

**The Evolution of Rules:
Enacting Environmental Rules through UN Climate Change Conferences.**

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How can we explain the evolution of rules? Drawing on a longitudinal empirical study of UN climate conferences involving 10,000 to 20,000 delegates in the period from 2005 to 2018, this empirical study aims to explain the process of enacting rules to reduce greenhouse gases. The study examines the dynamic interplay between actors' *interests* and actors' *entitlements* in generating *reference points*. This dynamic interplay appears critical in understanding the causal powers that affect the evolution of rules.

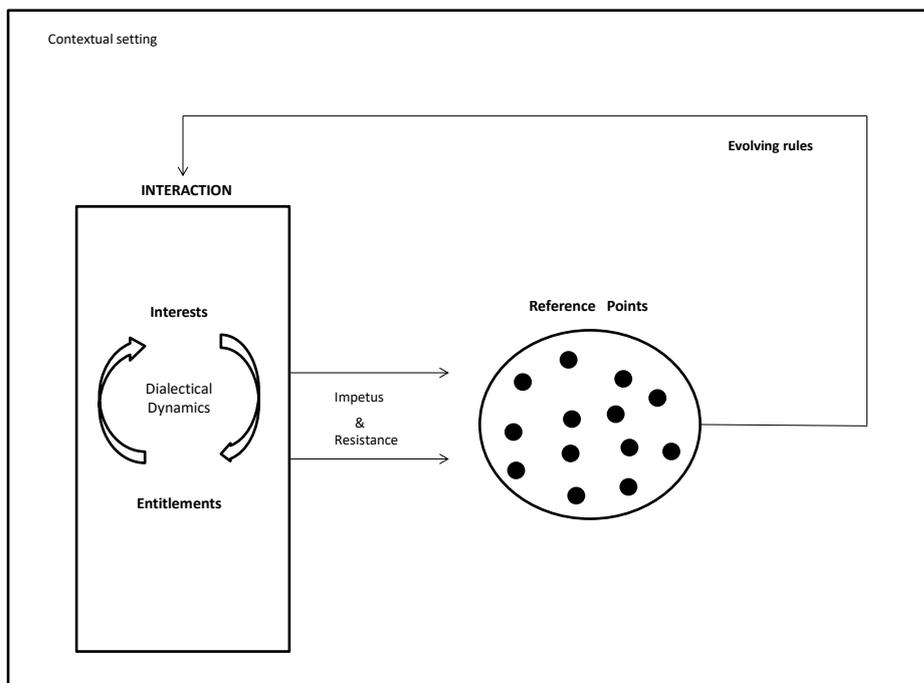
Consider the most recent UN Climate Change Conference has taken place in December 2018 in Katowice, Poland. This 24th UN conference drafted the so-called Rule Book to implement

the Paris Agreement on climate change. A few weeks before the start of the conference the Intergovernmental Panel on Climate Change in October 2018, 4th National Climate Assessment in November 2018 and the UN Emissions Gap Report in November 2018 issued the most extensive warning yet on the risks of climate change to human societies and the planet. Rising temperatures create a pandemonium of risks and vulnerabilities evidenced in the intensification of hurricanes, droughts, floods and rising sea levels, and the subsequent effects on food security, safety, health and well-being of present and future generations. It appears that humans' liveability requires rapid, far-reaching and unprecedented changes in the way we live, eat, travel and use energy by the way existing rules evolve is not conducive to address the challenge of combating climate change. Understanding the slow, incremental process of the evolution of rules that govern actors behaviour might help us provide alternative explanations to the evidence of status quo bias, hyperbolic discounting of the future, limited attention to inter-temporal trade-offs and actors' failure to appreciate the need urgency.

Research in social sciences tends to approach phenomena by a methodological individualism (Schumpeter, 1909; Arrow, 1994), which is the claim that our explanations of phenomena need to be supported by lower-level constituent units. In Arrow's (1994) specification, lower-level constituent units are the *actions and reactions* of actors. Nonetheless, there is a relentless commitment in social sciences to the primacy of *action* (Parsons, 2005). The primacy of 'action' as intellectual lens has created a dichotomy between the actor and context (Sharma, 2000; Johns, 2006). Connections between actor and context proceed with an asymmetric orientation; they provide us with analyses of what an individual actor does, or should do, given a description of contextual parameters. The problem with the intellectual lens of action is that it pays limited attention to the dynamic co-evolution that takes place between the actions of a multiplicity of actors who must co-exist (Nowak, 2006). The theoretical

limitation of focusing on *action* becomes apparent when we address the question of how actors' preferences are aggregated to produce social choices (Arrow, 2012). Shifting our intellectual lens from action to *interaction* allows us to examine the dynamic interplay between actors' interests and their entitlements in generating reference points that frame the way actors enact rules that seek to achieve the *mutuality of advantage* (Buchanan, 2001).

Figure 1: Interaction evolves rules



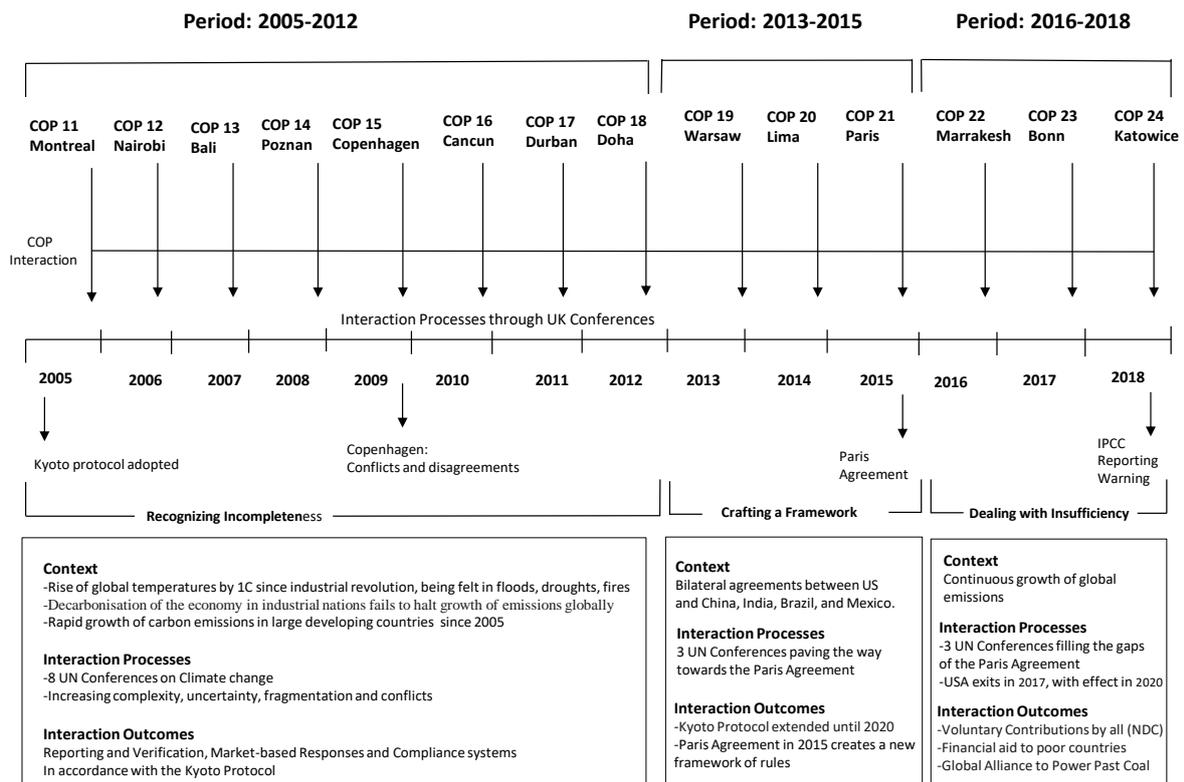
Actors' interests are the raw materials for interaction. Entitlements (Bromley, 1992; Hoffman and Spitzer, 1985; Leach, Mearns, and Scoones, 1999; Nussbaum, 2003; Sen, 1981) specify a bundle of rights that individuals or organisations may possess, acquire or transfer in their interaction with others (Coase, 1960; Demsetz, 1966). Research over the past three decades demonstrates that it is almost impossible for interacting actors to define all rules of how they

wish to relate with each other; hence, contracts between actors are usually *incomplete* (Fehr, Hart and Zehnder, 2011; Hart and Moore, 2008; Tirole, 2009). Incompleteness means that it is practically impossible for actors to foresee all eventualities over time, obtain and process perfect information, and verify agreed performance (Holmström, 1979; Maskin and Tirole, 1999). Under these conditions of perceived uncertainty, taking decisive action appears more abnormal than inaction (Nordhaus, 2013; Tversky and Kahneman, 1974; Ritov and Baron, 1992; Thaler, 2016). We also know from extant research that status quo bias, loss aversion, hyperbolic discounting of the future and limited attention provide possible explanations why actors often fail to change, even when change promises substantial long-term benefits (Bansal et al., 2018; Dean et al, 2017; Samuelson and Zeckhauser, 1988; Thaler, 2015, 2016). In this way, climate change could be seen as a predictable surprise arising out of actors' failure to recognize a threat, prioritize needs and mobilize action (Bazerman, 2006; Bazerman and Watkins, 2003).

The present study examines the evidence of interaction among parties, as evidenced in UN climate conferences, to explain the slow but gradual process of evolving rules enacted to reduce greenhouse gases. Evidence examined includes archival records and protocols from UN conferences. Specifically we collected 485 files from the *Earth Negotiations Bulletin*, Volume 12 issues 262-733, related to UNFCCC from May 2005 to December 2018 (see overview of the evidence in figure 1). Moreover, archived 763 press releases, 131 annual organizational reports, 187 ad hoc reviews on technological, economic and social aspects of climate change. We engaged with parties of the conferences, observers and research organizations, such as the Stockholm Environment Institute (SEI) and Intergovernmental Organizations (IGOs), the Organization for Economic Cooperation and Development (OECD), and the International Energy Agency (IEA), as well as commercial companies and non-governmental organizations

(NGOs). Hence engaging with the respondents enabled an ‘engaged scholarship’ (Van de Ven, 2007; Van de Ven and Johnson, 2006).

Figure 1: UN Conferences on Climate Change 2005-2018



Data analysis was abductive, i.e., developing theory alongside the collection of empirical evidence. Classifying the empirical evidence from 14 UN conferences on climate change

stretching the period from 2005 to 2018 including the COP 24, in Katowice Poland, we identified about 20 potential issues that I explored in more depth. We focused on eight issues that were particularly salient and moved on to coding to identify aggregate concepts. An interaction perspective on evolving rules yields three theoretical contributions. First, the study contributes to our understanding the dialectical dynamics that take place between actors' interests and their entitlements. Second, the study contributes to explaining how actors develop attention to reference points and recognize or fail to recognize and risks and critical thresholds. Third, the study contributes to our understanding of hysteresis in evolution rules as adaptive process of time-consuming interactions.

The structure of the paper is the following. At theoretical level, we begin by examining the tragedy of the commons (Hardin, 1968). The tragedy of the commons arises when individuals acting independently according to their own interests behave against the interests of the whole, thereby depleting the sustainability of the commons. The tragedy of commons does not pay attention to the interaction among actors who pursue their own interests. In the tragedy of commons, the absence of interaction may be attributable to a lack of ownership that entitles actors take responsibility for their land. Building on actors' interests and their entitlements, we move on to examine how interaction evolves rules. At empirical level, we present the evidence from a longitudinal real-time investigation into interactions in UN conferences on climate change and discuss implication for research on institutional and organizational economics by illuminating the role of interaction among actors in the evolution of rules.

Keywords

Interaction, Interests, Entitlements, Reference Points, Rules

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