Reasons and Their Provenance

Paper X already preserves defeasible response reasons together with the assistance lens under which they arise. Paper XI requires a further ethical layer because a support-relevant reason can acquire different normative force under different bridge packages. A recognized adverse state can, for example, support an aid-directed reason to respond, while a helper’s prior commitment can support a role-sensitive reason to continue a support relation. Neither reason is yet an all-things-considered verdict.

Let $\mathcal{H}_E$ denote the carrier of prospective ethical actors and let $\mathcal{X}_E$ denote the carrier of candidate responses represented at the resolution of the ethical question. Let $\mathfrak{T}_{\text{sup}} = \{\text{aid, volunteering, support}\}$ retain the assistance lenses inherited from Paper X. For each $\tau \in \mathfrak{T}_{\text{sup}}$, let $\mathfrak{R}_{E,\tau}$ be a carrier of ethical reason tokens generated under that lens, and let $\mathfrak{R}_E^{\sqcup} := \bigsqcup_{\tau \in \mathfrak{T}_{\text{sup}}} \mathfrak{R}_{E,\tau}$.

Definition 5.1 (Typed ethical reason token). *A typed ethical reason token $r \in \mathfrak{R}_{E,\tau}$ records at least the prospective actor, the response or response family toward which the reason bears, its assistance lens τ , its direction as a reason in favor of or against the response, the ethically relevant source or stake on which it depends, the bridge component that gives that source normative force, any unresolved condition on which the reason depends, and its provenance to the ethics-relevant input record.*

For an applicable bridge package β , define the ethical reason-generation correspondence in Equation 20.

$$\text{Rsn}_\beta : \mathcal{H}_E \times \mathcal{X}_E \times \mathfrak{T}_E \times \mathcal{C}_E \rightrightarrows \mathfrak{R}_E^{\sqcup}. \quad (20)$$

Equation 20 is set-valued because several ethically relevant considerations can bear on one response and because their directions can conflict. A response can therefore have both favorable and adverse pro tanto reasons. The typed stake profile of Section 4 can supply the represented material on which such reasons depend, while the bridge package determines which represented stakes, relationships, commitments, or other features count ethically and how.

The distinction between pro tanto reasons and all-things-considered status is structurally important. Strong beneficence arguments can assign substantial force to relieving serious adversity under specified conditions [14], while care-oriented approaches can assign independent significance to historically constituted relationships and dependencies [5]. The present architecture can represent both kinds of reason without presupposing that they share one weight scale or that either class automatically determines the final status of a particular intervention.

Proposition 5.2 (Reason–status separation). *The presence of a favorable or adverse reason token in $\text{Rsn}_\beta(h, x, \iota_E, \kappa_E)$ does not by itself establish that x is permitted, required, prohibited, or optional for actor h .*

Proof. Equation 20 generates pro tanto reason tokens rather than all-things-considered response statuses. A bridge package can additionally contain priority rules, side constraints, role conditions, burden limits, consent conditions, comparison rules, or conflict-resolution rules whose outputs are not encoded by the existence of any one reason token. A further status-resolution operation is therefore required. $\square$

Proposition 5.2 blocks two opposite shortcuts. A favorable reason to assist does not establish an obligation to perform a particular response, and an adverse reason against one mode of intervention does not establish indifference toward the underlying adversity. The same adverse condition can support continued ethical attention while a specific intervention remains impermissible or unresolved.

5.2 Feasible Decision Frames and Core Ethical Status

All-things-considered status is assessed over a declared choice frame rather than over an abstract act in isolation. Within the present response-status representation, positive response requirements are assigned only over responses included in the declared feasible set. This is a modeling convention for the local decision problem rather than a general thesis that impossibility cancels every morally relevant responsibility: prevention, preparation, referral, repair, institutional design, or responsibility for making options unavailable can require separate representation. Feasibility is itself application-relative and can depend on competence, resources, time, physical access, institutional conditions, and the granularity at which responses are represented.

Definition 5.3 (Ethical decision frame). For actor h , ethics-relevant record ι_E , context κ_E , and bridge package β , an *ethical decision frame* is a nonempty feasible response set

$$\mathcal{F}_\beta(h \mid \iota_E, \kappa_E) \subseteq \mathcal{X}_E \quad (21)$$

together with the resolution at which distinct responses are represented. The frame should include any nonperformance, continuation, withdrawal, referral, monitoring, or composite option that the declared ethical question treats as materially available. Absence of an explicit response need not be represented by a universal “do nothing” element; the application should specify what nonperformance means in the relevant context.

Definition 5.3 prevents an omission from functioning as a context-free zero act. Declining to initiate aid, declining to volunteer, discontinuing long-term support, transferring responsibility to another competent actor, and temporarily monitoring a recipient are ethically different possibilities even when each can be described informally as “not acting.” The nonemptiness requirement means that this object represents a response-selection problem. If no response is responsibly represented as feasible at the chosen resolution, the local frame is unavailable rather than empty by convention; the ethical question must be widened to option creation, prevention, referral, institutional escalation, repair, or another appropriately represented object before positive response selection is assessed.

Within a decision frame, let the bridge package generate a core response-status record as defined in Definition 5.4.

Definition 5.4 (Core response-status record). A *core response-status record* for $(h, \iota_E, \kappa_E, \beta)$ is a tuple

$$\mathcal{D}_\beta(h \mid \iota_E, \kappa_E) := (\mathcal{F}_\beta, \mathcal{P}_\beta, \mathcal{N}_\beta, \mathcal{U}_\beta, \mathcal{Q}_\beta), \quad (22)$$

where $\mathcal{P}_\beta$, $\mathcal{N}_\beta$, and $\mathcal{U}_\beta$ are pairwise disjoint subsets of $\mathcal{F}_\beta$ representing responses assessed as permitted, prohibited, and unresolved, respectively, and where $\mathcal{Q}_\beta \subseteq \mathcal{P}_\beta$ is either empty or a nonempty *requirement set*. When $\mathcal{Q}_\beta \neq \emptyset$, ethical compliance requires selection of at least one response represented in $\mathcal{Q}_\beta$. When $\mathcal{Q}_\beta = \emptyset$, the record generates no positive all-things-considered requirement within the declared decision frame.

Equation 22 treats a nonempty requirement set as disjunctive: compliance requires selection of at least one represented member. An actor can therefore be required to assist while retaining ethically permissible choice among several responses. Conjunctive requirements need a different representation. If ethical compliance requires both x and y , the application should represent the conjunction as a composite response at the relevant resolution or as separate requirement clauses; writing $\mathcal{Q}_\beta = \{x, y\}$ would otherwise misrepresent the conjunction as a choice. A duty to respond to an urgent condition therefore need not imply a duty to perform one specific intervention, while the chosen response granularity must remain faithful to the logical structure of the requirement.

The record can remain partial. An application can have $\mathcal{P}_\beta \cup \mathcal{N}_\beta \cup \mathcal{U}_\beta \subsetneq \mathcal{F}_\beta$ when the bridge package does not classify every feasible response at the current resolution. Such unclassified responses remain outside the generated status claims. The ethical-interface vacancy of Definition 2.8 therefore remains available at the response-status layer.

Proposition 5.5 (Permission and requirement structure). *Within Definition 5.4, membership of x in $\mathcal{P}_\beta$ does not establish membership in $\mathcal{Q}_\beta$, and membership in $\mathcal{Q}_\beta$ need not make x the uniquely required response.*

Proof. Definition 5.4 requires only $\mathcal{Q}_\beta \subseteq \mathcal{P}_\beta$. The inclusion can be strict, so permitted responses can fall outside the requirement set. The requirement set can also contain several responses, in which case compliance requires selection of at least one member while the architecture supplies no unique-response requirement without additional structure. $\square$

Proposition 5.5 is important for assistance ethics. A helper can have an obligation to secure a recipient's access to urgent assistance while retaining a choice among direct provision, referral, transfer to a competent institution, or another response recognized by the bridge package as satisfying the requirement. The ethical object of obligation can therefore be coarser than the concrete response eventually selected.

5.3 Response-Level Optionality and Assistance-Level Optionality

Optionality is often treated as the mere absence of an obligation. The present architecture uses a stronger and more informative relation. A response counts as optional only when it belongs to a set of ethically compliant alternatives within the declared decision frame. This preserves the difference between genuine ethical choice and a case in which the framework simply lacks a verdict.

Define the compliant-response set in Equation 23.

$$\mathcal{C}_\beta(h \mid \iota_E, \kappa_E) := \begin{cases} \mathcal{Q}_\beta, & \mathcal{Q}_\beta \neq \emptyset, \\ \mathcal{P}_\beta, & \mathcal{Q}_\beta = \emptyset. \end{cases} \quad (23)$$

Equation 23 is defined relative to the status record in Definition 5.4. It does not convert unresolved or unclassified responses into compliant alternatives.

Definition 5.6 (Response-level optionality). A response $x \in \mathcal{C}_\beta(h \mid \iota_E, \kappa_E)$ is *response-level optional* in the declared decision frame when there exists a distinct $y \in \mathcal{C}_\beta(h \mid \iota_E, \kappa_E)$. A response x is uniquely required at that resolution when $\mathcal{Q}_\beta = \{x\}$. If $\mathcal{Q}_\beta = \emptyset$ and $\mathcal{P}_\beta = \{x\}$, then x is the sole presently permitted response in the frame, but the record does not thereby generate a positive requirement to select it.

Definition 5.6 permits a specific response to be optional even when assistance in a broader sense is required. If $\mathcal{Q}_\beta = \{x_1, x_2\}$, each response is an ethically compliant alternative, while the actor remains required to choose some response from the requirement set.

The same distinction can be made at the assistance-lens level. For $\tau \in \mathfrak{T}_{\text{sup}}$, let $\mathcal{F}_\beta^\tau \subseteq \mathcal{F}_\beta$ denote the responses whose upstream assistance-label profile contains τ . Assistance under lens τ is required in the declared decision frame when a positive requirement exists and every response that can satisfy that requirement carries the lens, as stated in Equation 24.

$$\text{ReqLens}_\beta(\tau \mid h, \iota_E, \kappa_E) \iff \mathcal{Q}_\beta \neq \emptyset \text{ and } \mathcal{Q}_\beta \subseteq \mathcal{F}_\beta^\tau. \quad (24)$$

By contrast, assistance under lens τ is lens-level optional when both a compliant τ -typed response and a compliant response outside that lens remain available, as stated in Equation 25.

$$\text{OptLens}_\beta(\tau \mid h, \iota_E, \kappa_E) \iff \mathcal{C}_\beta \cap \mathcal{F}_\beta^\tau \neq \emptyset \text{ and } \mathcal{C}_\beta \setminus \mathcal{F}_\beta^\tau \neq \emptyset. \quad (25)$$

Equations 24 and 25 make the granularity of optionality explicit. A particular intervention can be optional while aid as a broader response class is required; conversely, aid can be optional even when one specific non-aid response is required by a different ethical relation.

Proposition 5.7 (Optionality under an empty requirement set). *If $\mathcal{Q}_\beta = \emptyset$, the architecture does not classify every feasible response as optional. Response-level optionality still requires membership in $\mathcal{P}_\beta$ and the existence of a distinct compliant alternative.*

Proof. When $\mathcal{Q}_\beta = \emptyset$, Equation 23 gives $\mathcal{C}_\beta = \mathcal{P}_\beta$. Responses in $\mathcal{N}_\beta$, $\mathcal{U}_\beta$, or the unclassified part of $\mathcal{F}_\beta$ are therefore excluded from the compliant set. Definition 5.6 also requires a distinct compliant alternative. The absence of a positive requirement is consequently weaker than optionality. $\square$

Proposition 5.7 also distinguishes optionality from ethical-interface vacancy. A framework that cannot determine whether an intervention is permissible has not thereby shown that the intervention is freely optional.

5.4 Aid-Directed Reasons and Actor-Specific Obligations

The aid lens is directed toward recognized adversity. Its ethical relevance therefore often begins with recipient-centered stakes and the reasons generated by preventing, mitigating, repairing, or relieving an adverse condition. The strength and actor distribution of those reasons remain bridge-dependent. Serious adversity can generate a strong pro tanto reason for aid while the identity of the actor who should bear the corresponding burden remains unsettled.

Let $\mathfrak{R}_{E,\text{aid}}$ denote the aid-typed reason carrier from Definition 5.1. A favorable token in this carrier can be recipient-centered while its assignment to a particular actor depends on proximity, competence, prior undertaking, institutional role, feasible alternatives, burden, or another condition represented by the bridge package. Section 2 already requires actor-relevant contextual completeness when those variables are material.

Proposition 5.8 (Aid-directed reason and actor-specific obligation). *A favorable aid-typed reason concerning response class $X \subseteq \mathcal{X}_E$ does not by itself establish $\text{ReqLens}_\beta(\text{aid} \mid h, \iota_E, \kappa_E)$ for a particular actor h .*

Proof. The aid-typed reason token records normative force in favor of an aid-directed response. Lens-level requirement in Equation 24 is defined through the actor-specific requirement set, which depends on the complete status-resolution record for h . The reason token alone supplies neither that actor-specific resolution nor the condition that a positive requirement exists and every requirement-satisfying response is aid-typed. $\square$

Proposition 5.8 preserves a useful distinction between the claim that assistance is ethically called for and the claim that one identified person is obligated to provide it. Later analysis of helper burden, role, capacity, and institutional distribution can refine the second claim without erasing the first.

5.5 Volunteering as Participation Mode and Ethical Status

Volunteering presents a different structural problem because the label primarily types the helper’s participation mode. Paper X intentionally separated that classification from the adverse-state orientation of aid and the sustaining function of support. Paper XI retains the separation. Ethical status can attach to entering, continuing, modifying, or leaving a voluntary participation relation, but ethical obligation should not be used as an automatic classifier of whether the participation is voluntary.

The distinction is clearest when moral requirement and external compulsion are separated. A person can regard assistance as morally required while still entering an activity without institutional coercion. Conversely, an unpaid compulsory assignment can fail an operational volunteering criterion even when the assigned conduct is ethically justified. The participation classifier and the ethical status record therefore answer different questions.

Proposition 5.9 (Ethical obligation and volunteering classification). *Whether a response is ethically required for actor h within $\mathcal{D}_\beta(h \mid \iota_E, \kappa_E)$ does not by itself determine whether the corresponding assistance episode satisfies the operational volunteering criterion inherited from Paper X.*

Proof. The core status record in Definition 5.4 is generated by an ethical bridge package, whereas Paper X classifies volunteering through a participation descriptor and an operational voluntariness criterion. The present architecture supplies no default identification between ethical requirement and the participation variables used by that classifier. A relation between them requires an application-specific rule. $\square$

Proposition 5.9 also protects the meaning of optional volunteering. An activity can be optional at the ethical response level while carrying significant favorable reasons, and a volunteer can acquire role-sensitive reasons after undertaking a commitment even when the initial participation was optional. Those later reasons arise from changed relational context and history; they should not be projected backward as proof that the initial act was obligatory.

5.6 Support Relations, Continuity, and Role-Sensitive Reasons

Support is typed through a sustaining relational function. Its ethical status can therefore depend on temporal and relational information that is less central to one-off aid. A support relation can create expectations, dependencies, trust-related conditions, coordination structures, or reliance that alter the ethical context of later decisions. The present section records these status consequences only at a structural level. Later sections on autonomy, dependency, and revisable assistance will analyze the relational and temporal mechanisms in detail.

Role-sensitive reasons can be represented through the source field of Definition 5.1. A support-typed reason token is role-sensitive when its normative bridge explicitly depends on an actor’s prior undertaking, continuing relationship, institutional role, reliance generated by earlier conduct, or another historically constituted relation represented in κ_E . Such a reason can coexist with impartial or recipient-centered reasons without being reduced to them.

Proposition 5.10 (Temporal reassessment of support status). *An ethical status assigned to initiating or performing a support response at one point in a relational history does not by itself determine the ethical status of continuing, modifying, or withdrawing that support at a later point.*

Proof. The response-indexing result in Proposition 2.6 distinguishes different assistance objects, while the ethical context can change with reliance, dependency, burden, alternatives, recipient preference, and institutional conditions. Continuation, modification, and withdrawal therefore require their own ethics-relevant inputs and status-resolution records unless an applicable bridge supplies a justified persistence rule. $\square$

Proposition 5.10 avoids treating a support relation as ethically permanent merely because its initiation was justified. It also avoids the opposite inference that initial optionality guarantees costless withdrawal at every later time. Historically generated reasons can change the ethical decision frame without converting every expectation into an obligation.

5.7 Status Transport across Co-Instantiated Assistance Lenses

One episode can satisfy several assistance criteria simultaneously. The ethical status of the underlying conduct can therefore be evaluated while several lens-specific reason profiles remain active. Co-instantiation, however, does not make those reason profiles interchangeable. A reason to relieve an urgent adverse state, a reason concerning voluntary participation, and a reason to sustain a support relation can differ in source, temporal horizon, actor indexing, and conditions of defeat.

For response x , let $\Lambda(x) \subseteq \mathfrak{T}_{\text{sup}}$ denote the assistance labels inherited from the upstream Paper X record. Define the lens-restricted reason profile in Equation 26.

$$\text{Rsn}_{\beta}^{\tau}(h, x, \iota_E, \kappa_E) := \text{Rsn}_{\beta}(h, x, \iota_E, \kappa_E) \cap \mathfrak{R}_{E,\tau}, \quad \tau \in \Lambda(x). \quad (26)$$

Equation 26 permits one response to carry several typed reason profiles without merging them.

Proposition 5.11 (Cross-lens status transport). *If response x is co-instantiated under assistance lenses τ and τ' , a pro tanto reason or lens-level requirement associated with τ does not thereby establish the corresponding reason or requirement under τ' .*

Proof. The lens-restricted reason profiles in Equation 26 belong to distinct components $\mathfrak{R}_{E,\tau}$ and $\mathfrak{R}_{E,\tau'}$. Lens-level requirement in Equation 24 is likewise tested against distinct response subsets $\mathcal{F}_\beta^\tau$ and $\mathcal{F}_\beta^{\tau'}$. Co-instantiation identifies one response as satisfying both assistance criteria but supplies no translation rule between the corresponding reason sources or requirement predicates. $\square$

A familiar practical pattern illustrates Proposition 5.11. An actor can have an obligation to ensure urgent aid while retaining ethical discretion about whether to participate personally as a volunteer. A volunteer can have reason to complete a promised shift without thereby acquiring an indefinite obligation to sustain a long-term support relation. A support provider can be required to arrange a safe transition when withdrawing while retaining no obligation to preserve every historical feature of the support arrangement. Each inference depends on the relevant lens, actor, response class, and bridge.

5.8 Status Audit for Heterogeneous Assistance

Table 4 summarizes the response-status distinctions developed in this section. The audit is deliberately structural. It identifies the objects that later substantive sections must constrain rather than assigning one universal status rule to heterogeneous assistance.

Table 4 also clarifies the limits of the current section. The framework can distinguish reason, permission, requirement, prohibition, optionality, and unresolved status without yet determining which concrete response belongs in which set. That substantive classification depends on the additional ethical dimensions developed in the later sections on consent, response design, autonomy, helper burden, and multi-recipient allocation.

Research Obligation 5.12 (Assistance-status provenance). An application assigning ethical status to aid, volunteering, or support should report the prospective actor, candidate response, feasible decision frame, assistance-label profile, typed pro tanto reasons and their sources, bridge package, permitted, prohibited, unresolved, and required-response sets where generated, the level at which optionality is asserted, any actor- or role-sensitive premises, and the evidence, relational changes, or normative changes that would trigger reassessment.

Research Obligation 5.12 completes the response-status layer. The subsequent analysis of consent, refusal, preference, and communicative uncertainty can now constrain these statuses without treating communication as transparent or assuming that a missing communicative signal resolves the ethical question.

Table 4: Ethical-status audit across aid, volunteering, and support.

Audit item	Required object	Analytical purpose	Failure mode if omitted
Pro tanto reason	$r \in \mathfrak{R}_{E,\tau}$	Preserve source, direction, assistance lens, actor, and provenance	Treating one ethically relevant consideration as a final verdict
Decision frame	Equation 21	State the feasible alternatives and response resolution	Comparing a response with an undefined or infeasible omission
Permission and prohibition	$\mathcal{P}_\beta, \mathcal{N}_\beta$	Distinguish allowable from excluded responses	Inferring permission from absence of a duty or from benefit alone
Unresolved status	$\mathcal{U}_\beta$ or interface vacancy	Preserve incomplete normative assessment	Converting uncertainty into optionality
Requirement set	$\mathcal{Q}_\beta$	Represent disjunctive as well as unique obligations	Treating a duty to assist as a duty to perform one specific act
Response optionality	Definition 5.6	Identify genuine compliant alternatives	Equating “not uniquely required” with “optional”
Lens optionality	Equation 25	Separate optionality of aid, volunteering, or support from optionality of one response	Transporting status across assistance lenses
Actor/role provenance	h, κ_E , reason source	Localize duties and role-sensitive reasons	Assigning a general need directly to one helper
Temporal provenance	Updated ethics-relevant record and context	Reassess continuation, modification, and withdrawal	Treating an earlier support status as permanent

6 Consent, Refusal, Preference, and Communicative Uncertainty

This section develops the communicative constraint layer of the ethical framework. Its role is to connect the response-status architecture of Section 5 to recipient-linked communication without treating decoded meaning as a complete ethical authorization. The objective is to distinguish communicative reconstruction, preference evidence, ethically operative consent or refusal, decision-relevant agency conditions, mediation, and temporal revision. The discussion first identifies the upstream communicative material that can enter ethical assessment, then defines preference records and response-indexed engagement status, analyzes decision-relative agency conditions and silence, separates mediation from representation, and finally specifies how communicative information can constrain an existing response-status record. The method is formal and normative-reconstructive. The section remains within ethics: legal capacity, legally valid consent, guardianship, representation authority, and institutional power remain outside its scope.

Paper X already supplies the immediate epistemic architecture. Recipient-linked traces can have communicative standing while their meanings remain multiple or unavailable; mediation retains provenance; and semantic convergence alone does not establish valid consent or refusal [6]. Paper XI therefore begins after semantic reconstruction. The normative problem is whether a reconstructed request, acceptance, refusal, condition, withdrawal, or preference has the ethical force attributed to it in the assistance

decision. Manson and O’Neill’s communication-oriented account of informed consent is useful for positioning this problem: consent is not merely the possession of information or the observation of a signal, but involves communicative transactions whose normative significance depends on the conditions under which they occur [10]. The present section generalizes that structural lesson cautiously beyond conventional biomedical settings without assuming that one human consent model applies unchanged to every heterogeneous subject.

6.1 Communicative Reconstructions as Ethical Inputs

The ethics-relevant projection of Definition 2.1 can preserve communicative material from Paper X together with its uncertainty and provenance. Let $\mathfrak{G}_E$ denote an application-defined carrier of recipient engagement states relevant to ethical assessment. Elements may represent, for example, acceptance, decline, request, pause, condition, withdrawal, deferral, or another engagement state appropriate to the communicative repertoire and ethical question under study. The carrier is application-defined because a fixed human speech-act vocabulary can be too narrow for nonhuman, artificial, heavily mediated, or otherwise unfamiliar communicative forms.

For ethics-relevant record ι_E , let $\mathcal{G}_E^{\text{live}}(\iota_E) \subseteq \mathfrak{G}_E$ denote the nonempty family of engagement states retained by the upstream communicative reconstruction when such a family is available. Each retained state should preserve its communicative provenance, including any source trace, mediation step, decoding regime, and unresolved semantic alternatives inherited from Paper X. If no engagement state is responsibly retained, the ethical layer records communicative vacancy rather than inserting a default state.

Definition 6.1 (Ethical communicative input). *An ethical communicative input for an assistance question is a provenance-bearing pair*

$$\Gamma_E(\iota_E) := (\mathcal{G}_E^{\text{live}}(\iota_E), \mathcal{C}_E^{\text{comm}}(\iota_E)), \quad (27)$$

where $\mathcal{G}_E^{\text{live}}(\iota_E)$ is the retained engagement-state family and $\mathcal{C}_E^{\text{comm}}(\iota_E)$ is the associated family of communicative provenance records. When the upstream reconstruction yields no responsible engagement state, the first component is recorded as unavailable rather than interpreted as acceptance, refusal, or indifference.

Equation 27 does not introduce a second semantic decoder. Its function is to expose, at the ethical layer, what communicative claims are actually being used and through which evidential route they entered the analysis. The same reconstructed state can acquire different ethical significance under different bridge packages, and several live states can remain relevant when semantic multiplicity persists.

Proposition 6.2 (Semantic reconstruction and ethical authorization). *Membership of g in $\mathcal{G}_E^{\text{live}}(\iota_E)$ does not by itself establish ethically operative consent, refusal, withdrawal, permission, or prohibition concerning a response $x \in \mathcal{X}_E$.*

Proof. Definition 6.1 preserves engagement states reconstructed upstream. The core response-status record in Definition 5.4 is generated only after application of an ethical bridge package to an actor-, response-, and context-indexed decision problem. No rule in Equation 27 maps an engagement state directly into $\mathcal{P}_\beta$, $\mathcal{N}_\beta$, $\mathcal{U}_\beta$, or $\mathcal{Q}_\beta$. A further normative bridge is therefore required. $\square$

Proposition 6.2 preserves the boundary established in Paper X while making its ethical consequence explicit. Reliable communication matters because it can constrain ethical reasoning. Reliability of communication and normative force remain different questions.

6.2 Preference Records and Their Sources

Preference is one possible object of communicative reconstruction, but preference should not be used as an undifferentiated substitute for welfare, interest, consent, or autonomy. A recipient can prefer a re-

sponse that is harmful under another ethically relevant description; a preference can concern only one feature of a complex intervention; and a preference attributed through inference can have a different provenance from one expressed directly through a stable communicative channel. Heterogeneous-subject cases make source and scope especially important because the analyst may rely on behavior, learned interfaces, caregivers, technical logs, model-mediated translations, or historically observed choice patterns.

Let $\mathfrak{S}_P$ be an application-defined carrier of preference-source types. Typical source tags can distinguish direct recipient expression, mediated recipient expression, behavioral or historical inference, and representative or proxy attribution. These tags describe provenance routes; they do not rank their ethical authority in advance.

Definition 6.3 (Preference record). A *preference record* is a tuple

$$p_E := (r, X, \sigma_P, s_P, \chi_P), \quad (28)$$

where r identifies the recipient role, $X \subseteq \mathcal{X}_E$ is the response family to which the record refers, σ_P is the reconstructed preference orientation at the application’s declared resolution, $s_P \in \mathfrak{S}_P$ records its source type, and χ_P preserves the evidential and communicative provenance together with any unresolved conditions.

Definition 6.3 makes preference response-relative. A recipient can favor pain relief while declining a particular delivery method, welcome short-term assistance while resisting a long-term support arrangement, or accept one data-sharing condition while declining another. Treating those positions as one global preference would erase ethically material structure.

Preference provenance remains ethically material whenever the bridge treats source, mediation, reliability, coercion, representation, or uncertainty as relevant. Two records can therefore share the same represented orientation while differing in ethical significance because their source types or provenance differ.

The preference-provenance condition is particularly important when a helper or institution speaks about a recipient. A carefully informed proxy report can be ethically important, while its evidential route remains distinguishable from recipient expression. The distinction supports auditability without treating mediation or representation as intrinsically unreliable.

6.3 Response-Indexed Consent, Refusal, and Withdrawal

Ethically operative consent and refusal are response-indexed statuses generated through substantive bridge conditions. Their content can depend on what is being proposed, the resolution at which the proposal is represented, what information and alternatives are materially available, how the recipient’s engagement was reconstructed, and which decision-relevant agency conditions the bridge treats as necessary. The framework therefore avoids assigning a global binary label such as “consenting subject” or “refusing subject.”

Let Σ_E^{eng} be an ethical engagement-status carrier containing at least statuses corresponding to ethically operative consent, ethically operative refusal, withdrawal, conditional engagement, and unresolved status, while allowing applications to use a more detailed vocabulary. For recipient role r , response x , bridge package β , ethics-relevant record ι_E , and context κ_E , define the response-indexed engagement-status correspondence in Equation 29.

$$\text{EngStat}_\beta(r, x \mid \iota_E, \kappa_E) \rightrightarrows \Sigma_E^{\text{eng}}. \quad (29)$$

Equation 29 is set-valued because the available communicative and normative material can leave more than one status live. A bridge can also generate a conditional status when the ethical force of engagement depends on an unresolved premise.

Definition 6.4 (Ethically operative engagement status). An element of $\text{EngStat}_\beta(r, x \mid \iota_E, \kappa_E)$ is an *ethically operative engagement status* only when the bridge package states the conditions by which the recipient-linked communicative record bears on response x , including any materially relevant conditions concerning information, voluntariness, decision-relevant agency, scope, mediation, and temporal validity. The status is an ethical construction and does not establish legally valid consent, legal incapacity, guardianship, or institutional authorization.

Definition 6.4 is intentionally bridge-relative. Different ethical theories can disagree about the conditions under which consent changes the permissibility of an intervention, whether refusal functions as a side constraint, and which exceptions can defeat or limit that constraint. The interface makes the disagreement visible rather than resolving it by terminology.

Engagement status is response-specific and party-specific. A status generated for recipient role r and response x does not transfer automatically to a materially distinct response y , even when both address the same adverse state, and it does not authorize ethically material effects on a distinct affected party r' without a separate bridge addressing that party's standing and stakes.

The response-specific engagement condition also applies across temporal stages. Consent to initiate a short-term response need not establish consent to continue an expanded or materially altered support relation. Sections 5 and 6 therefore converge on the same structural requirement: ethical status should track the response actually under assessment.

6.4 Decision-Relevant Agency Conditions

Ethical analysis often needs some account of whether recipient engagement is sufficiently connected to the decision under consideration. A universal human clinical-capacity checklist would be too narrow for the present framework and could silently convert unfamiliar agency into incapacity. Paper XI therefore represents decision-relevant agency conditions abstractly and locally. An application can specify which capacities, forms of understanding, stability, voluntariness conditions, or communicative abilities matter to a particular ethical bridge while leaving other architectures possible.

Let $\mathfrak{D}_E$ be a carrier of declared decision-relevant condition profiles. Define the assessment correspondence in Equation 30.

$$\text{DecRel}_\beta(r, x \mid \iota_E, \kappa_E) \rightrightarrows \{\text{adequate, limited, unresolved}\}. \quad (30)$$

The bridge package determines which profile in $\mathfrak{D}_E$ is relevant and how the available evidence bears on the three statuses in Equation 30. The labels are ethical-analytic statuses at the declared response resolution; they are not diagnoses or legal determinations.

Definition 6.5 (Agency adequacy). A *decision-relative assessment* is a provenance-bearing output of Equation 30. It identifies the response, the agency conditions selected by the bridge package, the evidence and communicative record used, and any uncertainty that prevents a stronger classification.

Definition 6.5 keeps the agency assessment tied to the declared decision. The relational-autonomy literature provides one reason to resist purely atomistic treatment of such conditions: agency can depend on social relations, opportunities, supports, and constraints rather than solely on an internal property of an isolated chooser [9]. In the present framework, communication support, accessible explanation, time, translation, trusted mediation, or alteration of the decision environment can therefore change a decision-relative assessment without implying that the recipient's underlying identity has changed.

Decision-relevant agency assessments remain local to the declared response and decision conditions. A limited or unresolved output therefore does not establish global absence of agency, global inability to communicate preferences, or the same assessment for another response.

The locality of agency assessment prevents a difficult communication episode from becoming a totalizing judgment about the recipient. It also permits assistance to improve the conditions of later choice, for example by supplying an accessible interface or reducing a distress state that obstructs engagement, provided the ethical justification of that preliminary assistance is independently established.

6.5 Silence, Ambiguity, and Temporal Revision

Paper X assigns silence no default semantics. The ethical layer retains that result. A missing or ambiguous communicative signal can arise from inaccessible channels, latency, fatigue, strategic withholding, technical failure, environmental constraint, unrecognized expression, or absence of a communicative act. Ethical reasoning therefore requires a declared bridge before silence can acquire any consequence for permission, prohibition, delay, monitoring, or further engagement.

Proposition 6.6 (Communicative vacancy and ethical status). *When the ethics-relevant input contains no responsibly retained engagement state for response x , the architecture does not classify that vacancy as consent, refusal, withdrawal, or indifference. Any ethical consequence assigned to the vacancy requires an explicit bridge component.*

Proof. Definition 6.1 records communicative vacancy as absence of a retained engagement state. Equation 29 generates ethically operative engagement statuses only through bridge-relative assessment. Since no default mapping from vacancy to an engagement status is defined, the listed classifications cannot follow from vacancy alone. $\square$

Proposition 6.6 preserves vacancy as a communicative uncertainty rather than an ethical verdict. Ambiguity can also persist after several engagement states have been retained. An ethically conservative bridge can respond by delaying an irreversible intervention, seeking another communication channel, narrowing the intervention, or using a staged response; another bridge can assign different priorities under urgency. Those downstream response-design questions belong primarily to Section 7. The present section supplies the communicative condition that makes the unresolved status visible.

Engagement status is also temporal. A recipient can revise a preference, withdraw earlier consent, add a condition, or communicate a clearer refusal after an intervention has begun. Let t index ethically material decision times. A response history should preserve the sequence of generated engagement-status sets

$$\left\{ \text{EngStat}_{\beta,t}(r, x_t \mid \iota_{E,t}, \kappa_{E,t}) \right\}_{t \in T_E}. \quad (31)$$

Equation 31 makes later engagement an update to the ethical record rather than a retroactive claim that earlier communication never occurred.

Proposition 6.7 (Temporal persistence requires a bridge). *An ethically operative engagement status at time t does not by itself persist to a materially changed response or context at time $t' > t$. Persistence, expiry, or continuing force requires a bridge-relative rule whose scope includes the relevant change.*

Proof. Equation 31 indexes engagement status by response, ethics-relevant record, context, and time. A material change can alter any of these arguments. Equality of outputs across times therefore requires an additional persistence rule rather than following from the earlier status by type alone. $\square$

Proposition 6.7 is central to revisable assistance. A support relation can begin under ethically operative consent while later becoming contested, burdensome, or materially different. Conversely, an initially unresolved communicative situation can become clearer through improved access or familiarity. Ethical assistance should be able to register both directions of change.

6.6 Mediation, Proxy Input, and Representational Provenance

Heterogeneous assistance frequently relies on mediation. An interpreter can translate recipient expression; a caregiver can report historical preferences; a technical system can convert signals into an accessible representation; and another person or institution can sometimes be asked to speak for a recipient. These roles should remain distinguishable because they alter the provenance and potentially the ethical force of the information entering the decision.

Let $\mathfrak{S}_P$ in Definition 6.3 include source tags that distinguish recipient-linked expression from proxy or representative attribution. A mediation step preserves recipient-linked source provenance when the

mediated output is treated as a transformation of the recipient's expression. A proxy report, by contrast, can be evidence about a recipient's historical preferences or interests even when it is not itself a recipient expression. A representative judgment adds a further normative question: under what ethical conditions may one actor's decision stand in for another recipient's currently unavailable decision? Paper XI can represent that question, while legally valid representation remains reserved for later jurisprudential work.

Definition 6.8 (Ethical representational bridge). *An ethical representational bridge is a component of β that specifies when and with what scope a proxy or representative input may alter the ethical assessment of a response for recipient role r . The bridge should identify the source of representational standing, the decision domain, the evidential basis used to reconstruct recipient-related values or interests, conflicts of interest, and conditions for review or replacement.*

Definition 6.8 does not assume that representation is always required when direct communication is unavailable. Some cases can support low-intrusion assistance without a representative; other cases can require stronger safeguards because the intervention is invasive, durable, identity-shaping, or difficult to reverse. The relevant standard remains response- and bridge-dependent.

Proposition 6.9 (Mediation and representation roles). *A mediator who makes recipient-linked expression accessible does not thereby acquire ethical representational standing, and a representative input does not thereby become identical to recipient expression.*

Proof. Mediation concerns a provenance-preserving transformation of communicative material. Definition 6.8, by contrast, concerns normative standing to supply an input that can alter ethical assessment on behalf of the recipient. The two roles therefore belong to different bridge conditions, and the architecture supplies no default identification between them. $\square$

Proposition 6.9 supports a more precise treatment of communication support. Improving access to recipient expression can reduce the need for proxy inference. Where proxy or representative input remains necessary, its distinct provenance can still be ethically assessed rather than hidden inside an apparent first-person preference.

6.7 Communicative Constraints on Response Status

The response-status record of Section 5 can now be refined by engagement information without giving communication unlimited normative force. Let $\mathcal{D}_\beta(h \mid \iota_E, \kappa_E)$ be the core record from Equation 22. Define a communicative-constraint operation by Equation 32.

$$\text{Con}_\beta^{\text{comm}}(\mathcal{D}_\beta(h \mid \iota_E, \kappa_E), \Gamma_E(\iota_E)) \Rightarrow \mathfrak{D}_E^{\text{resp}}, \quad (32)$$

where $\mathfrak{D}_E^{\text{resp}}$ is the carrier of revised response-status records of the same general form as Definition 5.4. The bridge package determines whether and how an ethically operative consent, refusal, withdrawal, conditional acceptance, preference, or communicative vacancy changes the permitted, prohibited, unresolved, or requirement sets.

Proposition 6.10 (Consent and all-things-considered permission). *Even when $\text{EngStat}_\beta(r, x \mid \iota_E, \kappa_E)$ contains ethically operative consent to response x , the communicative-constraint operation does not by itself establish that x belongs to the all-things-considered permitted set.*

Proof. Equation 32 refines a core response-status record whose classification can depend on stakes, proportionality, helper-side constraints, third-party effects, role, burden, and other bridge components in addition to communicative engagement. Consent can satisfy or remove a consent-sensitive constraint while another independently operative constraint still supports prohibition or unresolved status. Hence consent alone is insufficient for the complete permission claim. $\square$

Proposition 6.10 treats consent as one ethically material constraint rather than a complete verdict. The converse structure also requires care. An ethically operative refusal can have strong or even decisive force under some bridge packages, while another package can recognize narrowly specified conditions under which competing reasons limit that force. The present architecture does not insert a universal override rule in either direction. It requires the applicable bridge to state the scope and defeasibility of the refusal-sensitive constraint.

Proposition 6.11 (Preference evidence and response obligation). *A preference record favoring response x , including a directly expressed and communicatively robust preference, does not by itself establish that actor h is ethically required to provide x .*

Proof. Definition 6.3 records a recipient-related preference and its provenance. Actor-specific requirement belongs to the requirement set Q_β of Definition 5.4, which can also depend on role, feasibility, burden, alternative helpers, competing claims, and other bridge components. The preference record alone does not supply those conditions. $\square$

Proposition 6.11 protects preference sensitivity from becoming preference absolutism. It also preserves a place for preferences in cases where subjectivity remains uncertain. A stable, recipient-linked pattern of engagement may matter ethically under an applicable bridge without proving a complete theory of consciousness, welfare, or obligation.

6.8 Consent and Communication Audit

Table 5 summarizes the communicative distinctions that should remain visible when assistance status is constrained by recipient engagement.

Table 5 clarifies the section’s boundary. The framework can preserve recipient-linked engagement, preference, consent-sensitive and refusal-sensitive constraints, decision-relative agency conditions, and mediation provenance without deciding the proportionality or intrusiveness of the intervention itself. A response can therefore be communicatively acceptable while remaining ethically problematic for another reason, or communicatively unresolved while a bridge still permits a narrowly precautionary and reversible response under specified conditions.

Research Obligation 6.12 (Consent and communicative provenance). An application that uses consent, refusal, withdrawal, preference, proxy input, or communicative vacancy to alter an assistance status should report the recipient role, response and decision resolution, upstream communicative record, live engagement states, preference source and scope where applicable, the ethical bridge by which engagement acquires normative force, any decision-relevant agency conditions, mediation or representational steps, temporal validity or revision rules, and the precise change made to the response-status record.

Research Obligation 6.12 completes the communicative constraint layer. Section 7 can now examine intrusiveness, proportionality, reversibility, and information effects while treating consent and refusal as typed ethical inputs rather than as transparent solutions to every intervention problem.

Table 5: Audit of consent, refusal, preference, and communicative uncertainty.

Audit item	Required object	Analytical purpose	Failure mode if omitted
Communicative input	$\Gamma_E(\iota_E)$	Preserve live engagement states and communicative provenance	Treating a decoded signal as a complete normative authorization
Preference record	Equation 28	State response scope, orientation, source, and uncertainty	Collapsing preference, welfare, consent, and interest into one variable
Engagement status	Equation 29	Type consent, refusal, withdrawal, conditionality, or unresolved status at the response level	Treating the recipient as globally consenting or refusing
Decision-relative agency	Equation 30	Localize agency conditions to the decision and bridge	Converting local communicative difficulty into global incapacity
Temporal record	Equation 31	Preserve revision, withdrawal, and changing communicative access	Treating earlier engagement as permanently dispositive
Mediation/proxy provenance	Source tag and representational bridge	Distinguish translation, inference, proxy input, and representation	Making third-party speech appear identical to recipient expression
Status constraint	Equation 32	Show how communication alters an existing response-status record	Treating consent as complete permission or preference as an actor-specific duty

7 Intrusiveness, Proportionality, Reversibility, and Information Effects

Sections 5 and 6 establish actor- and response-indexed ethical status together with communicative constraints. The present section adds a response-design layer. Its role is to evaluate ethically material properties of an intervention itself once a candidate response has entered the feasible decision frame. The objective is to represent intrusiveness, proportionality, reversibility, and information effects without assuming a universal welfare metric or treating one design property as automatically decisive. The analysis proceeds structurally and normatively: it first defines a provenance-bearing response-design record, then separates intrusiveness from harm, formulates proportionality under partial commensurability, treats reversibility as path- and horizon-relative, represents information effects on later recognition and decision, and finally constrains the response-status record developed in Section 5.

Paper X already records reversibility, interference, information preservation, and delay as response properties relevant to precautionary reasoning under recognition uncertainty [6]. The present section inherits that descriptive discipline while adding an ethical question: under a declared bridge package, how should those properties alter the assessment of a response relative to its likely benefits, adverse stakes, available alternatives, communicative conditions, and uncertainty? The answer remains bridge-dependent. Precautionary literature can motivate attention to asymmetric error and reversible action under uncertainty, but it does not by itself provide a complete ethics of intervention [1].

7.1 Response-Design Records and Provenance

Let h be a prospective actor, $x \in \mathcal{F}_\beta(h \mid \iota_E, \kappa_E)$ a response in the feasible decision frame of Equation 21, and let r denote the recipient role at the declared analytical resolution. A response-design assessment should preserve the distinction between what the response is expected to do, how it acts upon the recipient or surrounding relation, how durable its changes may be, and how it changes later access to information.

Definition 7.1 (Ethical response-design record). An *ethical response-design record* for (h, x, r) is a provenance-bearing tuple

$$\Delta_\beta^{\text{des}}(h, x, r \mid \iota_E, \kappa_E) := (\Phi_\beta, \text{Prp}_\beta, \text{Rev}_\beta^E, \text{Info}_\beta^E, \text{Hor}_\beta, \pi_\Delta), \quad (33)$$

where Φ_β is the typed intervention footprint, Prp_β is the ethical proportionality assessment, Rev_β^E is the ethically interpreted reversibility record, Info_β^E is the information-effect record, Hor_β states the relevant temporal horizon, and π_Δ records evidential and normative provenance.

Definition 7.1 is intentionally modular. An application can leave one component unresolved rather than assigning a convenient default. The record also remains response-specific. A minimally intrusive monitoring response, a temporary restraint, a software rollback, a transfer of care, and a long-term support arrangement can concern the same adverse state while carrying very different design properties.

An unresolved design component receives no favorable default. Missing assessment of a material dimension therefore remains an explicit limitation of $\Delta_\beta^{\text{des}}$. Relevant dimensions include intrusion, proportionality, reversibility, information effects, and temporal horizon.

The unresolved-design condition prevents sparse evidence from making an intervention appear ethically cleaner than the evidence supports.

7.2 Intrusiveness as a Typed Intervention Footprint

Intrusiveness concerns how a response enters, constrains, modifies, monitors, occupies, or reorganizes a recipient's bodily, computational, agential, informational, relational, or environmental domain. Intrusiveness should be distinguished from harm. A highly intrusive emergency procedure can be beneficial overall, while a superficially low-intrusion response can generate substantial harm through neglect, delay, or information distortion.

Let $\mathcal{R}_E$ be an application-declared carrier of intrusion types. Typical entries may concern bodily or system integrity, control over action, access to information or privacy, modification of environment, occupation of relational roles, duration of imposed conditions, or another domain made material by the ethical bridge. Define the footprint relation in Equation 34.

$$\Phi_\beta(h, x, r \mid \iota_E, \kappa_E) \subseteq \mathcal{R}_E \times \mathfrak{V}_E^{\text{intr}}, \quad (34)$$

where $\mathfrak{V}_E^{\text{intr}}$ is an application-specific value carrier for the represented degree, scope, or form of intrusion. Equation 34 permits ordinal, categorical, interval, or richer values; a common cardinal unit is not required.

Definition 7.2 (Material intrusion domain). The *material intrusion domain* $\mathcal{R}_{E,\beta}^{\text{mat}}(h, x, r)$ is the subset of intrusion types that the applicable ethical bridge treats as potentially relevant to the assessment of response x for recipient role r in context (ι_E, κ_E) .

Definition 7.2 avoids requiring every application to evaluate every possible intrusion type. It also makes selective attention auditable: excluding a privacy, bodily-integrity, relational, or control dimension requires a scope decision rather than silent disappearance.

Proposition 7.3 (Intrusiveness and adverse outcome). *A response can be comparatively more intrusive while producing a more favorable stake profile, and it can be comparatively less intrusive while producing a less favorable stake profile. The intervention footprint therefore does not determine the ethical stake profile defined in Section 4.*

Proof. Equation 34 represents the manner and scope of intervention, whereas Definition 4.1 represents ethically relevant consequences or conditions across typed stake dimensions. The framework supplies no identity map between the two carriers. Their comparative orderings can therefore diverge. $\square$

Proposition 7.3 is particularly important under emergency or protective conditions. Ethical restraint cannot be reduced to selecting the response with the smallest intervention footprint if that response inadequately addresses a serious adverse state.

7.3 Ethical Proportionality under Partial Commensurability

The term *proportionality* is used here in a general normative-ethical sense. The section does not import a specific legal, humanitarian, or institutional proportionality doctrine. Ethical proportionality asks whether the burdens, intrusions, risks, and adverse stakes introduced or sustained by a response are justified, within the applicable bridge, by the ethically relevant benefits, protections, risk reductions, and available alternatives. Because Section 4 permits only partial commensurability, proportionality cannot generally be represented as a ratio between two universal cardinal quantities.

Let $\mathfrak{P}_E := \{\text{supported, defeated, unresolved}\}$ be a three-valued proportionality-status carrier. Define the bridge-relative proportionality relation in Equation 35.

$$\text{Prop}_\beta^E(h, x, r \mid \iota_E, \kappa_E) \Rightarrow \mathfrak{P}_E. \quad (35)$$

The relation may depend on the typed stake profile of Section 4, the material intrusion domain of Definition 7.2, the feasible alternatives in the ethical decision frame, uncertainty carried from Paper X, and any communicative constraints generated in Section 6.

Definition 7.4 (Ethical proportionality specification). *An ethical proportionality specification states the response and comparator set, the stake dimensions treated as material, the intrusion dimensions treated as material, the comparison relations or aggregation bridge used where any are available, the uncertainty treatment, and the normative bridge by which those elements support, defeat, or leave unresolved the proportionality of the response.*

Definition 7.4 makes explicit that proportionality is a structured judgment, not a free-standing numerical property of x .

Proposition 7.5 (Local proportionality and global aggregation). *If $\text{Prop}_\beta^E(h, x, r \mid \iota_E, \kappa_E)$ contains supported, the framework does not thereby entail a complete scalar ordering of every stake, intrusion, recipient, or feasible response in the decision frame.*

Proof. Definition 7.4 permits local comparison through the partial comparison and aggregation structures developed in Section 4. Proposition 4.5 already establishes that local comparison does not generate global commensurability. The proportionality judgment therefore remains relative to the declared material dimensions and comparison structure. $\square$

Proposition 7.5 allows ethical deliberation to reach a response-specific judgment even when some values remain incomparable. Where the unresolved dimensions are themselves material to the verdict, unresolved remains an available outcome rather than being converted into an artificial score.

7.4 Reversibility, Recovery Paths, and Path Dependence

Reversibility is often attractive under uncertainty because it can preserve opportunities to correct an intervention. Its ethical significance nevertheless depends on what can be reversed, over what horizon, at what cost, and with which residual effects. Restoring a technical state does not necessarily restore a relationship, expectation, preference, trust condition, biological state, or distribution of options. Conversely, an intervention can be partly irreversible while remaining ethically justified when delay would expose the recipient to grave and otherwise avoidable harm.

Let Z_E be an application-declared carrier of ethically relevant post-response states at the chosen resolution. For an initial state z_0 , a post-response state z_x , and horizon T , let $\mathfrak{R}_\beta^{\text{path}}(z_x, z_0; T)$ denote the family of represented recovery paths from z_x toward a declared reference neighborhood of z_0 . Define the ethical reversibility record by Equation 36.

$$\text{Rev}_\beta^E(x \mid z_0, T) := \left(\mathfrak{R}_\beta^{\text{path}}(z_x, z_0; T), \text{Res}_\beta, \text{Cost}_\beta^{\text{rev}}, \text{Unc}_\beta^{\text{rev}} \right), \quad (36)$$

where Res_β records material residual effects, $\text{Cost}_\beta^{\text{rev}}$ records ethically relevant burdens or costs of reversal, and $\text{Unc}_\beta^{\text{rev}}$ records uncertainty about the recovery representation.

Definition 7.6 (Ethically material reversibility). A response has *ethically material reversibility* at horizon T only relative to a declared set of state dimensions whose recovery, residual effects, reversal burden, and uncertainty are treated as material by the applicable ethical bridge.

Definition 7.6 blocks a purely technical notion of rollback from substituting for a broader ethical analysis. Reinitializing software, removing a device, ending a temporary arrangement, or stopping medication can restore some represented variables while leaving other consequences in place.

Proposition 7.7 (Technical rollback and ethical reversibility). *The existence of a technically available operation that restores one represented state component does not by itself establish ethically material reversibility under Definition 7.6.*

Proof. Equation 36 also tracks the recovery path, residual effects, reversal burdens, and uncertainty across the dimensions declared material by the ethical bridge. Restoration of one component supplies only one part of that record. $\square$

Proposition 7.7 is relevant across heterogeneous subjects. A temporary physical intervention can alter trust or dependency; a reversible configuration change can alter learned behavior, data exposure, or social expectations; and a formally reversible institutional arrangement can create reliance that makes later withdrawal ethically consequential.

7.5 Information Effects and Epistemic Feedback

Assistance changes what can be learned later. A response can reveal information by testing a hypothesis, preserve information by avoiding destructive modification, obscure information by suppressing observable manifestations, or contaminate later inference because the intervention itself changes the system whose condition was being interpreted. These effects matter ethically when future recognition, consent, reassessment, or correction depends on the information environment.

Let $\mathfrak{G}_E^{\text{info}}$ be an application-adaptable carrier whose available tags include generation, preservation, obscuration, contamination, redirection, and unresolved information effects. Define the information-effect record in Equation 37.

$$\text{Info}_\beta^E(x \mid \iota_E, \kappa_E) \subseteq \mathfrak{G}_E^{\text{info}} \times \mathfrak{D}_E^{\text{info}}, \quad (37)$$

where $\mathfrak{D}_E^{\text{info}}$ identifies the evidential or interpretive object affected, such as an adverse-state indicator, communicative trace, preference signal, behavioral pattern, system state, or another declared observation channel.

Definition 7.8 (Epistemic side effect). An *epistemic side effect* is a material change produced by response x in the availability, interpretability, reliability, or provenance of information relevant to subsequent ethical assessment.

Definition 7.8 treats information change as ethically relevant without assigning it universal priority over direct benefit. Some ethically justified interventions necessarily alter the evidence-generating process. The important requirement is that the alteration remains visible when later assessment relies on the affected evidence.

Information preservation is context-sensitive rather than lexically prior. A response that preserves evidence can still permit serious preventable harm or impose other ethically material burdens, so information preservation must be assessed through the applicable bridge together with the other design dimensions.

The context-sensitive information condition parallels the treatment of reversibility. Epistemic protection can be important under uncertainty while remaining one element of a multidimensional ethical design problem.

7.6 Response-Design Constraints on Ethical Status

The response-design record can now constrain the core status record without replacing the independent communicative and relational dimensions developed elsewhere in the paper. Let $\mathfrak{D}_E^{\text{resp}}$ be the carrier of response-status records introduced with Equation 32. Define the response-design constraint operation in Equation 38.

$$\text{Con}_{\beta}^{\text{des}}\left(\mathcal{D}_{\beta}(h \mid \iota_E, \kappa_E), \Delta_{\beta}^{\text{des}}(h, x, r \mid \iota_E, \kappa_E)\right) \Rightarrow \mathfrak{D}_E^{\text{resp}}. \quad (38)$$

Equation 38 permits the bridge package to move a response among permitted, prohibited, unresolved, or requirement-relevant sets when the declared intrusion, proportionality, reversibility, or information conditions warrant such revision.

Proposition 7.9 (Proportionality support remains an incomplete permission condition). *Even when the proportionality relation in Equation 35 supports response x , the response-design constraint operation does not by itself establish all-things-considered permission to perform x .*

Proof. The proportionality relation evaluates only the dimensions declared in its ethical proportionality specification. Section 6 can independently impose consent-, refusal-, preference-, or agency-sensitive constraints, and later sections add autonomy, dependency, helper-side, allocation, and temporal considerations. The response-design layer therefore supplies one class of constraints rather than a complete ethical verdict. $\square$

Proposition 7.9 prevents the language of proportionality from becoming a shortcut around other normative conditions.

A similar caution applies to minimal intrusion. Define no universal rule requiring the feasible response with the smallest footprint. Lower intrusion can be ethically attractive when candidate responses are otherwise suitably comparable, but a less intrusive response can be ineffective, slower, less protective, more burdensome over time, or epistemically worse. Any least-intrusive-response principle must therefore enter as an explicit bridge with a stated comparator domain and defeat conditions.

Design comparisons are alternative-relative: adding or removing feasible responses can alter judgments of comparative intrusion, proportionality, or reversibility even when the intrinsic description of response x remains fixed.

The alternative-relative design condition is especially important for institutional settings, where feasible alternatives depend on available personnel, technology, timing, resources, and coordination. The ethical design judgment should be updated when that feasible set changes materially.

7.7 Response-Design Audit

Table 6 summarizes the response-side ethical objects introduced in this section. The table is intended as an audit interface rather than a universal decision rule.

Table 6 also clarifies the boundary of Section 7. The response-design layer can identify ethically material intrusion, proportionality, reversibility, and information effects without yet resolving how assistance changes autonomy, dependency, or domination within the ongoing relation. Those relational consequences require the separate analysis developed in Section 8.

Table 6: Audit of intrusiveness, proportionality, reversibility, and information effects.

Audit item	Required object	Analytical purpose	Failure mode if omitted
Design record	Equation 33	Preserve response-side ethical provenance	Treating one favorable property as a complete verdict
Intervention footprint	Equation 34 and material domain	Type the scope and manner of intrusion	Collapsing intrusion into harm or benefit
Proportionality specification	Definition 7.4	State material stakes, intrusion dimensions, comparators, and bridge	Hiding a global metric or undeclared comparison rule
Reversibility record	Equation 36	Track recovery paths, residual effects, reversal burden, and uncertainty	Equating technical rollback with ethical restoration
Information-effect record	Equation 37	Track changes to later evidence and interpretation	Treating post-intervention observations as if unaffected by the intervention
Status constraint	Equation 38	Show how design properties revise response status	Treating proportionality or low intrusion as complete permission
Alternative set	$\mathcal{F}_\beta(h \mid \iota_E, \kappa_E)$	Localize comparative design judgments	Treating alternative-relative judgments as intrinsic properties

Research Obligation 7.10 (Response-design provenance). An application that uses intrusiveness, proportionality, reversibility, or information effects to alter the ethical status of a response should report the actor and recipient roles, response and feasible alternative set, typed intervention footprint, material stake and intrusion dimensions, comparison or aggregation relations actually used, temporal horizon, recovery and residual-effect assumptions, reversal burdens, information effects on later evidence, unresolved design components, the normative bridge that gives those properties ethical force, and the precise change made to the response-status record.

Research Obligation 7.10 completes the response-design layer. Section 8 can now examine autonomy, dependency, and relational non-domination with the intervention footprint and response-status record already separated from the longer-run relational structure they may alter.

8 Autonomy, Dependency, and Relational Non-Domination

Section 7 evaluates ethically material properties of candidate interventions. The present section adds a relational-structure layer. Its role is to assess how assistance changes the recipient’s effective options, decision conditions, dependencies, exposure to another party’s discretionary control, and capacity to contest or revise the relation over time. The objective is to distinguish autonomy from independence, dependency from subordination, and interference from domination while preserving the response-specific and bridge-relative status architecture developed in Sections 2–7. The method is relational and normative-reconstructive: it first represents decision-domain autonomy and effective options, then types dependency configurations, tracks assistance-induced relational change, introduces a non-domination-sensitive control-exposure record, and finally constrains the ethical response-status record through explicit relational safeguards.

Relational approaches to autonomy motivate treating agency as partly constituted or enabled by social conditions, relationships, and available supports rather than as an isolated internal property [9]. Care and dependency scholarship likewise resists treating dependency as an anomalous departure from a default of complete independence and instead asks how dependency relations distribute vulnerability, responsibility, and support [5, 7]. Republican accounts of freedom as non-domination add a distinct concern: a relation can be ethically problematic because one party has a capacity for arbitrary interference even when overt interference is infrequent [12]. The present section uses these literatures as conceptual positioning rather than as a claim that one substantive theory governs every heterogeneous-subject case.

8.1 Decision-Domain Autonomy and Effective Options

Autonomy claims should be indexed to a decision domain rather than assigned globally to a recipient. A recipient can have substantial control over one domain while depending heavily on assistance in another, and assistance can alter the conditions of choice without changing every aspect of agency.

Let $\mathfrak{D}_A$ denote an application-declared carrier of decision domains and let $d \in \mathfrak{D}_A$. For recipient role r , ethical record ι_E , context κ_E , and bridge package β , define the represented effective-option set by Equation 39.

$$\mathcal{O}_\beta^{\text{eff}}(r, d \mid \iota_E, \kappa_E) \subseteq \mathcal{O}_\beta^{\text{form}}(r, d \mid \iota_E, \kappa_E), \quad (39)$$

where $\mathcal{O}_\beta^{\text{form}}$ records options that are formally or nominally available and $\mathcal{O}_\beta^{\text{eff}}$ records those represented as meaningfully exercisable under the conditions made material by the bridge.

Definition 8.1 (Autonomy profile). For decision domain d , an *autonomy profile* is the provenance-bearing record

$$\text{Aut}_\beta(r, d \mid \iota_E, \kappa_E) := (\mathcal{O}_\beta^{\text{eff}}, \text{Acc}_\beta, \text{Inf}_\beta, \text{Exec}_\beta, \text{Revise}_\beta, \pi_{\text{aut}}), \quad (40)$$

where Acc_β records access conditions, Inf_β relevant informational or interpretive support, Exec_β practical execution conditions, Revise_β opportunities to revisit or alter the decision, and π_{aut} records provenance and unresolved components.

Definition 8.1 is deliberately plural. An application can treat communication access, physical mobility, software permissions, environmental support, trusted mediation, or another condition as material when the bridge justifies doing so. The profile does not define autonomy through the cardinality of an option set alone.

Proposition 8.2 (Formal availability underdetermines effective autonomy). *The presence of an option in $\mathcal{O}_\beta^{\text{form}}$ does not by itself establish that the option contributes to the effective autonomy profile in Equation 40.*

Proof. Equation 39 permits formal options to fail the bridge-relative conditions for meaningful exercise, while Definition 8.1 separately records access, information, execution, and revision conditions. Formal availability therefore supplies only one part of the autonomy assessment. $\square$

Proposition 8.2 prevents nominal choice from functioning as a complete autonomy test. It also allows assistance to increase autonomy by making previously nominal options effectively usable.

8.2 Dependency Configurations and Ethical Neutrality of the Label

Dependency concerns a relation in which access to an ethically material good, function, capability, protection, interpretation, or resource depends materially on another party, system, institution, or arrangement. Dependency can support flourishing, safety, communication, or agency; it can also create fragility, asymmetry, lock-in, or exposure to another party's control. The ethical significance therefore lies in the configuration rather than in the word *dependency* itself.

Let Ω_E^{dep} be an application-declared carrier of dependency objects, such as care, mobility, communication, access credentials, maintenance, interpretation, protection, data, income, or another ethically material function. Define a dependency record by Equation 41.

$$\text{Dep}_\beta(r \leftarrow q \mid \iota_E, \kappa_E) := (\text{Src}_\beta, \text{Sub}_\beta, \text{Exit}_\beta, \text{Cost}_\beta^{\text{reconf}}, \text{Hor}_\beta^{\text{dep}}, \pi_{\text{dep}}), \quad (41)$$

for $q \in \Omega_E^{\text{dep}}$, where Src_β identifies the dependency source or sources, Sub_β records substitutability or alternative provision, Exit_β relevant exit or reconfiguration possibilities, $\text{Cost}_\beta^{\text{reconf}}$ burdens of changing the dependency arrangement, and $\text{Hor}_\beta^{\text{dep}}$ its represented temporal horizon.

Definition 8.3 (Material dependency configuration). A *material dependency configuration* is a set of dependency records from Equation 41 whose objects and relational features are selected as ethically relevant by the applicable bridge package.

Definition 8.3 permits multiple simultaneous dependencies and reciprocal dependence. It also permits the relevant source to be distributed, for example across a household, institution, service stack, model-maintenance chain, or network of caregivers.

Proposition 8.4 (Bridge-relative ethical valence of dependency). *The existence or increase of a dependency record in Equation 41 does not by itself entail an adverse ethical judgment.*

Proof. The record represents source, substitutability, exit conditions, reconfiguration burden, and horizon without assigning a favorable or adverse direction. Ethical direction arises only through an applicable bridge together with the typed stakes and relational conditions of the case. $\square$

Proposition 8.4 preserves the possibility that reliable dependency can be enabling. A communication aid, trusted caregiver, technical maintainer, or institutional support system can increase dependence on a relation while expanding effective options and reducing other vulnerabilities.

8.3 Assistance-Induced Relational Change

Assistance can alter autonomy and dependency simultaneously. The relevant ethical object is therefore a before–after relational change rather than a static label attached to the recipient or helper.

For response x and a declared before-state t_0 and after-state t_1 , define the relational change record by Equation 42.

$$\Delta_\beta^{A,D}(x; r, d, q) := (\text{Aut}_\beta^{t_0}, \text{Aut}_\beta^{t_1}, \text{Dep}_\beta^{t_0}, \text{Dep}_\beta^{t_1}, \text{Unc}_\beta^{A,D}, \pi_{A,D}), \quad (42)$$

with all components indexed by the relevant recipient, domain, dependency object, context, and bridge even where those indices are suppressed for readability.

Definition 8.5 (Relational autonomy gain). A response x produces a *relational autonomy gain* in domain d only relative to an applicable bridge that treats the represented change from $\text{Aut}_\beta^{t_0}$ to $\text{Aut}_\beta^{t_1}$ as favorable after considering the material dimensions and unresolved components declared for that domain.

Definition 8.5 avoids identifying autonomy gain with simple option-set expansion. Better information, accessible interfaces, reduced coercive pressure, increased execution capacity, or stronger opportunities for later revision can matter even when the formal option set is unchanged.

Proposition 8.6 (Dependency growth can coexist with autonomy gain). *Within the architecture of Equations 40 and 41, an assistance response can increase a material dependency while also producing a relational autonomy gain.*

Proof. The dependency and autonomy records have different typed components. A response can increase reliance on a support source while also expanding effective options, access, information, execution capacity, or revisability. No definition identifies increased dependence with reduced autonomy. $\square$

Proposition 8.6 is important for both human and nonhuman assistance. Dependence on communication technology, medication, a caregiver, technical infrastructure, or an interpretive interface can increase while the recipient acquires greater practical control over other domains of life or interaction.

8.4 Control Exposure and Non-Domination-Sensitive Assessment

Dependency becomes a distinct ethical concern when it places material aspects of a recipient's options or conditions under another party's discretionary control. Republican non-domination theory provides one influential vocabulary for distinguishing freedom from the mere absence of current interference [12]. The present framework adopts only a narrower structural lesson: assistance ethics may need to track capacities for discretionary control in addition to realized interference.

Let c denote a potential controller role and d a decision or life domain. Define the control-exposure record by Equation 43.

$$\text{Ctr}_\beta(c \rightsquigarrow r, d \mid \iota_E, \kappa_E) := (\text{Cap}_\beta^{\text{int}}, \text{Disc}_\beta, \text{Track}_\beta, \text{Contest}_\beta, \text{Exit}_\beta, \text{Review}_\beta, \pi_{\text{ctr}}), \quad (43)$$

where $\text{Cap}_\beta^{\text{int}}$ records a represented capacity to alter the recipient's option or condition set, Disc_β the degree to which that capacity is discretionary under the declared bridge, Track_β whether its exercise is constrained to track specified recipient-relevant interests or procedures, and the remaining components record contestation, exit, and review safeguards.

Definition 8.7 (Non-domination-sensitive concern). *A non-domination-sensitive concern is generated when an applicable ethical bridge treats some configuration in Equation 43 as a material adverse relational stake independently of whether the relevant interference has already occurred.*

Definition 8.7 does not impose republican theory as a universal assistance ethic. It makes visible a class of bridge structures in which exposure to discretionary control matters prospectively.

Proposition 8.8 (Interference and domination-sensitive exposure). *A response can involve realized interference without generating a non-domination-sensitive concern, and a relation can generate such a concern without any realized interference during the observed interval.*

Proof. Realized interference concerns an event or intervention footprint, whereas Definition 8.7 concerns the structure of a represented control capacity and its safeguards. The two objects can therefore vary independently under an applicable bridge. $\square$

Proposition 8.8 prevents the ethics of assistance from equating all intrusive action with domination or all peaceful dependency with freedom from domination. Emergency restraint can involve serious interference under tightly constrained authority and review, while a seemingly benevolent support relation can create durable control over communication, mobility, data, access, or future options without frequent overt interference.

8.5 Relational Safeguards and Dependency Governance

When assistance generates valuable but asymmetric dependency, the ethical question can concern governance of the relation rather than elimination of the dependency. Relevant safeguards can include transparency, contestability, substitutability, distributed provision, role limits, review, appeal, time limits, exit support, data portability, communication access, or another mechanism justified by the bridge.

Let $\mathfrak{S}_E^{\text{rel}}$ be an application-declared carrier of relational safeguards. Define the safeguard profile in Equation 44.

$$\text{Safe}_\beta^{\text{rel}}(x, r) \subseteq \mathfrak{S}_E^{\text{rel}} \times \mathfrak{V}_E^{\text{safe}}, \quad (44)$$

where $\mathfrak{V}_E^{\text{safe}}$ records the represented presence, strength, accessibility, or unresolved status of each safeguard at the declared resolution.

Definition 8.9 (Relationally safeguarded assistance). Assistance is *relationally safeguarded* relative to bridge β when the safeguards that β treats as material for the resulting autonomy, dependency, and control configuration are represented as sufficiently satisfied or otherwise appropriately addressed under the bridge's declared standard.

Definition 8.9 is intentionally conditional. Some urgent or short-lived interventions can be ethically justified with few formal safeguards; some durable support arrangements can require substantial contestability and review. Heterogeneous-subject cases can also require different mechanisms because communication, identity persistence, substitutability, or institutional structure differs across domains.

Lower represented dependency has no automatic ethical priority. A preference for the less dependent arrangement requires an explicit bridge because alternatives can differ in effective autonomy, safety, burden, reliability, proportionality, reversibility, and control exposure.

The dependency-comparison condition complements the least-intrusion caution of Section 7. Ethical assistance can seek to reduce avoidable lock-in or discretionary control without presupposing that independence is always the dominant good.

8.6 Relational Constraints on Ethical Response Status

The autonomy, dependency, control, and safeguard records can now constrain the response-status architecture of Section 5. Let $\mathfrak{D}_E^{\text{resp}}$ again denote the carrier of response-status records. Define the relational-constraint operation by Equation 45.

$$\text{Con}_\beta^{\text{rel}}\left(\mathcal{D}_\beta(h \mid \iota_E, \kappa_E), \Delta_\beta^{A,D}, \text{Ctr}_\beta, \text{Safe}_\beta^{\text{rel}}\right) \rightrightarrows \mathfrak{D}_E^{\text{resp}}. \quad (45)$$

Equation 45 allows an applicable bridge to revise a response's permission, prohibition, unresolved status, or requirement relevance when relational effects are ethically material.

Proposition 8.10 (Recipient benefit and relational permissibility). *A response that is represented as beneficial on one or more typed stake dimensions does not thereby remain permissible after the relational-constraint operation in Equation 45.*

Proof. Typed benefit and relational control are separate components of the ethical architecture. A response can generate favorable stakes while also creating material control exposure, lock-in, loss of effective options, or inadequate safeguards under the applicable bridge. The relational layer can therefore alter the status record independently of the favorable stake assessment. $\square$

Proposition 8.10 captures a recurring assistance problem: help can improve a recipient's immediate condition while producing a relation that becomes ethically difficult to contest, revise, or leave.

Relational safeguards supply one component of ethical assessment rather than a complete verdict; communicative, response-design, helper-side, allocation, and temporal constraints remain independently operative.

The partial role of relational safeguards keeps non-domination-sensitive analysis within the modular architecture of Paper XI.

8.7 Autonomy, Dependency, and Non-Domination Audit

Table 7 summarizes the main distinctions required before relational changes are used to alter an assistance status.

Table 7 also marks the boundary of this section. It does not decide how much burden a helper must bear to sustain an autonomy-supporting or non-dominating arrangement. Nor does it decide who should supply alternatives when reducing control exposure requires additional resources or institutional coordination. Those questions belong to Section 9.

Research Obligation 8.11 (Provenance for relational-assistance claims). *An application that uses autonomy, dependency, control exposure, or non-domination-sensitive considerations to alter the ethical status of assistance should report the decision domain, effective-option criteria, dependency objects and sources, before–after relational comparison, relevant control capacities, declared safeguards, unresolved components, applicable bridge package, and the precise status change produced by the relational-constraint operation.*

Table 7: Audit of autonomy, dependency, and relational non-domination.

Object	Required representation	Failure avoided
Autonomy	Decision domain, effective options, access, information, execution, revision	Treating nominal choice or one local difficulty as a global autonomy verdict
Dependency	Object, source, substitutability, exit, reconfiguration cost, horizon	Assigning dependency an automatic adverse or favorable valence
Relational change	Before/after autonomy and dependency records with uncertainty	Equating increased dependence with reduced autonomy
Control exposure	Capacity, discretion, tracking, contestability, exit, review	Equating absence of overt interference with absence of domination-sensitive risk
Safeguards	Material safeguards and their represented accessibility or strength	Treating beneficial support as relationally acceptable without governance analysis
Status update	Explicit relational bridge and resulting status change	Smuggling autonomy or non-domination claims into the ethical verdict without provenance

Research Obligation 8.11 completes the relational-structure layer. Section 9 can now evaluate helper-side voluntariness, role, burden, and capacity without treating recipient autonomy as equivalent to helper self-effacement or assuming that ethically valuable support can be sustained without limits.

9 Helper-Side Voluntariness, Role, Burden, and Capacity

This section develops the helper-side constraints that complement the recipient-centered and relational analyses of Sections 6–8. Its role is to determine when an ethically salient need, a permitted response, or even a requirement that assistance occur can be assigned to a particular prospective helper as a personal performance requirement. The objective is to keep competence, role, voluntariness, burden, sustainability, and referral or institutional alternatives separately represented before they modify the response-status record of Section 5. The discussion first defines a provenance-bearing helper condition record, then analyzes competence, role sources and conflicts, local participation voluntariness, typed burden and sustainability, substitution and referral, and finally a helper-side constraint operation. The method is normative-reconstructive and formal. Thresholds of acceptable burden and standards of role obligation remain bridge-relative and application-specific.

9.1 Helper Condition Records and Assignment of Assistance

The ethical architecture has so far allowed reasons and response statuses to be indexed by an actor. Section 9 makes the content of that actor index explicit. A recipient-directed reason to secure assistance can remain ethically significant even when no particular prospective helper has yet been identified as the appropriate performer. Conversely, a particular helper can have role-sensitive reasons that are not exhausted by the magnitude of the recipient’s adversity.

Let $\mathfrak{H}_E^{\text{cond}}$ be a carrier of helper-condition records. For prospective helper $h \in \mathcal{H}_E$ and candidate response $x \in \mathcal{X}_E$, define the helper-condition construction in Equation 46.

$$\text{HC}_\beta(h, x \mid \iota_E, \kappa_E) := (\text{Cmp}_\beta, \text{Role}_\beta, \text{Vol}_\beta, \text{Bur}_\beta, \text{Sus}_\beta, \text{Alt}_\beta) \in \mathfrak{H}_E^{\text{cond}}, \quad (46)$$

where the six components represent, respectively, competence, role sources and conflicts, local participation voluntariness, burden, sustainability over the relevant horizon, and materially available referral, delegation, substitution, or institutional alternatives. Equation 46 is a representation schema rather than an empirical measurement model. An application may instantiate only the components material to its ethical question, but unresolved components should remain visible when they can affect the verdict.

Definition 9.1 (Helper-specific assignment). A *helper-specific assignment* is a bridge-supported claim that a particular prospective helper h , or a declared class of actors containing h , bears a response-relevant ethical reason, permission, requirement, or constraint concerning x . The assignment records the bridge component through which recipient-directed reasons, role sources, competence, burden, or other helper-side conditions become actor-specific.

Definition 9.1 separates the ethical claim that assistance is called for from the further claim that one identified actor should personally supply it. Strong beneficence can generate demanding reasons to respond to serious adversity under specified conditions [14]; relational and care-oriented approaches can also assign significance to existing responsibilities, dependencies, and practices of care [5, 7]. The present framework treats the actor assignment as an additional normative step rather than presupposing one universal distribution rule.

Proposition 9.2 (Recipient-directed reasons and personal assignment). A *favorable reason for assistance to occur does not by itself establish a helper-specific assignment requiring a particular actor h to personally perform a particular response x .*

Proof. A recipient-directed reason can be generated before the helper-condition record in Equation 46 is resolved. Helper-specific assignment additionally depends on bridge-sensitive facts such as role, competence, feasible alternatives, burden, and conflicts among responsibilities. The recipient-directed reason therefore underdetermines the personal assignment. $\square$

Proposition 9.2 is especially important in multi-actor settings. A hospital, public agency, family member, volunteer group, software operator, or nearby bystander can each occupy a different normative position even when each encounters the same adverse state.

9.2 Competence and Response-Specific Capacity

Helper capacity is response-specific. A prospective helper can be competent to communicate, monitor, transport, refer, or provide ordinary support while lacking the technical, legal, physical, informational, or institutional capacity required for another intervention. Treating helper capacity as a global trait would therefore reproduce the same overgeneralization that Section 6 rejected for recipient decision-relevant agency.

Let $\mathfrak{C}_E^H$ be an application-declared carrier of competence dimensions. Define the competence profile in Equation 47.

$$\text{Cmp}_\beta(h, x) \subseteq \mathfrak{C}_E^H \times \mathfrak{V}_E^{H, \text{cmp}}, \quad (47)$$

where $\mathfrak{V}_E^{H, \text{cmp}}$ records the represented adequacy, inadequacy, or unresolved status of each competence dimension for response x under bridge β .

Definition 9.3 (Competence envelope). For helper h , bridge β , input record ι_E , and context κ_E , the *competence envelope* $\mathcal{F}_\beta^{\text{cmp}}(h \mid \iota_E, \kappa_E)$ is the subset of the ethical decision frame whose responses meet the competence conditions that β treats as necessary for responsible personal performance at the declared resolution.

Definition 9.3 does not imply that every response inside the competence envelope is permissible or required. Consent, proportionality, relational safeguards, burden, and allocation can still change the status. The envelope only identifies responses for which the relevant competence condition is represented as satisfied.

Proposition 9.4 (Competence limits personal performance requirements). *If x falls outside $\mathcal{F}_\beta^{\text{cmp}}(h \mid \iota_E, \kappa_E)$ because a competence condition required by β is represented as unsatisfied, then a requirement that assistance occur does not, on that basis alone, establish a requirement that h personally perform x .*

Proof. The competence envelope is defined relative to conditions that the bridge treats as necessary for responsible personal performance. A broader requirement that assistance occur can remain satisfiable through another response, another competent actor, referral, delegation, or an institutional route. Personal performance of x therefore requires additional justification. $\square$

Proposition 9.4 also blocks a dangerous interpretation of urgency. Greater urgency can strengthen the reason to secure competent assistance without making an unqualified intervention by an unqualified helper ethically preferable.

9.3 Role Sources, Commitments, and Role Conflict

Roles can alter who is expected to respond and what burdens are ethically relevant. Roles can arise from institutional office, prior commitment, professional practice, family or care relations, voluntary undertaking, contractual arrangement, emergency assignment, or another historically constituted relation recognized by the applicable bridge. The present framework does not assign a fixed ethical force to the category *role*; it records the source and lets the bridge determine its normative significance.

Let $\mathfrak{L}_E^H$ be a carrier of represented role sources. Define the role record in Equation 48.

$$\text{Role}_\beta(h, x) \subseteq \mathfrak{L}_E^H \times \mathfrak{V}_E^{H, \text{role}}, \quad (48)$$

where the value component records the relevance, strength, scope, or unresolved status assigned to a role source for the ethical question concerning x .

Definition 9.5 (Role-conflict record). A *role-conflict record* $\text{Conf}_\beta^H(h)$ is a provenance-bearing set of pairs or larger families of role-sensitive reasons or requirements that cannot all be satisfied within the declared feasible decision frame and time horizon without an additional priority, delegation, sequencing, or loss-allocation rule.

Definition 9.5 is deliberately broader than a conflict between formal offices. A caregiver's commitment to one dependent person can conflict with another care obligation; a volunteer can acquire a responsibility through undertaking while retaining responsibilities elsewhere; an institution can face simultaneous duties toward several recipients or staff.

Proposition 9.6 (Role-sensitive reasons and helper burden). *The existence of a bridge-supported role-sensitive reason does not by itself establish that every burden required to perform the role-associated response is ethically acceptable for the helper.*

Proof. Role source and burden are separate components of Equation 46. A bridge can treat a role as normatively significant while also imposing limits based on competence, cumulative burden, competing responsibilities, safety, sustainability, or available substitution. The role-sensitive reason therefore underdetermines the acceptable burden. $\square$

Proposition 9.6 prevents role language from functioning as an unlimited transfer of recipient need onto a particular helper.

9.4 Participation Voluntariness and Ethical Optionality

Paper X's assistance taxonomy treats volunteering as an operational dimension of participation, while Section 5 distinguishes ethical optionality from obligation. Helper-side analysis requires a further local object: the conditions under which a helper's participation is sufficiently voluntary for the ethical question at issue. Moral requirement, operational volunteering classification, and participation voluntariness are therefore separately typed.

Let $\mathfrak{V}_E^{H, \text{part}}$ be a carrier of participation-voluntariness conditions. Define the local record in Equation 49.

$$\text{Vol}_\beta(h, x) \subseteq \mathfrak{V}_E^{H, \text{part}} \times \mathfrak{W}_E^{H, \text{part}}, \quad (49)$$

where the represented conditions can include, when ethically material, coercive pressure, material dependence, information concerning the undertaking, possibilities of refusal or exit, institutional retaliation, relational pressure, and unresolved influences on the participation decision.

Definition 9.7 (Ethically relevant participation voluntariness). Participation in response x is *ethically voluntary relative to β* when the voluntariness conditions that β treats as material are represented as sufficiently satisfied for the specific participation decision under review. The judgment is local to that decision and does not establish global independence from social, relational, or institutional influence.

Definition 9.7 permits different ethical questions to use different thresholds. A minor informal undertaking, high-risk emergency service, long-term caregiving arrangement, and institutionally organized volunteer programme can require different information, exit, or anti-coercion conditions.

Proposition 9.8 (Participation voluntariness and ethical optionality). *Ethically voluntary participation under Definition 9.7 does not establish that the response is ethically optional, and an ethically required response can in principle be performed through voluntary participation.*

Proof. Voluntariness concerns the conditions of the actor's participation decision, whereas optionality concerns the all-things-considered status of the response within the decision frame. A response can be required while its performer acts willingly and without the disqualifying pressures represented by the relevant voluntariness bridge. Conversely, a response can be optional while participation is produced through ethically problematic coercion or pressure. $\square$

Proposition 9.8 also preserves the operational distinction emphasized in Section 5: a moral requirement does not automatically become external compulsion, and the absence of external compulsion does not establish moral optionality.

9.5 Typed Burden and Sustainability over Time

Helper burden is multidimensional and temporally structured. Time, material resources, physical effort, emotional or cognitive load, opportunity costs, risk exposure, relational strain, and cumulative depletion can matter differently across assistance settings. A single burden score would therefore reproduce the scalarization problem addressed for recipient stakes in Section 4.

Let $\mathfrak{B}_E^H$ be an application-declared carrier of helper-burden types. Define the typed burden profile in Equation 50.

$$\text{Bur}_\beta(h, x; t_0, t_1) \subseteq \mathfrak{B}_E^H \times \mathfrak{B}_E^{H, \text{bur}}, \quad (50)$$

where the value carrier can preserve direction, magnitude class, uncertainty, concentration, recurrence, or another representation justified by the application. The time interval $[t_0, t_1]$ makes cumulative and continuing burden explicit.

Definition 9.9 (Helper sustainability record). A *helper sustainability record* $\text{Sus}_\beta(h, x; t_0, t_1)$ represents whether continued or repeated performance of x , under the expected assistance trajectory, remains compatible with the competence, burden, role, safety, and recovery conditions that β treats as material over the declared horizon.

Definition 9.9 makes sustainability distinct from minimal burden. A demanding response can be sustainable when time-limited, supported, rotated, or institutionally resourced; a seemingly modest response can become unsustainable through repetition or cumulative role conflict. Care ethics and dependency-oriented work provide reasons to treat the conditions that sustain care as ethically relevant rather than as an invisible background resource [5, 7].

Lower helper burden alone does not establish ethical superiority. Burden must be compared together with recipient stakes, competence, proportionality, reversibility, relational effects, role fit, third-party effects, and success conditions under an applicable bridge.

Proposition 9.10 (Burden-sensitive assignment with persistent recipient reasons). *A bridge can judge the burden or sustainability of personal performance by helper h sufficient to modify or defeat a helper-specific assignment while leaving the underlying recipient-directed reason for assistance intact.*

Proof. Recipient-directed reasons and helper-specific assignment are distinct under Proposition 9.2. Burden and sustainability enter the helper-condition record rather than the representation of the recipient's adversity itself. A burden-sensitive bridge can therefore redirect, qualify, or defeat personal performance without concluding that the recipient no longer has an ethically salient claim or need for assistance. $\square$

The helper-burden comparison condition and Proposition 9.10 jointly provide the structural basis for burden-sensitive referral and institutional substitution.

9.6 Referral, Delegation, and Institutional Alternatives

Assistance ethics can distinguish the responsibility to secure an ethically adequate response from the responsibility to personally perform it. This distinction becomes especially important when competence, burden, role conflict, or sustainability makes direct performance by one actor inappropriate while other competent actors or institutional routes remain available.

Let $\mathcal{A}_E^H$ be a carrier of helper-side alternatives. Define the alternative relation in Equation 51.

$$\text{Alt}_\beta(h, x \mid \iota_E, \kappa_E) \subseteq \mathcal{A}_E^H, \quad (51)$$

where an element of $\mathcal{A}_E^H$ can represent, at the declared resolution, referral, delegation, escalation, transfer, shared performance, rotation, resource mobilization, institutional provision, or another ethically relevant alternative to unilateral personal performance.

Definition 9.11 (Adequate substitution route). An alternative $a \in \text{Alt}_\beta(h, x \mid \iota_E, \kappa_E)$ is an *adequate substitution route* when the applicable bridge represents it as capable of discharging the relevant recipient-directed or role-sensitive requirement to the required degree while satisfying any competence, timeliness, continuity, communicative, and relational conditions material to that requirement.

Definition 9.11 prevents referral from becoming a purely formal exit. A nominal referral that is inaccessible, incompetent, untimely, or predictably discontinuous need not count as an adequate route.

Proposition 9.12 (Securing assistance and personal performance can diverge). *A bridge can require helper h to secure an adequate assistance outcome while permitting h to satisfy that requirement through an adequate substitution route rather than personal performance of x .*

Proof. Definition 9.11 allows the requirement to be attached to an assistance outcome or compliant response family rather than to one performer-response pair. When an adequate route is available, the requirement can remain satisfied even though the helper does not personally perform x . $\square$

Proposition 9.12 also gives institutional alternatives a precise place in the ethics. Institutions can redistribute competence, continuity, burden, and accountability rather than merely standing as larger versions of individual helpers.

9.7 Helper-Side Constraints on Response Status

The helper-condition record can now constrain the response-status architecture of Section 5. Let $\mathfrak{D}_E^{\text{resp}}$ denote the carrier of response-status records. Define the helper-side constraint operation in Equation 52.

$$\text{Con}_\beta^H \left(\mathcal{D}_\beta(h \mid \iota_E, \kappa_E), \text{HC}_\beta(h, x \mid \iota_E, \kappa_E) \right) \rightrightarrows \mathfrak{D}_E^{\text{resp}}. \quad (52)$$

Equation 52 permits competence, role, voluntariness, burden, sustainability, and adequate alternatives to alter the permission, prohibition, unresolved, or requirement structure for the actor-response pair while preserving the provenance of the change.

Table 8: Audit of helper-side voluntariness, role, burden, and capacity.

Object	Required representation	Failure avoided
Assignment	Actor, response, bridge source, and assignment route	Treating recipient need as self-assigning to one helper
Competence	Response-specific competence dimensions and unresolved components	Converting urgency into authorization for incompetent personal intervention
Role	Role source, scope, conflicts, and priority conditions	Treating role language as an unlimited burden transfer
Voluntariness	Local participation conditions, pressure, information, refusal, and exit	Equating voluntariness with ethical optionality
Burden	Typed, temporally indexed burden with uncertainty and cumulative effects	Treating helper cost as one context-free scalar
Sustainability	Horizon, recurrence, recovery, support, and role interaction	Inferring sustainable care from one feasible episode
Alternatives	Referral, delegation, substitution, shared provision, and adequacy conditions	Treating personal performance as the only way to discharge assistance reasons
Status update	Helper-condition record, bridge, and precise response-status change	Hiding helper-side constraints inside an unexplained final verdict

Helper-side acceptability is one component of the all-things-considered assessment; recipient-side communication, response design, relational safeguards, allocation, third-party effects, and temporal revisability remain independently operative.

Proposition 9.13 (Recipient autonomy and helper-side burden). *An assistance arrangement that improves recipient autonomy or reduces recipient control exposure does not by itself establish that the burdens or role demands imposed on a particular helper are ethically acceptable.*

Proof. Recipient autonomy and helper conditions are represented by distinct records and enter the status architecture through distinct constraint operations. A relation can be autonomy-supporting for the recipient while being unsustainable, coercive, competence-mismatched, or excessively burdensome for one helper. An additional bridge-sensitive helper-side assessment is therefore required. $\square$

The partial role of helper-side acceptability and Proposition 9.13 make the modular and relational symmetry of the framework explicit without assuming equal or directly commensurable stakes between helper and recipient.

9.8 Helper-Side Ethical Audit

Table 8 summarizes the distinctions required before a recipient-directed reason is assigned to a particular helper as a personal performance requirement.

Table 8 also marks the boundary of Section 9. It does not decide how scarce helper capacity should be allocated among several recipients, how partiality toward existing relations should interact with impartial need, or how burdens imposed on third parties should enter the decision. Those questions belong to Section 10.

Research Obligation 9.14 (Provenance for helper-specific ethical assignments). An application that assigns an assistance reason, permission, prohibition, or requirement to a particular helper should report the recipient-directed reason or role source, response-specific competence conditions, role and conflict record, voluntariness conditions where material, typed burden and sustainability horizon, materially

available substitution routes, unresolved components, applicable bridge package, and the precise status change produced by the helper-side constraint operation.

Research Obligation 9.14 completes the helper-specific layer. Section 10 can therefore analyze partiality, impartiality, multi-recipient conflict, and third-party effects without treating helper capacity as infinitely divisible or assuming that every recipient claim can be satisfied independently of competing claims on the same actors and institutions.

10 Partiality, Impartiality, Multi-Recipient Conflict, and Third-Party Effects

Section 9 completed the helper-specific layer by distinguishing recipient-directed reasons from personal assignment, competence, role, burden, sustainability, and substitution. The present section addresses the allocation problem that arises when several recipients or affected parties make ethically relevant claims on a shared set of helpers, resources, time, institutional capacities, or mutually incompatible responses. Its role is to represent conflict among such claims without presupposing a universal interpersonal welfare scale. The objective is to distinguish relationship-sensitive partial reasons, impartial or agent-neutral considerations, feasible allocation plans, opportunity costs, third-party effects, and ethically unresolved selection. The discussion proceeds from allocation frames to plan-level comparison, then to displacement and third-party effects, and finally to selection rules and status constraints. The method is formal and normative-reconstructive. The framework permits local comparison and justified priority rules while preserving incomparability wherever the applicable ethical bridge supplies no common ordering.

Questions of partiality and impartiality have an established place in moral philosophy. Scheffler argues that coherent morality can recognize relationship-, project-, and membership-dependent reasons without reducing morality to those reasons [13]. Scarcity also makes plural allocation principles practically salient. Persad, Wertheimer, and Emanuel, for example, distinguish several ethically relevant allocation principles in the specific context of scarce medical interventions rather than treating one principle as sufficient for every case [11]. These sources position the present section. The formalism below does not adopt either account as a universal bridge.

10.1 Allocation Frames and Feasible Plans

An allocation problem requires more structure than a collection of independent actor-response judgments. The same unit of helper time, material resource, institutional access, or mutually exclusive response can be claimed by several recipients. Let $\mathcal{V}_E$ denote an application-declared carrier of prospective direct recipients or claimants at the resolution of the allocation question. Let Π_E denote a carrier of allocation plans. A plan may assign responses, resources, helper effort, timing, or institutional capacity to one or more members of $\mathcal{V}_E$.

Definition 10.1 (Allocation frame). For ethical bridge β , ethics-relevant input ι_E , and ethical context κ_E , an *allocation frame* is a tuple $\mathfrak{A}_\beta(\iota_E, \kappa_E)$ that records at least the live claimant set, materially available resources and helper capacities, temporal horizon, mutually exclusive or jointly feasible response relations, institutional constraints represented as ethically relevant, and the set of plans admissible for further ethical assessment.

Let $\Pi_\beta^{\text{feas}}(\iota_E, \kappa_E) \subseteq \Pi_E$ be the feasible-plan set induced by the allocation frame. Equation 53 records the construction.

$$\text{Plan}_\beta(\iota_E, \kappa_E) = \Pi_\beta^{\text{feas}}(\iota_E, \kappa_E) \subseteq \Pi_E. \quad (53)$$

Equation 53 is deliberately broader than a budget constraint. Feasibility can depend on helper competence from Section 9, temporal ordering, response incompatibility, communicative conditions, safety limits, continuity requirements, or another feature represented in the ethical context. The feasible-plan set may be empty. Such allocation-feasibility vacancy means that the declared frame currently contains

no jointly executable plan; it is not a reason to treat one claimant as having prevailed. The analysis must then reopen feasibility, timing, resource creation, institutional escalation, or the framing of the allocation problem.

Proposition 10.2 (Independent permissibility under joint feasibility constraints). *Two recipient-specific responses can each be ethically permissible when assessed in isolation while no feasible allocation plan contains both responses jointly.*

Proof. Individual response status is indexed to a decision frame. When two responses compete for the same nondivisible resource, helper, time window, or incompatible institutional pathway, the joint plan can fall outside Π_β^{feas} even though each response belongs to the relevant recipient-specific permission set. Joint feasibility therefore requires the allocation frame in Definition 10.1. $\square$

Proposition 10.2 marks the transition from assistance ethics for one recipient to allocation ethics among several claims. Scarcity is represented by the feasible-plan set rather than inferred from the moral importance of any individual claim.

10.2 Partial Reasons and Impartial Claims

The framework treats partiality and impartiality as different possible sources of ethical reasons. It does not assign either source lexical priority. A bridge can recognize relationship-sensitive reasons arising from care, undertaking, membership, prior support history, dependency, or another ethically relevant relation, while also recognizing reasons connected to need, equal consideration, urgency, avoidance of severe harm, or another agent-neutral or wider-scope consideration.

Let $\mathfrak{R}_E^{\text{alloc}}$ be a carrier of allocation-relevant reason tokens. Define the allocation-reason construction in Equation 54.

$$\text{ARsn}_\beta(h, y, \pi \mid \iota_E, \kappa_E) \subseteq \mathfrak{R}_E^{\text{alloc}}, \quad y \in \mathcal{Y}_E, \pi \in \Pi_\beta^{\text{feas}}. \quad (54)$$

A token in Equation 54 records the claimant, actor or institution to whom the reason bears, plan or plan component, reason source, partiality or impartiality classification where that classification is material, bridge component, scope, competing reasons, and provenance.

Definition 10.3 (Relationship-sensitive partial reason). *A relationship-sensitive partial reason is an allocation-relevant reason whose normative force depends, under the applicable bridge, on a represented relationship, undertaking, role history, membership, attachment, or other relation-specific feature linking an actor or institution to a claimant.*

Definition 10.4 (Impartial allocation reason). *An impartial allocation reason is an allocation-relevant reason whose stated normative ground does not depend on preferential attachment to the particular claimant, although its content can still depend on ethically relevant claimant-specific features such as need, urgency, vulnerability, or the magnitude and type of a stake.*

Definitions 10.3 and 10.4 classify reason sources rather than complete moral theories. A single plan can be supported by both kinds of reasons, and a bridge can represent conflicts within either class.

Proposition 10.5 (Scope of relationship-sensitive priority). *The presence of a relationship-sensitive partial reason favoring claimant y does not by itself establish that every feasible plan favoring y outranks every plan favoring an unrelated claimant.*

Proof. Definition 10.3 identifies the source of a reason. Its weight, scope, defeaters, interaction with impartial reasons, and applicability to the competing claims remain bridge-dependent. Equation 54 therefore supplies no unrestricted priority rule from source classification alone. $\square$

Proposition 10.5 is especially important for long-term support relations. Existing relationships can generate ethically material expectations or reasons while severe claims by outsiders can remain independently relevant. The framework keeps both sources visible for later comparison.

10.3 Multi-Recipient Claims and Partial Comparison of Plans

Section 4 already permits typed stake profiles, partial comparison, and explicit aggregation bridges. Allocation reuses that architecture at plan level. For plan π and affected party a , let $\text{Stk}_E^A(\iota_E, \pi, a; \kappa_E)$ denote a plan-level typed stake profile constructed under the same typing discipline as Definition 4.1. The profile can incorporate constituent response effects, interaction effects among plan components, and opportunity-sensitive consequences. It is not assumed to equal a sum of recipient-specific response profiles. A plan can affect several parties through different stake types and need not admit a single aggregate value.

Let $\preceq_\beta^{\text{alloc}}$ be a bridge-relative relation over feasible plans, as stated in Equation 55.

$$\preceq_\beta^{\text{alloc}} \subseteq \Pi_\beta^{\text{feas}} \times \Pi_\beta^{\text{feas}}. \quad (55)$$

The relation can be partial. Its comparison domain and normative basis must be declared. It can draw on typed stake comparisons, recipient-directed reasons, relationship-sensitive reasons, impartial reasons, consent constraints, helper-side conditions, and other components already developed in the paper.

Definition 10.6 (Allocation frontier). When the feasible-plan set is nonempty, the *allocation frontier* is the subset of feasible plans for which the applicable allocation relation supplies no feasible plan represented as strictly preferable while preserving every material comparison condition required by the bridge. It is denoted by $\text{Front}_\beta(\iota_E, \kappa_E)$.

Definition 10.6 is a nondominance concept relative to the declared bridge, not a theorem that frontier plans are all-things-considered permissible. Frontier nonemptiness is also not automatic: an empty feasible-plan set, or a comparison relation with unresolved or cyclic strict-preference structure, can leave no admissible frontier for selection at the declared resolution. Such a case remains an allocation defect or unresolved frame, not permission to choose arbitrarily. Consent, third-party constraints, unresolved comparison, or another independent condition can still exclude a frontier plan.

Proposition 10.7 (Local allocation comparison preserves global incomparability). *A bridge can rank two feasible allocation plans for a specified conflict without establishing a complete ordering over Π_β^{feas} or a universal interpersonal welfare metric.*

Proof. Equation 55 is a relation on the declared comparison domain and need not be total. Section 4 also allows stake pairs and cross-subject comparisons to remain incomparable. A local ranking therefore supplies only the ordering licensed by the bridge for the plans and dimensions at issue. $\square$

Proposition 10.7 permits concrete allocation decisions under partial commensurability while preserving the manuscript's earlier refusal to treat heterogeneous recipients as points on a universal welfare scale.

10.4 Opportunity Cost and Displaced Claims

An allocation plan changes the space of remaining feasible assistance. The ethical significance of this change cannot be represented solely by the gains of the recipients included in the chosen plan. Opportunity cost is therefore recorded through foregone feasible alternatives and displaced claims.

For feasible plan π , define its opportunity set in Equation 56.

$$\text{Opp}_\beta(\pi \mid \iota_E, \kappa_E) = \left\{ \pi' \in \Pi_\beta^{\text{feas}} : \pi' \text{ becomes unavailable after commitment to } \pi \right\}. \quad (56)$$

The definition is path- and horizon-sensitive. A plan can consume a nonrenewable resource, occupy helper capacity during a critical window, create a continuing support commitment, or alter an institution's future response capacity.

Definition 10.8 (Displaced claim record). For plan π , a *displaced claim record* identifies any claimant whose materially supported assistance option is removed, delayed, weakened, or made less feasible by the commitment to π , together with the affected stake types, time horizon, comparison status, causal route of displacement, and provenance.

Proposition 10.9 (Recipient benefit underdetermines allocation acceptability). *A plan that confers substantial benefit on its direct recipient can remain ethically unresolved or disfavored when its opportunity set contains alternatives associated with materially competing claims.*

Proof. The direct recipient's favorable stake profile represents only one component of the plan. Equation 56 and Definition 10.8 add the claims made infeasible or less feasible by the same commitment. Without a bridge comparing or otherwise governing those claims, the direct benefit does not settle the allocation judgment. $\square$

Proposition 10.9 prevents a favorable direct-recipient outcome from concealing the opportunity cost created by the same plan.

This result is structurally continuous with Section 9: helper sustainability and alternatives shape the opportunity set rather than appearing as after-the-fact exceptions to a recipient-centered verdict.

10.5 Third-Party Effects and Role Multiplicity

Allocation can affect parties who are neither the intended recipient nor the helper whose action is being assessed. Family members, dependants, other care recipients, bystanders, counterparties, future users of a depleted resource, institutional staff, or members of a relational network can acquire ethically material stakes. Heterogeneous-subject cases can add further forms of indirect dependence, including artificial systems sharing infrastructure, animals dependent on a common caregiver, or mixed human-machine groups whose functioning depends on a common resource.

Let $\mathcal{Z}_E^{\text{aff}}$ denote a carrier of affected-party role records. Define the affected-party construction in Equation 57.

$$\text{Aff}_\beta(\pi \mid \iota_E, \kappa_E) \subseteq \mathcal{Z}_E^{\text{aff}}. \quad (57)$$

Each record identifies the party, its role or roles in the allocation problem, the causal or relational pathway through which π affects it, the represented typed stakes, and any unresolved standing or comparison condition.

Definition 10.10 (Third-party effect). A *third-party effect* is a materially represented change in the stake profile of a party who is not the intended direct recipient of the plan component under evaluation, where the change enters ethical assessment through an applicable bridge rather than through recipient classification alone.

Definition 10.10 remains role-sensitive because the same entity can occupy several roles. A helper can also be a dependant of another recipient; an institution can be both resource allocator and affected party; a family member can be an indirect beneficiary, a burden bearer, and a future claimant. Equation 57 therefore records roles separately from party identity.

Third-party relevance requires a represented pathway rather than a generic assertion that others are affected. Material assessment therefore records the affected party, the causal or relational pathway, the typed stake change, and the applicable bridge.

The third-party pathway condition protects the analysis against two opposite errors: ignoring diffuse effects because they fall outside the intended recipient-helper dyad, and invoking unspecified third parties as a rhetorical reason to override a well-supported recipient claim.

10.6 Selection Rules under Residual Allocation Indeterminacy

A partial allocation relation can leave several plans on the frontier. Residual indeterminacy can arise from symmetric claims, incomplete comparison, morally plural reasons, or limited evidence. A selection rule is then an additional normative object rather than a hidden implementation detail.

Let $\mathfrak{S}_E^{\text{sel}}$ be a carrier of selection rules. Define a selection bridge in Equation 58.

$$\text{Sel}_\beta \left(\text{Front}_\beta(\iota_E, \kappa_E), s \right) \Rightarrow \text{Front}_\beta(\iota_E, \kappa_E), \quad s \in \mathfrak{S}_E^{\text{sel}}. \quad (58)$$

Equation 58 is invoked only when the supplied frontier is nonempty. A rule s can represent randomization, rotation, first-come ordering, priority by an ethically specified feature, deliberative selection, or another procedure whose applicability is separately justified. An empty frontier requires repair of the allocation frame or comparison structure rather than application of a selection rule.

Random selection has a longstanding place in philosophical discussions of fair allocation [2]. Within the present framework, randomization acquires ethical force only after the eligible frontier and the reason for equal or lottery-based chances have been specified. A lottery cannot repair an allocation frame that has already excluded a materially relevant claimant without justification.

Proposition 10.11 (Procedural neutrality requires a justified eligibility set). *A formally symmetric selection rule does not by itself establish ethically impartial treatment when the frontier or eligibility set supplied to that rule was generated through an unjustified exclusion, comparison, or priority assumption.*

Proof. Equation 58 operates on the frontier produced by earlier feasibility and ethical comparison stages. Symmetry of the rule s therefore concerns only the plans or claimants admitted to that domain. Ethical evaluation of the upstream eligibility construction remains independently necessary. $\square$

Proposition 10.11 also applies to deterministic tie-breaking. Procedural regularity should preserve, rather than conceal, the normative assumptions that define who or what enters the selection domain.

10.7 Allocation Constraints on Ethical Response Status

The allocation layer can now constrain the response-status architecture from Section 5. Let $\mathfrak{D}_E^{\text{resp}}$ retain the carrier of response-status records introduced in Section 9. Define the allocation constraint operation in Equation 59.

$$\text{Con}_\beta^A \left(\mathcal{D}_\beta(h \mid \iota_E, \kappa_E), \mathfrak{A}_\beta(\iota_E, \kappa_E), \pi \right) \Rightarrow \mathfrak{D}_E^{\text{resp}}. \quad (59)$$

Equation 59 allows multi-recipient claims, partial and impartial reasons, opportunity costs, third-party effects, and justified selection procedures to alter the ethical status of actor-response pairs represented inside plan π while preserving the provenance of that change.

Allocation acceptability contributes one class of constraints to ethical status rather than a complete verdict; communicative, response-design, relational, helper-side, and temporal constraints remain separately operative.

The partial role of allocation acceptability keeps allocation adequacy inside the modular status architecture rather than turning a successful allocation comparison into a complete ethical verdict.

10.8 Allocation and Third-Party Ethical Audit

Table 9 summarizes the information required before a multi-recipient assistance conflict is reduced to one chosen response or recipient.

Table 9 preserves the distinction between deciding which claims can be jointly satisfied and deciding how an assistance relation should evolve after a plan is chosen. The latter problem is temporal: evidence, preferences, burdens, consequences, dependencies, and available alternatives can change after assistance begins.

Table 9: Audit of partiality, allocation conflict, and third-party effects.

Object	Required representation	Failure avoided
Allocation frame	Claimants, capacities, resources, horizon, incompatibilities, and feasible plans	Treating recipient-specific permissions as jointly executable
Partial reasons	Relation-specific source, scope, actor, claimant, and bridge	Converting attachment or role into unrestricted priority
Impartial reasons	Need-, equality-, urgency-, or other bridge-defined source and scope	Treating impartiality as an unspecified demand for identical treatment
Plan comparison	Typed stakes, comparison domain, partial ordering, and unresolved dimensions	Smuggling a universal interpersonal welfare metric into allocation
Opportunity cost	Foregone plans, displaced claims, horizon, and causal route	Counting benefits of a chosen plan while hiding excluded alternatives
Third parties	Party identity, role multiplicity, pathway, typed stakes, and standing conditions	Restricting ethical effects to the intended recipient-helper dyad
Selection rule	Eligible frontier, rule, normative justification, and provenance	Treating a lottery or tie-breaker as self-justifying fairness
Status update	Allocation frame, chosen plan, bridge, and precise response-status change	Hiding allocation assumptions inside a final verdict

Research Obligation 10.12 (Provenance for multi-recipient allocation). An application that allocates assistance among competing recipients should report the allocation frame, feasible-plan set, recipient- and relation-sensitive reasons, impartial reasons where applicable, typed stake comparisons, material incomparabilities, opportunity costs, displaced claims, third-party pathways, helper-side constraints, any selection rule, unresolved components, and the precise response-status changes generated by the allocation constraint operation.

Research Obligation 10.12 completes the cross-recipient layer. Section 11 can therefore analyze revisable assistance across relational time with a plan record that already exposes who was included, who was displaced, which third parties were affected, and which allocation assumptions should be reopened when the factual or normative context changes.

11 Revisable Assistance across Relational Time

This section develops the temporal layer of the ethical architecture. Its role is to determine how an assistance assessment should evolve after a response has been initiated, continued, modified, or allocated within a changing relational environment. The objective is to formalize monitoring, update triggers, corrigibility, cessation, withdrawal, repair, and learning while preserving the provenance of earlier assessments. The discussion first defines time-indexed assistance records and trajectories, then separates monitoring from surveillance-like intrusion, specifies bridge-relative update triggers, distinguishes revisability from reversibility, represents modification and cessation pathways, introduces repair and learning records, and finally defines a temporal constraint operation on ethical response status. The method is normative-reconstructive and formal. Revisability is treated as a context-sensitive design property whose ethical importance depends on the stakes, uncertainty, intervention footprint, relational structure, feasible alternatives, and practical capacity for justified change represented in the application.

11.1 Time-Indexed Ethical Records and Assistance Trajectories

The ethical status of an assistance episode can change even when the initial response remains physically similar. New evidence can alter the recognized adverse state; the recipient can revise or withdraw a preference; helper competence or burden can change; dependencies can deepen; third-party effects can appear; and an allocation decision can cease to fit the available resource environment. A temporal ethics therefore requires a record of both the current assessment and the path through which that assessment was reached.

Let $\mathfrak{T}_E$ be an application-declared temporal index set and let $t \in \mathfrak{T}_E$. Define a time-indexed ethical assistance record in Equation 60.

$$\text{ER}_{\beta,t}(h, x) := (\mathcal{D}_{\beta,t}, \text{Eng}_{\beta,t}, \text{RD}_{\beta,t}, \text{Rel}_{\beta,t}, \text{HC}_{\beta,t}, \text{Alloc}_{\beta,t}, \text{Real}_t), \quad (60)$$

where the components record, respectively, the current response-status record, communicative engagement conditions, response-design conditions, relational conditions, helper-side conditions, allocation conditions, and realized consequences or observations material to the ethical question. Equation 60 is intentionally modular: an application need not populate every component when a component is immaterial, but unresolved material components should remain explicit.

Definition 11.1 (Assistance trajectory). For an initiated or continuing assistance episode, an *assistance trajectory* is a provenance-preserving sequence or partially ordered history $\mathcal{H}_{0:t}^E$ of time-indexed ethical assistance records, interventions, observations, and revision decisions up to time t . The trajectory preserves enough ordering and source information to reconstruct which later judgments depend on which earlier evidence, bridge, and response choice.

Definition 11.1 extends the static ethical interface without implying that every application requires continuous monitoring. The temporal resolution should match the intervention and the ethically material rate of change. A short emergency response, a recurring care relation, a long-term volunteer programme, and a software-mediated support arrangement can require very different temporal granularities.

Proposition 11.2 (Initial ethical status underdetermines later ethical status). *An ethical status assigned to response x for actor h at time t_0 does not by itself determine the status of continuing, modifying, or repeating x at a later time t_1 when one or more bridge-material components of Equation 60 have changed or become newly unresolved.*

Proof. The status record at t_0 is generated relative to the evidence, communicative conditions, response design, relational configuration, helper conditions, allocation frame, and bridge package then represented. A bridge-material change in any such component can alter an input to the ethical assessment at t_1 . Persistence of the earlier verdict therefore requires an additional temporal persistence condition rather than following from the earlier verdict alone. $\square$

Proposition 11.2 is especially important for support relations. Permission to initiate support and permission to continue support are separate ethical questions when the relationship itself changes the recipient's options, dependencies, expectations, or exposure to helper discretion.

11.2 Monitoring, Observability, and Ethical Cost of Reassessment

Revisability requires some route through which ethically material change can become available to deliberation. That route can involve direct communication, recipient-initiated reporting, periodic review, observation of adverse-state indicators, helper-side burden review, third-party reports, technical diagnostics, or another context-appropriate mechanism. Monitoring is itself an intervention and can therefore carry privacy, intrusiveness, burden, distortion, and power effects.

Let $\mathfrak{D}_E^{\text{mon}}$ be a carrier of ethically material observables and $\mathfrak{M}_E$ a carrier of monitoring arrangements. Define the monitoring relation in Equation 61.

$$\text{Mon}_{\beta}(\mathcal{H}_{0:t}^E, m) \Rightarrow \mathcal{O}_{\beta,t}^E \subseteq \mathfrak{D}_E^{\text{mon}}, \quad m \in \mathfrak{M}_E. \quad (61)$$

Equation 61 treats monitoring output as a set-valued, provenance-bearing input rather than as transparent access to the recipient’s internal state. Its interpretation remains subject to the evidential and communicative constraints inherited from Paper X and Sections 2 and 6.

Definition 11.3 (Ethically adequate monitorability). An assistance arrangement is *ethically monitorable* relative to bridge β and question q_E when there exists at least one feasible monitoring arrangement that can make the bridge-material changes specified for q_E sufficiently available for reassessment while satisfying the response-design, communicative, relational, helper-side, and third-party constraints that β treats as material to monitoring itself.

Definition 11.3 prevents monitorability from being reduced to data collection. A technically rich stream of observations can remain ethically inadequate when it is excessively intrusive, systematically inaccessible to the recipient, unreliable for the relevant subject type, or controlled by an actor whose incentives or discretionary power undermine the review process.

Proposition 11.4 (Ethical value of monitoring intensity). *Increasing the quantity or frequency of monitoring information does not, by itself, establish a more ethically adequate revisability arrangement.*

Proof. Definition 11.3 evaluates both the availability of bridge-material information and the ethical properties of the monitoring arrangement. Additional monitoring can improve observability while simultaneously increasing intrusion, burden, dependence, chilling effects, or control exposure. Ethical adequacy therefore depends on the joint record rather than information quantity alone. $\square$

Proposition 11.4 also applies to artificial or highly instrumented systems. Greater telemetry can increase epistemic access without settling whether collecting, retaining, interpreting, or acting on that telemetry is ethically appropriate.

11.3 Update Triggers and the Materiality of Change

Continuous full reassessment is often neither feasible nor ethically desirable. A revisable arrangement therefore requires bridge-relative criteria for deciding which changes reopen which parts of the assessment. These criteria are update triggers rather than universal thresholds.

Let $\mathfrak{U}_E^{\text{trig}}$ be a carrier of update-trigger types. Define a trigger relation in Equation 62.

$$\text{Trig}_\beta(\mathcal{H}_{0:t}^E, \mathcal{O}_{\beta,t}^E, q_E) \Rightarrow \mathcal{U}_{\beta,t} \subseteq \mathfrak{U}_E^{\text{trig}}. \quad (62)$$

Candidate trigger types can include materially changed evidence of adversity, new evidence concerning subjectivity-relevant conditions, changed preference or engagement, withdrawal of consent, altered intervention effects, emerging dependency or control exposure, helper incapacity or unsustainable burden, new third-party effects, resource scarcity, availability of a safer substitute, or failure of an expected benefit. The bridge determines which of these changes are material to the ethical question at the declared resolution.

Definition 11.5 (Targeted reassessment scope). For trigger set $\mathcal{U}_{\beta,t}$, the *targeted reassessment scope* $\mathcal{Q}_\beta^{\text{re}}(\mathcal{U}_{\beta,t})$ is the set of ethical questions, bridge components, and status fields that the declared temporal bridge requires to be reopened because of those triggers.

Definition 11.5 allows ethical revision to remain modular. A change in helper scheduling capacity need not automatically reopen the recipient’s moral considerability record; a newly clarified recipient refusal can require immediate reconsideration of continuation without requiring the entire allocation theory to be rebuilt from the beginning.

Reassessment may be locally scoped when the bridge specifies that an update affects only a proper subset of the ethical assessment. Unaffected records can remain in force with their provenance unless another declared dependency requires reopening them.

The locally scoped reassessment condition prevents revisability from becoming a requirement for perpetual total reconsideration. It also preserves a traceable difference between a genuinely new ethical judgment and a later judgment that merely inherits earlier components whose supporting conditions remain materially stable.

11.4 Revisability, Reversibility, and Corrigible Assistance

Reversibility in Section 7 concerns whether consequences of an intervention can be undone, mitigated, or restored relative to a declared baseline and horizon. Revisability concerns whether the ethical course of assistance can be reconsidered and responsibly changed as information and relational conditions evolve. The two properties therefore have different objects.

Definition 11.6 (Revisable assistance). An assistance trajectory is *revisable* relative to bridge β when its ethically material state can be monitored at an adequate resolution, bridge-specified update triggers can reopen the relevant assessment components, and at least one feasible revision pathway exists for implementing a justified change in the assistance arrangement when such a change is generated, including an identifiable actor or institution with the practical capacity and bridge-relevant standing to initiate or carry out that pathway.

Let $\mathfrak{P}_E^{\text{rev}}$ be a carrier of revision pathways. Define the revision-pathway relation in Equation 63.

$$\text{Path}_\beta^{\text{rev}}(\mathcal{H}_{0:t}^E, \mathcal{U}_{\beta,t}, \mathcal{Q}_\beta^{\text{re}}) \Rightarrow \mathcal{P}_{\beta,t}^{\text{rev}} \subseteq \mathfrak{P}_E^{\text{rev}}. \quad (63)$$

A pathway can include modification, substitution, reduction, escalation, referral, redistribution of roles, renegotiation of support conditions, added safeguards, temporary suspension, cessation, or repair. Equation 63 does not make every pathway ethically available; each pathway remains subject to the relevant response-design, engagement, relational, helper-side, allocation, and third-party constraints. A merely nominal pathway that no appropriately situated actor can activate within the material horizon does not satisfy Definition 11.6.

Definition 11.7 (Corrigibility of an assistance arrangement). The *corrigibility* of an assistance arrangement is the bridge-relative capacity of the arrangement to detect materially relevant grounds for revision, transmit those grounds to actors with appropriate standing or practical capacity, and implement a justified revision without requiring ethically disproportionate new harms or disabling the very channels needed for contestation and correction.

Corrigibility in Definition 11.7 is relational rather than merely technical. A system can contain a physical stop mechanism while remaining poorly corrigible if the recipient cannot invoke it, the relevant helper cannot act on it, or institutional incentives systematically prevent justified correction.

Proposition 11.8 (Revisability and reversibility are analytically independent). *High technical or practical reversibility of a response does not establish high ethical revisability, and limited reversibility does not by itself establish ethical unrevisability.*

Proof. Reversibility concerns the undoing or mitigation of consequences relative to a baseline and horizon, whereas Definition 11.6 concerns monitorability, update triggers, reassessment, and feasible ethical revision pathways. A response can be technically reversible while its material effects remain unobserved or correction authority is inaccessible. Conversely, an irreversible medical, relational, or infrastructural change can still admit later monitoring, compensatory adjustment, role revision, safeguards, or repair. Neither property entails the other. $\square$

Proposition 11.8 prevents a common design shortcut in which the presence of an “undo” operation is treated as sufficient evidence that an intervention remains ethically open to correction.

11.5 Modification, Cessation, Withdrawal, and Repair

Revision can preserve, alter, or end an assistance relation. These possibilities should remain separately typed because their ethical conditions can differ. Recipient withdrawal of consent or engagement was introduced in Section 6; helper withdrawal or institutional cessation introduces additional questions concerning reliance, notice, handoff, residual duties, and foreseeable transition effects.

Let $\mathfrak{A}_E^{\text{rev}}$ be a carrier of temporal assistance actions. At the present resolution, an application can distinguish continuation, modification, substitution, suspension, cessation, handoff, and repair within a context-specific subset $\mathcal{A}_{\beta,t}^{\text{rev}} \subseteq \mathfrak{A}_E^{\text{rev}}$. This action vocabulary is application-level rather than a universal taxonomy. More specialized domains can refine the action set when clinically, technically, culturally, or institutionally relevant distinctions matter.

Proposition 11.9 (Cessation permission and transition responsibility). *A bridge-supported permission for actor h to cease personally performing response x does not by itself establish permission to terminate every transition, handoff, notice, mitigation, or residual-support measure that the same bridge treats as material to responsible cessation.*

Proof. The helper-side analysis in Section 9 separates personal performance from referral, delegation, substitution, and institutional alternatives. A temporal bridge can therefore permit cessation of one actor-response assignment while still generating reasons or requirements concerning transition management. Personal cessation and relational abandonment consequently have different conditions. $\square$

Proposition 11.9 is especially relevant where earlier assistance has generated reliance or reconfigured the recipient's options. Ethical permission to withdraw from a role can coexist with transition-sensitive reasons to reduce avoidable disruption.

Definition 11.10 (Repair record). *A repair record is a provenance-preserving representation of realized assistance-related harm, missed safeguard, relational disruption, mistaken interpretation, unjustified exclusion, or other bridge-recognized defect together with the parties affected, causal or relational pathway, remaining stake profile, feasible repair responses, and unresolved responsibility questions.*

The repair record does not presuppose that every adverse outcome creates a duty of repair by the original helper. It supplies the structured input through which later ethical or institutional analysis can determine whether acknowledgement, restoration, compensation, role correction, renewed support, apology, procedural change, or another response is warranted. Walker's account of moral repair provides a useful external point of comparison because it treats repair as a response to damaged moral relations and distinguishes reparative practices from the mere relief of harmful consequences [15]; the present record is broader and remains agnostic about whether the underlying defect constitutes wrongdoing.

Proposition 11.11 (Relation between repair and restoration). *Ethically adequate repair need not reproduce the relational or material state that existed before the assistance episode.*

Proof. The earlier state can be unavailable, undesirable, or itself ethically defective. Definition 11.10 therefore evaluates remaining stakes, affected parties, pathways, and feasible responses rather than identifying repair with literal return to a prior baseline. $\square$

Proposition 11.11 is compatible with the relational character of assistance. Some harms can be mitigated only through a new arrangement whose structure differs from both the pre-assistance relation and the harmful intermediate state.

11.6 Learning, Provenance, and Revision Memory

Revisability also has an epistemic dimension. An assistance trajectory can reveal that an evidential proxy was unreliable, a communication bridge excluded a mode of expression, a burden estimate was systematically low, an allocation assumption displaced a recurring claimant, or a safeguard failed under conditions

not previously represented. Learning becomes ethically relevant when such information changes later assessments or the design of future assistance.

Let $\mathcal{L}_E^{\text{rev}}$ be a carrier of revision-learning records. Define the learning extraction in Equation 64.

$$\text{Learn}_\beta(\mathcal{H}_{0:t}^E, \mathcal{P}_{\beta,t}^{\text{rev}}) \Rightarrow \mathcal{L}_{\beta,t} \subseteq \mathcal{L}_E^{\text{rev}}. \quad (64)$$

A learning record can identify revised evidential reliability, changed bridge applicability, newly material stake types, recurring control exposure, burden patterns, allocation failures, or other explicitly supported lessons. The record should preserve the case conditions under which the lesson was generated.

Proposition 11.12 (Temporal scope of ex post learning). *Information gained from an assistance episode can improve later ethical assessment without retroactively establishing that the earlier intervention was ethically justified under the information and bridge conditions then available.*

Proof. Ethical justification at an earlier time is indexed to the evidence, alternatives, bridge package, uncertainty, and feasible safeguards available at that time. Later learning changes the epistemic state for subsequent assessment. It does not alter the provenance of the earlier decision or erase defects in the earlier justificatory record. $\square$

Proposition 11.12 is important when assistance functions partly as an information-generating intervention. Epistemic benefit can be ethically relevant while remaining distinct from ex post rationalization of avoidable harm or unjustified experimentation.

11.7 Temporal Constraints on Ethical Response Status

The temporal layer can now constrain the ethical response-status architecture developed in Section 5. Let $\mathcal{D}_E^{\text{resp}}$ retain the response-status carrier. Define the temporal constraint operation in Equation 65.

$$\text{Con}_\beta^T(\mathcal{D}_{\beta,t}(h \mid \iota_E, \kappa_E), \mathcal{H}_{0:t}^E, \mathcal{U}_{\beta,t}, \mathcal{P}_{\beta,t}^{\text{rev}}) \Rightarrow \mathcal{D}_E^{\text{resp}}. \quad (65)$$

Equation 65 permits monitoring results, material change, reassessment scope, and feasible revision pathways to modify the status of continuation, modification, substitution, suspension, cessation, or repair while preserving the earlier trajectory as provenance.

Revisability supplies a temporal condition rather than a complete ethical verdict. The content of any revision remains constrained by considerability, typed stakes, communicative engagement, response design, autonomy and dependency, helper-side conditions, allocation, and any applicable downstream bridge.

The partial role of temporal revisability also clarifies the status of the paper’s central proposal. Revisable assistance is ethically important in contexts where uncertainty, relational change, intervention effects, or long temporal horizons make later correction materially relevant; it is not an automatic requirement of identical form or intensity for every assistance episode.

11.8 Revisable-Assistance Audit

Table 10 summarizes the temporal information required before an assistance relation is described as ethically revisable at a declared resolution.

Table 10 preserves the distinction between assistance that can physically change and assistance whose ethical architecture supports responsible change. It also supplies the temporal record needed for the extension boundary developed in Section 12, where humanitarian, legal, and institutional domains can determine which monitoring, review, withdrawal, repair, or accountability structures they independently require.

Table 10: Audit of revisable assistance across relational time.

Object	Required representation	Failure avoided
Temporal record	Current status, engagement, design, relation, helper, allocation, and realized effects	Treating initiation-time ethics as permanently fixed
Monitoring	Material observables, source, frequency or trigger, access, and monitoring costs	Equating more surveillance or telemetry with better ethical review
Update trigger	Change type, bridge materiality, threshold or condition, and provenance	Reopening everything continuously or overlooking material change
Reassessment scope	Components to reopen and components provisionally retained	Losing modularity and historical provenance during revision
Revision pathway	Feasible modification, substitution, handoff, suspension, cessation, safeguard, or repair routes	Calling assistance revisable when no actor can implement justified change
Cessation transition	Notice, reliance, handoff, substitution, residual stakes, and affected parties where material	Equating permission to stop personal performance with permission to abandon
Repair	Realized defect, pathway, affected parties, remaining stakes, and feasible repair responses	Treating repair as automatic restoration to a prior state
Learning record	Case conditions, evidential or bridge revision, limits of transfer, and provenance	Turning ex post learning into retroactive justification

Research Obligation 11.13 (Provenance for temporal revision). An application that characterizes an assistance arrangement as revisable should report the temporal resolution, current ethical record, monitoring arrangement and its costs, update triggers, targeted reassessment scope, feasible revision pathways, responsible actors, cessation or handoff conditions where material, repair records, unresolved components, and any learning transferred into later assessments. The application should also identify which parts of the record remain provisional because no ethically adequate monitoring or revision pathway is available.

Research Obligation 11.13 completes the temporal ethics layer. Section 12 can therefore specify the boundary at which these ethical records become inputs to humanitarian, legal, or institutional analysis without treating ethical monitorability, revisability, repair, or actor assignment as sufficient grounds for legal status, authority, enforcement, or institutional jurisdiction.

12 Boundary Conditions for Humanitarian, Legal, and Institutional Extension

This section specifies the downstream interface of the ethical architecture developed in Sections 2–11. Its role is to identify which ethical outputs can be exported into humanitarian, jurisprudential, adjudicative, contractual, and institutional inquiry while preserving the additional premises required by each domain. The objective is to preserve boundary discipline while specifying the ethical records that later theories can inherit. The discussion first defines a provenance-preserving ethical export record, then introduces domain-indexed extension bridges, and subsequently states the distinct interfaces for humanitarian protection, legal status, adjudicative and enforcement authority, social-contract membership, and legally or institutionally structured assistance. The section closes with cross-domain translation rules and an exten-

sion audit. The method is formal and normative-architectural: downstream domains may inherit ethical reasons, constraints, uncertainty records, and relational histories, and their concepts of status, authority, jurisdiction, doctrine, procedure, enforceability, and institutional responsibility enter through separately specified bridges.

12.1 Ethical Export Records for Downstream Inquiry

The preceding sections generate several kinds of ethical information. A downstream theory can require some of them without requiring every component of the complete Paper XI architecture. A compact export object is therefore useful provided that compression preserves unresolved fields and provenance.

Let $\mathfrak{E}_X$ be the carrier of ethical export records. Define the export record in Equation 66.

$$\text{EO}_{\beta,t}(h, x) := (\text{MC}_{\beta,t}, \text{SP}_{\beta,t}, \mathcal{D}_{\beta,t}, \text{Eng}_{\beta,t}, \text{RD}_{\beta,t}, \text{Rel}_{\beta,t}, \text{HC}_{\beta,t}, \text{Alloc}_{\beta,t}, \text{Rev}_{\beta,t}, \Pi_{\beta,t}) \in \mathfrak{E}_X, \quad (66)$$

where the components preserve, respectively, the relevant moral-considerability record, typed stake profile, response-status record, communicative-engagement record, response-design record, relational autonomy/dependency record, helper-side record, allocation record, revisability record, and provenance package. Equation 66 is an interface schema: an application can export only the components material to the downstream question, while omitted material components should be marked as unavailable or unresolved rather than silently treated as satisfied.

Definition 12.1 (Ethical export record). An *ethical export record* is a question-indexed, provenance-preserving projection of the Paper XI assessment architecture that retains the ethical conclusions, uncertainty fields, material constraints, relational history, and source path required by a declared downstream domain.

Definition 12.1 makes the export question-indexed because humanitarian protection, legal subjecthood, adjudicative authority, contract membership, and institutional responsibility can require different subsets of the same ethical history. The record therefore carries an explicit destination tag and does not operate as a universal summary score.

Proposition 12.2 (Export preserves unresolved ethical conditions). *When an ethically material field remains unresolved in the source assessment, projection into an ethical export record preserves that unresolved status unless a downstream extension bridge supplies additional premises that bear on the same field.*

Proof. Definition 12.1 requires a provenance-preserving projection. Replacing an unresolved source field with a resolved downstream value during projection alone would add information that is absent from the source record. Resolution can occur only through an additional bridge whose premises and domain are separately represented. $\square$

Proposition 12.2 prevents downstream vocabulary from laundering uncertainty. A legal, humanitarian, or institutional label can add a new domain-specific classification, yet the earlier uncertainty about subjectivity, communication, stakes, burden, or relational consequences remains visible whenever that uncertainty is still material.

12.2 Domain-Indexed Extension Bridges

An ethical export record supplies structured inputs rather than a complete downstream verdict. Each downstream field requires its own sources of normativity, factual predicates, institutional or jurisdictional conditions, and procedural rules.

Let $\mathfrak{D}_X^{\text{ext}} = \{\text{HUM}, \text{JUR}, \text{AUTH}, \text{NOMOS}, \text{AIDLAW}\}$ be the present carrier of downstream extension domains. The notation uses HUM for humanitarian protection, JUR for jurisprudential status, AUTH for adjudicative and enforcement authority, NOMOS for social-contract membership and shared norm formation, and AIDLAW for legal and institutional duties concerning aid or protection. The carrier is programmatic rather than exhaustive.

Definition 12.3 (Extension bridge package). For downstream domain $d \in \mathcal{D}_X^{\text{ext}}$, an *extension bridge package* Λ_d is a declared set of domain-specific normative sources, factual predicates, classification rules, institutional or jurisdictional conditions, procedural requirements, uncertainty policies, and revision rules that determine how an ethical export record may bear on a downstream question.

Definition 12.3 makes the extension package domain-specific: a legal bridge cannot be substituted for a humanitarian or contractual bridge merely because the underlying ethical record is shared. Let $\mathfrak{Y}_d$ denote the output carrier appropriate to domain d . The generic extension relation is stated in Equation 67.

$$\text{Ext}_{\Lambda_d}^d(\text{EO}_{\beta,t}(h, x), \kappa_d, q_d) \Rightarrow \mathcal{Y}_{d,t} \subseteq \mathfrak{Y}_d, \quad d \in \mathcal{D}_X^{\text{ext}}, \quad (67)$$

where κ_d is the downstream institutional, historical, or jurisdictional context and q_d is the declared domain question. Equation 67 is set-valued because a downstream inquiry can remain plural, conditional, contested, or unresolved.

Definition 12.4 (Extension certificate). An *extension certificate* records the ethical export record, downstream domain and question, extension bridge package, context, material additional premises, generated downstream output set, unresolved fields, and the provenance of every domain-specific classification introduced during extension.

Definition 12.4 provides the traceability needed when an ethical assessment is reused in a later paper or applied setting. The certificate permits a reader to distinguish inherited ethical premises from conclusions generated only after humanitarian, legal, contractual, or institutional assumptions enter the analysis.

Proposition 12.5 (Downstream verdicts require domain-specific extension). *An ethical export record can constrain or inform a downstream assessment while leaving the downstream verdict underdetermined whenever the applicable extension bridge package, context, or domain-specific premises remain unspecified.*

Proof. Equation 67 generates outputs only after the ethical export record is combined with Λ_d , κ_d , and q_d . Definition 12.1 contains ethical rather than domain-complete humanitarian, legal, adjudicative, contractual, or institutional predicates. The downstream output therefore depends on premises additional to the ethical record. $\square$

Proposition 12.5 establishes the common boundary condition for Papers XII–XVI. Ethical relevance can travel across the interface; domain closure does not.

12.3 Humanitarian Protection Interface

Paper XII concerns humanitarian assistance and protection across heterogeneous subject classes. Paper XI can contribute ethically structured information about adverse stakes, moral considerability, urgency-sensitive reasons, response design, communicative conditions, helper constraints, allocation, and revisability. A humanitarian theory must additionally specify the grounds and scope of humanitarian protection as a distinct normative practice.

Let $\mathfrak{H}_X$ be a carrier of humanitarian-extension records. Define the humanitarian input projection in Equation 68.

$$\text{HIn}_t := \text{Proj}_{\text{HUM}}(\text{EO}_{\beta,t}(h, x)) \in \mathfrak{H}_X. \quad (68)$$

Equation 68 can preserve, among other fields, the represented adverse condition, uncertainty over subjectivity or suffering, recipient-centered reasons, urgency, intervention footprint, communication constraints, allocation context, and revision history. The humanitarian bridge must then state which beings or relations can enter the protective domain, which adverse conditions trigger humanitarian salience, which forms of assistance or protection are admissible, and how impartiality, urgency, access, security, and uncertainty are handled in the relevant context.

Ethical reasons to protect can enter humanitarian analysis while humanitarian protection status and humanitarian response requirements remain dependent on a declared humanitarian extension bridge with its own eligibility, priority, response, institutional, and uncertainty conditions.

The humanitarian-extension condition leaves Paper XII free to ask whether heterogeneous subjects can enter humanitarian protection through shared, translated, or plural protective grounds. It also permits Paper XII to distinguish humanitarian protection from the broader ethical category of assistance developed here.

12.4 Legal Status, Responsibility, and Procedural Standing Interface

Paper XIII concerns legal subjecthood, responsibility, sanctionability, and procedural standing. These dimensions should enter the downstream interface separately because an ethical assessment can support different conclusions for each one.

Let the jurisprudential output carrier be structured as in Equation 69.

$$\mathfrak{J}_{\text{JUR}} \subseteq \mathfrak{L}^{\text{subj}} \times \mathfrak{L}^{\text{cap}} \times \mathfrak{L}^{\text{stand}} \times \mathfrak{L}^{\text{resp}} \times \mathfrak{L}^{\text{sanc}}, \quad (69)$$

where the factors are placeholders for legal subjecthood, legally relevant capacity, procedural standing, responsibility-bearing status, and sanctionability. Equation 69 states an interface separation rather than a substantive jurisprudential theory.

Legal subjecthood, capacity, procedural standing, responsibility, and sanctionability remain separately derived downstream coordinates. The ethical export record contains no default equivalence rule among them.

The separate jurisprudential derivation condition is especially important for heterogeneous subjects. Ethical considerability can coexist with limited legal capacity; procedural standing can be represented through another actor while subjecthood questions remain contested; responsibility-bearing status can vary independently from the availability or appropriateness of sanctions. Paper XIII can therefore investigate these combinations without inheriting a single all-purpose status from Paper XI.

Communicative engagement also requires a legal bridge. Ethical consent, refusal, preference, or withdrawal from Section 6 can be relevant to legal capacity and legally operative authorization, yet the legal effect of such communication depends on the applicable legal context, capacity standard, representation rule, formal requirement, and procedure.

12.5 Adjudicative and Enforcement Authority Interface

Paper XIV concerns the authority to interpret, judge, sanction, or enforce against heterogeneous subjects. Paper XI supplies ethically relevant information about competence, burden, role, contestability, relational control exposure, and corrigibility. Authority adds a distinct institutional dimension concerning who may exercise which form of legal or quasi-legal power over whom and under what conditions.

Define an authority-skeleton record in Equation 70.

$$\text{AR} := (a, \alpha, z, \sigma, j, \chi, \varphi, \rho), \quad (70)$$

where a is the putative authority holder, α the adjudicative or enforcement act, z the target or affected party, σ the claimed source of authority, j the jurisdictional or institutional scope, χ the relevant competence or expertise conditions, φ the procedural conditions, and ρ the available review or contestation structure. Equation 70 is a downstream interface skeleton; Paper XIV must give the coordinates their substantive jurisprudential content.

Proposition 12.6 (Authority requires source, scope, and procedure). *Ethical competence, epistemic superiority, benevolent purpose, or expected recipient benefit can be relevant to evaluating an authority arrangement while remaining insufficient, within the present architecture, to establish adjudicative or enforcement authority without a separately grounded source, scope, and procedure.*

Proof. The helper-side competence record in Section 9 concerns whether an actor can ethically and practically perform a response. The authority skeleton in Equation 70 additionally contains source, jurisdictional scope, procedural conditions, and review. The ethical competence field therefore occupies only one coordinate of a richer downstream authority record. $\square$

Proposition 12.6 keeps questions about human, artificial, and hybrid adjudicators open. Higher predictive accuracy or technical expertise can matter greatly while leaving legitimacy, jurisdiction, due process, contestability, and allocation of legal power as separate questions.

12.6 Membership, Representation, and Shared Nomos Interface

Paper XV concerns social-contract membership, representation, mediation, and shared norm formation. Paper XI can contribute ethical records of considerability, communication, dependence, autonomy, burden, allocation, and temporal revision. Contractual or nomos membership introduces a different question: how a subject or represented interest participates in the formation, acceptance, interpretation, or contestation of shared norms.

Let the social-contract extension carrier be structured as in Equation 71.

$$\mathfrak{N}_{\text{NOMOS}} \subseteq \mathfrak{N}^{\text{member}} \times \mathfrak{N}^{\text{repr}} \times \mathfrak{N}^{\text{med}} \times \mathfrak{N}^{\text{particip}} \times \mathfrak{N}^{\text{contest}}, \quad (71)$$

where the factors mark membership, representation, mediation, participation in norm formation, and contestation. Equation 71 leaves open whether a particular theory requires all of these dimensions or gives them equal standing.

Ethical inclusion and membership in a shared nomos remain distinct. Moral-considerability and stake records can place a subject within ethical deliberation while membership, representation, mediation, participation, and contestation remain unresolved until a social-contract extension bridge is supplied.

The nomos-membership extension condition permits a later social-contract theory to recognize ethically material subjects whose participation must be mediated, represented, or institutionally translated. It also keeps representation separate from communicative interpretation: the ability to decode expression does not itself confer authority to represent a subject in norm formation.

12.7 Legal Duties and Institutional Responsibility for Assistance

Paper XVI concerns legal duties, permissions, standing, rescue or protection obligations, and institutional responsibility for aid. Paper XI supplies a developed ethical architecture for reasons, actor assignment, helper constraints, allocation, and revisability. Legal and institutional responsibility requires additional specification of the source, bearer, beneficiary, trigger, content, scope, defenses, enforcement structure, and remedy associated with a duty or permission.

Define a legal-assistance duty skeleton in Equation 72.

$$\text{LD} := (\sigma_L, b_L, v_L, \tau_L, c_L, \omega_L, \delta_L, \epsilon_L, \mu_L), \quad (72)$$

where σ_L denotes the legal or institutional source, b_L the duty bearer, v_L the beneficiary or protected interest, τ_L the triggering conditions, c_L the content of the duty, ω_L its scope, δ_L applicable defenses or limiting conditions, ϵ_L enforcement or review arrangements, and μ_L remedies or consequences associated with breach. Equation 72 is intentionally schematic because the relevant content can differ substantially across legal orders and institutions.

Proposition 12.7 (Enforceable assistance duties require legal-institutional specification). *An ethical obligation to assist, secure assistance, monitor, repair, or manage a transition can provide a normative input to legal or institutional analysis while leaving the existence and content of an enforceable duty dependent on the legal-assistance extension bridge and its source, bearer, scope, procedure, and remedy structure.*

Proof. The ethical requirement sets of Section 5, helper-side assignments of Section 9, and temporal responsibilities of Section 11 are defined inside an ethical bridge architecture. Equation 72 adds legal or institutional coordinates that the ethical record does not supply. An enforceable duty therefore requires the additional downstream bridge. $\square$

Proposition 12.7 also preserves the possibility that institutional design assigns responsibility differently from interpersonal ethics. An ethical reason for assistance can support institutionalization precisely because no single individual is an appropriate or sustainable duty bearer; conversely, an institution can possess a formal mandate while the ethical quality of a particular implementation remains open to assessment under the preceding sections.

12.8 Cross-Domain Translation and Extension Conflicts

Later work may need to translate outputs among humanitarian, legal, contractual, and institutional domains. Such translation requires its own bridge because semantically similar terms can have different criteria, sources, and consequences across domains.

For distinct domains $d, d' \in \mathfrak{D}_X^{\text{ext}}$, define the cross-domain translation relation in Equation 73.

$$\text{Tr}_{\Theta_{d \rightarrow d'}}(y_d, \kappa_d, \kappa_{d'}) \Rightarrow \mathcal{Y}_{d'}^{\text{tr}} \subseteq \mathfrak{Y}_{d'}, \quad (73)$$

where $\Theta_{d \rightarrow d'}$ states the source meaning, target meaning, admissible correspondences, information losses, and conditions under which the translation is warranted. Equation 73 prevents a humanitarian, ethical, legal, or contractual term from being transported solely because the same ordinary-language expression appears in both domains.

Definition 12.8 (Extension conflict record). An *extension conflict record* preserves a case in which two or more domain-specific assessments generate materially different permissions, requirements, statuses, priorities, or institutional responses for the same underlying assistance episode, together with the bridge packages, contexts, and unresolved translation questions responsible for the divergence.

Definition 12.8 makes cross-domain disagreement an analyzable output. An ethically favored response can face legal prohibition; a legally permitted intervention can remain ethically objectionable; humanitarian urgency can exceed current institutional authority; or an institution can hold a formal responsibility while the ethically appropriate mode of implementation remains contested. The framework records these divergences before any conflict-resolution theory is introduced.

Proposition 12.9 (Cross-domain consistency requires additional coordination rules). *Agreement among separate ethical, humanitarian, legal, contractual, and institutional assessments is not guaranteed by shared input facts; coordinated cross-domain conclusions require additional translation or conflict-resolution rules when the relevant bridge packages differ.*

Proof. Each domain generates outputs through Equation 67 using its own extension package and context. Equation 73 introduces an additional bridge for translating one domain output into another. Shared facts therefore constrain several assessments without forcing their normative or institutional rules to coincide. $\square$

Proposition 12.9 is a boundary result rather than a theory of legal-moral conflict. The relevant coordination problem belongs to the later domain papers once their substantive bridge packages have been developed.

12.9 Downstream Extension Audit

Table 11 summarizes the intended handoff from Paper XI to Papers XII–XVI. The table identifies what can be inherited from the ethics paper and what each downstream inquiry must still supply.

Table 11: Boundary audit for downstream humanitarian, legal, contractual, and institutional extension.

Downstream paper	Ethical material available for export	Additional bridge requirements	Downstream objects reserved for later theory
XII	Considerability, adverse stakes, urgency-sensitive reasons, response design, communication, allocation, revisability	Humanitarian protective domain, eligibility, protective grounds, priority, admissible means, access, uncertainty, institutional context	Humanitarian protection status and protection-specific response requirements
XIII	Considerability, agency-related records, communication, relational consequences, provenance	Legal source, status criteria, capacity rules, representation, procedural doctrine, responsibility and sanction criteria	Legal subjecthood, capacity, standing, responsibility, sanctionability
XIV	Helper competence, role, non-domination-sensitive control exposure, contestability, corrigibility	Source of authority, jurisdiction, competence standard, procedure, expertise allocation, review and enforcement rules	Adjudicative and enforcement authority
XV	Considerability, communication, autonomy/dependency, mediation-relevant provenance, contestability	Membership criteria, representation authority, mediation rules, participation structure, norm-formation procedure	Contract membership, representation, mediation, shared nomos
XVI	Ethical reasons and obligations, actor assignment, helper constraints, allocation, temporal duties, repair	Legal or institutional source, duty bearer, beneficiary, trigger, content, defenses, standing, enforcement and remedy	Legal duties, permissions, rescue/protection obligations, standing, institutional responsibility

Table 11 shows that the ethical architecture functions as a structured input layer rather than a substitute for the later theories. The same ethical record can legitimately feed several papers because each paper asks a different domain question and adds a different bridge package.

Research Obligation 12.10 (Provenance for downstream extension). Any downstream use of a Paper XI ethical assessment should report the exported ethical fields, unresolved source conditions, destination domain and question, extension bridge package, institutional or jurisdictional context, additional factual and normative premises, generated domain-specific outputs, cross-domain translations if any, and the precise provenance path by which the downstream conclusion was obtained.

Research Obligation 12.10 completes the boundary layer. Paper XI can therefore close with an ethics of assistance that is sufficiently structured to support humanitarian, jurisprudential, adjudicative, contractual, and institutional research while keeping the substantive conclusions of Papers XII–XVI open for independent argument.

13 Conclusion: Ethical Assistance under Heterogeneous Subject Conditions

This concluding section synthesizes the ethical architecture developed in Sections 2–12. Its role is to identify what the framework has established, clarify the limits of those results, and specify the form in which the analysis can support subsequent humanitarian, jurisprudential, and institutional work. The synthesis is conceptual and introduces no new normative bridge, formal object, or domain conclusion. Three contributions organize the result. First, ethical assessment is treated as a provenance-preserving

transition from support-relevant recognition rather than as an automatic consequence of perceived need or suffering. Second, assistance is evaluated through typed and only partially commensurable stakes distributed across recipients, helpers, third parties, and relationships. Third, the ethical quality of assistance extends through time, so monitoring, correction, withdrawal, handoff, repair, and learning can become part of the assistance relation itself.

The starting point is the interface developed in Section 2. A support-relevant recognition record can supply ethically material evidence and defeasible reasons while preserving the uncertainty, interpretive conditions, and relational history under which those materials were generated. Ethical judgment then requires additional bridge premises concerning moral considerability, stakes, response status, communication, intervention design, relational autonomy, helper-side conditions, allocation, and temporal revision. This architecture places normative responsibility on the transition between descriptive or interpretive inputs and ethical conclusions. A serious adverse condition can generate urgent reasons for attention while leaving open which responses are permissible, which actor bears responsibility, whether communication authorizes the proposed intervention, and what later revision may be required.

Section 3 extends that discipline to heterogeneous subjects. Subjectivity uncertainty, adverse-state uncertainty, uncertainty about moral considerability or status, and uncertainty among normative theories occupy different analytical axes. Their separation matters because heterogeneous cases frequently provide uneven evidence across those axes. Evidence that an artificial system has persistent goals, that an animal exhibits pain-related behaviour, or that a human recipient communicates atypically can matter ethically without resolving a general theory of consciousness or personhood. Conversely, uncertainty about phenomenal experience does not by itself erase functional, agential, relational, dependency-related, or trajectory-level stakes when an applicable ethical bridge treats those dimensions as material. Moral considerability therefore functions in this paper as eligibility for recipient-centered ethical reasons or constraints under a declared bridge, while richer conclusions concerning equal status, rights, priority, personhood, or legal subjecthood remain separately argued questions.

The typed-stake architecture of Section 4 provides the corresponding evaluative restraint. Ethical stakes may concern phenomenal experience, functioning, agency, preference, relationships, dependency, integrity, trajectories, or affected third parties, and an application can leave a dimension unresolved when adequate representation is unavailable. Comparability is likewise local and bridge-dependent. Some stakes may support within-type comparison, some may support carefully specified cross-type or cross-subject comparison, and others may remain incomparable or only conditionally aggregable. The framework therefore treats partial ordering and unresolved conflict as legitimate outputs. A scalar score can still be useful in a particular application, but its aggregation rule carries substantive normative commitments and requires its own justification.

Sections 5 and 6 translate those stakes into response-sensitive ethical assessment. Reasons, permissions, prohibitions, obligations, and optionality are indexed to actors and feasible responses rather than attached globally to an episode. This permits disjunctive obligations: an actor can be required to secure some adequate form of assistance while retaining discretion among several compliant responses. It also preserves the analytical differences among aid, volunteering, and support. An ethical reason that aid should occur does not automatically establish a duty to volunteer personally or to maintain an open-ended support relation. Communication then modifies this status architecture through separately justified interpretations of preference, consent, refusal, withdrawal, and decision-relevant agency. Recipient expression can have substantial ethical force while remaining distinct from a complete all-things-considered verdict.

The response-design analysis in Section 7 adds the ethical properties of the intervention itself. Intrusiveness, reversibility, information effects, and proportionality are assessed in relation to the represented stakes, alternatives, uncertainty, and temporal horizon. Proportionality is consequently a structured bridge-relative judgment rather than a hidden benefit-harm ratio. Reversibility is also broader than technical rollback: restoration, mitigation, compensation, relational repair, and the persistence of irreversible effects can matter differently across applications. These distinctions are particularly important when the available intervention is epistemically useful but itself intrusive, or when urgent action can

reduce one form of adversity while narrowing later options.

Section 8 situates these response properties within the assistance relation. Autonomy is represented through effective options and the conditions for accessing, understanding, executing, and revising them; dependency is represented through its object, source, substitutability, exit conditions, reconfiguration burden, and temporal horizon. The framework therefore permits ethically valuable dependency. A recipient may rely more heavily on care, communication infrastructure, medication, technical systems, or trusted support while gaining effective options and practical agency. The corresponding ethical concern is the configuration and governance of the dependency, including whether it creates avoidable lock-in or discretionary control. Non-domination-sensitive analysis adds contestability, review, substitutability, exit support, role limits, and related safeguards where those considerations are material.

The helper-side analysis in Section 9 prevents the recipient-centered framework from assigning assistance responsibility without regard to the actor who must carry it. Competence, role, voluntariness, burden, sustainability, delegation, referral, and institutional alternatives remain separately represented. A reason that someone should receive assistance may survive even when a particular helper lacks the competence, role basis, sustainable capacity, or ethically acceptable burden required for personal performance. The appropriate conclusion can therefore concern securing assistance, referral, shared provision, escalation, or institutional substitution rather than direct personal intervention. This distinction also protects long-term support relationships from ethical models that implicitly treat helper capacity as inexhaustible.

Scarcity and plurality broaden the same architecture in Section 10. Allocation concerns feasible plans whose components compete for time, resources, personnel, institutional access, or compatible response pathways. Relationship-sensitive partial reasons and impartial allocation reasons can both enter the assessment with explicit provenance. Opportunity costs, displaced claims, third-party effects, and role multiplicity remain visible rather than disappearing into a single recipient-level comparison. When the declared comparison structure leaves several plans on an allocation frontier, a further selection bridge may be required. Lotteries, rotation, priority rules, or other selection devices therefore receive normative significance from their justified role in the allocation problem rather than from formal symmetry alone.

Section 11 gives the paper its temporal emphasis. Assistance is often initiated under incomplete knowledge and then changes the evidence, expectations, dependencies, capacities, and relationships through which later ethical judgment occurs. Revisability captures whether that evolving course remains ethically capable of monitoring, contestation, reassessment, modification, substitution, suspension, cessation, handoff, or repair. It is distinct from reversibility: a consequence can be difficult to undo while the assistance process remains corrigible, and a technically reversible intervention can be ethically difficult to revise when relevant signals, authority, capacity, or channels of contestation are absent. Revisability is therefore proposed as a context-sensitive design property of assistance under uncertainty, with its importance determined by the stakes, uncertainty, temporal horizon, intervention structure, and applicable normative bridge.

This temporal view also changes the ethical meaning of withdrawal and repair. Permission for a helper to cease personal performance need not erase transition-sensitive reasons created by prior reliance or commitments. Notice, handoff, substitution, mitigation, and repair can remain material even where continued personal provision is no longer required. Repair itself need not restore an earlier state. The earlier configuration may be unavailable or normatively undesirable; repair can instead address realized harm, altered dependencies, damaged relationships, lost options, or failures of communication and governance. Learning from the trajectory is similarly prospective. Evidence gained through assistance can improve later recognition or design, while the informational value of that learning does not retroactively justify an intervention whose earlier ethical basis was inadequate.

Across these analyses, heterogeneity is managed through typed distinctions and provenance rather than through a single universal subject model. Human beings, nonhuman animals, artificial systems, and hypothetical alien subjects function as stress tests for the portability of ethical concepts. The framework does not assume that these subject classes share the same consciousness architecture, interests, communication channels, vulnerabilities, agency, or social relations. It asks which ethically material properties

can be responsibly represented in a given case, which bridges make those properties normatively relevant, which comparisons are justified, and which uncertainties remain open. The same discipline also applies within familiar human contexts, where communication, dependency, cognition, institutional position, and access to representation can vary substantially.

Several limitations remain substantial. The formalism is a structural representation rather than an empirical decision instrument, and its objects require domain-specific operationalization before applied use. Many bridge packages introduced in this paper are schematic carriers for normative premises rather than defended comprehensive moral theories. The framework preserves disagreement among ethical theories but does not supply a universal metatheory for resolving that disagreement. It also does not establish a general measure for cross-subject welfare, consciousness, agency, burden, or relational value. The usefulness of a typed architecture depends on the adequacy of the types supplied by an application; poorly chosen categories can obscure relevant experience or reproduce existing institutional biases even when the formal provenance record is complete. Ontological suspension therefore remains important: the framework organizes relational and normative inquiry without claiming to settle the ultimate nature of consciousness, suffering, personhood, or moral reality.

The boundary architecture in Section 12 preserves these limitations when the analysis moves into other normative domains. Paper XI can export ethically structured records concerning considerability, stakes, permissions, obligations, communication, autonomy, helper assignment, allocation, and revisability. Humanitarian protection status, legal subjecthood, legal capacity, procedural standing, responsibility, sanctionability, adjudicative or enforcement authority, social-contract membership, and legally enforceable assistance duties require additional domain-specific sources and bridge premises. An ethical obligation can therefore matter to later legal or institutional analysis without itself constituting law; ethical considerability can matter to humanitarian protection without defining its protective domain; and ethical competence can matter to adjudication without conferring jurisdiction or public authority.

The resulting proposal is a preliminary ethics of assistance for conditions in which the relevant subjects, experiences, interests, communications, and normative standards can remain partly uncertain. Its central methodological commitment is to preserve uncertainty while retaining its practical and ethical significance. Support-relevant recognition can generate reasons for attention; typed ethical bridges can transform those reasons into constrained response assessments; relational and helper-side analysis can distribute responsibility across participants and institutions; allocation can represent conflicts among several affected parties; and revisability can keep assistance answerable to what is learned through time. Within these limits, aid, volunteering, and support can be studied as ethically structured relations whose justification depends on the quality of their recognition, response design, distribution of burdens and powers, and capacity for responsible revision.

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