

ANALOGICAL REASONING AND THE QUESTION OF CLIMATE CHANGE LITIGATION

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Could the ability to identify and use relational resemblance between two circumstances or events help a climate change case? The purpose of this paper is to rethink the function of analogical reasoning in order to address potential challenges that future plaintiffs in climate change litigation may face. Because of the complexities of climate change, potential litigants face significant challenges, including proof of harm and causal relationships between harm and climate change, as well as legal narratives. Analogical reasoning concludes not only that there is an additional resemblance based on previous similarities between two systems, but also that there are numerous reasons for its plausibility.

This paper investigates how analogical reasoning could be used in climate change lawsuits, the epistemological issues it raises, and the implications for human rights.

Keywords: Analogical Reasoning, Epistemology, Climate Change Litigation

Introduction

The question of the efficacy of analogous reasoning is one of the most fundamentally significant problem in natural language philosophical logic. It applies to the entire spectrum of philosophy, including metaphysics, epistemology, ethics and other areas of philosophy, and is therefore entangled in every philosophical conversation (Brown 2018). The complexity of analogical reasoning is uncovered when we understand it as simply the ability to identify and apply relational likeness between two conditions or events.

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Our ability to recognize sentences or statements that we have previously read or heard as what we already know testifies to our ability to recognize similarity. Such recognition permeates our speaking of types of things and persists over time as it is "built upon a foundational ability to perceive, to be aware of, and to reason with similarity relations" (Brown 2018).

It is important to note that "analogical reasoning is still considered a brainchild of cognitive science" (Bach 2012; Fodor 1975). That is why it is important to explore what is required for an effective analogy. Can analogical reasoning offer light on the philosophical issues at the heart of climate change law suits? One of the examples of such philosophical issues is the "drop in the ocean" problem, which is based on the premise that, because greenhouse gases are the major contributing factor to global warming and they are produced in all countries by different units, pointing an accusing finger at a single country as being responsible for the impact of climate change is a difficult task (Peel 2012). Several defendants could claim that their carbon footprints are small enough to not cause harm or have an insignificant impact on the environment and could use such arguments to argue they do not infringe upon human rights. The complexities of the climate change phenomenon seem reflected in all aspects of the issues confronting plaintiffs filing climate-related claims in court, as it is also a reflection of traditional legal forms and governance approaches (Lee & Peel 2010). In this paper, I analyze how analogical reasoning could address epistemological issues in climate change litigation, how it could address the difficulty of showing a causal link in climate-related cases and how it could improve our understanding of climate change impacts.

What is a good analogy?

I'll start by addressing the issues of whether analogy is argumentative or not, and if it is subject to the same rules that permit arguments in ordinary discourse. Analogical reasoning is an effective common technique that can be used in our understanding and interpretation of reality as it deals with the shared properties of two or more things and

then deduces that they share other properties. Let us see it in this inductive form:

P and Q are similar in respect to properties A, B, and C.

P has been observed to have further property X.

Therefore, Q probably has property X also.

Such an argument does not claim in any way that the two things are the same, but that they are similar, and deducing a conclusion on such a basis seems justifiable if the similarities are relevant enough. Though such an argument provides good evidence for the conclusion, the outcome, however, does not follow as a matter of logical necessity. That is why it is important to understand that the strength of an analogical argument demands that one consider not only the form but also the content.

An analogical argument's strength could be one of the following:

- i. The importance of existing similarities in relation to the conclusion's inference of similarity;
- ii. The degree of significant similarity – or lack thereof – between the two phenomena;
- iii. Complete and varied instances that serve as the analogy's foundation.

In general, an analogy can demonstrate a consistency of descriptive or conceptual status between things X and Y in point F by highlighting their shared commonality. The implication is that the number of structural similarities will increase the uniformity and harmony in their area. All discoveries that were not produced by pure accident have been made with the aid of analogy, according to Priestley (1966). This underscores how analogies have offered useful directions for research in a variety of domains. Other than Priestley, a number of philosophers have looked at the functions of analogy. Timoshenko and Goodier (1970) exploited mathematical parallels between the equations governing ideal fluid flow and torsional problems. They did this by using hydrodynamic analogies. They contend that one can build a fluid model—a system of pipes through which water flows—to estimate stresses in a proposed

structure. According to Sterret (2006), such parallels allow us to draw demonstrative conclusions, such as from a measured quantity in the fluid model to its comparable value in the torsional problem, within the bounds of idealization. One thing to keep in mind is that there are several consequences for the use of such an analogy in reality, as there are with many others as well. From such viewpoints, the basic goal of analogical reasoning is to persuade the audience to take a claim seriously. Such argumentation is credible because it gains epistemic support from analogous reasoning.

According to Mill's study of the analogy argument (1930), every similarity confers some degree of likelihood, above and beyond what would otherwise exist, in favor of the conclusion. The question of what makes an analogy "positive" may need to be asked, though; could a contradiction exist between experience and predictive ability? For example, some analogies are necessary for a theory to work since they are the only ones that set it apart from the plethora of alternative theories that may be given to explain the same laws (Campbell 1957).

Attacking analogy-based arguments can be accomplished by disanalogy, counter-analogy, and, most commonly, by emphasizing an analogy's unintended implications (Baronett 2008). This is especially noticeable when the analogy utilized is incorrect and the things being compared are not, in fact, comparable. Comparing essentially comparable things necessitates both the identification of a problem source that is analogous to the problem one desires to address as a target, and the mapping of the solution of that parent issue onto the problem (Lee 1992).

The Efficacy of Analogical Reasoning

Analogical thinking, according to Gentner, Holyoak, and Kokinov (2001), is at the heart of cognition. According to Hofstadter (2001), all conceptions used to interpret recurring and unique events are bundles of analogies. Participants rarely use analogical reasoning in experimental settings unless its similarity is made explicitly clear, despite the fact that it is regarded to be a widespread and effective problem-solving strategy

(Gick & Holyoak 1980; Schmid, Wirth & Polkehn 1999). Linn *et al.* (2012) contend that solving problems by analogical reasoning will require the transfer of knowledge and that this transfer may take place at various levels of specificity, leading to the use of various cognitive problem-solving processes and approaches.

Analogies link domains and issues that may only superficially resemble one another by revealing shared relational structures. Structural alignment plays a significant role in analogical reasoning (Linn *et al.* 2012). While analogy focuses on the deeper alignment of relationship systems, similarity primarily focuses on common attributes. The systematicity principle states that one-to-one correspondences link the structural relationships (Gentner & Markman 1997).

According to Carbonell (1986), analogical problem solving can be carried out at several abstraction levels. When we encounter a new problem, such as climate change, it is expected that we use previous knowledge to help solve that problem. Analogical reasoning typically entails adapting a previously solved problem to a new problem-solving setting (Lee 1992). This has several disadvantages, particularly when the new problem setting is in a different domain than the old problem, because a person's level of skill in the known area may limit their capacity to address the problem (Lee 1992). Furthermore, because cross-domain analogical thinking is frequently difficult, people would rather remember or learn from their problem-solving experience (Lee 1992). This, by implication, means that the solver must not only be able to recall a solution to a prior problem that is relevant but also be able to apply that solution to the current problem. The level of knowledge attained in the familiar domain can be determined by our capacity to understand and use similar reasoning (Sternberg 1988).

Analogical Reasoning in Case Law

Precisely because a general characterization of analogies proves to be so elusive, it is best to focus on the role analogies play in the law. Generally, a precedent is a legal judgment rendered in a case before a court or

another type of legal body. A judicial decision in a Common Law legal system is given in a judgment that contains five aspects:

- a. stating facts of cases;
- b. a description of the legal issue — the disputed legal question — that the court is expected to resolve;
- c. reasoning on why the appropriate resolution of that issue (Lamond 2005);
- d. the court's judgement on the subject before it, such as whether the defendant has breached a contract in certain circumstances;
- e. the case's result or conclusion, i.e., which party prevailed in the action; which follows from (d) (Earnest 2015).

In contrast to accounts of analogical reasoning that treat it as suspect in one way or another — either as a preliminary and ultimately disposable stimulus to a sound argument that adds nothing to its validity or as a flawed and ineffective substitute for the real thing— using an argument based on analogy in case law is inconsistent with these accounts. In most cases, the court employed analogical reasoning often, presumably because it deemed it to be an essential part of the overall argument. Similar facts in previous cases lead to similar conclusions in the present situation (analogizing), while dissimilar facts in the previous case lead to a very different outcome in the present instance (differentiating). Analogical reasoning can extrapolate the outcome by comparing the facts of the current case to the facts of a prior case and the reasons the court used to apply the rule.

Critical reflection on precedent and its application in case law (Lamond 2014) suggests the following:

- i. Even while there is an obvious type of analogical reasoning, it is unclear why treating two situations similarly justifies treating them both the *same* way.
- ii. Some theorists contend that employing rules and analogies in law is not thinking at all and that precedent entails a *type* of reasoning that is distinct from reasoning based on rules.
- iii. Consensus concerning the rational basis or the force of analogical reasoning is lacking.

There may often be instances where we are influenced by what has happened to us or what we have done in the past, or where expectations are formed that we will act in a similar manner in the future (Lamond 2014). Analogical thinking will then be an excellent tool for the courts to use, even though interpreting judgments is up to us and we may alter our opinions if we disagree with them. In institutional settings, decision-makers will often refer to what has been decided in the past as constraining what should be done now, regardless of whether they think the original decision was correct (Lamond 2014). This means, however, that institutional decision-makers often regard earlier decisions at hand as different from the original ones by citing them as analogies (Lamond 2014). This explains why analogy is one of the most prevalent types of legal reasoning (Hage 2005).

Moreover, analogical reasoning enables lawyers and judges to properly consider earlier decisions while also allowing them to extend those choices in order to determine which parallels are important. Most analogical arguments belong to a class of *ampliative* reasoning because they add something to the predicate that is not already contained in the definition of the subject term (reasoning whose conclusions are not backed with certainty but only in varied degrees of strength).

Is the application of analogical arguments viable in case law concerning climate change and human rights? I argue that past occurrences can share characteristics that can be causally tied to the outcome of subsequent ones in environmental case law, due to the exercise of particular convention rights, which may be jeopardized by the occurrence of environmental harm as well as by vulnerability to future environmental hazards.

Judges are required to rule on future cases "in the same manner" as they did in the case at hand. That is, the ratio *decidendi*, or basis for the decision, must be followed in subsequent cases involving the same facts. The situation is far more convoluted in reality. There is no such thing as a duplicate case. There is much dispute about *ratio's* applicability and generality to future circumstances, which must be interpreted in the context of the facts of the original case. However, this is why *ratio's* application will be restricted to the initial case if it is shown that a prior case was incorrectly judged and will be distinguished from fresh occurrences in subsequent decisions. Simply said, under certain circumstances, analogical reasoning strikes a decent (perhaps optimal) balance between the opposing

goals of stability and creativity. It promotes both more contemporary epistemic values like fruitfulness and theoretical unity, as well as more conventional values like simplicity and conformance to preexisting beliefs (McMullin 1993).

New Order in Climate Change Litigation

When an organization or government fails to do enough to mitigate the threat of dangerous climate change, such a claim has the propensity to influence people's actions. In general, public perception of the risks and threats posed by climate change is critical to both governments and private individuals (Grace 2018). Litigation is crucial because it not only has the power to change the law in a substantive way, but also has the power to attract media attention and influence public and political discourse. Climate change litigation affects social norms in other ways besides "making political culture and public debate more climate-informed; supporting and igniting grassroots climate campaigns; and translating abstract scientific concepts into tangible impacts that the general public can better understand and relate to" (Peel and Osofsky 2015). Climate change litigation can help fill regulatory gaps while also influencing societal norms and public debate.

There was a notable surge in the literature in law and the social sciences on climate litigation. Some questions that the literature tackles include whether cases brought should focus on policy or science, whether court decision or quasi-judicial decision-making processes are preferable, or perhaps cases that have only a proregulatory focus (Peel and Osofsky 2020).

Human rights organizations have recently begun to emphasize how substantive (e.g., the right to life, appropriate housing, food, and the best possible health) and procedural human rights have special implications for climate change. This is why the Paris Agreement's preamble emphasizes that parties must "respect, promote, and evaluate their particular human rights responsibilities" when pursuing climate change mitigation measures.

In climate change litigation, a human rights claim can be articulated in two ways: firstly, applicants may allege that a failure to act, either by

failing to adopt and/or implement climate change legislation, has resulted in human rights violations. On the other hand, applicants may allege that certain actions, like granting permits or licenses to extract fossil fuels or log forests, have resulted in human rights violations. Applicants must present concrete evidence or facts to persuade a judicial or quasi-judicial institution to hear their grievances. People must therefore demonstrate that they have a right to be heard. After overcoming this considerable hurdle, applicants must show that they have been the victims of a human rights violation and that the accused abuser bears responsibility for the infringement. This requires demonstrating that human rights violations have happened, as well as showing the causation and attribution of such violations.

Before climate change litigation can begin, there are some legal matters that need to be resolved. There is a difficulty in distinguishing greenhouse gas emissions from other emissions, which makes it difficult for claimants to demonstrate that there is a sufficient connection and that they have suffered because of those specific emissions when they link them to a specific event or damage (Mark *et al.* 2018).

However, demonstrating a direct link between actions such as emissions and specific climate change-related harm is critical for claimants to prove causation. The challenge of how to assign responsibility to a particular state, institution, or person in climate litigation persists even when there is enough information to establish causality in a particular case. Because of these challenges, many courts have ruled that climate change is a political or global policy issue that should not be addressed in a lawsuit. However, some courts have agreed to consider climate change issues (Mark *et al.* 2018).

The courts are undergoing a paradigm shift in order to solidify the right to bring climate-related actions and to facilitate claimants' use of the threat of legal action. The non-financial disclosure requirement's implementation is evidence of this. The transition to a low-carbon economy is being driven, among other initiatives, by the UN Guiding Principles on Human Rights, the UN Global Compact, and the Principles for Responsible Investment. These can help with access to climate justice – using the courts to achieve commitments that governments or corporations may make but are unable to pursue otherwise (UNEP 2017).

A Few Cases

The growing number of cases is paving the path for greater environmental law enforcement around the world, giving communities renewed hope. According to a Nigerian federal court ruling in 2005, oil companies in the Niger Delta must stop flaring gas. A member of the Iwherekan village in the Niger Delta named Jonah Gbemre filed a lawsuit against Shell and the Nigerian government. The African Charter on Human and Peoples' Rights and the Nigerian Constitution both state that gas flaring violates people's fundamental rights to life and dignity, and the court ruled that this practice is illegal (*Gbemre v. Shell* 2005).

From 2018 to 2021, David Schiepek, a 20-year-old student from Bavaria in southern Germany, has been interested in climate advocacy. He was losing hope after all this time battling, demonstrating, and talking to politicians. He experienced a sense of being robbed of his future. However, in May 2021, he was re-energized by an unexpected event. Following a case filed on behalf of a group of teenage activists by a number of environmental NGOs, Germany's constitutional court ruled that the country's climate protection act must be revised to incorporate more aggressive CO₂ emission reductions. The verdict declared it unlawful for the government to fail to protect the environment for future generations. Following from that, David saw that, finally, politicians could be pressed into action and obliged to address climate change (Jessica 2021).

Additionally, there have been more lawsuits brought against corporations. The Dutch government ordered Royal Dutch Shell to reduce emissions by 45 percent from 1990 levels by 2030 in a historic decision made in 2021. According to Shell, it will appeal the decision and further its efforts to reach net zero emissions by 2050. The business has committed to reducing Scope 1 and 2 emissions by half by 2030, compared to 2016 levels. Shell's scope 1 and 2 emissions comprise Shell's direct emissions from owned or managed sources, as well as indirect emissions from the generation of purchased power, steam, heating, and cooling (Jessica 2021). Regardless of whether they win or lose their appeal against the judgment, Shell's 2022 business plan will incorporate this new aim, which they are committed to meeting.

The African Climate Alliance (ACA) and two other organizations in 2021 filed a youth-led constitutional challenge against South Africa's Minister of Mineral Resources and Energy and the National Energy Regulator of South Africa (NERSA) as the government planned to procure 1500 MW of new coal-fired power capacity (High Court of South Africa 2021). According to plaintiffs, the acquisition of 1500 MW of new coal-fired electricity poses a serious threat to the people of South Africa's constitutional rights, particularly their environmental rights, the best interests of their children, and the rights to life, dignity, and equality, among others. They highlighted the IPCC's findings regarding the urgent need to cut greenhouse gas emissions and other comprehensive expert assessments of the negative effects of new coal-fired power plants in South Africa, including air, water, and land pollution (High Court of South Africa 2021). The merit of the case was analyzed by the court, highlighting the dangers and negative effects that such projects could bring upon the residence, which was a work in progress for the plaintiffs.

Residents of New Mexico sued the federal government, the Navajo Nation, and state defendants in federal court in New Mexico for declarations regarding the application of federal law to particular reclamation and irrigation projects. The Association of Acequias, also known as "community ditches," was also a defendant. In their argument, the plaintiffs claimed that decisions made by state courts had "overthrown the essential foundations of federal water law" and that the federal courts were compelled to remedy the problem. The plaintiffs sought declarations that Section 8 of the Reclamation Act of 1902, which establishes a government policy of water conservation, applies to the Navajo Dam and the Navajo Indian Irrigation Project (NIIP), both of which are Bureau of Reclamation infrastructure. The plaintiffs also demanded that the Navajo Dam and the NIIP be shut down. The plaintiffs also wanted a ruling that the Navajo Dam and NIIP are subject to the "practicably irrigable area test," which applies the beneficial use criterion to irrigation projects, stating the need for courts to take anthropogenic global warming into cognizance in deciding claims on an interstate river. The plaintiffs maintained that a state court judge had previously "refused to evaluate the substantial and rising water limitations in the Colorado River system caused by global warming and persistent drought (Clark v. Haalang 2021).

Epistemological Issues in Climate Change Litigation

Michael and Andre (2007) suggested that a successful climate litigation case must demonstrate the availability of legally solid evidence at the following levels:

- i. Whereas climate change has caused harm to the plaintiff, such harm must be tangible, personal, evident, and therefore not hypothetical.
- ii. While damages must be attributable to the defendant's acts, this does not necessitate proving a direct causal link between the accused government's greenhouse gas emissions and the claimant's damages.
- iii. Proof that the damage can be mitigated if the defendant stops the alleged acts is required.

Could the structure of analogical reasoning be able to show legally sound evidence at these stated levels? Analogical reasoning involves identifying a shared relational system between two instances and producing subsequent inferences based on these similarities. The commonality between the scenarios may also involve tangible property matches, although this is not required for analogy; what is required is overlap in relational structure (Gentner and Smith 2012). In the most common case of an analogy, a well-known domain (the base or source) serves as a model for understanding and drawing new conclusions about a less well-known domain (the target).

The Inter-American Commission on Human Rights received a petition from the Arctic Inuit people in 2004 alleging that US greenhouse gas emissions were damaging their environment and way of life. The petition was denied by the commission because it determined there was insufficient evidence to establish the injury (Martin and Donald 2004). A report on the connection between the environment and human rights was presented to the UN Human Rights Council in 2009 by the Office of the UN High Commissioner for Human Rights. It was discovered that the right to life, appropriate food, clean water, health, suitable housing, and self-determination would all be impacted by climate change. The Paris Agreement's introduction includes wording on climate change and human rights:

Parties should respect, advance, and take into account their obligations with regard to their respective human rights, health, rights of indigenous peoples, local communities, migrants, children, people with disabilities, and people in vulnerable situations, rights to development, gender equality, women's empowerment, and intergenerational equity obligations given that climate change is a global concern. (UN 2016).

A surge of climate litigation suits based on human rights grounds has emerged against this backdrop. Rights-based litigation is not limited to particular violations of the rights of certain people or organizations. It adopts a broader perspective. Since it is obvious that future generations will be responsible for dealing with the effects of a climate calamity, there are more attempts being made to preserve their rights (Zhu 2022). In the case of *Massachusetts v. Environmental Protection Agency*, which was brought before the US Supreme Court, the focus is on the agency's failure to control GHG emissions from new motor vehicles, which would have made a negligible difference in the damages caused by global warming suffered by the state of Massachusetts (1438). The defendant seeks to claim that GHG emissions are merely a modest (and hence, inconsequential) input to the border problem of climate change by presenting the relevant ground for the evaluation of harm as being worldwide (Peel 2012).

However, it is crucial to remember that although GHG emissions do have an influence on the environment globally, this does not always mean that a global scale is the only or even the best scale for assessing consequences and regulating the issue. It is crucial in this regard to comprehend the dynamics of atmospheric injustice as well as its local and global repercussions. As Osofsky noted (2009), climate change is multiscale and capable of involving multiple levels of governance at once (2009). This point of view offers a compelling defense of the ways in which analogical reasoning can support climate change litigation, serve as a forum for discussions about the proper level of climate change regulation, and prevent opportunities to address climate change impacts at other, sub-international scales from being missed.

Cumulative environmental effects also do constitute difficulties for the law, especially in the area of climate change regulation. For instance,

under land use, a project and its environmental effects will be assessed in a self-contained manner, independent of other projects or existing facilities with which the present proponent is involved (Peel 2012). This could explain why the project's main supporters believe it makes only a minor or insignificant contribution to global climate change. This claim is most familiar in the field of biodiversity protection, where cutting a single tree or a section of forest does not usually enliven environmental legal controls, despite the fact that such action exacerbates the larger problem of deforestation and habitat degradation (Peel 2012). In these situations, analogical reasoning could be used to invoke the concept of cumulative effects assessment, in which the specific impact of an environmental action is assessed "in the context of similar actions, past or present, that also contribute to overall environmental degradation" (Peel 2012). Additionally, plaintiffs frequently struggle to demonstrate how the production of GHGs from a given activity or facility would specifically affect a neighboring area or population. This (Peel 2012) raises a problem with the proof. This calls into question whether there is always a link between what the defendant did and the harm the plaintiff claims to have experienced. However, the designation of climate change as a "global" problem has in some ways promoted the development of scientific and legal organizations to deal with the problem globally, which has led to how climate change manifests at all scales (Peel 2012).

Are climate-related cases too big for the courts? Are courts the right place to pin the blame for, let us say, hurricanes, floods, heatwaves, and other climate change impacts? Answering these questions will require a critical look at the traditional and modern functions of the courts. such as:

- i. promoting justice in people's cases;
- ii. ensuring that the general public see people's cases as just;
- iii. defending people from the arbitrary use of governmental power;
- iv. providing an impartial venue for the resolution of legal disputes;
- v. providing a formal record of legal status;
- vi. preventing criminal activity.

(Ernest 2022)

Aside from these, the expanded functions of the courts encompass the following:

- i. safeguarding vulnerable populations — abused and neglected children and adults — against all forms of power abuse;
- ii. encouraging collaboration among agencies in the fields of justice, public health, social services, and other organizations to address shared issues that underpin criminal and civil caseloads in the courts, such as substance abuse and mental health (Ernest 2022).

These court tasks should be applicable regardless of the particular jurisdiction in which a court operates and provide all court leaders with a philosophical and legal framework for their daily work (Ernest 2022). Will that not be misconstrued with effectiveness or even the constitutional safeguards of judicial independence, power separation, and court inherent power? Should aspiring litigants concentrate solely on policy?

Overall, courts exist to uphold justice; guarantee liberty; promote social order; settle disputes; uphold the rule of law; assure equal protection; and enforce the due process of law. Since climate change is a complex issue and actions are urgently needed to curb the risk associated with it, would there be anything wrong with approaching courts head-on to push for cases in that order? In so many quarters, there have been difficulties in demarcating whether climate-related cases should be handled by courts or be a function of lawmakers. How can we pass the legal hurdle in terms of proving injury and causation if we turn to the courts? Notably, just like the UN General Assembly's proclamation, it does not offer guidelines for resolving issues between states and citizens or the other way around (Zhu 2022). However, since this explains why courts frequently use non-legally binding documents in their interpretations and applications of the law in climate change litigation, judges may refer to them when drafting their rulings. It can be anticipated that judges will increasingly use environmental rights as a starting point in that process (Zhu 2022).

The idea is that rather than just revising the interpretation of current regulations, judges might fill in any gaps and create new ones.

Since the majority of laws now in force predate our present understanding of climate change, they are unable to handle the complexity involved in climate governance (Zhu 2022). This explains why creative judicial judgments are required to close legal gaps. For instance, courts may accomplish this, for instance, by applying and interpreting common law. The conclusion is that citizens would be able to challenge legislative and governmental decisions and convince judges to alter climate change-related laws and policies in a progressive and relevant way while preserving fundamental legal principles. Judges may conclude that the current laws are insufficient while encouraging the defense of fundamental human rights that need legislative or governmental reform using these legal principles. Every generation of judges has the responsibility of reevaluating how and to what extent fundamental human rights should be safeguarded. The implication is that such a redefined ruling on the basis of fundamental human rights could also force governments and private organizations to take responsibility for climate change impacts.

Despite these assertions, it appears that the court, legislative branch, and executive branch all have the authority to address matters linked to climate change. The majority of the time, judges avoid expressing that the law needs to be amended and are reluctant to make immediate modifications. For example, in the US, the "political question doctrine" refers to the rule that disputes involving public policy cannot be resolved through the judicial system (Zhu 2022). This, of course, raises issues with the separation of powers. In the case of *City of Oakland v. B.P. P.L.C.*, the District Court in California determined that the connection between fossil fuels and climate change was established, but it further maintained that:

Questions of how to appropriately balance these global negatives against the global positives of energy itself, and of how to allocate the pluses and minuses among the nations of the world, demand the expertise of our environmental agencies, our diplomats, our executives, and at least one environmental scientist (325 F. SUPP.3d 1017).

This is a serious setback to climate related law suits, as most courts hesitate to tackle such matters to further climate policy. How that can be achieved may require broad understanding and may require agreement where necessary on the usage of analogical reasoning and the importance of fundamental human rights within society.

The Trajectory of Climate Litigation

Various parties, including nongovernmental groups, investors, and communities, are increasingly turning to litigation as the implications of climate change are understood and the global movement toward decarbonization accelerates. There have been a number of notable judgments that could have broad repercussions, despite the fact that many lawsuits have failed or been delayed. Climate litigation will increase further, as will the effect that related court rulings have on the practices, pledges, resources, and even business plans of defendant organizations.

Indeed, court orders requiring issuers to decarbonize faster or large monetary awards to pay for adaptation or mitigation efforts could increase reputational and financial risk while also putting the issuers' strategic planning capabilities to the test. Having said that, the cases are jurisdictional, none has yet resulted in awarded damages, and many have yet to be heard on their merits, so the outcomes are inherently uncertain. (Thomas *et al.* 2021). As the effects of climate change become more apparent, climate change attribution science, which uses research and modeling to assign responsibility for portions of emissions and their negative climate effects, may become more crucial in courtrooms all around the world. The ability to sue for damages brought on by climate-related catastrophes may also be one of the few ways to get justice because the world's poorest communities are typically the most exposed to its consequences. The World Bank predicts that by 2050, three regions (Latin America, sub-Saharan Africa, and Southeast Asia) will produce 143 million additional climate migrants, or 2.8% of the population of these regions (Rigaud *et al.* 2018). The UN Human Rights Council estimates that 21.5 million people are forced to leave their homes each year due to sudden onset weather (UNHCR 2016). Currently, there

appears to be a lack of formal legal protections and frameworks for climate refugees, potentially leaving litigation as one of the few mechanisms available for them to seek recourse. As attribution science improves, this stakeholder group may file more climate change-related lawsuits in the absence of formal inclusion in refuge and asylum frameworks more broadly (Thomas *et al.* 2021). Climate risk and the interests that are shielded by human rights are inextricably linked. The natural world as we know it will be impacted by a broken climate system, which will result in an increase in droughts, extreme rainfall, storms, sea level rises, heat waves, wildfires, landslides, and floods. This will again have consequences for fundamental human interests. Both people and buildings will fall victim to landslides and floods. The food supply will be threatened; groundwater may become undrinkable because of salination; and new diseases will spread. In both the short and long term, a damaged climate system could lead to rising tensions globally. At the same time, many would consider it misguided to justify environmental protection with an "anthropocentric" or human perspective, rather than attributing an intrinsic value to nature. It is crucial to remember that human rights can encompass environmental concerns, as evidenced by the Inter-American Court of Human Rights' case law (IACHR). Human rights can provide protection that extends beyond specific people because humans are a part of nature. In the area of climate, this is particularly accurate. If human life and health are to be preserved, the climatic conditions for both should be taken into account.

A Few Epistemological Consequences of Analogical Reasoning

Here I intend to inquire what can sustain analogical reasoning in climate change litigation and how. The very notion of sustainability implies prolonging, maintaining, bearing, supporting or tolerating. In the sense it is deployed here, I intend to analyze how and why analogical reasoning could address potential and existential challenges in climate related cases. This shall require investigating whether the use of analogical reasoning can be understood, can be effective while at the same time sustained. In a real sense, just as majority of people who drive

cars only know how to drive but do not have knowledge of the internal components or how cars work shows that, driving in itself or knowing how to drive car is more important than knowing the internal components of cars. It is so in many instances where particular principle or theory may not be clear to us but the trajectory shows some positive achievements either in terms of policy or other practicality.

The principle of abstraction both in computer programming and mathematics could help us understand the workings of analogical reasoning. In computer programming, the abstraction principle states that any complicated capability has its own abstract realization patterns: in mathematics it refers to the understanding that we can count any collection of objects, whether tangible or intangible (Melodia 2022; *Math's is visual* 2017). In computer programming, realization of abstract patterns guides to decompose a difficult capability into a set of simpler capabilities while, in mathematics it is the process of extracting the understanding structures, patterns or properties of a mathematical concept, removing any dependence on real world objects with which it may originally have been connected and generalizing it so that it has wider applications or matching among other abstract descriptions of equivalent phenomena

So construed, analogical reasoning seems to at least sometimes underwrite the efficacy of *pattern recognition*, which applies in climate change litigation as well. Though all countries do not agree on climate change, as at September 2022 about 198 are already parties to the United Nations Framework Convention on Climate Change (UNFCCC 2022). This is a sign for progress in the climate debate that should aid our analysis in the trajectory of climate litigation. These countries have agreed that climate change is shifting weather patterns that threatens food production, rising sea levels, increase flooding and that the impacts are global in scope and unprecedented (UN 2015). More so, that the role of human influence on the climate system is undisputed – land cover and emissions of certain pollutants as they warm the earth's surface by trapping heat in the atmosphere (COEHHA 2018). In 2021, the world health organization stated that climate change is the single biggest health threat facing humanity, as it is impacting health in a myriad of ways by leading to illness, death and mental health which means at the

same time undermining our livelihoods, equality and access to health care and social support structures (WHO).

Analogical reasoning might also be at play when climate litigation looks at *proof of harm and causal links* between the harm suffered and climate change. These issues are compounded by difficulties in differentiating between GHGs, for instance, and other emissions. Now, climate change discourse focuses on carbon dioxide (CO₂) because it is seen as the major and most dominant greenhouse gas produced through burning of fossil fuels, industrial production and land use change (Ritchie *et al.* 2020). CO₂ as a major driver of global climate change is not in much contention but how this responsibility is shared between regions, countries, and individuals has been an endless point of contention in international discussion (Ritchie *et al.* 2020). This influences how emissions are compared: annual emissions by country, emissions per person, and in many cases, the historical contribution.

Identifying the causal impact of emissions in climate change litigation so as to prove harm should be looked into by analogical reasoning. Such comparisons may require “wider application or matching among other abstract descriptions of equivalent phenomena” (Russell 1903).

With the increased threat of global warming and the risk posed by climate change, causal links become more visible when not confounded by other factors (such as pollution). Also, CO₂ has been identified as one of the major determinants of *health problems* (Balnn 2016) and, by extension, a risk factor besetting fundamental human rights. This strongly suggests that environmental changes may bear consequences for our quality of life; a sickening environment tends to produce sick people, whereas a better environment begets better lives.

We need to avoid using false analogies in climate change litigation. False analogy comes in when dissimilarities outweigh similarities between the two things (events, classes, properties) that are compared. Avoiding false analogies requires careful reconsideration and sometimes altering claims subject to litigation. This centers on rethinking problems, recreating, reinterpreting them differently from everyday courtroom cases. This is what climate change has taught us, by posing a new challenge for humanity. Better assessing analogical arguments and avoiding false analogies may, of course, benefit from reaping new scientific knowledge.

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