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The Scales Integral to Ecology: Hierarchies in *Laudato Si'* and Christian Ecological Ethics

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Abstract: Pope Francis's *Laudato Si'* advocates for an “ecological conversion” to the ideal of “integral ecology”. In so doing, it offers insights into different scales of moral attention, resonating with sophisticated thinking in scientific ecology and environmental ethics. From the encyclical, Christian ecological ethicists can learn about the importance of identifying spatial and temporal scales in moral terms and the usefulness of hierarchical levels that distinguish between local, community, and global concerns. However, the encyclical assumes some hierarchical relationships—among genders, among species, and with the divine—that it does not question. Scalar thinking is a key strength of *Laudato Si'* and also a signal of the work it leaves undone regarding the constructedness and limitations of all hierarchical assumptions.

Keywords: Christian ethics; ecology; scale; hierarchy; integral ecology; *Laudato Si'*; Pope Francis

1. Introduction

In his 2015 encyclical *Laudato Si'*, Pope Francis calls for and seeks to inspire an “ecological conversion” in human hearts that will help people to live more justly with one another and with all other creatures. This is introduced as a personal conversion, in which people recognize the harms their sins cause to other creatures and start behaving more charitably, justly, and sustainably. But Francis emphasizes that private actions and attitudes will be insufficient on their own, and so also calls for “a community conversion” of social contexts that will habituate people to live differently together. Ultimately, he argues, both personal and community changes require a global conversion, a move toward a broad community of human and non-human creatures based on “a loving awareness that we are not disconnected from the rest of creatures but joined in a splendid universal communion”.¹

In a few paragraphs, Pope Francis connects three distinct levels of moral work, calling for personal change, communal reform, and global awareness of interconnection. Such thinking across scales, I argue, is both a key strength of the encyclical and a signal of the work it leaves undone. Drawing on insights from scientific ecology and environmental ethics, this essay demonstrates that the encyclical captures the importance of scalar thinking and the heuristic value of hierarchical levels, but then argues that future work in Christian ecological ethics can build on this with more attention to the ecological understanding that all hierarchical levels are social constructions.

Laudato Si' was issued by the Roman Catholic Pope, and so carries authority for many within that tradition. An obedient Catholic approach to this document might involve reading it as a set of teachings to be learned from, with its validity assumed as a first principle. This would mean accepting the encyclical's authority based on its provenance in the Church as God's instrument in the world, and so would put the text primarily into conversation with other authoritative Catholic teachings.

¹ (Francis 2015, paras. 218–20).

My approach is different. I am impressed by the substantial accomplishment of the document, but I also have critiques and believe that serious and respectful engagement can include dissent from some aspects of an encyclical. I acknowledge the particular ecclesial context from which the text comes but am confident that discourse will be strengthened by a broader conversation that also includes other environmental and religious texts.

Pope Francis invites just such a reading by addressing the encyclical to “every person living on this planet” and emphasizing that all people must collaborate to preserve the health of the planet, “our common home”.² While the document is very clearly a work of Catholic Social Teaching, it explicitly seeks conversation with other faith traditions, with indigenous peoples, with scientists, and with others. Thus, I believe it is respectful to understand the encyclical in the context of not only Catholic theology but also a diverse range of other efforts to think morally about the environmental and social challenges of the 21st century.

The next section introduces scalar concepts from ecological science and environmental ethics. I then turn to note appreciatively the sophisticated use of scale and hierarchical levels in *Laudato Si'*, which contributes to the document’s rhetorical power. Finally, I offer my critique that the encyclical too readily assumes the reality of certain hierarchies—between God and the world, between male and female, and between humans and other animals—and that Christian ecological ethics should work to advance a form of integral ecology that does not take these assumptions for granted.

2. Scale and Hierarchy as Scientific and Moral Concepts

The primary conversation partners I want to bring into discussion with *Laudato Si'* are ecological theory and environmental ethics that learns from it, particularly insofar as both develop tools to think about scale. Scale refers to the size or extent of something relevant to a measurement. The concept calls attention to the relative orientation of an observer or actor in both space and time and helps to clarify what is central and what is peripheral in any measurement or assessment.

2.1. Scale in Scientific Ecology

In an influential 1992 essay, ecologist Simon Levin argued that scale is “the fundamental conceptual problem in ecology, if not in all of science”. Understanding how a natural system works, Levin argues, requires deliberate attention to and balance among different scales of attention, which allows scientists to identify patterns and develop models of understanding and prediction.³

The science of ecology studies living organisms in their contexts, and the concept of scale allows ecologists to differentiate the spatial and temporal levels at which living organisms interact with one another and the non-living world. The concept offers a vocabulary by which ecologists communicate how they are studying the world. Most specialize at a relatively small scale, studying a particular species or group of species in a particular habitat or region. Others, who work on theoretical connections, ecological education, or public science tend to prioritize broader, more global trends. The two groups depend on one another: those who work at small scales are informed by trends across regions (e.g., migratory patterns), across the globe (e.g., climate change), across decades (e.g., pollution patterns), and across millennia (e.g., evolution). Those who work at large scales depend upon more focused studies to inform and test their ideas.

An example of the various ways scale is approached in scientific ecology can be drawn from a recent issue of *Ecology*, the official journal of the Ecological Society of America. One article developed a hypothesis of how temperature impacts the behavior of four ant species in central Kenya, and another reported on the migratory habits of giant Galápagos tortoises. These are relatively small-scale articles, with primary attention on a specific species or category of species in a particular region. Other articles

² (Ibid., para. 3).

³ (Levin 1992, pp. 1944–45). Twenty years later, ecologist Chave (2013) reviewed and affirmed Levin’s argument.

are far broader, such as one that offers a more general theory of how herbivores influence plants' relationships to pollinators or another that offers tools to combine disparate datasets to model the distribution of species. These are more generalized, broad-scale articles. Each research project can only be fully understood when one grasps the scale at which it was conducted.⁴ The giant tortoises were studied exclusively on a particular archipelago, while data on herbivores and pollinators were gathered from across the world. Additionally, each project depends upon cross-scalar understanding: researchers who study African ants look for connections between the behavior they observe and that of other social animals in symbiotic relationships with plants, and those who work with species distribution data depend on field ecologists gathering that data on specific organisms.

2.2. Scale in Environmental Ethics

Environmentalists and environmental ethicists have learned from ecological theorists to take scale seriously as a moral as well as ecological concept. Just as scientists must make choices about their scales of attention when they seek to describe natural systems, so must activists and moral thinkers make scalar choices about the spatial and temporal dimensions of moral attention. To sustain a healthy ecosystem for the next week is different from sustaining it for our children's lifetimes, which is different from sustaining it for seven generations. To protect a watershed is different from protecting an entire national park, which is different from protecting the entirety of the world's oceans and atmosphere. Scale makes a moral difference.

Aldo Leopold, an early twentieth-century forester whose writings have shaped the environmental movement, famously called for an "expansion of ethics" so that human beings learn to care for and to understand our own fate as dependent upon the non-human systems around us. Leopold believed that human beings, who had learned to care for one another, could learn to extend that care outward to other species with whom we share our habitats. He proposed that people should learn to "think like a mountain" in order to consider broader temporal and spatial scales than those that come naturally at the human scale. In light of environmental degradation, Leopold argued, such an expansive moral vision that encompasses other species and ecosystems must be embraced as "an evolutionary possibility and an ecological necessity".⁵

A generation later, the economist E. F. Schumacher influenced environmental ethics with a very different scalar argument. In the book *Small is Beautiful*, Schumacher argued that human beings in contemporary cultures have become distracted and ungrounded by life in a global economy and, as a result, have great difficulty acknowledging the particulars of our own communities. Schumacher, therefore, called for an ethics focused on a more immediate scale as a corrective to the "almost universal idolatry of giantism" in global culture. His thesis was that the most vital contemporary ethical project is "to insist on the virtues of smallness". He argued that global ideas and systems are too complicated and too grand for real people ever to understand them, much less feel morally responsible for what they do to the natural environment. As an alternative, he called for technologies and political policies designed and enacted on a more local, familiar, "human scale".⁶

Leopold and Schumacher came to different conclusions about scale, and ethicists continue to negotiate between attempts to scale moral attention upward and downward.⁷ But the shared premise

⁴ "Left Out in the Cold: Temperature-Dependence of Defense in an African Ant-Plant Mutualism", "Migration Triggers in a Large Herbivore: Galápagos Giant Tortoises Navigating Resource Gradients on Volcanoes", "A Meta-Analysis of Herbivore Effects on Plant Attractiveness to Pollinators", and "Resolving Misaligned Spatial Data with Integrated Species Distribution Models" from *Ecology*, Volume 100, Issue 6 (June 2019).

⁵ "The Land Ethic" in Leopold (1949). For a thoughtful response to the ways Leopold overestimated the human capacity to care for one another in a world still beset by racism and oppression, see "Alien Land Ethic" in Savoy (2015).

⁶ (Schumacher 1973).

⁷ In recent Christian ecological ethics, for example, consider Harris (2017) argument that the concrete experience of black women should shape moral arguments in contrast to Appolloni (2018) argument that moral arguments should be shaped by a more comprehensive and integrated approach to global knowledge.

behind both arguments is that there are moral implications to ecological scale; the ways people spatially and morally attend to the world shape our ability to care about and act on behalf of endangered neighbors, communities, ecosystems, and the planet as a whole.

2.3. Thinking in Hierarchies

In both ecological science and environmental ethics, scalar thinking tends to be organized into discrete hierarchical levels. While scale is a blanket term for all spatial and temporal measurements, levels are attempts to categorize scales, to define and distinguish among different kinds of scalar thinking. In scientific ecology, the most important such levels refer to the spatial scale of what is studied, distinguishing between organisms, ecosystems, landscapes, and biomes. These levels are hierarchically organized in the sense that the smaller are contained within the larger. So, multiple organisms interact in an ecosystem, landscapes are made up of more than one ecosystem, biomes contain landscapes, and the planetary system as a whole is structured with biomes. One common metaphor suggests that these hierarchical levels are “nested” like a Russian doll, with each smaller scale existing entirely inside the one above.⁸

Such hierarchies help to remind ecologists to pay attention to the ways structured bodies like ecosystems or complex organisms are made up of sub-structures. Furthermore, any part of a system likely plays multiple roles within it. So, an ant colony represents a subsystem nested within a larger structure (a forest ecosystem) and is also itself made up of subsystems (e.g., ants, aphids, and plant matter).⁹ The world is understood as a set of bounded entities that contain and are contained within entities at other levels of scale.

Ethicists, too, think hierarchically. This has been most explicitly developed by philosopher Bryan Norton, who developed a set of three nested levels for moral thinking about environmental issues. The first and narrowest level of moral attention is the local, an ethics that focuses on individuals, their contexts, and their needs within a few years. A local ethics asks what will serve a particular entity or particular place in the near future. The next level up is community-oriented, including a system of individuals organized into social and ecological structures, with temporal concern extending across a full century. Thinking on the community level, an ethicist asks what will be good for a society or species for the next century. The third and broadest level is global, which attends to the entire planetary community over indefinite time. Ethical questions raised at this level concern the good of Earth and all life thereon for the foreseeable future and beyond.¹⁰

Norton’s levels help to characterize debates in environmental ethics. One can observe, for example, that Leopold’s “mountain” appeals to a community-oriented scale, while Schumacher’s “human” level is more local. Norton argues that this kind of disagreement is foundational to the field: “Environmental problems are, most basically, problems of scale”, and so it is vital for ethicist to debate the levels of attention at which we will engage such problems.¹¹ Norton’s own pragmatic philosophy tends to emphasize the need to scale up from local to community-oriented morality,¹² but his main emphasis is

⁸ Ecologists draw this attention to “nested hierarchies” from the broader findings of “hierarchy theory”, a study of “how a system of discrete functional elements or units linked at two or more scales operates”. See [Forman \(1995\)](#).

⁹ For many ecologists, the most immediate question about such hierarchies is why they have proven adaptive and thus evolved. The behavioral scientist [Simon \(1973\)](#) suggests that such a system of “nested hierarchies” is an expedient to evolution: when more complex systems can incorporate simpler systems as part of their make-up, they will be more likely to function (pp. 7–8). Hierarchies also create fail-safes within evolutionary change: while different units within a hierarchy might adapt or maladapt, as long as the majority remain stable, catastrophe is unlikely.

¹⁰ ([Norton 2003](#), pp. 67–72); ([Norton 2005](#), pp. 230–31). He refers to these three categories as “scales”, but based on the terms I have adopted from ecological theory, I identify them as levels because they concern the categories of observation that govern our attention rather than the particular measurements.

¹¹ ([Norton 2005](#), p. 311).

¹² For example, “The second level of the spatiotemporal hierarchy is especially important because it is the level at which humans shape their own culture and multigenerational community through individual and cooperative acts that, at the same time, impact the landscape in which they will make future decisions. This is the level on which a human cultural

on the need to integrate multiple levels of attention and to be self-conscious about what is included and excluded in any given moral argument.¹³

3. Scale and Hierarchy in *Laudato Si'*

Pope Francis's encyclical does not cite ecological theory, Aldo Leopold, E.F. Schumacher, or Bryan Norton. But it shows considerable attention to scalar issues. As demonstrated in the first paragraph above, the call for ecological conversion requires the integration of scales, seeking changes at the personal, community, and global levels.

3.1. Integral Ecology

Such conversion is best understood in the context of “integral ecology”, a central concept in the encyclical. The second word suggests a scientific approach, but here “ecology” is also normative, suggesting moral consideration of the non-human context that makes human life possible. Such ecology becomes integral when it embraces a synthetic view of the world and humanity's place in it, uniting attention to environmental degradation and social injustice. Perhaps the most important argument in the entire document is that “the human environment and the natural environment deteriorate together”, and so people must learn to connect human justice to environmental health. In other words, there is no adequate response to environmental degradation that does not account for social degradation, no effective response to social problems that does not also attend to ecological issues.¹⁴ Humans are called to action, to conversion, that integrates our social systems with the non-human world.

Integral ecology also informs the methodology of *Laudato Si'*, which insists that multiple ways of knowing and engaging the world must converge if human beings are to respond morally to the challenges of the 21st century. A key example is the integration of science and religion, each of which Pope Francis insists have an incomplete understanding of the world without the other. “With their distinctive approaches to understanding reality”, he argues, science and religion “can enter into an intense dialogue fruitful for both”. So, the encyclical calls for careful attention to scientific data about the climate and ecological system, insists that such research should not be unduly influenced by economic interests, and also encourages scientists to “take into account the data generated by other fields of knowledge, including philosophy and social ethics”.¹⁵ This integration of methods suggests that the project of this essay—to use ecological theory and environmental ethics to better understand the theology of *Laudato Si'*—fits the spirit of the document.

Integration among human communities, between human and non-human systems, and among different ways of knowing are all essential to integral ecology. Pope Francis is confident that such connections are possible on theological grounds, insisting that human beings were created as part of an interrelated world: “everything is interconnected” and all of life is “a web of relationships”. Human beings, the image of the trinitarian God, “were made for love”, and so every person “grows more, matures more and is sanctified more to the extent that he or she enters into relationships”. Francis, therefore, has faith that integration is possible, that moral people in moral societies can build a better world by finding harmony among different communities, between the social and the environmental, and between science and religion.¹⁶

unit, a population or a human community interacts with the other species that form with it a larger ecological community, or place” (Norton 2005, p. 230).

¹³ For an application of these concepts to the issue of biodiversity conservation, see O'Brien (2010), especially Chs 4 and 5.

¹⁴ (Francis 2015, para. 48).

¹⁵ (Ibid., para. 62).

¹⁶ (Ibid., para. 240, 258).

3.2. Hierarchical Arguments

While Aldo Leopold argued for “thinking like a mountain” at the community level and E.F. Schumacher advocated “the virtues of smallness” at the local level, Pope Francis’s integral ecology is a powerful example of global environmental ethics. *Laudato Si’* contrasts the “risk of rampant individualism” in our modern world with “a new and universal solidarity” through which all human beings can “work together in building our common home”.¹⁷ This explains why the document is addressed to “every person living on this planet”, all of whom are understood to have common cause in a global environmental project.

Ultimately, Pope Francis’s appeal is best understood as even broader than the global level, because his calls for human unity are based on an understanding that we all share our origin and ultimate meaning from God, the creator of the cosmos who is greater than the entirety of creation. The encyclical characterizes a basic mistake of contemporary societies as thinking too small by “worshiping earthly powers” and “ourselves usurping the place of God”. The solution is a spiritual understanding of “God as all-powerful and Creator” and an understanding of the world as a creation, “a gift from the outstretched hand of the Father of all” and “a reality illuminated by the love which calls us together into universal communion”.¹⁸ Thus, the call for a united humanity to care for the entire world is nested in a cosmic vision of all that exists as God’s generous creation. This is cosmically large-scale thinking, a basis for universal morality.

Interestingly though, *Laudato Si’* also demonstrates the importance of other levels, balancing the push to broader morality with attention to particular communities and local thinking. This is consistent with the Catholic doctrine of subsidiarity, which emphasizes a preference for local communities over national and international systems. Introduced in Pope Pius XI’s 1931 encyclical *Quadragesimo Anno*, subsidiarity insists that:

Just as it is gravely wrong to take from individuals what they can accomplish by their own initiative and industry and give it to the community, so also is it an injustice and at the same time a grave evil and disturbance of right order to assign to a greater and higher association what lesser and subordinate organizations can do.¹⁹

In other words, that which can be accomplished at a smaller scale of human organization should be, and large-scale organizations—communities, nations, international collectives—should take responsibility only for what cannot be handled more locally.

Pope Francis cites subsidiarity in part to argue against excessive market control, noting that international corporations too often take over things that could be managed more locally by nation-states or communities. When local control is possible, it is better. On this basis, Francis insists that the highest priority should be given to “the family, as the basic cell of society”, the smallest level at which individuals cooperate with one another.²⁰ He further argues that local and indigenous cultures should be consulted so that environmental and social problems are understood on human terms rather than entirely through abstractions.²¹ Thus, the call for global and cosmic attention to “our common home” is balanced by a recognition of genuine local differences among people and the importance of particular communities in shaping moral life.

This is consistent with Pope Francis’s theme of integral ecology because he argues that attention at each level is required in order to connect environmental concerns with social justice. The push toward the global and the cosmic insists that every person and every ecosystem deserves our moral

¹⁷ (Ibid., paras. 162, 14, 13).

¹⁸ (Ibid., paras. 75, 76).

¹⁹ (Pope Pius XI 1931, para. 79) My previous work applying this principle to environmental issues is most fully developed in O’Brien (2008).

²⁰ (Francis 2015, paras. 196, 157).

²¹ (Ibid., paras. 143, 146).

attention, that such a “sense of responsibility for our fellow men and women” is the basis “upon which all civil society is founded”. At the same time, the call of subsidiarity insists that not all women and men have the same moral duties in an unjust world: “regarding climate change, there are *differentiated responsibilities*” through which rich countries and peoples owe a debt to the poor, weak, and marginalized who already suffer the effects of climate change disproportionately.²²

While less prominent, temporal scale is also discussed in *Laudato Si'*. As with spatial scale the key use is to contrast integral ecology with the logic of the market, characterizing the latter as “looking for quick and easy profit” which creates a “more intensified pace of life and work which might be called rapidification”. The corrective to this is longer-term thinking, “far-sightedness” embracing a “notion of the common good [that] extends to future generations”. Francis also insightfully connects temporal and spatial scales to emphasize his integrative argument, asserting that “our inability to think seriously about future generations is linked to our inability to broaden the scope of our present interests and to give consideration to those who remain excluded from development”.²³

So, *Laudato Si'* offers a sophisticated use of scalar hierarchies, appealing to a universal and global morality in order to justify political and economic systems that favor local and community control. It achieves what Bryan Norton calls for in environmental ethics: sophisticated engagement with multiple hierarchical levels and self-aware choices about which levels to favor.²⁴

Using these levels, the encyclical offers a nuanced argument to “every person living on this planet” while also distinguishing between the rich and powerful, who have overwhelmingly caused environmental problems, and the poor and marginalized, who overwhelmingly suffer the consequences. *Laudato Si'* uses scalar awareness to nuance its advocacy of integral ecology and its critique of market logic.

4. Questioning Hierarchies

While hierarchical thinking is incredibly useful in constructing and understanding moral arguments, it is also limited and, without careful attention to those limits, dangerous. Scientific ecology and environmental ethics offer tools for building humility about any human-constructed hierarchy, and I turn now to use those tools to question some aspects of *Laudato Si'*.

4.1. The Social Construction of Hierarchies

Ecological theorist Simon Levin, who advocates careful attention to scale, also argues that good science requires awareness that any hierarchical models we create have limitations. Any understanding of the world is, at best, “a low-dimensional slice through a high-dimensional cake”. Our understandings may capture some sense of the ways the natural world works, but they are always only approximations. It is never possible to observe and account for every scale; something is always missed.²⁵

So, a coherent and useful explanation of an ecosystem requires attention to what is happening in the landscape of which it is a part and the organisms nested inside it, but no one can fully account for all these levels at once. Ecologists are human beings with biases and predispositions; every research project is shaped by the temporal and spatial scales that come naturally to the researcher.²⁶

Other ecological theorists go further to emphasize that even the levels between which ecologists work are socially constructed. The concepts “ecosystem”, “species”, and “biome” may be based on the real world, but these are constructed names and concepts. There are no simplistic or clear boundaries between levels, and so distinguishing them inevitably turns attention away from some nuances and

²² (Ibid., paras. 25, 51, 52). Emphasis in original.

²³ (Ibid., paras. 18, 36, 159, 162). For an insightful commentary on how *Laudato Si'* addresses temporal issues, see Keller (2015).

²⁴ Interestingly, this also connects the encyclical to the movement of “Critical Environmental Justice”, which scholar Pellow (2018) argues requires “multiscalar” work.

²⁵ (Levin 1992, pp. 1945, 1947).

²⁶ See especially Allen and Hoekstra (1992).

complexities. Ecologists who work at the ecosystem level inevitably miss some details occurring at other levels or between them. Philosopher Angela Potochnik and ecologist Brian McGill use this point to argue that ecology should reject any simplistic hierarchical understanding of the world at discrete levels. Good science, they argue, allows only “quasi-hierarchical representations” with “no expectation that a successful demarcation of quasi levels has ontological significance”.²⁷

Whether hierarchical categories have ontological significance is a controversial question in ecological theory, but the broader point is not: researchers make choices about the scales and levels of their attention, and those choices limit what they see and understand. All ecological research and explanations involve choices about which hierarchical levels to emphasize and which to de-emphasize. Thus, all ecological research and explanations are partial and imperfect.

The environmental ethicist Bryan Norton, who has worked closely with ecological theory, is well aware that every hierarchical level is a social construction. He emphasizes that his distinction between local, community, and global thinking is a “model” and a “representation”. As a pragmatist philosopher, he suggests that these levels are useful rather than insisting that they are true in any objective sense.²⁸

For this reason, Norton’s hierarchical model leaves open the possibility of tweaks, adjustments, and alternatives. For example, he links temporal and spatial scales in his model, emphasizing that local ethics works at short-term time scales while global ethics works with indefinite time scales. This is a helpful way to grasp the concept of scale, but it does not always reflect all moral arguments. A different approach is implied by the Potawatomi scholar Kyle Powys Whyte, who emphasizes that long-term moral thinking can be the product of local attention to particular places. Because the indigenous peoples of the Great Plains in North America have spent millennia in a place with variable weather patterns, he argues, they deeply understand “the concept that society must be organized to constantly adapt to environmental change”. Whyte’s argument for long-scale temporal thinking is based upon a local spatial scale. By contrast, he understands settler colonial thinking as dangerously short-sighted in part because it is spatially global, believing that “one can simply transplant cultural practices to a new territory”.²⁹ Temporal and spatial scale are here in tension rather than straightforwardly aligned. I find Whyte’s argument powerful, and I am convinced by the critique he suggests of expansive, colonial thinking as inevitably short-sighted precisely because it seeks to control a global scale. For the present argument, though, what is important is to note that this is a very different use of scalar concepts from Norton’s. Both are constructed ideas coming from particular social contexts.

The fact that scalar concepts are always human constructions also offers cautions to the classic environmental arguments of Aldo Leopold and E.F. Schumacher. Leopold’s proposal that we learn to “think like a mountain” and Schumacher’s argument for “a human scale” both imply that there is an accessible, natural indicator of the proper level of moral attention. While the ideas of thinking at the level of a mountain or the human are helpful, neither is straightforward or obvious. Humans and mountains exist at many different scales and so ethicists and activists who embrace these ideas still need to carefully consider the multiple ways attention might be focused across and among those scales.

Whyte’s, Norton’s, Leopold’s, and Schumacher’s ideas are incredibly useful tools for ethical analysis. But moral approaches to hierarchy, like ecological perspectives, are constructions and inevitably limited. Ecological theory and environmental ethics therefore remind us that it is important always to consider alternatives, to humbly note what a particular model or image includes and what it precludes. We are always making choices about how to focus attention based on limited information, in moral arguments as much as in scientific research.

²⁷ (Potochnik and McGill 2012, pp. 133–36). An even stronger critique of hierarchical scale is developed in the field of human geography. For the critique, see especially Marston (2000) and Marston et al. (2005). For a more constructive account of scale in the discipline, see Herod (2011).

²⁸ (Norton 2003, p. 68).

²⁹ (Whyte 2016, pp. 91, 99).

4.2. Assumed Hierarchies in *Laudato Si'*

Pope Francis's encyclical does not consistently consider alternatives to its own hierarchical assumptions, and so I turn now to three hierarchies in *Laudato Si'* that I believe should be questioned: between male and female, between human and animals, and between God and the world.

4.2.1. Gender Hierarchies

Building on its assertion that the family is “the basic cell of society”, *Laudato Si'* is filled with familial metaphors. It follows St. Francis in labeling the earth a “mother” and a “sister” and referring to other human beings as “brothers and sisters”. Pope Francis repeatedly stresses his global argument by appealing to “the whole human family”. However, the document maintains traditional Roman Catholic assumptions about what a family is, most particularly in assuming without question that the human species can be divided simplistically between two genders and that there is a legitimate power distinction between them.

Ivone Gebara notes that Francis's approach to women is charitable but not ultimately empowering: “In *Laudato Si'*, women do not speak in their own voice about their life situations, their sufferings, and their demands. The pope speaks for them”.³⁰ Nicole Flores similarly observes that “our sister, Mother Earth, is cast as the feminine victim” while the church “is cast as the father, a *paterfamilias* responsible for the direction of the family”. *Laudato Si'* thus continues “a gender binary inscribed by modernity's drive to divide, define, and conquer, the salvation of the earthly, bodily feminine remains dependent on masculine governance”.³¹ Hierarchical understandings of the masculine as over and broader than the feminine are maintained without question.

These assumptions about gender may not be surprising in the context of a church that doctrinally insists on complementarity between men and women and reserves the priesthood for men alone. Magisterial Catholic Social Teaching has consistently affirmed the moral significance of gender distinctions. However, these ideas are not the only possibility within the Catholic faith; Nicole Flores and Ivone Gebara are both Catholic thinkers who argue for revisions in their church's teachings about gender.³² It need not be a foregone conclusion that Pope Francis accept his tradition's assumed attitudes toward gender and gender roles; and it is certainly not a given that such attitudes are useful and true for “every person living on the planet”. So, it is unfortunate that the encyclical does not clearly articulate nor defend its assumptions about gender, much less consider alternatives to them.

4.2.2. Species Hierarchies

A similar approach is taken to the relationship between human beings and other species. Daniel Dombrowski observes that “there is an unresolved tension regarding non-human animals” in *Laudato Si'* and that “Francis is more of an anthropocentrist than he is willing to admit”.³³ Francis insists that non-human animals are not merely “resources” and that “the Bible has no place for a tyrannical anthropocentrism unconcerned for other creatures”.³⁴ But he also asserts that human beings “possess a uniqueness which cannot be fully explained by the evolution of other open systems” and decries those who are more interested “in protecting other species than in defending the dignity which all

³⁰ (Gebara 2017, p. 76).

³¹ (Flores 2018, p. 474). Flores also helpfully distinguishes this gender binary from other ways to incorporate family, which she suggests could be a strong foundation for an intimately integral ecology and a powerful reflection of the importance of family in Latin American and Latinx communities.

³² See also Johnson (2002).

³³ (Dombrowski 2015, p. 32).

³⁴ (Francis 2015, paras. 33, 68). Jenkins (2018) argues the “deepest theological shift” in *Laudato Si'* is its break from previous Catholic thought through the assertion that human dominion is based not on distinction from other species, but rather “respect for the goodness of other creatures”. Jenkins notes, however, that this idea is “underdeveloped” in the encyclical.

human beings share in equal measure". The encyclical insists without question that human beings have power over other species as "God's stewards of other creatures".³⁵

Again, this is consistent with Magisterial Catholic Social Teaching, but it is not the only possibility, even within Catholicism. Saint Francis, after whom Pope Francis named himself, is honored as the patron saint of animals and of environmentalism precisely because he offered a far less hierarchical view of other species interrelated with human beings. Stories recount St. Francis preaching to birds just as he preached to human beings, freeing animals from hunter's traps and angler's lines, and reasoning with a wolf to stop its attacks on the town of Gubbio.³⁶ Saint Francis regularly referred to all animals as his brothers and sisters. By contrast, Pope Francis in *Laudato Si'* only uses "brother" or "sister" to refer to human beings or the earth as a whole.³⁷ The encyclical ultimately maintains and does not question the hierarchy of human beings over other creatures on earth.

4.2.3. The Hierarchy of God

Ultimately, the most central hierarchy in *Laudato Si'* is the hierarchy of God over creation. As noted already, Pope Francis's central argument that humans should protect the non-human world is justified by the ultimate authority, power, and generosity of a God who is understood as above and beyond all of creation:

A spirituality which forgets God as all-powerful and Creator is not acceptable. The best way to restore men and women to their rightful place, putting an end to their claim to absolute dominion over the earth, is to speak once more of a figure of a Father who creates and who alone owns the world.³⁸

In this document, power and authority rest ultimately and singularly in God.

This contextualizes the hierarchies of gender and species as part of an even more foundational hierarchy. For Pope Francis, human beings have a "rightful place" as stewards of the Earth that we understand when we respect the ultimate authority of God over humans. A system of levels has been established with God unquestionably at the top, non-human animals below, and human beings in between, with male humans implied to be closer to the power of the "Father".

Again, such a hierarchical view of reality is not the only option, even within theological context of Catholicism. Liberation theology, a resource for other parts of the encyclical, includes emphases on God's particular presence with the poor and suffering and more frequently identifies God in terms of the incarnation of Jesus among humans than as distant creator. The Divine can be understood in the midst of rather than beyond all human activity, the immanence of God can be emphasized rather than or instead of transcendence.³⁹ Using the language of Catholic Social Teaching, we might say that it is possible to have an idea of God that is more informed by subsidiarity, stressing divinity at small scales at least as much as large scales. *Laudato Si'* does not openly consider this possibility; it emphasizes the transcendence of God far more than the immanence.

Throughout the encyclical, hierarchies between God, humans, and creation are assumed without question. In the latter two cases, the encyclical goes further than previous Catholic Social Teaching toward exploring limits, cracking the door open to a more inclusive approach to gender and other species. But in both cases, it stops short of genuinely questioning tradition, ultimately assuming the hierarchical relationship of Magisterial Catholic thinking. The third hierarchy seems most crucial and least questioned. *Laudato Si'* puts humans over other animals and the masculine over the feminine

³⁵ (Francis 2015, paras. 33, 68, 81, 90, 116).

³⁶ See, especially, Boff (1982).

³⁷ The discussion of St. Francis is in (Francis 2015, para. 11), quoting Bonaventure. To my reading, every other use of "brothers and sisters" in the document refers to human beings broadly or the poor more specifically.

³⁸ (Francis 2015, para. 75).

³⁹ See for example Gutiérrez (1988), chp 10; Leonardo Boff (1997), chp 7; and Sobrino (2004).

because it connects God, “the Father”, to the human and the masculine, because it assumes that reality is a nested hierarchy in which everything is created by, smaller than, and less important than the divine. God is the universal and eternal scale by which everything else is measured.

4.3. Questioning Hierarchies in *Laudato Si'*

While I have pointed out limitations in *Laudato Si'*, I believe that the encyclical’s central idea, integral ecology, can be extended to include the potential of integrating the divine with creation, the human with other creatures, and of more diverse gender expressions and power relations within humanity. The encyclical powerfully critiques some assumed hierarchies, most notably the authority of market logics over other forms of knowing and the priority of technological progress over other concerns of human communities. It is possible to bring the same critical approach to the hierarchies of gender, species, and divinity, and doing so will allow for an exploration of whether and how theology and ethics might need to change alongside politics and economics in response to the contemporary moral challenges of climate change and inequality.

While the encyclical does not offer an explicit defense of its assumed hierarchies (my primary critique is, after all, that they are assumed without explanation), I find such a defense implied in the document’s consideration of relativism. Pope Francis argues that a “culture of relativism” is one of the roots of environmental and social degradation. He writes that relativism is a disorder which “drives one person to take advantage of another, to treat others as mere objects”, leading to “the sexual exploitation of children and abandonment of the elderly”. Relativism justifies those who “allow the invisible forces of the market to regulate the economy, and consider their impact on society and nature as collateral damage”. At the root of this thinking is the fact that “objective truth and universally valid principles are no longer upheld”. The solution is to insist that there are “objective truths” and “sound principles other than the satisfaction of our own desires and immediate needs”.⁴⁰

Laudato Si' insists that certain facts are immutable, and so would likely dispute my assertion that the hierarchies of gender, species, and divinity are social constructions. The ideas I have questioned are, instead, treated as “objective truths”. The evidence of these truths can be found in the Magisterial teachings that came from a church ordained and sustained by God: Divinity is all-powerful and beyond human experience; human beings are called to be stewards over the rest of creation; humanity is made up of two genders with distinct and complementary roles. Affirming these truths is, by the logic of the encyclical, a way to oppose the brokenness and selfishness of dominant culture in the 21st century.

Building on ecological theory and its application to environmental ethics, I disagree. I have argued above that it is best to treat every hierarchy as a construction, and, so, to test rather than assume its usefulness and applicability in a given situation. So, while the encyclical suggests that questioning immutable truths is a sign of societal corruption, I argue instead that social cohesion is threatened when truths are believed to be immutable and beyond question, perhaps especially when those truths are stated as hierarchies. So, I argue that the deep questioning Pope Francis offered to political and economic structures should also be applied to social and theological structures. Doing so will lead to a more rather than less integral ecology.

Fully developing this argument would require a contrasting systematic theology and ethics, which is far beyond the scope of the present paper. Instead, I want to more modestly point out that the immutability or objective truth of hierarchies is not essential to the encyclical’s most fundamental argument, which is the moral challenges of the 21st century call for a multi-scalar, ecological conversion to an attitude of integral ecology. One could advocate integral ecology in less foundational or structuralist terms, insisting that integration is most possible when the world is understood to be based on evolving processes rather than immutable principles.⁴¹ Or, if one accepts the need for foundational

⁴⁰ (Francis 2015, para. 123).

⁴¹ This is the emphasis of many responses to the encyclical in Cobb and Castuera (2015).

moral principles, one could still appeal to less controversial ideals like the common good and universal human rights that do not assume all the hierarchies affirmed by the Magisterial Catholic Church. One can learn from and affirm the central argument of the encyclical without accepting the nested power dynamics it assumes between genders, species, and with the divine.

Laudato Si' does impressive and important work deconstructing and challenging the hierarchies that many people in the wealthy world make about economics and political scales. Those of us learning from the encyclical and supporting its goal of integral ecology should bring the same critical perspective to its assumptions about theological and social scales.

5. Conclusions—Toward an Inquisitive Integral Ecology

Scalar thinking reminds us that human beings are always making choices in how we measure and compare the systems and structures around us and that these choices shape what we see and what we prioritize. The construction of hierarchical levels offers language by which these choices can be articulated, communicated, and standardized. But ecological theory also teaches that these levels are always social constructions, and so calls for a humble willingness to question our assumptions about them.

Laudato Si' uses scalar and hierarchical concepts effectively in its inspiring call for an integral ecology that will convert people, communities, and global civilization toward a more just and sustainable world. Scalar thinking helps to integrate social and environmental concerns, calling attention to the common root of 21st century challenges in a short-sighted but globally expansive economic system and advocating a more expansive and global ethic. The doctrine of subsidiarity also facilitates attention to hierarchical levels, noting that any global organization must continue to allow whatever autonomy and self-direction is possible to nation-states, communities, and families.

However, I have argued that not all the hierarchical assumptions in the document are essential to the encyclical's central idea. Pope Francis invites all people into the work of integral ecology, and he encourages us to explore the intersections of science and religion in response to the moral challenges of the 21st century. In taking up that invitation, Christian ecological ethicists should do more than he has to understand the constructedness and limitations of all the scales and hierarchies we use to think about morality.

This will be a challenging process, but environmental ethics will ultimately be most effective the more it builds on a sophisticated, scientific understanding of reality. Ecological theory demonstrates the power of unpacking and questioning assumptions about scale, and so the most integral ecology will come from moral work that insists on inquiring about such assumptions. The path forward is to learn from *Laudato Si'* while also more fully embracing the limited scale of all human understanding.

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