

Making the Climate Malleable? “Weak” and “Strong” Governance Objects and the Transformation of International Climate Politics

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Object-oriented theories have been used to understand how the climate and other entities like “the economy” have been produced as discrete, malleable and politically salient “governance objects.” These have structuring effects not only on policy debates but also on entire polities and the international system. However, a failure to distinguish between different kinds of governance objects has obscured their fundamentally different political implications. This article revises earlier definitions and develops a novel distinction between “weakly” and “strongly” malleable governance objects. The former are governable only in terms of not being perturbed in relation to a baseline condition, while “strongly governable” objects are construed as malleable along multiple dimensions, the *telos* of governing them no longer a given. The weak/strong distinction is applied to elicit implications of four climate strategies: mitigation, adaptation, and prospective “geoengineering” techniques of carbon dioxide removal and solar radiation modification that would deliberately alter the climate. Increasingly billed as risky but necessary, given the fraught politics of mitigation, geoengineering is shown to potentially transform the climate from weak to more strongly governable object. This could “untether” climate governance from the aim of remaining close to a pre-industrial climate, with a “design approach” to geoengineering adding layers of politicization, potentially increasing the fractiousness of global climate politics. However the analysis also highlights possible new routes to depoliticization of the climate, were it to be reattached—potentially to security imperatives or economic indicators. Analysis of governance objects requires much greater attention to types of malleability and politicization.

Las teorías orientadas a objetos se han utilizado con anterioridad con el fin de comprender cómo el clima global, así como otras entidades, se han convertido en objetos discretos, maleables y destacados de impugnación y gobernanza, y como estos “objetos de gobernanza” estructuran las políticas a nivel nacional e internacional. Sin embargo, no se ha conseguido distinguir los diferentes tipos de objetos de gobernanza, los cuales tienen características e implicaciones fundamentalmente diferentes. Este artículo contribuye a los enfoques orientados a objetos a través de la revisión de las definiciones de “objetos de gobernanza” y desarrollando una distinción clave entre objetos “débilmente” y “fuertemente” maleables, argumentando que los primeros son maleables solo en el sentido de que (no) pueden ser perturbados en relación con una línea de base “natural” o determinada de otra manera. Los objetos fuertemente maleables son, en principio, gobernables a lo largo de múltiples dimensiones y en términos de su propósito o *telos*. Esta distinción débil/fuerte se desarrolla y utiliza con el fin de comprender las implicaciones que ejerce la “geoingeniería” sobre la política climática internacional, es decir, los planes para la modificación deliberada del clima. La eliminación a gran escala del carbono y, potencialmente, las técnicas de modificación de la radiación solar se presentan como respuestas necesarias a la tensa política de mitigación, pero también tienen el potencial de cambiar el marco del clima de manera que pase de ser un objeto “débilmente” maleable a ser un objeto “fuertemente” maleable. Aunque esto estaría aún lejos de sortear los atascos políticos internacionales, al separar “el clima” de los procesos sociales vinculados a las emisiones, esto “desvincularía” la gobernanza climática del objetivo de volver a las condiciones preindustriales, politizando el clima de nuevas maneras. La debilidad, previamente evitada, de la política climática “global” pasaría a primer plano, y la preservación del clima podría ser reemplazada por otros objetivos y justificaciones, incluidos los economicistas.

L’on a déjà employé des théories orientées vers l’objet pour comprendre comment les entités climatiques mondiales, entre autres, sont devenues des objets de contestation et de gouvernance discrets, malléables et importants, ainsi que la structuration des régimes politiques sur le plan national et international par ces « objets de gouvernance ». Néanmoins, il reste à faire la distinction entre différents types d’objets de gouvernance aux caractéristiques et implications fondamentalement différentes. Cet article contribue aux approches orientées vers l’objet en revisitant les définitions des « objets de gouvernance » et en élaborant une distinction clé entre les objets « faiblement » et « fortement » malléables. Il affirme ainsi que les premiers sont malléables seulement quand il s’agit de (ne pas) les perturber par rapport à une référence « naturelle » ou une autre référence donnée. Les objets fortement malléables peuvent en principe être régis sous de multiples dimensions et en termes de leur finalité ou cause finale. La distinction faible/forte est mise au point et utilisée pour comprendre les implications de la politique climatique internationale de « géo-ingénierie », des plans visant à modifier délibérément le climat. L’élimination du dioxyde de carbone à grande échelle et, potentiellement, les techniques de modification du rayonnement solaire sont présentées comme des réponses nécessaires aux périlleuses politiques d’atténuation, mais pourraient bien recadrer le climat, en le faisant passer d’un objet « faiblement » à un objet « fortement » malléable. Loin de contourner les impasses politiques internationales en séparant « le climat » des processus sociétaux liés aux émissions, cela pourrait permettre de « détacher » la gouvernance climatique de la finalité d’un retour aux conditions préindustrielles, en politisant le climat de nouvelles façons. L’indiscipline internationale autrefois éludée de la politique climatique « mondiale » serait bel et bien placée au premier plan, et la préservation du climat pourrait alors laisser la place à d’autres objectifs et logiques, notamment sécurité ou d’économisme.

Introduction

It is a surprisingly recently accepted idea that a global climate system exists and that it can be consciously affected. Only in the course of the twentieth century did “climate” as a concept shift from denoting local, stable environments and cultures to its current guise of an identifiable planet-spanning geophysical entity with its own dynamics and logics (Heymann 2010). With the age of Earth Systems Science, formalized as a discipline as late as the 1980s, this global climate became subject to systematic modeling and vast systems of scientific measurement and computation (Edwards 2010) rendering it into something distinct, measurable and changeable - something that humans can and even should deliberately govern. The global climate has been rendered distinct and governable via a host of measures, solutions, strategies, policies, targets, agreements, and institutions (Hulme et al. 2009).

In object-oriented approaches to political analysis this process has recently been described in terms of the fulfilling three basic criteria—*distinctness*, *malleability*, and *salience*—to thereby become a “governance object” (Corry 2013a, 87-90; Möller 2023). Apart from the climate, this has been applied to diverse international objects, including gender (Scott and Olivius 2023), development (Abraham 2022), human rights (Pantzerhielm, this issue), debt (Kranke 2022), migration (Robinson 2018), data (Obendiek 2022), health (Aue 2021), and war (Rodehau-Noack 2022). This highlights the politics of how each is made to appear and be treated as a distinct entity, as malleable and salient, with constitutive political effects in each case.

Despite these forays, the formation and significance of *objects* have been given much less attention compared to vast literatures on identities and *subjects*, despite the ability of governance objects to shape agendas, identities, entire political landscapes, and even to provide the basis for the existence of polities centered on them, including nations, regions, and “the global” (Corry 2013a). For Bentley Allan, “IR has neglected the study of problem construction to its detriment because the constitution of objects has important effects on the later stages of global governance” (Allan 2017, 154). By the same token, the formation of “the climate” as a global governance object remains a relatively little noticed but crucial underlying condition for the vast ongoing debate and struggle over *how* to deal with the climate—which techniques and policies to prioritize, which targets to set, and which institutions to build, etc. But what *kind* of governance object is it? And how might it be changing as new techniques and purposes of governing are developed?

This article contributes to object-oriented approaches to International Relations (IR) and analysis of climate change by developing the claim that the climate has so far been rendered a “weak” governance object: mitigation (of emissions), as it is mostly defined and institutionalized in national and global climate governance has indeed helped construe the climate as a distinct and identifiable entity and a target of governance, but *only in terms of perturbing it as little as possible*. The climate governance object thus construed has an inbuilt conservationist *telos*—to keep as close as possible to a previous state or baseline in order to preserve or approximate a chosen period’s average climatic-human environment. The aim of climate governance is overwhelmingly understood as avoiding something, namely “dangerous” levels of greenhouse gasses in the atmosphere, as the United Nations Framework Convention on Climate Change (UNFCCC) phrases it. Though ambitious and challenging, most established registers of climate governance have been uni-

directional, regulating (or attempting to regulate) only how far the climate is pushed from its original (“pre-industrial”) state. In short, as a “weak” governance object, the climate is considered perturbable but not malleable beyond that.

However, a suite of emerging techniques and purposes for deliberately intervening in the global climate system, sometimes labeled “geoengineering” (Shepherd 2009), potentially construct the global climate quite differently. Geoengineering posits the climate an object that appears to be *malleable* in a different sense—as directly and instrumentally shaped or altered. Despite being mainly at proof of concept stage or far from technological maturity at scale, geoengineering techniques are increasingly being considered and treated as climate policy “options.” Solar radiation modification (SRM) techniques aim to suppress rising temperatures by reflecting more sunlight into space, while carbon dioxide removal (CDR) purports to artificially expand the “carbon budget” (or turn back the emissions clock) by taking greenhouse gasses out of the atmosphere in huge quantities (Shepherd 2009). As emissions continue apace and climate impacts escalate, these are being risk assessed or put forward as necessary to manage the climate, given the seeming political intractability of global climate politics (D.W. Keith and Irvine 2016; Carton et al. 2020; Belaia, Moreno-Cruz, and Keith 2021; National Academies of Sciences 2021). While technically very different from each other (as well as within each category), SRM and CDR share some key governance challenges as prospective “climate engineering” (Rabitz 2024). Nobel chemist Paul Crutzen saw SRM as providing a possible escape route given “the grossly disappointing international political response to the required greenhouse gas emissions” (Crutzen 2006, 214). For others, planetary SRM is particularly ungovernable, especially if this is to happen in a just and stable way and have beneficial outcomes (Szerszynski et al. 2013; Biermann et al. 2022).

While potential risks and benefits of large-scale deliberate climate interventions are being explored and assessed, as argued below, governance techniques/knowledges and the objects of governance co-construct each other. Geoengineering expertise produces more than a new set of controversial policy options. It also has more profound “ontopolitical” (Pantzerhielm, this issue) implications relating to how it produces different worlds and in particular new versions of the climate as a governance object. This impacts at a constitutive level on climate policy choices by reframing the problem, the aim, the knowledges, and rationales of governing and thereby impinges on the identities of the actors—with potentially wider implications for international dynamics.

Distinguishing “weak” and “strong” governance objects, this article proposes more widely that the latter are rendered as malleable—i.e., as governable along *multiple* dimensions and directions—and crucially the political purpose or *telos* of governing becomes “untethered” from its erstwhile baseline. In the case of the geoengineered climate, staying close to pre-industrial climates is potentially cast off in favor of multiple other politically determined “designer” purposes of climate politics (Oomen 2021). As geoengineering increasingly becomes part of a wider portfolio of climate strategies (along with mitigation and adaptation) a more “strongly” malleable climate object emerges, redefining the problem of climate change in consequential ways.

This is significant because, whereas there are endless debates in IR about types of international “actors,” work on types of objects has barely got off the ground. “The climate” and other governance objects, while treated as singular, are in fact “multiple” (Mol 2002) in that different renditions of

them evolve over time and compete and combine. Different knowledges about them and different means and purposes of intervening in them are produced. By shifting from one type of governance object to another, politics is potentially reframed and restructured. Making this distinction it is hoped can contribute to understanding some constitutive political effects of research into SRM in particular, but also opens up a wider research agenda on how governance objects are contested and transformed, and how this might structure world politics in varying ways.

Drawing on governmentality analytics and particularly their contribution to understanding another governance object, namely “the economy,” the article shows how “objects of expertise” understood as “*authoritative knowledge relevant for governing put into a socio-material form*” (Esguerra 2024, this forum) play a key role in reframing the problem and object of climate governance. Very different disciplines are drawn upon and combined in different ways, yet expertise on SRM and CDR is also dominated by certain disciplines whose ways of seeing and knowing privilege certain aspects and aims (Szczepanski and Galarraga 2013). These therefore play a key role in remaking “the climate” as a governance object, some distancing the climate problem from the societal processes that are causing global warming (Markusson et al. 2017). All of them potentially recalibrate the targets and modes of national and international climate governance in the process. With SRM in particular, the dimensions of imagined steering of the climate are multiplied, opening up other political purposes or rationales for governing than staying close to a previous climate. But rather than avoiding international political quagmires, as some supporters hope SRM might, a more “malleable” climate governance object brings international conflicts over different political aims of climate policy, otherwise elided in scientific-planetary framings, closer to the surface: Which—or whose—climate should be created, by whom and for what underlying purposes?

The section “Governance Object Theory and ‘the Climate’” assesses governance object theory and how it has hitherto been applied to climate change. “Distinguishing Weakly and Strongly Governable Objects” then develops the distinction between weakly and strongly governable objects, revising core tenets of governance object theory. This draws on accounts of how “the economy” was rendered distinct, governable and salient only to be reduced or “closed down” again through technical expertise, political injunctions, and bureaucratic normalization. The next section, “Is the Climate a Weak or Strong Governance Object?”, applies this distinction to existing and emerging techniques for governing the climate. To conclude, the constitutive effects of these new governance technologies on climate politics and the international system are explored, arguing that the very thing that is presented as being a short-cut to a solution and promising greater malleability of the climate (SRM) could render the whole situation even less amenable to deliberate control, multiplying and fragmenting climate aims. This allows the pre-industrial climate to be replaced with other optimization targets (potentially economic ones) as the guiding *telos* of climate efforts.

Governance Object Theory and “the Climate”

Though the politics of climate change are recognized to be exceedingly difficult, it is often taken for granted what the main aim is. Most commonly this is couched in terms of staying under 1.5 or well below 2°C rise in global average temperature by limiting greenhouse gas emissions.

Though this gets reified as *the* goal or purpose of climate politics, the latter has co-evolved considerably over time along with changing scientific tools and a changing parade of promissory future technological solutions (McLaren and Markusson 2020). In the UNFCCC framework, the formal aim is stated as “avoiding dangerous climate change”—itself an empty vessel for different interpretations, obscuring struggles around underlying purposes of tackling the climate problem (Lahn and Sundqvist 2017). These include the management of “climate risk”; safeguarding prosperity or economic growth (as economists tend to think of it); or promoting “sustainable development” (as many UN organizations and SDG-inspired actors have it), for example. The global temperature target effectively stands in as a proxy for aims that are either left unsaid or imprecisely defined, many having been eclipsed and marginalized in favor of a single temperature measure and an associated carbon-centric worldview (Moreno, Speich, and Fuhr 2016). Indigenous accounts see climate change very differently as an intensification of “colonially driven environmental change” that already destroyed many ecosystems Indigenous peoples relied upon, whereby “solutions” relate fundamentally to unraveling settler colonial projects (Whyte 2017, 155).

However, the most dominant permutations share a common set of initial assumptions relating to climate as a governance object, namely: that it is indeed a real, identifiable and somehow separate entity (distinct); that political action can potentially affect or deliberately alter it (malleable); and that it is now a relevant and important political task to do so (salience) (Corry 2013a, 87–97). According to conceptual historians, modern climate science (along with contemporary technological advances and cultural shifts) has produced this “fundamentally different notion of climate” (Heymann 2010, 591) compared to classical notions of climates. Instead of being local and stable (but geographically varied), climate has recently become understood in almost opposite terms as a *singular* global system—“the climate”—that is *dynamic* over time. In particular, it is a strikingly recent feature that the climate is treated as something *governmental*—as something that can be known such that it can—and in some way should—be changed, modified or “saved” through deliberate political techniques and strategies.

This transformation of climates into “the climate” is by no means unique as a case of the social construction of governance objects. But unfortunately “(c)onstructivist approaches have given much thought to the construction of political identities, while comparatively the construction of the object of steering has been neglected” (Corry 2013a, 87). To be sure, constructivists and post-structuralists have at times usefully problematized how issues are framed and conceived in international relations. Post-structuralism has done important work questioning “the very way our problems have been posed” (Campbell 1992, 351) and STS scholars wielding Actor-network theory and pragmatist theories have made a mark recently focusing on object-construction and its role in the establishing of publics and public spheres (Salter 2015; Bellanova, Jacobsen, and Monsees 2020). But especially in terms of wider structuring effects, constructivist focus has tended to stay on the construction of subjects, not objects—on identities, selves, and Others. Buzan and Hansen summarized, not inaccurately, that security politics for the post-structuralists “was fundamentally about the construction of a radically different, inferior and threatening Other but also, since identity was always relational, about the self” (Buzan and Hansen 2009, 143).

Bringing objects of governance into more focus, particularly Michel Foucault's lectures on governmentality have been mobilized by those keen to understand how new objects of political operation have been produced, including around climate change (Stripple and Bulkeley 2011). Foucault's narrative of how "society" and "population" had been eked out as distinct spheres amenable to study and political operations has been used in particular to argue in more general terms that governance objects co-emerge with tools for governing (i.e., techniques) and a purpose or rationale (mentalities) for doing so. This goes beyond just framing "issues" to also bringing objects into being, structuring political space, and giving form, direction, and content to governing identities. As such, governance objects affect the structure of the international system or may even help constitute a global polity, where objects of governance presuppose or construct the world as a singular social space (Corry 2010).

These elements of distinctness, malleability, and salience were since elaborated as processes: *designation* (rendering something distinct from its surroundings), *translation* (allowing the object to "travel" and be comprehended by multiple actors and contexts), and *problematization* (making salient to political subjects) (Allan 2017). Knowledges, techniques, and devices of governing—"objects of expertise" (Esquerre 2024, this forum)—play a central role in these processes, co-producing governance objects by designating otherwise disparate sequences and things into discrete objects that may then become objects of manipulation (malleable) and invested with salience. While objects of expertise (such as models, datasets, and instruments of measurement and intervention, etc.) are not the only factors that produce governance objects, they have tended to play a key role in identifying and abstracting governable entities from their respective "outsides" and in constituting techniques and institutions that would render them (in principle) governable. Nikolas Rose sums up a more complete governmental analytics as interrogating not just "the problems and problematizations through which 'being' has been shaped in a thinkable and manageable form" but also "the sites and locales where these problems formed and the authorities responsible for enunciating upon them, the techniques and devices invented, the modes of authority and subjectification engendered, and the telos of these ambitions and strategies" (Rose 1999, 22).

In this vein, "the climate" has only very recently been constructed as a global governance object, being constituted as: (i) a meaningfully distinct (albeit sprawling) object that (ii) can be governed, for example, by regulating the mix of gasses in the Earth's atmosphere, and (iii) is considered salient to govern. By this token, "if the global climate is emerging as a governance object through apparatuses, discourses and technologies rendering the climate global, governable, including knowledge and disciplining regimes that frame the world as essentially one place ('global'), then a 'global climate polity' can also be said to be congealing" (Corry 2013b, 223). A global climate polity was defined as "a situation in which the climate is constituted and then treated by a set of actors and infrastructures as an object that can and should be manipulated purposively" (Corry 2013a, 223).

To say the climate is becoming a governance object does not imply mastery, or that it can be changed at will or successfully as such. Governing is an eternally optimistic yet congenitally failing practice that operates through a *vision* of a better or different future (Dean 1999, 33). Malleability is thus neither a reflection of an innate property nor a claim that for a socially constructed entity successful outcomes of

instrumental manipulation are actually within reach. Governance objects are rather constituted as distinct in particular ways and *in terms of a particular mode of engagement*, with unintended and even unwanted political effects. The socially produced "map" is not the terrain itself, and administrative simplifications often do great violence to the complexity of the natural and social realities they purport to identify and govern, as James C. Scott famously explains in his book *Seeing like a state* (1997).

The way the climate is rendered real, malleable, and politically salient is therefore historically variable and not pre-ordained by its physical properties alone (though these are clearly also not irrelevant), nor dictated by the intentional actions of scientists, politicians, activists, and others contesting it. Lövbrand, Strippel, and Wiman emphasized, for example, the role played by "sophisticated mathematical representations—i.e., models—of ecological processes" in establishing the Earth system as a single, governable object (Lövbrand, Strippel, and Wiman 2009, 9) but also in bringing about a "global gaze" that risks becoming "a totalising perspective that omits human agency and privileges the vantage point of a technical elite" (Lövbrand, Strippel, and Wiman 2009, 11–12). Angela Oels suggested the climate had been constructed first as a global and steerable biopolitical entity needing to be "stabilized," and subsequently, from around the time of the Kyoto Agreement, became conceived as an economic grid of efficiencies and products to be rationally optimized in terms of costs and benefits (Oels 2005). Bentley Allan charted in further historical detail and with greater attention to the international dimension how the climate was "produced" as a deterministic geophysical (rather than complex bio-ecological) object through processes negotiated between states and scientists during the Cold War and after, under overall US patronage. Crucially, in doing so, "computer models suggested the possibility that the molecules and forces underlying temperature and rainfall could be predicted and manipulated" (Allan 2017, 147). This governance object gained salience in part by forging "discursive links with pre-existing environmental and security problems and available environmental regulatory techniques" (Allan 2017, 148).

But if "the climate" is becoming—or has become—a global governance object, what *type* of governance object is it? Conceptual work on governance objects has so far failed to distinguish between different kinds of objects that expertise and techniques of governing help construct. For example, I previously deemed that mitigation of emissions and geoengineering both simply posit the climate as a global governance object:

By adjusting the makeup of Earth's atmosphere and seas, or through geo-engineering projects, for example ones that regulate how much energy enters the atmosphere in the first place, "the climate" has become a new global governance-object, and as such a polity is forming of actors, institutions and practices engaged in governing it. (Corry 2013a, 89)

Oels' point is still valid: More attention should be given to exploring "what this 'global climate regime' is actually doing, which visibilities is it creating, which technologies are being used, which fields of knowledge created or drawn upon and which identities forged, rather than assuming that what it does or is supposed to do is known" (Oels 2005, 202). But along with more empirical work, additional conceptual tools for characterizing different types of governance object—and how each of these may have different constitutive effects—may help to advance analysis of gover-

nance objects and their political implications in IR and beyond.

Distinguishing Weakly and Strongly Governable Objects

That the climate has, in contemporary technical and scientifically led contexts, so far only been rendered amenable to deliberate political governance in a very limited way as a “weak governance object” is not a claim about this kind of object being inferior or fragile. The claim is instead that the climate has hitherto only been considered governable in the sense of preventing or minimizing perturbations. The climate is altered intentionally through “mitigation” efforts to limit the emission of greenhouse gasses, for instance, but it is not malleable in any stronger sense. So are there general features of the more pliable “strong” governance objects beyond an intuitive sense of greater moldability? This section develops an analytical distinction by critically revisiting the three original governance-object criteria of distinctness, malleability, and salience, clarifying and identifying key additional points about governance objects. The example of “the economy” as a governance object is used to develop and illustrate the weak/strong distinction before the next section applies this to consider how different climate governance techniques construct a weakly versus a strongly malleable governance object.

Rendering Distinct—But Not Separate

Firstly, to become a governance object the global climate is rendered distinct through an “intimate mix of technologies and mentalities” of governance, from satellites to carbon calculators (Corry 2013b, 225). But how? Allan suggested that such rendering happens through practices of *designation*—“the observation and categorization of natural and social phenomena” (2017, 137) as elements of a single distinct object—a process “made possible by rationalities, technologies, and practices for the investigation, representation, and articulation of physical and social reality” (Allan 2017). In addition, for Allan, once distinct, processes of *translation* make objects legible across different contexts by rendering them “abstract and formal enough to be understood in similar ways” (2017) by many actors (2017) such as when “the creation of a new abstract unit, the ‘tonne of carbon dioxide equivalent’ (tCO₂e), (. . .) grounded the Kyoto system in geophysical models and understandings of the climate” (Allan 2017, 149). Allan considered “translation” to be a producer of the next characteristic, malleability (see below). However, I argue that designation and translation both primarily help make an object distinct and socially “real” across place and time (malleability, I will argue, depends on other kinds of practices).

Taking “the economy” as an example, Kenneth Waltz noted that, until the eighteenth century Physiocrats provided one, a mass of entities and ideas concerning economic affairs lacked a theory: “an invention was needed that would permit economic phenomena to be seen as distinct processes, that would permit an economy to be viewed as a realm of affairs marked off from social and political life” (Waltz 1990, 23). However, in Timothy Mitchell’s eye-opening account, “the economy” is an even later invention: “(i)n the sense of the term we now take for granted, referring to the structure or totality of relations of production, distribution and consumption of goods and services within a given country or region, its usage dates only from the mid-twentieth century” (Mitchell 1998, 84). Previously, “econ-

omy” was used in a different way, usually morally, or referred to individual markets and households. But from the 1930s to the late 1950s “the economy” became a “self-evident totality” (88) in that “it became possible to imagine the economy as a self-contained sphere, distinct from the social, the cultural, and other spheres” (Mitchell 1998, 91).

Objects of expertise played a central role, with the invention of econometrics and then mechanistic and dynamic systems models applied to a singular national “economy” helping a “new discursive object” to emerge (much as General Circulation Models helped “the climate” become a distinct and self-contained entity): “From around the 1930s, new forms of consumption, marketing, business management, government planning, financial flows, colonial administration, and statistical work brought into being a world [‘the economy’] that for the first time could be measured and calculated as though it were a free-standing object” (Mitchell 2005, 298). This was rendered legible across diverse actors and institutions as the economy became “represented in terms of a series of aggregates (production, employment, investment and consumption) and synthetic averages (interest rate, price level, real wage, and so on)” (Mitchell 1998, 89) that translated individual bits of data into parts of a system or whole. However, (very *unlike* “the climate”) each “economy” was bounded by the limits of a particular state. This in turn provided a new way of constructing the state—as a governor and custodian of “the economy” (Mitchell 1998, 2005).

Importantly, the making-distinct of objects should not be confused with radical ontological *severance* from an outside around an object. The modern making of the economy as distinct from the “non-economic” (e.g., the state and the household) constitutes it as a discrete, recognizable entity, yet the boundary to the “non-economic” is ever present, yet porous and often ambiguous. Even “(t)he dis-embedded [market] economy is interwoven into formal political, bureaucratic and legal institutions *that treat the economy as a distinct entity* and the market as the defining economic institution” (Goodwin 2022, 681—emphasis added). Even more fundamentally, Mitchell explains, the outside, while rendered distinct, is *constitutive* of the object: “what is depicted as the non-economic is implicated at every point in the creation of the economy” (93). So “the state” is distinguished as separate from the economy but frames and regulates the economy, even setting its (notionally) national limits. Similarly, household production and reproduction was excluded from “the economy,” but the latter could not function without the resources and people provided by it. Distinctions between the economy and the state or household, therefore, “should be grasped not as signs marking the border between two spheres but as powerful organizing practices that create the material effect of the economy as an apparently self-contained structure” (Mitchell 1998, 93).

Thus, while designation involves “a process of drawing a boundary around a set of phenomena to demarcate an entity distinct from others” (Allan 2017, 137), and translation allows this entity to be recognized as distinct across space and time, we may say designation also *de facto* creates *object outsides*—key things from which it is rendered distinct while remaining dependent upon. It becomes apparent that object outsides have not often been much examined, even within object-oriented approaches, yet they are key to how an object is rendered distinct and with what effects this is achieved.

Further clarity on this can be found by reconsidering “malleability.”

Rendering Malleable—or Just Preservable

The idea that a governance object is “malleable” was also left somewhat undertheorized initially when it was stated only that “it must be considered malleable and be the target of steering efforts” citing “the availability of technologies of governing (technologies understood broadly and without prejudice as to who or what controls them)” (Corry 2013a, 88) as a precondition for malleability. This reflects the Foucauldian idea of co-constitution of techniques and objects of governing but leaves open what kind of “control” of a governance object is envisioned, as long as some manipulation of the object is plausible. The crust of the Earth is identified and designated by geology as distinct and real, but there are as yet no techniques to govern it, nor rationales for doing so (although soil is arguably a governance object).

Limited to a preservatory telos of limiting perturbations, “weak malleability” implies some governing tools, but also a baseline condition of some kind needs to be imputed into the object: Governance for preservation must be *in terms of something established* or given. For a more “strongly” governable object, we can say there is not a baseline condition guiding practices of governance, even less a supposedly pristine or imagined default state that must be preserved or kept as close as possible to, which would otherwise serve as the *de facto* rationale or *telos* (as Rose puts it) of governance. We may say that the *telos* is pre-set for weakly governable objects, but underdetermined for strongly governable objects: The object is imagined to be governable along multiple dimensions of steering allowing for different desired end-points. Hence, governance becomes potentially multi-directional and therefore also correspondingly contestable in variable terms. However, for dominant notions of “the climate” governing has really only been envisioned and practiced in terms of not perturbing the climate further than strictly necessary (or desirable, or cost-efficiently for economists) from an “original” state.

Turning back to “the economy,” Ute Tellmann (2017) describes how in Thomas Malthus’ renditions, “natural laws” of economic necessity (derived from ideas about unchecked population growth and compulsive animal and human behaviors) were to be adhered to in order to avoid calamities like war and famine. The economy could be “managed,” but only in the sense of limiting innate tendencies to overshoot supplies and resources. Governance of this type was imagined in the form of “preventive checks” such as celibacy, chastity, or birth control (Malthus disapproved of the latter) as ways to limit demand for food, land, etc., preserving a precarious balance. But with John Maynard Keynes the economy becomes seen as a “system suitable to a managerial politics” (Tellmann 2017, 21) and is shot through with notions of uncertainty and probability, implying a more politically open and malleable entity. Roughly, this corresponds to a shift, then, from “weakly” to “strongly” governable object.

However, even for Keynes the Malthusian problem of “savagery” reproduction (as he saw it) had been solved only in the West. Keynes “tied this understanding of the variable and malleable measure of economy to a figure of a population as a political-cultural community that had various degrees of civilization” (Tellmann 2017, 178). As the *object outside* of the economy, the population impinged on the constitution of the economy, different societies affecting how malleable “the economy” could be envisaged to be in each case. In cases where “civilization” had tamed “savagery,” new and more refined governance tasks could be attempted. For Mitchell, with Keynes’ general theory and the invention of

national income accounting, the new entity of the malleable economy was eventually thought to be able to (and to ought to) grow, even “without altering its physical limits”:

Once economic discourse took as its object the fixed space of the nation-state (...) it became both possible and necessary to imagine economic growth in new terms, not as material and spatial extension but as the internal intensification of the totality of relations defining the economy as an object. (Mitchell 1998, 90)

Not only the intensity of the newly minted economy but its ability to be managed (by statesmen-economists) to produce “happiness”—this became the goal of governing it, for Keynes (see Tellmann 2017, 186).

Central to the idea of strongly governable objects, then, the *telos* of governing becomes subject to political determination, and governance is considered in principle multidirectional. The two are connected in that tools for multidirectional governance require—and allow—corresponding social and political goals to be formulated. A governance object moving from weakly to strongly governable becomes “untethered” from the *telos* previously defined by a former condition, losing a previously given baseline.

Making Salient—or Also Problematic?

Thirdly, governance objects, apart from being distinct and malleable, also become “salient.” Originally, salience was stipulated as objects becoming *important* to or linked in some way “to the identities of the actors and what they want to achieve” (Corry 2013a, 88). According to Allan, on the other hand, salience is about *politicization* or problematization: “experts and activists need to persuade policymakers and publics that the object is problematic and deserving of scarce political time and resources” (Allan 2017, 138). However, are importance and problematization really the same thing? For some political scientists, “the ‘importance’ of issues and the degree to which they are a ‘problem’” are two different things (Wlezien 2005, 556). A governance object can be central to identities and structuring for a polity but simultaneously “closed” or unproblematic as is often the case with “the economy” (or many referent objects of security, the logic of which is also preservatory, see Buzan and Wæver 1997) especially when reduced to prudent economic management to promote economic growth measured by Gross Domestic Product (GDP), for example. Indeed growth is often considered politically important but not problematic. On the contrary, it has in many ways assumed the status of a “core state imperative” (Barry 2020).

Salience requires subjects investing it with importance, but we can see “problematization” as an additional potential condition that a governance object can obtain: Salient objects can be important while being problematized—or closed down politically. Ute Tellmann narrates how “Keynes not only reopened the notion of the ‘the economic’” but also had it closed again with a “model of the national economy as an ‘hydraulic machine’ that could be governed through monetary techniques” (2017, 203). Drawing on Ranciere’s notion of *archi-politics*—“the paradoxical operation of ‘achieving politics by doing away with it’” (Tellmann 2017, 168), she identifies how governing the economy, even as it became the object of Keynesian societal engineering, became a depoliticized or expert management activity. The political and the economic are here made distinct from each other, but in a way “that displaces the malleability of the economic by political means” (Tellmann 2017, 10).

Now, for a weakly governable object, consequential or even dramatic politicization is of course possible as climate politics has shown. But contestation will be limited to whether or how it might be important to *preserve* the object from being perturbed. For strongly governable objects, the “untethered” feature of them means that salience potentially includes an expanded dimension: The *telos* of governing is itself variable and can become part of what is salient to determine. This means weakly and strongly governable objects can be problematized differently, either along only a single or along multiple dimensions. For instance, “the economy” became with Keynes an object to be not just protected from disruption but *developed* and managed. Problematizing a Keynesian “economy” could then refer to any number of variables and purposes of governance such as full employment, low inflation, low investment, uneven wealth creation, or happiness—and more recently carbon intensity, for instance. The economy became untethered from a notion of a natural economic balance—it became malleable in a more profound way.

At the same time, a governance object is never *innately* strongly or weakly governable and a “strongly” governable one might be “re-tethered” by way of a very strong definitional establishment of a new baseline, reified as essential (or often: “natural”). This might eventually return it to “weakly governable” status—or a contestation over precisely this might start to play out in an archi-political fight. Keynes “partook in the unravelling of beliefs in economic necessity, but at the same time he devised a new understanding of economic laws” (Tellmann 2017, 23). Keynesian politicization of the economy had a malleable and politically ambivalent entity but was soon assimilated back into classical economics where “the economy” has equilibria to be respected and protected to ensure stability. More recently with the rise of neoliberalism, managing “the economy” required minimizing perturbation of quasi-natural economic laws enforced by global market forces on pain of avoiding “calamities of a higher order” (Tellmann 2017, 204).

Thus “strong” governance objects are distinct like weaker ones, but appear to become more radically distinct—disembedded, potentially—from their object outsides with no default state they “should” stay close to. They can be problematized as well as important. For such objects, malleability can be imagined (and tools can be developed) along multiple dimensions and the object can be governed for diverse (and therefore more easily contestable) *teloi*. However, an archi-political de-problematization can also happen, potentially re-tethering the object to a new supposedly baseline condition—potentially to the extent it returns to being “weakly” governable and an object of preservation only.

Is the Climate a Weak or Strong Governance Object?

To explore this proposed weak/strong governance object distinction in relation to the climate, the following considers the multiple climate governance objects hiding under the moniker of “climate change” constituted through the most familiar techniques and rationales for governing it, namely mitigation, adaptation, CDR, and SRM (summarized in Table 1). While each technique for analytical purposes can be treated separately and shown to pull the climate in a particular direction, together they construct an aggregated (although necessarily “multiple”) object.

Mitigation

In the UNFCCC agreement text, “abatement” of emissions is designated as the prime tool to “*avoid* dangerous climate change” (emphasis added). There is no sense in which the climate is malleable in the stronger sense.





Although the means of governing climate via mitigation involve changing economic processes of production (of energy in particular) and consumption, it is the atmosphere (or a specific dimension of it) that is the governance object here. The *telos* of mitigation is to *limit* changes in greenhouse gas concentrations, measured often in “parts per million” CO₂e in the atmosphere relative to a baseline of pre-industrial levels and earlier average temperatures. The choice of that baseline can, of course, be deconstructed (Caseldine 2015; Knutti et al. 2016; Morsetto, Biermann, and Pattberg 2017), but the Paris Agreement enshrined targets in the form of carbon concentrations likely to lead to global average temperatures only up to 1.5 or well below 2°C above pre-industrial levels in a way that is treated politically largely as “given.” Controlling emissions became the primary measure to govern the climate in this way, limiting change in temperatures.

Just as “the economy” is not severed from society (or ecology), “the climate,” while rendered distinct as an object, is not a system sealed off from the rest of the Earth system or the economic system. To paraphrase Mitchell, the distinctions between “the climate” and non-climate entities should be grasped not as signs marking the border between two spheres, but as powerful organizing practices that create the material effect of the climate as an apparently self-contained structure. But if the economy was distinguished primarily from the state and households, what is the “object outside” of the climate?

One usual distinction emphasizes the climate’s systemic and diachronic character in contrast to “weather” being “the actual state of the atmosphere at a particular time” (Dessler 2021, 1). Climate is different by being an aggregate of precisely weather (without which it would not exist, of course). But “climate” is also distinct from entities that it “impacts” upon such as ecosystems or societies—it must be constructed as distinct from them in order to “impact” upon them (even if ecosystems in another sense form part of the climate system itself). The climate is problematized mainly in terms of its perturbability, the severity of impacts from perturbation, and the efficacy of governance techniques to limit that perturbation.

In these terms, the climate object has been made the governance object by an enormous global climate polity of actors, institutions, and modes of authority for governing it (albeit weakly). It has salience on the grounds of anthropogenic changes disrupting “natural” variations, rather than because the climate itself involves a degree of variability that generates extreme weather events (these are “natural disasters”). “Climate denial” contests whether the climate is indeed perturbable by humans at all, or simply a naturally variable, self-regulating entity. So-called “luke-warmism” (sometimes: “climate policy denial”) problematizes even the weak malleability of limiting emissions—questioning whether it is realistic and/or worth the cost or effort. Given its global framing, the “international” of the climate is largely elided since the target is framed as a global average, and emissions reductions anywhere contribute to preserving the *telos* of staying close to a given pre-industrial global climate average.

Table 1. Climate governance techniques, objects and forms of malleability

Governance technique	Mitigation	Adaptation	CDR (carbon dioxide removal)	SRM (solar geoengineering)
Object that is rendered distinct and governable	The atmosphere (greenhouse gas emissions, ppm)	Society (climate vulnerability/risk)	Carbon cycle (stocks, flows and storage)	Global or regional energy balances or temperatures.
Form of malleability	Protecting: limiting perturbations 	Making resilient: coping 	Limiting: slowing and potentially reversing changes 	Modulating: molding, multi-directionally 
Politicization—in terms of	Conservation—baseline (“pre-industrial” atmosphere)	Accommodation—societal functionality/risk reduction	Minimization—distance from baseline (pre-industrial atmosphere/carbon budget)	Optimization (e.g., <i>vis a vis</i> economic growth or global security)

Adaptation

Adaptation is now considered second in importance only to mitigation. However, techniques for adaptation do not involve governing the climate as such—but rather aim to govern the object outside, primarily society! The UNFCCC defines adaptation as “adjustments in ecological, social or economic systems in response to actual or expected climatic stimuli and their effects.” (UNFCCC). Thus, adaptation has an even weaker climate governance object and is premised on climate change, if not climate disruption. According to Lisa Schipper’s useful conceptual history of adaptation, some viewed it early on as redundant: Societies adapt all the time already, and there is nothing unique about *climate* adaptation (Schipper 2006, 84). The view of adaptation that eventually won out effectively tapped into the already established idea that societies are governable, adding a new *telos* of reducing vulnerabilities to climatic changes, human caused or not. In effect, the governance object rendered by climate adaptation is “climate vulnerability,” understood as a “pre-event” or as “inherent characteristics or qualities of social systems that create the potential for harm” (Cutter et al. 2008, 599).

However, the distinctness of such a putative societal climate adaptation object is not yet clear—least of all at the global level. Knowledges and objects of expertise to make the interrelations between climatic processes and a range of societal, economic, and ecological systems distinct are being produced mainly in relation to local or national vulnerabilities (Fraser 2017). However, it was agreed at COP 26 in Glasgow that under two technical committees (SBSTA and SBI), a new more global adaptation “work plan” would be worked out and implemented by member states: “countries are now working through the complex task of crafting a global goal whose challenges include the lack of universal, global metrics that could easily, meaningfully measure or capture ‘enhanced adaptation’ across a vast range of contexts.”¹ Abstraction to allow designation and translation of an adaptation governance object at the global level seems to be a work in progress.

If neither mitigation nor adaptation to climate change yet construct the global climate as a governance object in the strong sense, what of the relative newcomers: large-scale CDR and SRM?

Carbon Removal and Management

Rationales, knowledges, and apparatuses geared to removing and storing gigatons of carbon from ambient air, while still embryonic as scaled-up infrastructures, have gone from being marginal in early mitigation-centric climate policy discourse to recently being seen as “essential” (Smith 2022). Though still to be developed and “rolled out” (e.g., via bio-energy with carbon capture and storage, large-scale afforestation, or Direct Air Capture technology), CDR as a category is shifting the climate governance object from CO₂ emissions to all stocks and flows of carbon, both present and future, because these are counted as potential atmospheric CO₂, wherever they might currently be located in the Earth system. With CDR, what is designated distinct and governable includes: available fossil fuel deposits at risk of being extracted and burnt; a proportion of already released CO₂; future atmospheric CO₂ to be “recaptured”; currently non-geologically stored CO₂ (eg. in trees); and contents of new carbon storage facilities for deliberately removed CO₂.

Despite this temporally and spatially distributed object, several factors have served to make CDR an increasingly central object of climate expertise. The advent of the accounting tool of “CO₂ equivalents” and global “carbon budgets” emerged from and contributed to the shifting political emphasis on CDR. This is because they “changed the core scientific and political problem of climate change from determining the optimal rate of future emissions to establishing a fixed limit—a budget—for how much emissions should be allowed before they must be stopped altogether” (Lahn 2021, 5). With this, the key political challenge became to distribute the remaining “carbon budget,” and more recently to create and bring about techniques to deal with anticipated “overshoot” where the budget is expected to be exceeded “temporarily”. With CDR, emissions can now (in principle) be “re-captured” allowing governance to shift from fossil producers and emitters to the carbon itself. This also paved the way for the meteoric rise from around 2019 of “net zero” as the favored target for climate governance. The need to offset “residual” or “hard to abate” emissions in country or company net zero targets thrust CDR further to the fore, which in turn helped normalized CDR as an approach (McLaren et al. 2019; Carton, Lund, and Dooley 2021).

Compared to adaptation, this tilts the framing of the governance object of “climate” back toward a more purely physical and global governance object, and a more expansive

¹<https://unfccc.int/topics/adaptation-and-resilience/workstreams/glasgow-sharm-el-sheikh-WP-GGGA>

one than for mitigation—effectively to “climate-as-carbon-circulation.” This has intensified criticism of “carbon reductionism” from critics who see overlooked societal implications of a shift away from near-term mitigation (limiting emissions today) to longer term technological (and biological) carbon removal and storage in the future (Moreno, Speich, and Fuhr 2016; Carton, Lund, and Dooley 2021). In theory, CDR is always *on top of* emissions reductions, but the rise of CDR has also paradoxically exempted some emissions from mitigation governance, to be mopped up by CDR, the extent of (and selection of) “residual emissions” (Buck et al. 2023) often determined unilaterally by the emitter or in models by cost and market forces.

But does CDR make for a weaker or stronger governance object? In one sense, stronger: it introduces a “reverse gear”—greenhouse gasses can (in theory) be not just prevented but removed from the atmosphere and returned to an inert state. Malleability is now two-directional (but on the same dimension as before) in effect, a post-natural engineered global “carbon cycle” in reverse. Protecting and enhancing existing carbon “sinks” can be found in the original UNFCCC wording, but the rise of CDR creates a category of governance-intervention made up of novel techniques and capacities for capturing ambient CO₂ and storing it, in principle able to replace some emissions cuts—a major source of risk of mitigation deterrence (McLaren 2020).

Yet in another sense CDR posits a weak governance object: The *telos* of governing the carbon cycle or stocks and flows is ultimately still to limit perturbation or with net-negative emissions move back toward the “original” pre-industrial climate. In principle, CDR could go to below pre-industrial levels, though (perhaps due to the very unrealistic nature of this) this is never put forward as the *telos* of climate governance. As such, reducing the (rise in) atmospheric CO₂ concentrations is a temporal fix for emissions overshoot but does not aim to modulate the climate in a stronger sense of tailoring it or designing it. Since atmospheric carbon dioxide circulates, interventions to remove it have a dispersed effect on global temperatures, so the climate object implied by CDR is globalist but not “strong” in terms of being a properly malleable entity.

Solar Geoengineering—toward a Strong Governance Object

While the idea can be found in early climate policy debates (The President’s Science Advisory Committee 1965; Budyko 1977), solar geoengineering re-emerged as an object of climate expertise when Nobel chemist Paul Crutzen ventured it as a “contribution to resolve a policy-dilemma” (Crutzen 2006, 211). The dilemma was that air pollution from vehicles and heating masks a significant amount of additional global warming. A haze of airborne pollution particles reflects a fraction of incoming sunlight back out into space. To clean up the haze would on the one hand save many pollution-related deaths but would add roughly another 0.5°C of warming to global average temperature rise (currently at around 1°C). Injecting reflective aerosols into the stratosphere to “replace” the pollution with other less harmfully placed particles could help, Crutzen argued: “as an escape route against strongly increasing temperatures, the albedo adjustment scheme can become effective at rather short notice” (Crutzen 2006, 216).

In this reemergent configuration, solar geoengineering was framed as a plan B, even if it was deemed the “only option available to rapidly reduce temperature rises and counteract other climatic effects” (Crutzen 2006, 216). It involves deep uncertainties in terms of unwanted effects, in-

cluding potential disruption of precipitation patterns and ozone, as well as a risk of abrupt temperature rise upon cessation—“termination shock.” It also does not tackle non-temperature-related impacts of global warming like ocean acidification and could delay much needed accelerated emissions reductions (McLaren 2016). However, increasingly it is treated as a possible, even for some essential, part of a suite of climate measures, potentially in an optimized “four dimensional” mixture of mitigation, adaptation, carbon removal, and solar geoengineering (Keith and Deutch 2020).

While its risks and potential benefits as a climate tool are being assessed, SRM also has potential to redefine the climate governance object and with it the fundamentals of climate politics. Revolving around modulating the Earth’s reflectivity (or “Albedo”), SRM operates not on emissions or even the carbon budget, but the energy balance of a region or the planet, purporting to adjust overall levels of “radiative forcing” from sunlight, i.e., the difference between average energy entering and leaving the Earth’s atmosphere. In addition to objects of expertise relating to injecting sulfur or another reflective aerosol into the stratosphere to reduce incoming sunlight, schemes to put mirrors (Ferraro, Charlton-Perez, and Highwood 2015) or moon dust at a strategic point in space (Bromley, Khan, and Kenyon 2023) are being explored as well as deliberately brightening marine clouds with salt by spraying sea water with special nozzles—marine cloud brightening (Latham et al. 2012). Changing surface albedo by gene-manipulating crops to be brighter or by painting surfaces white represent other objects of expertise that construct futures where the Earth is cooled by sending a fraction of incoming energy back out to space.

With this, climate governance crosses a new Rubicon to make direct (and potentially global) temperature manipulation thinkable and legible, independently of greenhouse gas emissions, concentrations, or societal vulnerabilities. This, firstly, alters the boundaries of “the climate” as governance object, decoupling global temperature outcomes from emissions and atmospheric CO₂ concentrations, but also from extraction, burning, and profiting from carbon resources (Sapinski 2016). While experts stress that controlling solar radiation cannot (and should not) *replace* controlling carbon, a major argument for exploring SRM is precisely its potential ability to act on temperature quickly (hence Crutzen’s “only available” and “at rather short notice” wording).

Less obviously, SRM shifts climate further toward being a “strong” governance object in that the “baseline” of a pre-industrial climate appears more obviously obsolete. SRM is expressly not a “reverse gear” to the extent carbon removal may be: SRM would, if it were ever possible, *not* fundamentally recreate the pre-industrial climate. Carbon removal may not either due to non-reversibility of ecosystems, but greenhouse gasses and reflective aerosols work differently due to the difference between the “positive longwave radiative forcing pattern of GHGs and the negative shortwave radiative forcing pattern of SRM” (Heyen, Wiertz, and Irvine 2015, 558). For example, one study found “fully offsetting the annual-mean temperature increase in the Arctic [using SRM] would result in overcooling the tropic regions (and overcooling the Arctic in summer)” (Rickels et al. 2018, 2).

The *inability* of solar geoengineering to directly reverse impacts has begun to open up debates concerning the *aims* of climate governance and how well it achieves *desirable* or particular societal goals. Heyen et al. directly challenge what they call a “strong change-is-bad assumption” in climate policy, that “a previous climate state, for example the prein-

dustrial, is the optimal climate state for all regions” (Heyen et al. 2015, 558; see Pfrommer 2018). Instead, they propose that “global climate change will be damaging overall and should therefore be limited, but it does not preclude that some actors benefit (or expect to benefit) from a moderate change in climate conditions” (Heyen et al. 2015, 559). This leads to the idea of a “socially optimal level of SRM,” (Heyen et al. 2015) where *satisfying social preferences* are sought or imagined to be maximized, either overall (finding a level of SRM that creates the greatest possible global benefits) or in “pareto optimal” ways (where SRM is administered up until one “region” is about to be made worse off).

This potentially problematizes the underlying *telos* of climate action, but in a different way to how some critical climate actors push for climate justice and problematize carbon-centrism. Heyen et al. remind readers that regions analyzed in models do not currently correspond to political units arguing “a comprehensive analysis of regional disparities of SRM needs to place more emphasis also on social and political matters” (2015, 561). Aiming for social benefits directly from manipulating the climate begs the question “benefits for whom?” and “what is beneficial” in social and political matters. The baseline is gone, replaced by explicitly political aims. A significant extension of this is the recent idea of a “design approach” to solar geoengineering in which “the particulars of a solar geoengineering deployment would be chosen specifically to pursue certain objectives” (Kravitz et al. 2016, 469). Instead of simulating a geoengineering intervention and then evaluating modeled global environmental results, the procedure is researchers “choosing example climate objectives and then designing a strategy to meet those objectives in climate models” (Kravitz et al. 2016) or “mission-driven” geoengineering (Morrow 2020). Similarly, a number of studies examine “targeted geoengineering” aimed not at global average outcomes but at particular situated aims such as glacier or sea ice preservation or coral reef protection. As different techniques and programs of deployment could be deployed, and for different purposes, there are (underlying relationships between, e.g., temperature and precipitation notwithstanding) “multiple separate degrees of freedom [that] could be adjusted to simultaneously meet multiple objectives” (Morrow 2020, 492).

Interestingly, in this approach, “determining the objectives of the solar geoengineering efforts is an important first step” (Morrow 2020) in a series of design questions that relate aims, methods, and constraints to each other to “achieve” diverse aims (albeit only in model runs). The historical baseline and the global average are both cast adrift. While SRM could by dint of its own limited means of tackling “climate” (through radiation manipulation alone) reinforce the ongoing overall shift toward a global temperature target orientation (away from emissions and extraction), this would particularly be the case if “cooling credits” allow SRM to substitute directly for carbon reduction or removal (Diamond, Wanser, and Boucher 2023). The “design approach” could instead shift focus to multiple parameters or varied interest-based aims. The *telos* of governing the climate becomes directly dependent upon situated social preferences and thus ultimately inextricable from values and political claims and interests—and thereby also shot through with “the international” of multiple uneven, coexisting societies (Rosenberg 2016).

Climate politics could thus potentially be closed down through SRM reducing it further to global average temperature or problematized in a new way by untethering policy from global Holocene baselines. The *telos* of climate

action would be to move forward to a purposefully engineered set of global or regional climates, in service of politically defined goals. This would represent a qualitative shift in climate governance with advocates suggesting that a less change-averse approach with “Anthropocene baselines” instead can allow environmental management to work “within the social–ecological system to maintain *desirable attributes* of [such systems] irrespective of historical precedence” (Kopf et al. 2015, 801—emphasis added). If the previous climate was not utopian *or* by definition “sustainable,” cutting emissions to avoid a need for geoengineering should, it is argued, not be seen as “pandering” to what one prominent eco-modernist calls “nostalgic hopes of returning to some pastoral or pristine era” (Ellis 2011, cited in Caseldine 2015, 371).

If geoengineering, contrary to hopes that it would cut through global climate log jams, brings to the fore the political nature of the *telos* of climate, an “archi-politics” of SRM (doing politics by doing away with it) is also possible—just as Keynesianism was “tamed” by new economic orthodoxies. An economic fallback option sees SRM assessed in terms of potential economic or agricultural yield outcomes (Caseldine 2015). Some studies already ask which climatic outcomes would affect particular regions in “negative” or “positive” ways (Moreno-Cruz, Ricke, and Keith 2012; Pfrommer 2018), without digesting the question of what is “negative” and “positive.” Expertise could play a depoliticizing role here, where variables more amenable to quantification and modeling are inserted as climate goals. Some studies ask which global temperature would likely maximize overall economic benefits (e.g., Moreno-Cruz, Ricke, and Keith 2012). With SRM, the possible convergence of the climate-governance object and that of “the economy”—or objects similarly amenable to modeling—therefore beckons: Governing the climate may become more strongly tailored to “the economy” and its *telos* (though if would be a more global version of the economy (at least in modeling studies) than the Keynesian “national” economy).

To be clear, all this is not to make substantive claims that solar geoengineering *could or would* be tailored and trained to achieve specific, fine-grained goals, and even less that if it could it would necessarily be tuned to optimizing venerable global goals. The model scenarios in which variegated aims are taken into account in order to “optimize” climate changes presume a level of technical precision, successful engineering and evidence-led governance and international coordination (McLaren 2018) that is extremely unrealistic outside models. International negotiations about geoengineering already stalled over sharply divergent worldviews, interests and assumptions (McLaren and Corry 2021).

Conclusion: Wider Implications of a “Strong” Climate Governance Object

As a weakly governable object, “climate” has hitherto been able to mobilize allegiances and identities but mainly in aid of its preservation as a global geophysical entity with the pre-industrial climate as the baseline from which it should not deviate, at least not to a “dangerous” degree. Primarily defined through atmospheric carbon dioxide concentrations, the climate has been identified as a self-contained entity rendered distinct from the societies and ecosystems upon which it impacts. In doing so, global science epistemologies have “allowed climate change to be viewed through a (planetary) internalist lens, as an inherently global problem” (Corry 2020, 432) with the goal of minimizing perturbation by limit-

ing emissions (and adapting societies to changes that could not be avoided). This goal has already proven elusive, but with emerging geoengineering expertise, the climate is becoming a *stronger governance object*: it is being rendered in principle more 'malleable'. With CDR, a new (reverse) direction is introduced compared to the one-directional aim of limiting emission through mitigation, but SRM constructs a planetary energy-flow object to be governed, in principle independently of the carbon cycle and of societies. The "degrees of freedom" and multiple possible purposes of climate governance introduced most clearly by "design SRM" help construct a more radically disembodied governance object. In this case, the *telos* of the climate as governance object becomes "untethered" from its 'natural' pre-industrial baseline and, again in principle, becoming politically decidable, reflecting an increasingly post-natural stance to the management of the environment (Bennett et al. 2016).

This confirms that the climate is not a "given" in terms of what it is that is sought governed, and underlines that different techniques of governing the climate have different constitutive political implications (to be factored in beyond the technical merits or risks of different techniques). But the distinction between weak and strong governance objects introduced here brings to light some key differences in the governance objects coproduced by these prospective techniques and rationales of governing. This raises at least two further questions.

Firstly, what will climate action be for? If SRM potentially dis-embeds "climate" further from societies and untethers its *telos* from its own previous preindustrial state, will this open it up to democratic engagement and contestation? Or will it rather create new opportunities to *depoliticize* climate making it again weakly governable, perhaps in a new way? With a putative global temperature tool (SRM), the already engrained notion of a 2°C temperature target as *the* "goal" of climate policy may be reinforced, perhaps in a more reductive way. SRM plays into an ongoing solidification, since Paris, of climate governance as a question of achieving an average temperature outcome. Yet without the "pre-industrial" baseline anchoring the climate governance object, climate preferences are also revealed as fundamentally *particular*—which climate do we or you want? If the climate could be molded to regional aims, whose region should be prioritized? Once untethered, a rival *telos* replacing the "pre-industrial" target could be inserted as the *telos* of the politics of climate change. Could economic growth, for example, or a version of "global security" perhaps drawing on the idea of 'peace and stability' or 'world order', replace preindustrial temperatures as the guiding purpose of governing climate?

It may seem unlikely to some that climate policy becomes tuned to anything but governing temperatures or patterns of weather, but an "optimal" cost-benefit trade-off of temperature impacts and costs of prevention has already had outsized influence in global climate policy. Estimates of optimal global warming were supplied to the IPCC very early by neoclassical climate economics (Nordhaus 2019) relying on highly reductive assumptions. These effectively took estimates of the costs to US cities of different local temperatures as a proxy for calculating optimal global temperature changes (Keen 2021). SRM already "displaces" much CDR and near-term mitigation in integrated assessment model scenarios of future emissions and development trajectories, largely because it appears cheaper (and faster working) (Belaia, Moreno-Cruz, and Keith 2021). Could the climate slogan "Just follow the science" become "Just maximize GDP"? Perhaps not. But what the future relationship

between, say, the 2°C temperature target and the widely adhered to 2 percent national inflation target (or the 2 percent annual growth rate target) becomes a more open question with SRM in the policy-mix.

Secondly, how would a stronger climate governance object impact the structure of international politics? How previous changes in governance objects have shaped the international system is not well worked out (despite the object-oriented approaches self-identifying as IR), but the emergence of "the economy" as a distinct and governable object may provide a few clues. The new "economy" object provided nothing less than a new set of basic units in the international system, helping to redefine what a "state" was (a container of "an economy") and helping thereby to rearrange empires and construct a world of discrete national economies after decolonization (Mitchell 1998). This made for new forms of economic rivalry compared to Mercantilist and inter-imperial ones, as well as allowing new forms of international cooperation (e.g., around trade and technology transfers). An earlier shift in state governance objects from territory to population, and the subsequent development of liberal techniques of government that Foucault set out, also made borders more power-porous as governmental techniques of "rule at a distance" were less confined by distance and physical borders (Vaughan-Williams 2009). The post-World War II disciplining and management of especially newly independent states via benchmarks (Broome and Quirk 2015), fiscal disciplining, etc. to make them live up to international rules of conduct (Neumann and Sending 2010) has had profound consequences for the way the international system functions, for some even enabling a global "Empire" of liberal rule that undoes some of the national traits of the post-War governance objects (Hardt and Negri 2001).

A stronger climate governance object could add to this, making the global climate system seem to be a more malleable object of governance. The designation of "the climate" as a planetary energy balance (rather than carbon flow management question), and a strengthening of the aggregate temperature goals as the *telos* could solidify the global polity further around a planetary, geophysical governance object, geoengineering shoring up existing hegemones like that of the United States otherwise threatened by carbon constraints (Surprise 2020). Temperature targets could overshadow alternative goals like curbing pollution, ending extractivism, or repairing climate injustices that are not easily reduced to carbon or temperature indicators.

On the other hand, a contestable *telos* for governing climate, something that seems to be emerging particularly with the design approach to SRM, might establish a climate object with multi-directional malleability. This would potentially allow repoliticization of climate aims—but could also lead to fragmentation of global climate politics, dissolving the coordinating function of the global average targets and eroding the assumed desirability of the "old" climate. Due to "societal multiplicity" (Rosenberg 2016) every society may come up with a different set of political aims for climate interventions linked to particular physical "designer climates". SRM expertise suggesting the tools somehow exist to govern the climate in such finely calibrated and variable ways (or could be made to exist) could make avoiding global climate change via mitigation appear less relevant.

Making the climate more fully "malleable" would thus potentially add additional layers of politicization to world climate politics. Research into the "Plan B" of solar geoengineering initially adopted a "God" position, modelers wielding "a single global program that pursues the inter-

ests of the entire planet” (Wake Smith 2022, 279). This assumed away the problem of the international and diverse interests, but planetary SRM was then said to generate a “free-driver” problem (Weitzman 2015): global cooling could exceed “the socially efficient level” because the lowest preferred temperature could supposedly be implemented by a single actor (Abatayo et al. 2020). Whether global governance could coordinate effectively to achieve a “socially efficient” level of cooling instead is highly doubtful, of course. Moreover, the design approach to geoengineering potentially poses what might be dubbed a “free-wheeling” problem: multiple disparate aims pursued along multiple dimensions—not just average temperature. The international system would then have to have much more than a coordinating role in relation to the provision of a singular supposed global public good (Keohane and Victor 2016). To reach for the planetary car keys with solar geoengineering techniques (Kintisch 2010) may—to extend the metaphor—potentially cool the driver and passengers, but would also make for a more chaotic journey. There would, in fact, be multiple drivers in multiple vehicles of different shapes and sizes, aiming potentially for different or opposite destinations.

In both cases (global temperature optimization or competing “designer climates”), with SRM in the mix the climate system and the international system would effectively become internal to each other in a new and profound way: The trajectory of the Earth system would be decided more directly and immediately by international dynamics—and vice versa. A global SRM program could cause rapid cooling of the Earth—or attempts at reshaping of the climate—affecting power balances. A sudden cessation of SRM due for example to controversy or war could cause sudden, potentially dramatic heating of the planet as the system reacted to elevated greenhouse gas concentrations unleashed without the masking effect of reflective aerosols (Irvine 2015).

For the international system, the deliberate governance of the climate object would represent a significant extension of state and great power (and intergovernmental) influence, at least for leading contenders, and could represent a potentially serious challenge to sovereignty for others (Mexico already invoked “sovereignty” at negotiations on an SRM governance resolution at the United Nations Environment Assembly in Nairobi in 2024 referring to unauthorized launches from Mexican soil of small payloads of aerosols for “cooling”, McLaren and Corry 2024). A global hegemon or coalition could potentially achieve a degree of direct sway over the climate, though not as deliberately as in idealized modeling scenarios. Responsibility for an orderly (or even optimized?) climate, suddenly seen as a malleable and salient entity, could also become part of great power responsibilities or even *raison d'état*—a state’s core function—and potentially of *raison de système*—“the rules” of international society (Watson 2009).

Paradoxically, rather than closing a “policy gap”, a new one would emerge. Failing to protect the climate would be replaced with (or added to) failing to mold it satisfactorily, with potential controversy intensified over what that means in terms of responsibility and liability (Corry 2017). SRM may have been imagined as an escape from intractable international climate politics, but the international would surely reassert itself, perhaps in even less desirable ways.

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