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Introduction

The dominant impact of human activity on planet Earth marks a new era of ecological and socio-political crisis, the Anthropocene (Ergene, Banerjee, & Hoffman, 2021; Rockström et al., 2009). To overcome and reframe the destructive logic of the human era, Bansal and Knox-Hayes (2013) question if the theories that create problematic environmental consequences in the Anthropocene like global warming, excess resource use or the loss of biodiversity can be the same for solving them. In industries like tourism, organizations and organizing are not only “surrounded by the natural environment but are essentially composed of the natural environment and would not exist and could not survive without the rest of the natural environment“ (Good & Thorpe, 2020, p. 364). Therefore, researchers increasingly stress the need for critical, relational, collaborative imaginaries (Banerjee & Arjaliès, 2021; Heikkurinen, Clegg, Pinnington, Nicolopoulou, & Alcaraz, 2021), where “the relations of humans and non-humans (e.g. animals, plants, rocks, nitrogen, carbon, etc.) [...] co-constitute the world” (Ergene et al., 2021, p. 1326).

In this paper, we investigate relational ways of organizing winter tourism with the natural environment in the context of snow. We build upon current research on sustainable organizing as relational (Banerjee & Arjaliès, 2021; Ergene et al., 2021; Good & Thorpe, 2020) through the concept of scripts (Latour, 2013b, 2013a; Vásquez & Cooren, 2013). As organizational stories, these scripts frame relations between (or roles of) multiple (non-)human entities across spatial, temporal and actantial contexts (Doré & Michalon, 2017; Vásquez & Cooren, 2013). Discussing their performance (does the script work?), coherence (do the multiple scripts align?) and dimensions (what is the spatio-temporal scope of these scripts?) (Doré & Michalon, 2017), we ask: “*What role do organizational scripts play in the constitution of sustainably organizing winter tourism with the natural environment with snow?*”

Literature Review

Sustainable organizing as relational

A relational ontology of sustainable organizing situates Earth (Banerjee & Arjaliès, 2021) and the physical materiality (Bansal & Knox-Hayes, 2013) as active parts of organizing. Arguing for radical sustainability means organizing tourism, business and our lives within the limits of our finite resources by including more-than-humans and striving for a just future through sustainable tourism rather than sustaining tourism (Higgins-Desbiolles, 2018). It requires a shift in understanding sustainability: from managerial to critical, from realist to relational and from discipline-focused to interdisciplinary research (Ergene et al., 2021). In short, “incremental change without questioning the political-economic system that is responsible for the current crisis, cannot lead to novel conceptualizations necessary to create sustainable organization–environment relations.” (Ergene et al. 2021, p. 6).

When speaking organizationally (Cooren, 2018, 2020; Latour, 2013a), we consider organizing as relational emerging through material-discursive relations between various human and non-human actors (Cooren, 2020; Vásquez & Cooren, 2013). If these relations materialize in text, language or other devices (Bencherki, 2016; Cooren, 2018), they become organizational, they bring theories into being (Gond, Cabantous, Harding, & Learmonth, 2016). So if we take organizing as

constituted through the materialization of relations by actors with various ontological statuses (Cooren, 2020) and the materialization of these relations as performative (Gond et al., 2016) in making future sustainable worlds (Banerjee & Arjaliès, 2021; Ergene et al., 2021), it matters to understand which relations come into being when, where and how.

In his works about organizing as a mode of existence, Latour (2013b, 2013a) proposes the concept of scripts to tell an organizational story. For relations to become organizational, they must repeatedly perform or cohere to specific scripts (Latour, 2013b, 2013a; Vásquez, 2019). The due dates, goals, rhythms, distances, roles and boundaries in these scripts create temporal (before and after), spatial (inside and outside) and actantial (above and below) frames (Doré & Michalon, 2017; Vásquez & Cooren, 2013). Thus, these scripts create a distinct mode of organizational relations in the socio-material relations of organizing.

To evaluate if, how, when and where these scripts organize, Doré and Michalon (2017) and Latour (2013a) suggest testing these scripts along three dimensions: (1) their performance (destabilization of performances between entities), (2) their consistency with other scripts (the overflowing of scripts and actors) and the dimension of the scripts (i.e. spatio-temporal scale and the scope). To test the performance of a script, Doré and Michalon (2017, p. 773) ask, “does [it] work?” In the success and failure of these performances, scripts become stabilized or fall apart. However, there is never only one story to tell. The multiplicity of realities, possible outcomes, processes of action and encounters create a multitude of scripts with different due dates, goals, roles and boundaries for its entangled authors and characters. In this multitude, the coherence of the script is tested: can multiple scripts around an entity be reconciled? Different scripts cause tensions or disruptions in two ways: through the amount of scripts and the introduction of new actors (Doré & Michalon, 2017). The third organizational test in these scripts encompasses the space-time dimensions. These spatio-temporal dimensions come into being through distance and due dates scripting the trajectories (Latour, 2013b, 2013a; Vásquez, 2019; Vásquez & Cooren, 2013). As scripts bring theories or worlds into being by materializing and stabilizing relations in stereotyped action programs, we empirically investigate the performativity of these organizational stories for sustainable futures with a critical review of inscription devices in the scientific literature in the domain of winter tourism.

Winter tourism & organizing with(out) snow

Winter tourism lies at the heart of the economic development in Alpine regions such as Austria, Switzerland, France and Italy (Unbehau, Pröbstl, & Haider, 2008). In various alpine areas, winter tourism represents the primary source of income for the local population (Ballotta, Fusai, Kyriakou, Papapostolou, & Pouliasis, 2020; Lohmann & Crasselt, 2012; Southwick, Bergstrom, & Wall, 2009). Like many other tourism sectors, winter tourism heavily depends on natural prerequisites for business operations. Snow is the core component to foster and implement different winter tourism activities such as alpine skiing, cross-country skiing, winter hiking, tobogganing or snowmobiling (Neuvonen et al., 2015; Scholl-Grissemann, Peters, & Teichmann, 2020; Steiger, Scott, Abegg, Pons, & Aall, 2019) and is central to the winter scenery in nature-based tourism (Tervo, 2008). However, the climate crisis, global warming, and the resulting snow scarcity increasingly disrupt the modes of operation in many ski areas and winter sports resorts (Cocolas, Walters, & Ruhanen, 2016; Steiger, 2012). Due to changing climatic conditions affecting snow reliability and season length (Gilaberte-Búrdalo et al., 2017; Haanpää, Juhola, & Landauer, 2015), a new risk situation has guided winter tourism in recent decades: the risk of winters with little or, in the worst case, no snow. This change forces destinations and ski areas to implement

new paths and business models by reconsidering their natural environment and questioning imperatives of endless growth and exploitation altogether (Wegerer & Nadegger, 2020). Implementing different relations with snow and nature is thus essential for alpine regions and winter tourism destinations. Therefore, we ask: *What role do organizational scripts play in the constitution of sustainably organizing winter tourism with the natural environment with snow?*

Methodology

Data collection and analysis

Staying close to a relational approach to organizing, we examine how winter tourism literature materializes relations and actors in the past and how a relational from the beginning perspective can help us use this to provoke a new, non-anthropocentric turn. We argue that academic literature thematizing snow and winter tourism acts as an inscription device that materializes the associations and translations of multiple orderings of with or without snow (Bencherki, 2016; Latour & Woolgar, 1986). Therefore, we conducted a semi-systematic literature review (Snyder, 2019) to identify the overarching organizational scripts linked to snow. We searched for the term “snow” in the title, abstract, or keywords in tourism journals (as classified in Q1 and Q2 by the SJR category “Tourism, Leisure and Hospitality Management”) and listings from the EBSCOhost Search Engine in the “Hospitality & Tourism” repository. After reviewing each article, we included 129 journal articles published between 1982 and 2020 that primarily focus on snow-related tourism in the final analysis. For the analysis, we adopted a critical approach (Gond, Mena, & Mosonyi, 2020) to uncover the representation of the relations and roles of winter tourism with snow and its natural environment. The researchers coded the journal articles independently following an inductive approach and identified primary themes and relations between snow and other actors. The coding was oriented towards three premises: the configurations or characteristics ascribed to snow (e.g., natural or artificial, snow as risk or security factor, snow rich vs snow poor winters), the strategic and organizational processes linked to snow (e.g., technological adaption with artificial snowmaking, management of natural resources, image or success factors related to snow), and the overall context or challenge addressed by the article (e.g., climate crisis, economic viability or destination image).

In a second step, the researchers critically discussed the performativity of these emerging trajectories and actors mentioned along three questions guided by the framework of Latour (2013a) and Doré & Michalon (2017): “What’s the story or the stereotyped program of action around snow within these configurations?”, “What is the role of snow in this story?”, “What is the inscription device, and where is it made durable?”. The overall context and themes of the article were critically discussed and linked to the ontological framing of snow and its impact on the organizational modes of existence in winter tourism. We identified the scripts that shape and disrupt dominant modes of ordering in winter tourism and the flip-flopping of snow and other actors above and below these scripts following the model of associations and substitutions by Latour (2000).

Results

In the findings, we will follow Gond et al.'s (2020) approach of representing and intervening: first, representing scripts by mapping the dominant relations to snow in the literature (Latour & Woolgar, 1986) and evaluating under what circumstances the emerging scripts perform, testing

their coherence and dimensions, to, then, intervene, by discussing the consequences of these relations for sustainable winter tourism organizing and how to move forward.

100-day-rule - snow as manageable: The 100-day-rule defines snow as a given resource that needs to be managed to create economic viability (Abegg, 1996; Ballotta et al., 2020; Witmer, 1986). This rule requires a multitude of entities to be present (or absent) at the right place at the right time: snow (at least 30 cm), sunshine, operating ski lifts, skiers, staff, little wind, and no precipitation at a minimum of 100 days in the winter season (Abegg, Bürki, & Elsasser, 2008; Clydesdale, 2007). The 100-day-rule marks a specific goal (100 days of operation in ski areas) with a specific due date (starting the season before Christmas) and assigns roles to all entangled actors: snow has to be present in a certain quality and quantity, infrastructure must operate, weather and temperatures have to match specific parameters to be optimal (Steiger & Abegg, 2013). In this story, snow is considered necessary but given a resource for generating value as a perfect base for skiing, increasing the demand and the possibility of establishing higher ticket prices. With these scripts, snow directly relates to economic viability; it is a resource to manage and put into place for creating a perfect winter season.

Climate projection models - snow as disrupting: With climate change and the rising global temperatures, we see another relation to snow coming up in winter tourism: snow as disrupting. Climate change is a threat to the snow-reliability in the winter tourism industry all over the world (Kilungu, Leemans, Munishi, Nicholls, & Amelung, 2019; Koenig & Abegg, 1997; Mcboyle, Scott, & Jones, 2007; Morrison & Pickering, 2013; Pickering, 2011; Rutty et al., 2017; Scott, Steiger, Rutty, & Johnson, 2015; Steiger & Abegg, 2013). Inscribed in climate projection models such as SkiSims (Steiger et al., 2019; Steiger & Abegg, 2013), the disrupting (potential) lack of snow with longer ‘green seasons’, warmer temperatures and increasing uncertainty of sufficient snowfall during the regular winter seasons shuffle the roles and relations with snow. The script becomes performative when one of its central actors goes missing when it stops snowing. The regard to snow gets flipped, from snow being a manageable resource (under the scripts of the 100-day-rule) to snow defining new due dates (e.g., reduced season length) and re-writing the scripts.

Technological progress - snow as artificial: A new script is introduced to mitigate the current disruption by (a lack of) snow inscribed in climate change projections: technological progress through artificial snowmaking. Artificial snowmaking is the primary adaptation strategy discussed in the literature (Falk, 2013; Falk & Lin, 2018; Haanpää et al., 2015; Hopkins & Maclean, 2014; Moen & Fredman, 2007). It can partly offset the decline of snowfall and, thus, provides a solution to rebound to the economic viability of the 100-day-rule, despite the disrupting capacity of little snow linked to climate change. Artificial snow has to be included in other scripts: snow depth in the 100-day-rule is no longer only natural snow but a mix of natural and artificial snow (Steiger et al., 2019). From being a mere object under the script to a disruptive agent above the scripts, the relation to snow is re-written once again: (natural) snow is no longer central to economic viability (Steiger & Stötter, 2013; Trawöger, 2014).

Overflowing & Flip-Flopping: the coherence and dimensions of the winter tourism scripts

The three scripts (100-day-rule, climate projection models, and technological progress) each have different actors, these actors have different roles, and the due dates and goals of these scripts vary. As organizing is constituted by the coherence and dimensions of scripts, we continue to discuss when and where these scripts overflow and how this re-writes organizational stories of winter

tourism every time for another first time. Similarly, the entanglement and coherence of snow scripts is a constant play of associations (AND) and substitutions (OR), where new actors and scripts constantly rearrange winter tourism, and some organizational stories become more real than others (Latour, 2000), as illustrated in Figure 1.

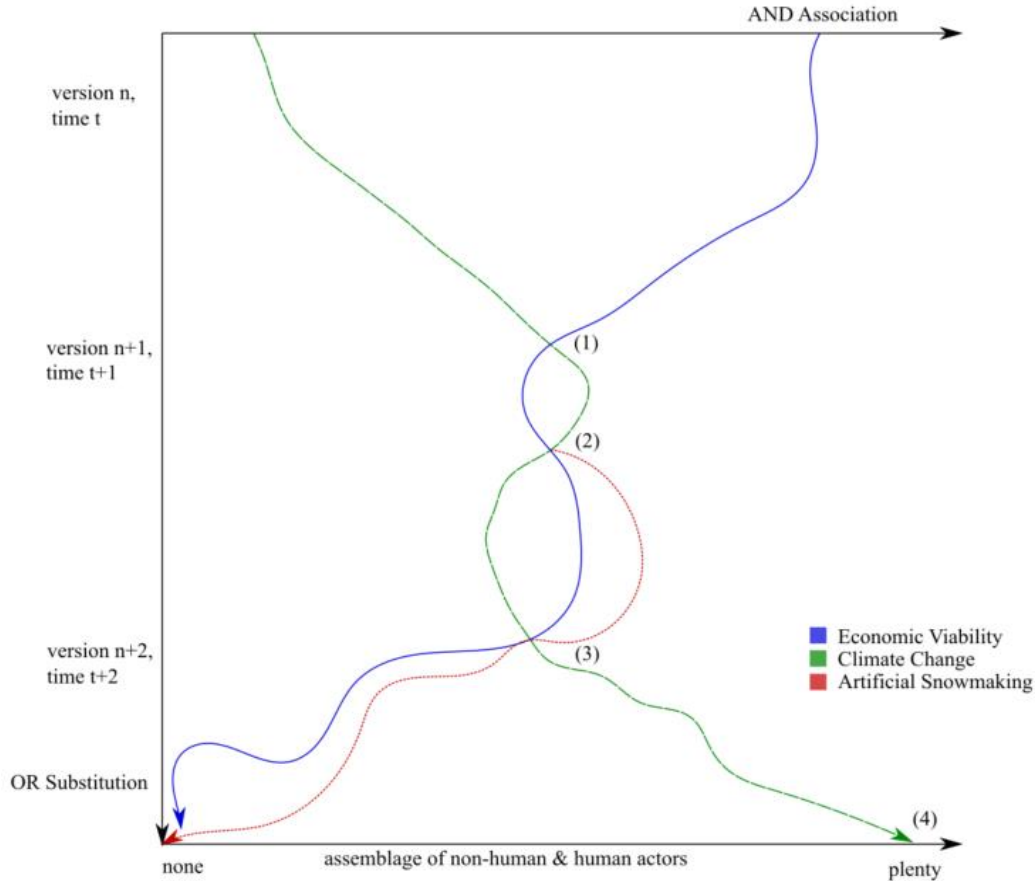


Figure 1 Flip-flopping of scripts in the economic viability related to snow & winter tourism through Associations (AND) and Substitutions (OR)

At point (1), two contradicting scripts overflow, each with different roles, goals, and due dates. The increasing associations of actors linked to global warming in climate change materializing in climate projections models trigger the substitution of economic viability inscribed in the 100-day-rule. They change relations to actors like snow (from a manageable entity to a disruptive force) and flop the dynamics of organizational stories, with climate change being above other scripts and economic viability under a new script. Climate change becomes more real than economic viability. At point (2), we see another overflowing of actants. With the introduction of artificial snow through technological progress inscribed in updated models for the calculation of profitability and snow reliability (dis)organizing happens in two separate scripts. Climate change is under the script of economic viability; it becomes “less real” (Latour, 2000, p. 159), while the 100-day-rule aligns with the story of technological progress & artificial snowmaking and associations become more plentiful (Abegg et al., 2020). However, in point (3), the scripts start to overflow again. While maintaining the 100-day-rule and economic viability in the short-term, artificial snowmaking fuels climate change by increasing resource use like water or energy (Morrison & Pickering, 2013) and perpetuating the growth and expansion of the winter season despite global warming. However,

substituted by rising temperatures and crumbling associations of water, infrastructure, and cool temperatures, the reality of artificial snowmaking and economic viability falls apart (Damm, Köberl, & Pretenthaler, 2014). It is under the script of climate change again. Following the inscribed climate projection models in the winter tourism literature even further, see point (4), economic viability through snow, even with further technological progress, will not be possible at the end of the 21st century in most winter tourism destinations. Scripts like the 100-day-rule or technological progress through artificial snowmaking lose their performative power as their core relation crumbles: economic viability through snow.

Discussion: Intervening - telling different stories, organizing different futures

By adopting the notion of organizational scripts (Doré & Michalon, 2017; Latour, 2013b, 2013a; Vásquez & Cooren, 2013), our study highlights their relational and performative consequences of winter tourism research and their constitutive role in organizing sustainable tourism futures. Our findings discuss the organizational stories and relations materialized in the rules and models, how they represent and intervene in our relations with snow and how they perform, cohere and overflow at different times and in other spaces.

One thing that materialized is the relation of winter tourism to snow by creating economic viability. Regardless of the overarching context (technological progress, climate change, 100-day-rule) or the temporal (short-term or long-term) and spatial (e.g., low-altitude or high-altitude areas) dimension in the literature, almost every model, every rule and every calculation linked snow solely to economic viability. With every materialization in the scientific literature (or later in business plans and practitioner debates), these models like the 100-day-rule inscribe the same relations to the natural environment with the same roles (i.e., snow as only valuable through economic profit), goals (i.e., economic viability and profit maximization in winter tourism) and due dates (i.e., short-term adaptation strategies like technological progress). If this kind of relation is no longer possible, winter tourism becomes less and less real (Latour, 2000): the associations with snow (and many other actors) vanish together with the profit and vice versa.

We do not argue that the winter tourism industry's economic viability and profit are of no interest. However, this one-dimensional focus on the value of snow solely inherent in its economic potential perpetuates the nature-organization dualism (Good & Thorpe, 2020; Heikkurinen et al., 2021) and anthropocentric (and Western) understandings of organizing sustainability (Banerjee & Arjaliès, 2021; Ergene et al., 2021). By limiting relations to snow to economic viability in scientific models and rules, winter tourism literature, even when focusing on sustainability, re-inscribes current growth programs of actions and business models as the only option: they perform business-as-usual all over again (Bansal & Knox-Hayes, 2013) and fail to address other collaborative alternatives for organizing sustainable winter tourism futures. Thus, materializing the same relations over and over limits the potential of imagining different futures in winter tourism literature for alternative paths that take sustainable organizing, e.g. as collaborative and critical becoming-with-nature.

Our study contributes to a critical understanding of the relational ontology of organizing by considering the materializations of organizational scripts (Latour, 2013a,b; Vásquez & Cooren, 2013) and their performative consequences (Gond et al., 2016; Gond et al., 2020). As our findings show, the worlds and relations imagined in scientific literature matter for organizing sustainable tourism futures. Every model, rule and projection, every journal article similarly represents and

intervenes (Gond et al., 2020) in the relations between organizations and natural environments by materializing (and prioritizing) certain relations over others. We invite future research to critically reflect on our relations with non-human others to open up space for more imaginary and inclusive approaches to knowledge production (Banerjee & Arjaliès, 2021).

To depart from anthropocentric notions and grant all actors agency in future worlds (Heikkurinen et al., 2021), these relations must be imagined differently and collaboratively (Ergene et al., 2021). So far, the value of different relations to snow is only discussed retrospectively. Kaenzig et al. (2016) emphasize how the Chacaltaya glacier, which disappeared in 2009, was integral for the local sports community and social structure to come into being. Local stakeholders realized that the glacier and its snow are not replaceable entities only destined for the profit of the winter tourism industry, but are an integral and entangled part of organizing in itself: the region, its society and identity to come into being. However, these relations to snow only exist in a past here-then, with the glacier 'cadaver' as a reminder and new stories replacing snow in museums. Future research on sustainable organizing in winter tourism has to draw on academic fields that critically question business-as-usual approaches and embrace the multiplicity and messiness of organizing on Earth (Banerjee & Arjaliès, 2021). Thus, we encourage future research to draw from the rich field of new materialist work (Haraway, 2016; Tsing, 2015) and indigenous approaches (Banerjee & Arjaliès, 2021) that engage in writing different stories of care, collaboration, and damage.

Conclusion

By focusing on the coherence (Doré & Michalon, 2017) and spatio-temporal dimensions (Good & Thorpe, 2020) in the associations and substitutions (Latour, 2000) of relations to snow, our findings carve out the performative consequences of these relations for organizing sustainable winter tourism futures (Bansal & Knox-Hayes, 2013). Organizing sustainable tourism requires different worlds constituted by different relations to materialize in different scripts to become more real. However, as this literature review of winter tourism literature exemplified, this is hardly possible with business-as-usual organizational stories. While we see the discovered scripts as guiding and informing current tourism research and praxis and providing orientation in a complex and ever-changing world, we also urge the need for more reflexivity on the performative outcomes of knowledge creation (Gond et al., 2016; Gond et al., 2020). By linking a relational ontology of sustainable organizing (Good & Thorpe, 2020; Heikkurinen et al., 2021) with the notion of organizational scripts (Doré & Michalon, 2017; Vásquez & Cooren, 2013) in this study, we provide a framework that is similarly able to capture these materializations (Bencherki, 2016; Cooren, 2018) in scientific literature, reflect their interrelated multiplicity and spatio-temporal dimensions and their (dis)organizing consequences. Thus, we conclude that the concept of organizational scripts can help future research approach relational organizing by reflectively situating knowledge and other practices, institutions, and concepts in a performative understanding of organizing sustainable futures.

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