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# Climate adaptation in public-oriented research communication

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## ABSTRACT

The notion of adaptation has become central to the development of responses to climate-related risks. However, what climate adaptation means in earnest appears highly variable. Given that academics, researchers, and scientists are driving the development of adaptation processes and practices, we argue that gaining a deeper understanding of their discursive construction of climate adaptation could highlight the social realities that shape adaptation processes. To this end, this paper presents a corpus-assisted transitivity analysis of adaptation processes in *The Conversation Australia*, offering a culturally situated perspective on climate adaptation. Using keyword analysis, a number of key, significant, and widely dispersed verbs were identified and subjected to a transitivity analysis. Each key verb was found to perform a material action process. Through the investigation of the accompanying actors, goals, and circumstances, three dominant themes emerged. These themes relate to mitigation, farming, and leadership and together they underscore a cultural epistemology shaped by localised environmental, social, and economic concerns. Overall, this analysis demonstrates that public-oriented research communication produced by academics can be embedded with ideological perspectives surrounding climate adaptation which in turn offers credence to the need to reflect on the general, perhaps misguided perception of academic discourses as value-free, objective science.

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Adaptation; corpus linguistics; climate crisis; public-oriented research communication; transitivity analysis

## 1. Introduction

Adaptation is a powerful concept with implications for policing, planning and acting on climate-related risks (Klepp & Chavez-Rodriguez, 2018). While some research has acknowledged the growing centrality of adaptation in climate discourse (e.g. Bevitori & Russo, 2023; Curry, 2024; Curry & Brookes, 2025; Russo, 2018) and has at times focused on the discursive construction of adaptation (Curry, 2024; Curry & Brookes, 2025; Remling, 2018, 2019), the matter still appears understudied. This dearth in research is even more

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evident when academic discourse (e.g. research articles, public-oriented research communication and academic news blog posts) is considered. While news media, social media, corporate and policy discourses are at the core of climate-related research in discourse studies, investigations into the way knowledge is produced and delivered to the public by such trusted sources remain marginal (cf. Curry, 2024). This is somewhat surprising, as a focus on knowledge, knowledge production, and knowledge producers is necessary to unpack how the western scientific paradigm reproduces systemic patterns of injustice, perpetuates colonial perspectives, disregards situated ontologies and epistemologies, and silences discordant voices (e.g. Nightingale et al., 2020).

To address this issue, this paper presents a transitivity analysis of adaptation processes in public-oriented research communication with a specific focus on the Australian context. The Australian case provides a stimulating setting to critically discuss the intersection of climate adaptation discourse and justice across multi-scalar relations of domination and marginalisation in knowledge production rooted in the region's colonial past and emerging neo-liberal governmentality (Jackson, 2024). By unpacking how the intersection of knowledge, power, and subjectivities in the adaptation debate shapes and, in turn, is shaped by discursive practices in Australian public-oriented research communication, this corpus-assisted transitivity analysis is guided by the following research question:

How are processes of climate adaptation discursively constructed in Australian public-oriented research communication?

Responding to this question, Section 2 contextualises this study within relevant literature on adaptation, the discursive construction of adaptation, and public-oriented research communication. Section 3 presents the *Australia Corpus of Climate Adaptation in The Conversation* and the paper's analytical approach. Subsequently, Section 4 presents the findings of this study and discusses their contextual relevance within the Australian socio-environmental setting. This is followed by a conclusion in Section 5.

## 2. Discourses of climate adaptation

Adaptation is commonly understood as a process of adjustment to projected or expected climate impacts (IPCC, 2022, p. 5). As climate change impacts are predicted to grow in frequency and magnitude globally, there is a growing interdisciplinary debate (e.g. Barnett, 2022; Mikulewicz, 2018; O'Brien, 2012; Taylor, 2015) about the need to adapt to these changes to reduce the impact of the climate crisis on vulnerable communities and ecosystems (IPCC, 2022). Yet, adaptation policy and planning move slowly. According to the 2023 Adaptation Gap Report (UNEP, 2023), this limited pace of change is owing to a lack of financial support, equity, and preparedness. These same critiques are reflected in a growing body of literature that highlights how depoliticised and technocratic approaches to climate governance and finance can hinder effective outcomes and reinforce relationships of dependency and neo-liberal forms of (in)justice (Ciplet et al., 2022; Khan et al., 2020).

Recent research across the social sciences has focused on the discursive construction of adaptation. Bankoff (2019) suggests that vulnerability and resilience constitute historical, power-laden discourses that evoke a neoliberal and social Darwinist perspective that

obscures the root causes of the socio-environmental crisis. Similarly, Mikulewicz (2020) argues that the discursive politics of adaptation naturalises and legitimises technocratic approaches that entrench vulnerabilities and limit the agency of vulnerable subjects. From a cross-cultural perspective, Curry (2024) and Curry and Brookes (2025) have identified that preoccupation with climate adaptation can vary across cultures, with climate specialists in anglophone contexts attempting to operationalise research to hold governmental bodies accountable and solve future (often hypothetical) problems. Moreover, empirical research on Australia discusses how an emerging resilience governmentality (Jackson, 2024) denies the lived experiences of marginalised communities and individualises responsibilities, backgrounding the role of top-down decision-making.

Recognising the complex ways in which it is framed, adaptation must be tackled as part of a power-laden discourse that carries strong material implications. From this perspective, it is crucial to understand adaptation as a socio-environmental process throughout which multi-scalar power dynamics shape socio-environmental landscapes, distributing gains and risks unevenly across communities (Taylor, 2015). In studying the social construction of climate adaptation, it is crucial to account for how power structures mediate and (re)produce climate knowledge and shape identities and subjectivities. To do so, Eriksen et al. (2015) operationalise the concepts of authority, knowledge(s) and subjectivity to support such a practice. They analyse adaptation as a socio-political process imbued with power relations. Building on their work, Woroniecki et al. (2020) examine the impact of knowledge and power in framing nature-based solutions. Their conclusion outlines how intertwining discourses, practices, and social relationships reinforce dominant subjectivities and knowledge while marginalising other ways of knowing and doing.

Research on the Australian context signals how the impact of the climate crisis is politically charged, exacerbated by social inequalities that mainly weigh on indigenous populations and rural communities, acting on and across lines of wealth, health and gender (IPCC, 2022). Moreover, the gendered and racialised logic in a form of 'protective petro-masculinity' spread during the Morrison government (Perry, 2024, p. 7) and the primary influence of fossil fuel industries in disseminating uncertainty and scepticism (e.g. Wright et al., 2021) positioned acts of resistance as a form of opposition to national interests and as a threat to national identity. Nevertheless, while the political leverage of fossil fuel companies continues to undermine mitigation efforts, Australia has come to be at the cutting edge of adaptation research (Pearce et al., 2018). However, this body of knowledge has often been used instrumentally to dodge responsibilities for mitigation (Nyberg & Wright, 2024) or pursue market-driven solutions that overlook local needs and knowledge. This is in spite of a considerable body of scholarship (Godden et al., 2022; Hartwig et al., 2021; Nursey-Bray et al., 2019, *inter alia*) highlighting how this rational and techno-managerial approach to climate policy was silencing the voices, limiting the agency, and negating the lived experiences of marginalised aboriginal communities across the country.

Within the contemporary neoliberal paradigm 'the colonial structures of power-knowledge-being act by means of semiosis, exerting a strong influence on different layers of social life' (Barros, 2022, p. 11). Hence, addressing overt and covert forms of recognitional and representational injustices (Rahman et al., 2023) that affect climate adaptation across temporal, spatial, and institutional scales becomes mandatory. For this reason, a critical approach to the representation of climate adaptation processes in discourse might

further the debate on how neo-liberal rationalities impact the racialised and gendered discursive construction of adaptation as well as how counter-hegemonic discursive practices further recognitional and representational justice. Accessing such discourse typically sees researchers investigating public media and policy documents, with a view to interrogating the representation and recontextualisation of knowledge of climate adaptation that is typically produced elsewhere by the likes of NGOs, think tanks, charities, research institutions (Ferrari et al., 2021). Notably, little research goes directly to the sources of such knowledge construction to investigate how the discourses constructed by academics in climate studies are imbued with politicised and socialised perspectives on adaptation. Yet, in analysing academic (e.g. research articles) and public-oriented (e.g. academic news blogs) forms of research communication produced by academics, the literature has demonstrated a clear potential for us to access the reproduction of cultural practices by such trusted sources whose communications often inform and guide social action (Curry, 2023, 2024; Curry & Pérez-Paredes, 2021).

An effective means of unpacking such discourses lies in transitivity analysis – an approach emerging from Hallidayan systemic functional linguistics. Transitivity analysis pertains to the study of the processes by which something is done in concert with the participants involved in the processes and the circumstances in which these processes occur (Bakuro, 2017). As a part of the experiential metafunction, transitivity processes can offer a critical and nuanced insight into how speakers and writers encode their world-view in texts (Halliday, 1973). Specifically, transitivity analysis allows for a better understanding of how reality is constructed from the level of the clause, in terms of material actions, as well as mental, relational, behavioural, verbal, and existential processes (Bakuro, 2017). In the context of climate discourses, research on transitivity has demonstrated the prominence of processes of material action that often position humans as the causes of environmental issues (Gong & Liu, 2018). In a study of Greta Thunberg discourse, Mansyur et al. (2022) echo this focus on material action, highlighting the role of humans in shaping and responding to the climate crisis. Transitivity has also served to highlight the obfuscation and removal of agency in studies of climate discourse. For example, in his study of climate refugees in news media, Demata (2017) notes how climate refugees are given agency in material action processes in a limited number of cases only, with their primary positioning centring on their mental processes, typically identified through the framing of their needs. However, these same refugees are often presented as affected participants in material action processes (i.e. the goal), minimising their agency and rendering them recipients of others' processes. Taking such a granular and nuanced view, these studies allow for the incisive investigation of complex socio-environmental landscapes as they serve to deconstruct multi-scalar power dynamics surrounding processes and participants and reconstruct them in terms of what happens, who does it, to whom, and where.

Against this background, we align with Eriksen et al. (2021) in recognising the necessity to analyse power in adaptation discourses as a process exercised to legitimate particular forms of knowledge and to dynamically (re)shape subjectivities in a top-down manner. In so doing, we contribute to the growing literature that problematises the universalising narrative of adaptation as a techno-managerial process which sustains dominant hierarchies and reproduces historical injustices (Garcia et al., 2023). More specifically, the interest of this paper lies in how the discursive representation of knowledge, authority and

subjectivities as intersecting categories across multi-scalar power-laden processes reproduces or challenges the processes by which particular ontologies and epistemologies in public-oriented research communication are legitimated. Responding directly to the Australian context and centring on the analysis of processes of adaptation, this paper investigates how the representation of climate adaptation in texts produced by academics for non-academic audiences dynamically constructs or de-constructs adaptive, vulnerable and resilient subjectivities in patterns of compliance and conflict (Eriksen et al., 2015).

### 3. Methodology

This section presents the data used in this study in Section 3.1, followed by the analytical approach applied herein in Section 3.2.

#### 3.1 Data: The Australia Corpus of Climate Adaptation in The Conversation

This paper is based on a critical discourse analysis of *The Australia Corpus of Climate Adaptation in the Conversation* (ACCAC) – a corpus of academic news blog posts from the Australian site in *The Conversation*. The ACCAC is a subcorpus derived from *The Conversation Corpus of Climate Discourses in English* (CDE; Curry, 2024). This includes all texts in CDE from Australia, with tags that relate to adaptation (e.g. adaptation, vulnerability). The metadata that accompany this corpus include author name(s), author affiliation(s), date/year/region of publication, the thematic category and topic tags used to index the blogs, and whether or not the text is translated. In terms of the text, only titles and authorial texts from the website were captured and advertisements and comments were excluded. As a subcorpus of the CDE, ACCAC can be understood as a small, specialised corpus (O’Keeffe, 2018) that represents the entire catalogue of research published on the topic in *The Conversation* from 2011 to 2023. While the relatively small size of the corpus might be considered a problem, it contains the whole catalogue of texts discussing the issue of this study in the domain of interest. If corpus representativeness ‘can be conceptualized as the extent to which a corpus permits accurate generalizations about the target domain’ (Egbert et al., 2022, p. 63), then we propose, on these grounds, that this corpus can be considered representative of adaptation discourse in *The Conversation Australia*. Table 1 presents a summary of the ACCAC, when analysed using Sketch Engine (Kilgariff et al., 2014).

**Table 1.** The Australia Corpus of Climate Adaptation in the Conversation.

Corpus Data	ACCAC
Tokens	186,372
News Blog Posts	187
Authors	266
Affiliations	57
Dates	177
Years	13
Regions	1
Themes	9
Topics	536
Translated Texts	2

### 3.2 Analytical approach: keyword and transitivity analysis

The ACCAC contains a principled collection of academic news blog posts that deal explicitly with the notion of climate adaptation in Australia. As such, the ACCAC can be understood to be heavily patterned (Aston, 2001), capturing discourses that directly construct a situated understanding of climate adaptation. To identify discourses of adaptation in the ACCAC, keyword analysis was used, as keyness is widely recognised as an effective means of accessing the 'aboutness' of a corpus (Scott, 1997).

Given that we wanted to access the keywords specific to climate adaptation *and* Australia, we opted for the remainder approach<sup>1</sup> when determining the reference corpus and used the remainder of the CDE (Curry, 2024) to inform this comparison. This limited the emergence of broad climate-themed keywords and allowed us to access a large number of keywords that are specific to the ACCAC ( $N=11089$ ). Using log-likelihood ( $\alpha=0.0001$ ), adjusted with the Bonferroni correction method, a smaller number of significant keywords were identified ( $n=219$ ). As we are interested in dominant discourses of adaptation in ACCAC, negative keywords were removed and only those with an above average relative frequency in the target corpus, an above average %DIFF (Gabrielatos, 2018), and an above average dispersion in the target corpus were retained. This resulted in a manageable selection of significant keywords ( $n=30$ ) that are highly frequent in the ACCAC and notably more frequent in the ACCAC when compared to the reference corpus. As the analysis is concerned with the discursive representation of processes framing knowledge, authority and subjectivities, a transitivity analysis was conducted to access the processes evident in the discourse as well as the participants to whom these processes relate. Consequently, the analysis centred on verbs in the keyword list. The details of these verbs are presented in Table 2.

Initially, a sample of concordance lines for each keyword was drawn using a 95% confidence interval. Through concordance analysis, only verb or verbal expressions (e.g. prepare for, adapt to, adapting to, cope with etc.) within a clause were included. Out of 319 concordance lines analysed, 55 met the inclusion criteria for the analysis. Table 3 summarises the distribution of the concordance lines per keyword.

For each key verb, processes and participants were identified and categorised in terms of Halliday's six transitivity processes (behavioural, existential, material action, mental, relational, and verbal; Halliday & Matthiessen, 2014; Halliday & Webster, 2002). Following their categorisation in terms of transitivity processes, the participants were then further grouped into broad thematic categories in order to determine the adaptation processes being constructed, those responsible for their construction and those to/for whom they are being constructed. This approach served to investigate in depth how relationships between participants and processes are discursively constructed in the corpus. Three dominant themes were identified through bottom-up analysis of these processes. These themes are: (1) mitigation, (2) farming, and (3) leadership. Throughout the transitivity analysis, participant categorisation, and thematic analysis, Stemler's (2004) consensus methods were employed. As part of this inter-rater process, both authors analysed all the concordance lines, met and discussed their approaches and coding activity, and used this approach to arrive at a shared, co-constructed understanding of the discursive construction of adaptation through transitivity processes. The focus is not on accuracy of the coding – the process is, in its nature, interpretive. Rather, it focuses on consistency and co-construction.



**Table 2.** Verb keywords of climate adaptation in the Australia Corpus of Climate Adaptation in the Conversation.

Keyword	Frequency (Target)	Per 1000 words	Frequency (Reference)	Per 1000 words	Loglikelihood	%DIFF	No of News Blogs	% Range	Sample Analysed
adapting	71	0.4	96	0.04	186.5	84.5	48	25.7	61
adapt	170	1	460	0.2	285	71.1	83	44.4	119
planning	216	1.3	592	0.2	358.4	70.8	81	43.3	139
prepare	59	0.4	202	0.08	80	64.8	40	21.4	52
cope	50	0.3	201	0.08	57.2	59.9	39	20.9	45

**Table 3.** Concordances lines analysed per verb.

Keywords	N	% Range
adapting	10	18
adapt	27	49
planning	5	9
prepare	10	18
cope	3	5

## 4. Results and discussion

This section presents the results and discussion of the transitivity analysis of the key verbs identified in ACCAC. First, in Section 4.1, an overview of the transitivity analysis is presented to highlight the relationships between participants and process. Subsequently, in Section 4.2, an in-depth qualitative analysis of these transitivity processes is presented with a view to contextualising the findings against the Australian social, political, and environmental landscape.

### 4.1. Key verb transitivity processes and participants

All examples of the key verbs analysed belonged to material action processes. While this may appear surprising, initially, this prominence is explicable. The semantics of the key verbs identified suggests their use in the construction of material action processes. Also, material action is the primary transitivity process identified in various studies of climate discourse across different forms of media (e.g. Demata, 2017; Gong & Liu, 2018; Mansyur et al., 2022). Furthermore, adaptation is a primarily practice-oriented field, thus the prominence of material action is unsurprising. For each material process indicating verb, a number of actors and goals were identified. A unique list of actors and goals for each verb is provided in Table 4.

This overview signals a high degree of variability in the kinds of actors and goals evoked in the ACCAC data. As an initial finding, the kinds of participants that can act as actors and goals appear highly distinctive for these verbs when used to construct

**Table 4.** Actors and goals identified in material action processes per verb.

Keyword	Actors	Goals
adapting	farmers, species, gains, farmers, governments, businesses and individuals, wine growers, many organisations	climate change, drier and hotter situations, changes, future climate change, climate conditions
adapt	we, they, humans, agriculture, species, various sectors, who or what, plant, small populations, productivity gains, communities, world, animals and plants, Australia, biodiversity and conservation, institutions, exporting nations	inevitable and unavoidable impacts, temperature rise, problems, impacts, tipping points, climate change, hostile environment, infrastructure, harsh environments, sea level rise, new climate realities, inevitable impacts, future, changes, future disasters, climate impacts, uncertain future, changing conditions
planning	Adelaide, we	adaptation strategy, policy, adaptation, evacuations centres, cities
prepare	we, states and territories, communities	cities, national adaptation strategy, future, inevitable impacts, impacts, strategies, multiple outcomes, what this brings, climate related hazards
cope	species, we, farmers	human-altered ecological systems, increase in population, weather cycles

understandings of climate adaptation in the data. Moreover, actors such as farmers and their agricultural context appear to play a central role in Australian constructions of climate adaptation knowledge in material processes. While this aspect cannot be over-generalised, it echoes a long-standing view that in the Australian contexts, ‘farmers’ responses [to the climate crisis] are highly critical for estimating the economic impact of climate change’ (Wheeler et al., 2013, p. 537). Moreover, as each of these verbs needed to be widely dispersed across the data to be considered, what we are seeing are shared practices by adaptation scholars. To gain a boarder view of the relationship between participants and process, the actors and goals were then grouped into thematic categories. Tables 5 and 6 present an overview of these categorisations, with the relevant actors and goals identified per category.

What emerges from this categorisation process is evidence that these verbs position people, institutions, and agricultural agents as actors with the climate, future issues, and policy as the goals impacted by their material action processes. Through the transitivity analysis, the relevance of these key verbs begins to take shape as they signal who and what are part of these dominant discourses and who and what are not. Notably, despite the pertinence of climate issues for marginalised communities in Australia (e.g. Nursey-Bray et al., 2019), their voices appear absent from these dominant agentive discourses, despite being discourses produced by those with perceived authority. The actor and goal categories have distinctive relationships with the key verbs themselves. Table 7 presents these categories with accompanying frequencies per verb in brackets.

Overall, the process analysis demonstrates that the most prominent processes are those strictly related to adaptation (*adapt*, *adapting*) while those related to preparing for the impacts of climate change (*planning*, *cope*) have a relatively and comparably low frequency. A most notable relationship that emerges from this transitivity analysis pertains to that between the people and the climate. As Table 5 shows, ‘People’ is the most frequent category among the actors, and in particular, the most frequent actor within the category is *we*. In the same way, climate is the most frequent category among the participants, with a high frequency of *climate change* as the goal. Other

**Table 5.** Actors categories.

Actor Categories	Freq.	Percentage	Actor	Definition
Agriculture	9	16	Farmers (5), Farms(1), Gains (1), Wine growers (1), Agriculture (1)	Human and non-human actors related to agriculture, including collectivised nouns (e.g. Farmers, Wine growers) (Van Leeuwen, 2013)
Flora and Fauna	4	7	Species (3), Plants (1)	Non-human actors such as animals and plants
Industry	1	2	Various sectors (1)	Nouns and expressions related to companies and industrial entities
Institutions	9	16	World (1), Adelaide (1), Australia (1), Biodiversity and conservation institutions (1), Exporting Nations (1), Governments, business and individuals (1), State and Territories (1), Many organisations, Adaptation Plan	National, federal, and international entities, non-governmental organisations, business entities, and abstract nouns that refer to institutions
People	32	59	We (27), Communities (2), Humans (1), They (1), Who or What (1)	Nouns or expressions referred to people including collectivised nouns and pronouns (e.g. Communities)

**Table 6.** Goal categories.

Goal Categories	Freq.	Percentage	Goal	Definition
Agriculture	1	2	Food	Human and non-human actors related to agriculture, including collectivised nouns (e.g. Farmers, Wine growers) (Van Leeuwen, 2013)
Climate	34	62	Climate Change (14), Impacts (3), Inevitable and Unavoidable impacts, Changes (2), Inevitable impacts (3), Changing conditions, climate conditions, climate impacts, climate-related hazards, Complex Risks, drier and hotter conditions, multiple outcomes, new climate realities, problems, sea level rise, Temperature rise, tipping points, weather cycles	Climate-related nouns including those referring to effects, impacts, and outcomes of climatic changes
Environment	2	4	Harsh Environments, hostile environment	Environment related nouns or expressions
Future	6	12	Future (3), Uncertain Future, future disasters, what this brings	Nouns or expressions referring to the future
Human-caused issues	2	4	Increase in populations, Human altered ecological systems	Expression that refer to humans as the agent of change
Infrastructure	4	8	Infrastructure, evacuation centres, cities (2)	Nouns and expressions that refer to infrastructural and institutional entities
Policy	4	8	Adaptation strategy, policy, strategies, Adaptation	Nouns or expressions that refer to policy responses to address the climate crisis

**Table 7.** Actor and goal categories per key verb analysed.

Keyword	Actor Category	Goal Category
adapting	Agriculture (7), Institutions (2), Flora and Fauna (1)	Climate (10)
adapt	People (19), Institutions (4), Flora and fauna (2), Industry (1), Agriculture (1)	Climate (18), Future (4), Environment (2), Agriculture (1), Infrastructure (1)
planning	People (4), Institutions (1)	Policy (3), Infrastructure (2)
prepare	People (8), Institutions (2)	Climate (7), Future (1), Infrastructures (1), Policy (1)
cope	Flora and Fauna (1), People (1), Agriculture (1)	Human-caused issues (1), Climate (1)

notable relations are those between agriculture and attempts at adapting to climate change effects. The sections below address these emerging issues by detailing how these processes and participants contribute to the discursive representation of adaptation in Australian public-oriented research communication in *The Conversation*.

#### 4.2 Qualitative analysis of material action process, actors, and goals

A critical review of these transitivity processes resulted in the identification of three themes pertaining to (1) mitigation, (2) farming, and (3) leadership. Taking a critical discourse analytical approach, these themes were identified through bottom-up coding, developed in line with the transitivity analysis presented in Section 4.1. In terms of the first theme, mitigation, there was evidence of discourses that frame the need for adaptation as a consequence of mitigation. In such cases, the use of *we* and *adapt* in conjunction with *inevitable impacts*, presents a material action enacted by people that points to adaptation as an obligation due to the failure to mitigate climate impacts, as can be seen in (1).

(1) At the same time, the sceptics have had the ears of the great and the good at a domestic level, so that in Australia and many other countries very little, if anything, has been achieved to mitigate climate change. **We** will have to **adapt** to the **inevitable impacts**.

Such discursive practices signal the influence of climate scepticism on policymaking in Australia as one of the reasons mitigation targets have not been achieved on time. Thus, adaptation becomes a normative duty to withstand the impacts that already exceed mitigation efforts. This representation is consistent with the role of climate scepticism put forward by the fossil fuel industry (Perry, 2024; Wright et al., 2021). Academic voices evoking discourses surrounding climate scepticism also offers a sense of authorial positionality, as discussed in Curry (2024), with academics using their platform to not only disseminate research but challenge anti-science narratives.

In this same line of thought, further historical perspectives emerge from the data, where writers indicate that mitigation efforts are almost thirty years behind schedule. Through a metaphorical reference to climate change as a gunshot in (2), for example, the author represents adaptation as a dodging movement that would allow for *surviving* climate change now that the scientific facts are incontrovertible.

(2) A sole reliance on centralised mitigation made perfect sense in the 1990s, when we had time to dodge the bullet of climate change. It is too late now and **we** need to **adapt**. And, perversely the first adaptive step is to give up on the endless climate change debate and focus on surviving climate change.

Furthering this perspective, there is evidence of the discursive representation of climate change adaptation as facing uncertainty – once again through a material action enacted by ‘People’ with an impact on ‘Climate’, as in (3). Despite the scientific certainty and the precision of forecasting models, such constructions of adaptation present the climate impacts we have to prepare for as something unfamiliar. Although this might be true, this representation might lead to submissive approaches, legitimating poor engagement with widely reported climate knowledge and potentially hindering climate action.

(3) Perhaps the global community will limit this warming to an average of 2°C or perhaps it will be higher; in any event, **we** need to **prepare** for the **associated climate change impacts** as best we can. Australians are familiar with many of the effects of climate, but such familiarity is hardly the same as being ready and able to adapt to climatic change.

Another crucial point that emerges from the analysis of these key verbs is the framing of adaptation in terms of its limits. In this way, *we*, the people, are given agency but only to demonstrate our incapacity to adapt to threatening climatic developments. Recognising such limits, the focus of the action becomes one of mitigation, where emissions are to be reduced in order to avoid negative consequences, as in the focus on rising temperatures in (4).

(4) We have already observed impacts of climate change on agriculture. We have assessed the amount of climate change we can adapt to. There’s a lot we can’t adapt to even at 2C. At 4C the **impacts** are very high and **we** cannot **adapt** to **them**. Reducing emissions reduces global temperature rise, and also the rate of temperature rise. This makes it easier to adapt to the remaining impacts.

One last pattern emerging from the analysis of the mitigation theme concerns the representation of the climate crisis and the need to prepare for the impacts of global

warming as a multi-scalar, systemic issue (see e.g. Garcia et al., 2023; Klepp & Chavez-Rodriguez, 2018) that cannot be resolved within our current socio-economic arrangements. This kind of representation compounds the literature in calling for a systemic rethinking of politics' current approach to climate change in order to achieve transformative and effective outcomes for mitigation and adaptation.

(5) We must act now to make the best of the future coming towards us. We know a great deal about what we've set in motion by heating up our planet. Now **we** must **prepare** for **what this brings**. And we have to do it together. Denying the severity of a crisis neither removes nor lessens the problem. Sticking to the status quo because it doesn't suit our work practices, or social and economic norms, not only delays the inevitable, it compounds the problem.

In (5), for example, mitigation and adaptation are positioned as being inherently intertwined and co-dependent. Indeed, as Nightingale and colleagues (2020) aptly note, the separation of mitigation from adaptation reinforces climatic changes as external to society, obscuring how society and environments co-emerge from the intersection of economic, cultural and ecosystemic contingencies. Nevertheless, the above instances somehow reproduce a dichotomous distinction between climate change impacts and their societal causes, thus externalising responsibility and backgrounding human agency in the unfolding climate crisis. Moreover, the consistent use of inclusive discourses (e.g. *we*, encapsulating the human race) risks reproducing a 'global gaze' that rests on what Aykut and Maertens (2021) would define as a 'paradoxical understanding of universality' as 'we are all on the same boat' (p. 511). As such, this discursive construction backgrounds the uneven distribution of risks along the lines of race, class, and gender, rooted in historical colonial injustices and contemporary masculine petro-hegemony (Perry, 2024; Sultana, 2022; Wright et al., 2021). While this critique is widely addressed in the literature (e.g. Eriksen et al., 2021; Woroniecki et al., 2020), it is noteworthy that these same critiques can be applied to discourses emerging from public-oriented research communion – discourses that are afforded implicit trust and authority by much of the public.

For the second theme, the focus of the discourse is on agriculture, farming and profit-oriented adaptation. In this case, the primary actors identified are *farmers* who are positioned in terms of their successful attempts at adaptation, as illustrated in (6).

(6) we know that **farmers** are successfully **adapting to** the **changes in climate** and have been for some time.

Yet, adaptation, in this view, is often rather crudely defined as it is typically represented as a technical, profit-driven strategy. This is noteworthy in the Australian context, given the social, cultural and economic relevance of agriculture therein (see ABARES, 2024). Therefore, upon initial reading, a profit-driven positioning may make sense. Yet, in the context of the climate crisis, it has been argued that both farmers and rural communities are likely to be among the most climate-affected communities, and, per the latest IPCC report on Adaptation in the Australasian region (IPCC, 2022), there is high confidence that farming communities might suffer financial as well as emotional stress at the hands of the climate crisis. Such stresses may occur owing to issues of displacement, for example, which can affect their sense of place and belonging (Ellis & Albrecht, 2017). Therefore, a view of adaptation for agriculture that separates nature and society is conceptually flawed.

In the case of agriculture and farming, the challenges to be faced are also often represented as unprecedented, as in (7). However, again, the focus on the outcomes of these changes represents climate impacts as an economic issue.

(7) These changes go beyond the cycles of weather with which **Australian farmers have always had to cope**. Inconsistent water supplies increased natural disasters and greater production risks will render agricultural production in many areas uneconomic.

While the impact on the economy and the potential knock-on effects, socially, cannot be overstated, the prominent focus on farmers and the economy in these discourses of adaptation processes also demonstrates a lack of focus on marginalised communities who are most at risk in the climate crisis (Thomas et al., 2019). It is imperative that academic voices reflect the breadth of the challenge facing Australia and use their platform to shed light on climate injustices that have economic impacts elsewhere as well as impacts beyond the economic realm. Particularly in the face of the growing commodification of plants and animals, it is crucial to acknowledge how emerging movements work with Aboriginal and Torres Strait Islander Peoples towards an agroecological approach that values justice and custodianship before profit (Jonas & Gressier, 2025)

The final prominent theme that emerged, one of leadership, engages with the notion of adaptation, a lack of leadership, and processes of decentralisation. As Tables 5–7 show, institutions here refer to the Australian Nation State, its territories, specific organisations, and institutions dealing with environmental issues. As both actors and goals, the instances analysed foreground how institutional climate inaction demands that institutions and organisations upscale their adaptation planning efforts and find ways to recover from the previous lack of leadership. In particular, the analysis shows how decentralisation and locally-led measures seem to be how more effective adaptation practices can be implemented, as can be seen in (8).

(8) When extreme events such as bushfires, floods, heatwaves and storms hit, many rely on local volunteers. New research shows community groups themselves are struggling to deal with climate change. But, without them, can **Australia adapt to a less-predictable future?**

Through such discourses, the importance of local communities in managing the effects of extreme events are being magnified. What emerges is the difficulty that voluntary work and community engagement can face without being supported by a solid structure that sustains that effort.

Similarly, processes of decentralisation emerge elsewhere in the data, whereby institutional top-down decision-making designates responsibility for adaptation planning, as can be seen in (9).

(9) We can already see this decentralisation in Australia. **States and territories** have to **prepare state-wide strategies** and local authorities being encouraged to develop their own adaptation plans. In Victoria, the Victorian Centre for Climate Change Adaptation Research (VCCCAR) is supporting policy making.

While decentralisation and local action can help when it comes to adaptation planning, the instances above seem to naturalise an institutionalised perspective that does not consider grassroots and bottom-up mobilisation, thus risking maintaining a hierarchical distribution of power and disregarding communities' voices. Nevertheless, this instance exemplifies the Australian approach to implementing adaptation, as the federal

government invests in adaptation research, states and territories, and local governments have to bear the responsibilities for a process of implementation that suffers from scarce financing and path dependencies (Biswas & Rahman, 2023). Such a perspective reflects a wider, culturally situated view of adaptation as an institutional policy (Hartwig et al., 2020; Hartwig et al., 2021), echoing earlier discussions of adaptation as an economic policy. This oft-simplified construction of adaptation as one form of policy risks misrepresenting the transdisciplinarity of adaptation. This in turn may explain why to farmers, as noted earlier, adaptation appears terminologically polysemous.

Uncertainty about roles and responsibilities across governmental scales in Australia has been largely regarded as a barrier to effective climate adaptation (Nalau et al., 2015). Hence, while it may be a positive move to place adaptation plans and process at the local level, so that activities may better respond to communities' needs, there are also risks that such practices may reinforce inter and intra-community disparities that play a crucial role in maintaining institutionalised power relationships (Rahman et al., 2023). Moreover, shifting responsibilities for adaptation planning downward risks obscuring the root causes of the crisis to which people and communities need to adapt (Jackson, 2024). Therefore, what begins to emerge across these three themes is the need for a more comprehensive understanding of and approach to climate adaptation and greater criticality in its discursive construction in public-oriented research communication.

Further representations of adaptation as a process to be carried out locally appear to address specific climate related issues, such as water management. In (10), adaptation is presented as something necessary to ensure water security, given the propensity for droughts and water scarcity – issues that have long plagued the Australian ecosystem (IPCC, 2022). As (1) and (2) already demonstrate, this representation holds mitigation and adaptation in a close relationship.

(10) This means **Adelaide** needs to start **planning climate change adaption strategies** for its water supply now, in combination with reducing greenhouse gas emissions.

A notable example of this discursive practice emerges in (11), wherein water management in the Murray-Darling Basin is addressed. This basin is one of the most critical sites for the Australian agriculture economy, biodiversity, and aboriginal traditional practices. Despite the widely recognised view that water management in adaptation planning is crucial in the Australian context (e.g. Hartwig et al., 2020; Hartwig et al., 2021), such instances point to a lack of political leadership, unpreparedness and a limited understanding of potential protection efforts in Australia.

(11) Climate change was largely ignored in developing the Murray-Darling Basin Plan. Despite this lack of policy leadership, **many organisations are adapting**. Local governments with the resources are addressing their particular challenges, and building resilience. Our public transport now functions better in heatwaves, and climate change is being considered in new transport.

Overall, three representational patterns of relevance emerge from the transitivity and critical discourse analyses presented herein. First, a generalised humanity is represented as the passive subject of adaptation, which is seemingly portrayed as a normative principle due to the insufficient mitigation effort. In concert with this discursive framing, the farming industry is represented as highly adaptive, making farmers agents of adaptation, in a paradigm in which adaptation is seen as a profit-oriented process that maintains productivity and



thus revenues. Amid these same discourses, institutions are portrayed as lacking the ability to effectively tackle adaptation, which is portrayed as a decentralised political process that should be carried out across multi-scalar governmental structures with a particular focus on the local. When it comes to the focus of this paper on knowledge, authority and subjectivity, adaptation appears to be predicated on a rationalist ground within a technical and marketed perspective in which active adaptive subjects are those that work towards optimising processes in the face of climate change instead of restructuring socio-natural relations in a transformative and disruptive way. While these representations aptly describe the contextual features of the adaptation landscape in Australia, they do not appear to engage with and problematise the power structures upon which these processes are predicated.

The universalising narrative of the people as people needing to adapt disregards differential exposure to climate risks across race, class and gender. Thus, these public-oriented research discourses appear to reconstruct disparities in representation, favouring economically lucrative agents and their financial impacts. This representational move obliterates responsibility for causing the climate crisis altogether and in this way, the process of adaptation appears naturalised. Through a focus on adaptation processes, at least, these discourses do not appear to hold humanity to account for that to which we must adapt. Ultimately, these representational patterns do not challenge the mainstream conception of adaptation as a top-down, technical and profit-oriented process in which neoliberal rationalities obscure the inherently co-productive nature of society and the environment, and the intrinsically relational nature of adaptation, vulnerability, and resilience (Taylor, 2015). Given that much research in the domain of media and newspaper studies tackles the notion of ethical reporting and issues of mis- and disinformation, as those involved in knowledge making itself, it is imperative that academics producing public-oriented research communication that addresses the climate crisis reflect on the epistemological and ontological frames that shape their knowledge construction practices and the ideologies embedded within the texts that they produce.

## 5. Conclusion

This paper investigated the role of representational patterns in public-oriented research communication on climate adaptation in Australia. Through a transitivity analysis of material processes in relation to their actors and goals, the paper has identified three main representational patterns in the adaptation debate in *The Conversation Australia*. Such public-oriented research communication appears to provide a more nuanced understanding of pitfalls, lags and inconsistencies in adaptation policy and planning compared to other discursive domains that amplify sceptic or denialist voices in the climate debate (Perry, 2024; Wright et al., 2021). Nevertheless, the texts analysed appear to be, at times, more descriptive than critical. Consequently, such forms of communication risk aligning to a dominant depoliticised narrative consistent with patterns in other studies in the discursive construction of adaptation in policy settings (e.g. Remling, 2018). These representational patterns, predicated upon a dominant Western paradigm, risk backgrounding the potential transformative and disruptive role of situated ontologies and epistemologies in effective and just adaptation policy and planning. Overall, this discourse fails to acknowledge how the uneven distribution of and the differential exposure to climate risks along the lines of class, race, and gender further depoliticise adaptation and hinders efforts to

achieve distributive, political, epistemological, and socio-ecological climate justice (Boelens et al., 2023).

We acknowledge the limited nature of the analysis in terms of its size. However, we argue that this weakness is attenuated, if not overcome by its significance. Each of the verbs studied are significantly key when compared to comparable public-oriented research texts on the climate crisis. Moreover, they are widely dispersed in the data. Thus, we are capturing some of the key means of discursively constructing adaptation processes in public-oriented research communication. We chose to focus on these verbs to afford us space for a critical and in-depth investigation of the shared use of material processes as we argue that such insight will prove invaluable for advancing our collective understanding of adaptation discourses, more generally. Although limited to the context and scope of this research, these observations encourage a reflection on how the general perception of a value-free, objective science is, at best, 'mis-guided' (Orlove et al., 2023, p. 1438). Producers and recipients of these texts must bear in mind that knowledge production is a power-laden and situated process influenced by contextual, socio-political conditions of production. This consideration is even more important when dealing with discourse produced by trusted sources that strive to engage directly with the general public, such as public-oriented research communication and academic news blog posts. Recognising this imperative, we argue that deeper reflexive work and awareness in knowledge production practices can better fit the need for representational and recognitional justice and, more broadly, social justice in the climate adaptation debate. For these reasons, this paper encourages the application of critical discursive approaches to public-oriented research communication across domains and media. Specifically, we argue that a critical approach to such discourses can enhance the understanding of how we, the academic community, contribute to the social construction of concepts, phenomena and processes in a way that might, even unconsciously, reproduce biases and injustices through our linguistic choices. Inter-disciplinary, transdisciplinary, and multidisciplinary collaboration, along with cross-cultural cooperation, can serve as checks and balances in a collective reflexive exercise that may more effectively seek substantial engagement in the decision-making arena.

## Note

1. Remainder approach refers to the use of the 'rest of the corpus' for computing the keywords of a subcorpus. Examples of this approach can be found in Baker et al., 2020

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