


RESEARCH ARTICLE

Post-nuclear worldmaking and counter-hegemony: Against catastrophic failures of imagination

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Abstract

Studies of nuclear politics and IR more widely have failed to seriously engage with what future nuclear-disarmed worlds would or should look like. I respond to this failure of imagination by advocating for a project of ‘post-nuclear worldmaking’. Counter-hegemonic political efforts around the 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW) are a useful first step to ‘connecting’ our nuclear-armed present to a disarmed future. However, they do not tell us much about the broader characteristics of this future. Moreover, they often fail to transcend conservative assumptions of plausibility and probability, which unnecessarily exclude what might be called ‘utopian’ visions of alternative futures. In the context of mounting uncertainty generated by threats to planetary security, post-nuclear worldmaking can assist in drawing strong connections between the present and radically different future worlds, which should not be discounted as improbable or impossible. This project enables a widening of the scope of nuclear futures and policy options which are considered thinkable, as well as contributing a future-facing, prefigurative element of politics which complements existing counter-hegemonic strategy. It highlights the unavoidable obligation for nuclear scholars to think in utopian terms.

Keywords: counter-hegemony; disarmament; futures; nuclear; worldmaking

Introduction

In this article, I advocate the adoption of *post-nuclear worldmaking* as a practice within both International Relations (IR)/nuclear scholarship and disarmament campaigning. This is a generative project of imagining different – even radically different, or ‘utopian’ – disarmed futures through scenario-building, with the aim of uncovering connections and commonalities between our nuclear-armed world and the many possible futures in which nuclear weapons no longer exist. In fact, post-nuclear worldmaking is a necessary but missing component of a counter-hegemonic struggle against the entrenchment of nuclear weapons in global public life. I detail how it provides the intellectual tools to evoke, in a methodologically rigorous manner, concrete alternative visions of the future. It is a prefigurative tool, permitting organisation around visions of better, safer (post-)nuclear futures which can animate and inspire public sentiment, as well as illuminating pathways to get there. Despite the importance of prefiguration in counter-hegemonic strategy, it is strikingly absent from today’s anti-nuclear politics.

This absence stems in large part from the subaltern structural positioning of the ‘humanitarian coalition’ – the loose grouping of anti-nuclear activists, states, NGOs, and researchers¹ advocating for the upholding of a nuclear weapons ban on humanitarian grounds – vis-à-vis the nuclear armed

¹ This is a subset of literature; not all ‘critical’ nuclear scholarship is aligned with the humanitarian coalition.

states and their allies. The coalition is constrained in its power to affect change. This disincentivises what might be considered ‘unrealistic’ or ‘utopian’ thinking, in favour of ‘realistic’ objectives. This is fully understandable: tactics like diplomatic engagement, institutional reform, divestment campaigning, and affecting discursive change have borne fruit even if progress is incremental. Through these, the humanitarian coalition aims to bring into view ‘our present world, without nuclear weapons’;² a disarmed future which does not require unprecedented or radical changes that cannot be reasonably expected. While rooted in a desire to bring about urgently needed change pragmatically and quickly, I argue that this may restrict us to unnecessarily conservative accounts of what futures are possible. Post-nuclear worldmaking offers a novel solution.

In a narrow sense, this article adds to the project of counter-hegemonic nuclear politics. This has included the building of alternative global institutions – most prominently the 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW), the first legally binding international treaty to ban nuclear weapons possession – as well as delegitimising ‘nuclearist’ modes of thinking,³ stigmatising nuclear weapons and reframing them as a human rights problem, encouraging material divestment from the nuclear weapons-industrial complex,⁴ and connecting the disarmament project to wider intersectional struggles for justice.⁵

However, my intention is broader: despite decades’ worth of ink spilled regarding possible political and technical blueprints for nuclear disarmament and verification, IR has failed to seriously engage at all with what nuclear disarmed world(s) *would be like*, beyond the simple non-existence of nuclear weapons. In response, I exhort scholars to help remedy a catastrophic failure of imagination.

This article makes an important and original contribution to knowledge in the fields of IR, security studies, and nuclear politics. It demonstrates new avenues for research design, explores how transdisciplinary methodologies of worldmaking can provide new forms of research data and methods of analysis in IR, and advances critical nuclear scholarship in an original direction. Post-nuclear worldmaking can also be adopted by disarmament practitioners for the purposes of public engagement, outreach, and movement-building; I offer preliminary thoughts on how this can be achieved. Finally, while this article pushes the debate forward and adopts transdisciplinary insights, it engages robustly and coherently with the theories and methodologies of both conventional and critical nuclear scholarship.

This argument proceeds in five parts. In the first part of the article, I introduce the concept of ‘global nuclear order’, focusing on critical interpretations which view this order as unjust and dangerous. In the second part, I briefly survey efforts to build counter-hegemonic opposition to the prevailing order with the aim of disarmament.

In the third part of the article, I discuss the notion of ‘connecting’ the present to the future and how this is handled in existing scholarship and campaigning. I argue that the standard accounts of probability, plausibility, and precedence on which this conceptualisation of ‘connection’ relies need to be expanded. In the fourth part, I show how these ‘regimes of plausibility’ are called into question

²Benoit Pelopidas, ‘The birth of nuclear eternity’, in Kate Kemp and Jenny Andersson (eds), *Futures* (Oxford: Oxford University Press, 2021), pp. 484–500 (p. 489).

³R. J. Lifton and R. Falk, *Indefensible Weapons: The Political and Psychological Case against Nuclearism* (New York: Basic Books, 1982).

⁴Susi Snyder and Jeroen Walstra, ‘Perilous profiteering: The companies building nuclear arsenals and their financial backers’, Don’t Bank on the Bomb, PAX, Utrecht, November 2021.

⁵Alexander Kmentt, ‘The development of the international initiative on the humanitarian impact of nuclear weapons and its effect on the nuclear weapons debate’, *International Review of the Red Cross*, 97:899 (2015), pp. 681–709; Alexander Kmentt, ‘The Humanitarian Initiative and the TPNW’, policy brief, Toda Peace Institute, Tokyo, 2021; Nick Ritchie and Kjølsv Egeland, ‘The diplomacy of resistance: Power, hegemony and nuclear disarmament’, *Global Change, Peace & Security*, 30:2 (2018), pp. 121–41; Nick Ritchie, ‘A contestation of nuclear ontologies: Resisting nuclearism and reimagining the politics of nuclear disarmament’, *International Relations* (2022), pp. 1–24 (advance online publication); Ray Acheson, ‘Mobilizing feminist action for nuclear abolition’, Arms Control Association, March 2023, available at: <https://www.armscontrol.org/act/2023-03/features/mobilizing-feminist-action-nuclear-abolition-0>.

by our inability to anticipate and discipline the future. While the humanitarian coalition must work largely within institutions which reproduce these accounts of plausibility, global uncertainty and the spectre of catastrophe provide opportunities to connect our nuclear present to a much wider range of post-nuclear futures than have so far been imagined.

In response, the fifth and final part of the article advocates for and sketches out a post-nuclear worldmaking agenda. I outline the theoretical and methodological treatments of worldmaking within IR and elsewhere, before setting out the key characteristics of post-nuclear worldmaking: future-oriented, synoptic in its purview, and connective to present worlds. The object of such an agenda is not to blueprint and bring about ideal future worlds, but to experiment between different plausible worlds, broadening the scope of post-nuclear futures that we consider thinkable. It complements the humanitarian coalition's ongoing efforts as well as the tenets of neo-Gramscian counter-hegemony by adding a generative element of prefiguration which is, so far, missing from disarmament politics.

Global nuclear order: Hegemony and counter-hegemony

William Walker's concept of 'global nuclear order' posits the existence of an organically evolved infrastructure which functions (if imperfectly) to regulate the spread and use of nuclear technology. Though Walker has refined his English School-influenced framework over the years,⁶ the fundamentals of the theory remain the same. Twin 'systems' of deterrence (emerging from a small number of states' nuclear stockpiles and rendered 'manageable' by arms control measures) and 'abstinence' (enabled by the Non-Proliferation Treaty [NPT] and 'nuclear umbrella' security guarantees) exist in a productive tension with one another, which has ultimately resulted in a 'shared normative commitment to [nuclear] restraint'.⁷ In order to make the NPT's inherent inequality palatable to nuclear 'have-nots', the nuclear-weapons states must provide negative security assurances, as well as a commitment to nuclear disarmament – albeit one which, importantly, is subject to no timetable.

In addition, Article IV of the NPT enshrines 'the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination'.⁸ This 'grand bargain' is the fulcrum of the NPT's legitimacy. Together with the widely accepted non-proliferation norm, as well as the formal commitment to disarmament, it theoretically balances out the 'logic of inequality' at the heart of the NPT, furnishing it with legitimacy from the vast majority of non-nuclear weapons states.⁹ It should be noted that, for Walker, while non-proliferation (restraint) is important, deterrence is king: 'the formation of a nuclear order was animated by a desire to prevent enmity among the major powers from spilling over into catastrophic war'.¹⁰ Strategic balance and stability, however, could be easily upset by the sudden appearance of an ill-placed or aggressive newly nuclear-armed state. Reliable deterrence therefore depends on an ability to limit the proliferation of nuclear weapons.

Walker does not claim this to be a perfect arrangement, famously recognising during the George W. Bush presidency that cheating and bad behaviour from important states might undermine the order.¹¹ Nevertheless, though he is aware of the hierarchy among nuclear 'haves' and 'have nots' that

⁶ Hedley Bull and Adam Watson, 'Introduction', in Hedley Bull and Adam Watson (eds), *The Expansion of International Society* (Oxford: Clarendon Press, 1984), pp. 1–12; Hedley Bull, *The Anarchical Society: A Study of Order in World Politics* (Basingstoke: Palgrave Macmillan, 2012).

⁷ William Walker, 'Nuclear order and disorder', *International Affairs*, 76:4 (2000), pp. 703–724 (p. 724); see William Walker, *A Perpetual Menace: Nuclear Weapons and International Order* (London: Routledge, 2011) for a more comprehensive and updated account.

⁸ United Nations, 'Treaty on the non-proliferation of nuclear weapons', 2005, available at: <https://www.un.org/en/conf/npt/2005/npttreaty.html>.

⁹ Joseph S. Nye, 'NPT: The logic of inequality', *Foreign Policy*, 59 (1985), pp. 123–31.

¹⁰ William Walker, 'Weapons of mass destruction and international order to 1990', *The Adelphi Papers*, 44:370 (2004), pp. 21–30 (p. 24).

¹¹ William Walker, 'Nuclear enlightenment and counter-enlightenment', *International Affairs*, 83:3 (2007), pp. 431–53.

it both legitimates and defends,¹² Walker ultimately concludes that the order he describes is humanity's best hope of staving off premature extinction through nuclear holocaust.¹³ Among those who agree with Walker that the global nuclear order is worth preserving despite its imperfections, there is normative disagreement on matters including the desired function of the order – in particular around the issue of abolition. As Knopf explains,¹⁴ some view nuclear disarmament as a disordering influence and thus an inappropriate focus of nuclear ordering efforts.¹⁵ Others argue that disarmament is a necessary pillar of the global nuclear order and that its pursuit is an important ordering task.¹⁶

I align here, however, with those who view the global nuclear order critically: as an oppressive power-political arrangement which functions to entrench global hierarchies and infinitely defer the urgent task of disarmament. To speak in the terms of nuclear futures, placing our faith in the extant global nuclear order to continually stave off nuclear war commits us to 'a managerialist form of presentism [which] slowly but surely entrenches nuclear weapons in the world'.¹⁷ This is insufficient, because regardless of our ordering efforts, adhering to nuclear deterrence ensures the use of nuclear weapons is a guaranteed occurrence over a long enough timespan – even if cognitive and ideological biases convince us otherwise.¹⁸

Research has begun to connect the concept of global nuclear order to Cox's insights on hegemony and international relations theory¹⁹ and pays closer attention to the exercises of power which uphold the order.²⁰ Biswas offers the most significant deconstruction of Walker's thinking, applying post-colonial and post-Marxist theory to examine the systems of meaning and ideological legitimation which bolster a hierarchical and neocolonial order.²¹ Ruzicka similarly sees the non-proliferation regime as 'a struggle to maintain or undermine the unequal distribution of material capabilities and the ensuing standing that both lie at [its] heart'.²² Ritchie – in contrast to Walker – views global nuclear order as a 'hegemonic nuclear control order'. This consists of three 'pillars': material capabilities, institutions, and ordering ideas.²³ This control order and its attendant hierarchies are further perpetuated by important 'social institutions'.²⁴ Power in the nuclear-control order thus derives largely from the possession of nuclear arsenals – but not entirely

¹²See Shampa Biswas, "'Nuclear apartheid' as political position: Race as a postcolonial resource?', *Alternatives: Global, Local, Political*, 26:4 (2001), pp. 485–522; Hugh Gusterson, *People of the Bomb: Portraits of America's Nuclear Complex* (Minneapolis: University of Minnesota Press, 2004); Shampa Biswas, *Nuclear Desire: Power and the Postcolonial Nuclear Order* (Minneapolis: University of Minnesota Press, 2014); Ritu Mathur, 'Sly civility and the paradox of equality/inequality in the nuclear order: A post-colonial critique', *Critical Studies on Security*, 4:1 (2016), pp. 57–72.

¹³Walker, 'Nuclear enlightenment and counter-enlightenment'.

¹⁴Jeffrey W. Knopf, 'Not by NPT alone: The future of the global nuclear order', *Contemporary Security Policy*, 43:1 (2022), pp. 188–90.

¹⁵See Lawrence Freedman, 'Disarmament and other nuclear norms', *The Washington Quarterly*, 36:2 (2013), pp. 93–108. Freedman, unlike some realist opponents of disarmament, accepts the relevance of norms of restraint. Cf. Charles Glaser, 'The flawed case for nuclear disarmament', *Survival*, 40:1 (1998), pp. 112–28; Julian Lewis, 'Nuclear disarmament versus peace in the twenty-first century', *International Affairs*, 82:4 (2006), pp. 667–73.

¹⁶Nicola Horsburgh, *China and Global Nuclear Order: From Estrangement to Active Engagement* (Oxford: Oxford University Press, 2015); Knopf, 'Not by NPT alone'.

¹⁷Pelopidas, 'Eternity', p. 486.

¹⁸Matthew Rendall, 'Nuclear war as a predictable surprise', *Global Policy*, 13:5 (2022), pp. 782–91.

¹⁹Robert W. Cox, 'Gramsci, hegemony and International Relations: An essay in method', *Millennium: Journal of International Studies*, 12:2 (1983), pp. 162–75.

²⁰Following the typology offered by Michael Barnett and Raymond Duvall, 'Power in international politics', *International Organization*, 59:1 (2005), pp. 39–75.

²¹Biswas, *Nuclear Desire*.

²²Jan Ruzicka, 'Behind the veil of good intentions: Power analysis of the nuclear non-proliferation regime', *International Politics*, 55:3–4 (2018), pp. 369–385 (p. 371).

²³Nick Ritchie, 'A "hegemonic nuclear order": Understanding the Ban Treaty and the power politics of nuclear weapons', *Contemporary Security Policy*, 40:4 (2019), pp. 409–434 (p. 415).

²⁴*Ibid.*, pp. 424–5.

so, because as Biswas demonstrates, this nuclear oligarchy is itself made possible by wider structures. 'From a Gramscian standpoint the global capitalist economy is the form of structural power that connects nuclear weapons and energy complexes to wider relations of militarism, capitalism and U.S. power.'²⁵ Crucially, this structural dimension of power also helps to produce a 'common sense' which 'shapes self-understandings and subjective interests in ways that can constrain actors from recognizing their own domination';²⁶ a recognition which is useful for interrogating the high levels of support for the NPT and acceptance of its 'logic of inequality' among non-nuclear weapons states.²⁷ Egeland skewers this hegemonic common sense, identifying a powerful 'ideology of nuclear order' at work. All told, this ideology 'portrays the practice of nuclear deterrence by "responsible" major powers as legitimate and necessary for stability and order in the short term, thus undermining the cause of disarmament';²⁸ Craig and Ruzicka have posited the existence of a 'nonproliferation complex' which sustains this ideology through a dense knowledge-production apparatus.²⁹ These arguments contribute to an overall understanding of the global nuclear order as a complex system of domination which entrenches both global inequalities and a constant condition of nuclear danger but is legitimated by a powerful ideological superstructure.

Counter-hegemonic strategy and nuclear abolition

In the spirit of Cox's work, however, (counter-)hegemony can serve not only as a means of diagnosing the condition of global nuclear order, but also of thinking about how it might be changed or even overcome. Ritchie and Egeland accordingly outline a counter-hegemonic strategy for resisting hegemonic nuclear power across multiple axes; one which, in their view, is already represented (at least in part) by the broad coalition of activists, NGOs, and states associated with the 'Humanitarian Initiative' (HI).³⁰ The HI aims to reframe nuclear weapons as a threat to human rights. Towards this end, the Humanitarian Initiative emphasises 'the global humanitarian consequences [of nuclear war] across a wide range of sectors, and the lack of response capability to the human suffering' that would ensue.³¹ Ritchie and Egeland conceptualise the humanitarian coalition as a transnational advocacy network (TAN) which has been successful in mobilising different forms of 'compulsory, institutional and productive power to challenge the nuclear-armed states' structural power',³² which has since culminated in the TPNW. This is an impressive success, and as Egel and Ward detail, the 'subversive revisionism' of the Treaty has caused consternation among the hegemonic nuclear powers, even if it does not yet directly threaten entrenched structures of domination.³³

The humanitarian coalition has successfully exercised institutional power through utilising the existing institutions of the United Nations (UN) and the NPT – cornerstones of the existing order's own institutional power³⁴ – to build support for and ultimately implement the TPNW as a 'formal treaty under UN auspices'.³⁵ It has exercised 'productive power', a core function of which is to 'transform the subjectivities of core actors',³⁶ through discursive tactics. These include reframing nuclear weapons as illegitimate and disarmament as urgent, and 'interpellating' non-nuclear weapons states

²⁵ Ibid., p. 423; see also Hecht, *Being Nuclear*; Biswas, *Nuclear Desire*.

²⁶ Ritchie, 'Hegemonic', p. 423.

²⁷ Nye, 'NPT'.

²⁸ Kjølvi Egeland, 'The ideology of nuclear order', *New Political Science*, 43 (2021), pp. 208–30.

²⁹ Campbell Craig and Jan Ruzicka, 'The nonproliferation complex', *Ethics & International Affairs*, 27:3 (2013), pp. 329–48.

³⁰ Ritchie and Egeland, 'Diplomacy'; see also Ritchie, 'Contestation'.

³¹ Kmentt, 'Humanitarian Initiative', p. 2.

³² Ritchie and Egeland, 'Diplomacy', p. 122.

³³ Naomi Egel and Steven Ward, 'Hierarchy, revisionism, and subordinate actors: The TPNW and the subversion of the nuclear order', *European Journal of International Relations*, 28:4 (2022), pp. 751–76.

³⁴ For another example of institutional power being exercised in a similar way, in pursuit of similar goals, see Itty Abraham, 'Decolonizing arms control: The Asian African legal consultative committee and the legality of nuclear testing, 1960–64', *Asian Journal of Political Science*, 26:3 (2018), pp. 314–30.

³⁵ Ritchie and Egeland, 'Diplomacy', p. 136.

³⁶ Ibid., p. 134.

as agentic practitioners of resistance – as opposed to passive, unimportant bystanders in thrall to the designs of the nuclear oligarchy.³⁷ Productive power is deployed to counter the aforementioned ‘common-sense’ hierarchy of global nuclear politics, denaturalising the assumed nuclear ‘have/have-not’ divide and instead pitting progressive ‘resisters’ against ‘irresponsible possessors of uncivilized weapons of mass destruction’.³⁸ The exercise of compulsory power is more difficult: members of the TAN ‘lack material compulsory power’, but following Barnett and Duvall, compulsory power may be exercised through ‘normative censure’, not only material resources.³⁹ Normative censure through the TPNW, argue Ritchie and Egeland, draws its power from the UN and NPT, within both of which it is embedded.

The counter-hegemonic strategy of the humanitarian coalition is also responsive to the analytical fallacy of nuclear exceptionalism: ‘the idea that the nuclear is a unique and separate realm’.⁴⁰ Reliance by states on nuclear weapons as providers of security is deeply rooted in both material and ideational structures. This is recognised as a key insight by campaigners; as Ray Acheson of the Women’s International League for Peace and Freedom notes, ‘nuclear weapons are part of bigger systems of patriarchy, racism, militarism and capitalism’, as well as entrenched and partial understandings of what is ‘realistic’, what is strategically ‘rational’, and what constitutes ‘security’.⁴¹ Nuclear abolition may, then, necessarily entail sweeping changes in global political and economic organisation. However, the humanitarian coalition operates within ‘a specific policy domain rather than the more expansive form of counter-hegemony envisaged by Cox to realise an alternative form of state and society’.⁴² In a narrow sense, this is a sensible strategy, given the obvious disparities in compulsory power (coercion and compulsion) and structural power (wider economic and political relations) relative to the states upholding the nuclear status quo.⁴³ The humanitarian coalition therefore operates mostly on the terrain where it is strongest: building power through international institutions and shifting the ideational needle in a ‘productive’ sense. This extends beyond discursive tactics of delegitimisation and stigmatisation,⁴⁴ to diverse legal and technical initiatives including international lawsuits filed under the TPNW and the development of parallel disarmament verification frameworks.⁴⁵

Overall, this is consistent with the concept of the ‘war of position’. As Cox explains, the war of position entails building ‘organized social forces strong enough to challenge the dominant power’, prior to engaging in a ‘war of manoeuvre’ which directly challenges power head-on, but may result

³⁷The discursive tactics employed by the TAN have consciously drawn inspiration from critical and constructivist IR theory. See Matthew Bolton and Elizabeth Minor, ‘The Discursive Turn Arrives in Turtle Bay: The International Campaign to Abolish Nuclear Weapons’ Operationalization of Critical IR Theories, *Global Policy*, 7:3 (2016), pp.385–395; see also Roxanne Lynn Doty, ‘Foreign policy as social construction: A post-positivist analysis of U.S. counterinsurgency policy in the Philippines’, *International Studies Quarterly*, 37:3 (1993), pp. 297–320.

³⁸Ritchie and Egeland, ‘Diplomacy’, p. 132.

³⁹*Ibid.*, pp. 138–40.

⁴⁰Laura Considine, ‘Narrative and nuclear weapons politics: The entelechial force of the nuclear origin myth’, *International Theory*, 14:3 (2022), pp. 551–70; see also Laura Considine, ‘Contests of legitimacy and value: The treaty on the prohibition of nuclear weapons and the logic of prohibition’, *International Affairs*, 95:5 (2019), pp. 1075–92; Gabrielle Hecht, ‘A cosmogram for nuclear things’, *Isis*, 98:1 (2007), pp. 100–8.

⁴¹Ray Acheson, ‘Impacts of the nuclear ban: How outlawing nuclear weapons is changing the world’, *Global Change, Peace & Security*, 30:2 (2018), pp. 243–50.

⁴²Ritchie and Egeland, ‘Diplomacy’, p. 125.

⁴³*Ibid.*

⁴⁴Kjøl Egeland, ‘Banning the bomb: Inconsequential posturing or meaningful stigmatization?’, *Global Governance: A Review of Multilateralism and International Organizations*, 24:1 (2018), pp. 11–20; Michal Smetana, *Nuclear Deviance: Stigma Politics and the Rules of the Non-Proliferation Game* (London: Palgrave Macmillan, 2020).

⁴⁵Waging Peace, ‘The nuclear zero lawsuits’ (September 2022), available at: <https://www.wagingpeace.org/nuclearzero/>; Tom Durso, ‘SPIA researchers named to pioneering U.N. nuclear treaty scientific advisory group’, Princeton School of Public and International Affairs (5 June 2023), available at: <https://spia.princeton.edu/news/spia-researchers-named-pioneering-un-nuclear-treaty-scientific-advisory-group>.

in a fragile victory or, indeed, complete failure.⁴⁶ It is clear that the humanitarian coalition presently lacks the power and resources to dismantle prevailing arrangements of nuclear order – or institute durable arrangements for disarmament in its place – making the war of position a necessary endeavour. This means there is a strategic imperative to present nuclear abolition as a ‘realistic’ goal which can be achieved under current conditions: our world, but without nuclear weapons. Therefore, while humanitarian campaigners might recognise that all nuclear politics necessarily entails a ‘utopian’ imperative,⁴⁷ in multilateral environments it must be emphasised that disarmament is not a ‘radical’ threat to the established institutions of nuclear order.⁴⁸ ‘Disruptive’ critique must be toned down to be instrumentally useful in diplomatic settings.⁴⁹ Indeed, some more optimistic assessments argue, this approach may already be enough to ‘change’ the world,⁵⁰ and indeed, modest successes have been quick to materialise.⁵¹

Our world without nuclear weapons? Connecting the present to the future

The principal strength of this approach is that it draws connections between the nuclear-armed world as it currently is and the desired disarmed future. Utopian visions are unhelpful if they fail to acknowledge present conditions and configurations of power. Through its alignment with broader human rights and social justice struggles and the institution-building, diplomatic, and divestment initiatives already underway, this strategy ‘connects a world without nuclear weapons to this world’⁵² In other words, it is consistent with Pelopidas’s injunction to avoid pinning our hopes on a ‘disconnected post-nuclear future’:

in which nuclear weapons no longer exist, but which is depicted without any effort to connect it to present conditions, or which posits that the connection can only be made through unprecedented massive change.⁵³

On this account, ‘connecting’ the nuclear present to a post-nuclear future does not necessarily require a step-by-step manual for achieving nuclear disarmament – such as those formulated by Indian prime minister Rajiv Gandhi in 1988 and a joint Australian–Japanese commission in 2009.⁵⁴ It does, however, require us not to rely on the advent of a radically different world carrying ‘a set of preconditions enabling a post-nuclear future’, since this permits the eternal deferral

⁴⁶Robert W. Cox, ‘Civil society at the turn of the millenium: Prospects for an alternative world order’, *Review of International Studies*, 25:1 (1999), pp. 3–28 (p. 16).

⁴⁷The idea that nuclear weapons can be ‘managed’ indefinitely, without detonations occurring, is as utopian a vision as disarmament. Benoît Pelopidas, ‘Nuclear weapons scholarship as a case of self-censorship in Security Studies’, *Journal of Global Security Studies*, 1:4 (2016), pp. 326–36; Margaret Beavis, ‘Nuclear disarmament unrealistic? So is keeping the bombs and surviving’, *Brisbane Times* (31 December 2017), available at: <https://www.brisbanetimes.com.au/opinion/nuclear-disarmament-unrealistic-so-is-keeping-the-bombs-and-surviving-20171231-h0bqot.html>.

⁴⁸Tony Robinson, ‘Beatrice Fihn, ICAN: Either you’re OK with mass murdering civilians with nuclear weapons or you’re not. Why would we build bridges to that?’, *Pressenza* (7 September 2019), available at: <https://www.pressenza.com/2017/09/beatrice-fihn-ican-either-youre-ok-mass-murdering-civilians-nuclear-weapons-youre-not-build-bridges/>.

⁴⁹Bolton and Minor, ‘Discursive turn’, p. 392.

⁵⁰Acheson, ‘Impacts of the nuclear ban’.

⁵¹Michael Hamel-Green, ‘The nuclear ban treaty and 2018 disarmament forums: An initial impact assessment’, *Journal for Peace and Nuclear Disarmament*, 1:2 (2018), pp. 436–63.

⁵²Ritchie, ‘Contestation’, p. 8.

⁵³Pelopidas, ‘Eternity’, p. 11.

⁵⁴Permanent Mission of India to the Conference on Disarmament, Geneva, ‘Action plan for ushering in a nuclear-weapon-free and non-violent world order, presented by Prime Minister Rajiv Gandhi to the Third Special Session of UNGA on disarmament, 1988’, Ministry of External Affairs (17 April 2014), available at: <https://meaindia.nic.in/cdgeneva/?pdf06112000>; Gareth Evans and Yoriko Kawaguchi, ‘Eliminating nuclear threats: A practical agenda for world policymakers’, International Commission on Nuclear Non-Proliferation and Disarmament, 2009, available at: http://www.icnnd.org/reference/reports/ent/pdf/ICNND_Report-EliminatingNuclearThreats.pdf. The latter of these is arguably not a road map to abolition, as it focuses on nuclear ‘minimisation’ by 2025 but then extends the timeline for disarmament to an unspecified date in the future. I thank Nick Wheeler for alerting me to this report.

of nuclear disarmament until more favourable conditions are adjudged, somehow, to have been achieved.⁵⁵

However, this does not mean we should discount the possibility of unprecedented and massive change. While individual cases of nuclear renunciation such as South Africa and three of the nuclear inheritor states of the USSR (Belarus, Kazakhstan, and Ukraine) offer limited precedence,⁵⁶ complete and simultaneous multilateral nuclear disarmament on the part of the P5 powers and the three unrecognised nuclear-weapons states is without direct precedent. This need not be a barrier to thinking about ‘connected’ nuclear futures. Lebow argues that ‘insight into the future is rooted in our understanding of the past, our socially constructed, psychologically motivated, and ideologically filtered reconstruction of past events and imputation of their “lessons”’.⁵⁷ This holds true in the realm of nuclear politics, where research is beginning to show that the ‘lessons’ learned about non-proliferation vis-à-vis nuclear disarmament after the end of the Cold War were motivated by an ideological commitment to non-proliferation policy rather than an ‘objective’ assessment of possibility based on prior events.⁵⁸ In other words, precedence is not a necessary precondition for connecting the present world to one that is different, perhaps radically, in its nuclear politics. Indeed, Pelopidas and Verschuren elsewhere argue that states’ responses to the Covid-19 pandemic, previously considered politically impossible, remind us that ‘the unprecedented and unforeseen can happen’, and that the twin imperatives of nuclear disarmament and responding to the climate crisis require a wider ‘scoping of political possibilities’ and scholarly imagination.⁵⁹ In the context of mounting planetary threats, searching for precedents to multilateral nuclear disarmament is a conservative exercise.

Ritchie and Egeland, expounding on the counter-hegemonic strategy, do not argue that unprecedented developments toward nuclear abolition should be discounted. However, following Cox, they make a similar but still distinct claim:

Cox is quite clear that alternatives are limited to those ‘which are feasible transformations of the existing world’ based on historical processes. ‘Improbable alternatives’ are rejected along with the acceptance of the permanence of the existing order.⁶⁰

This neo-Gramscian orientation to problems of world order takes ‘historical processes’ as the yardstick of plausibility. As such, a vision of the post-nuclear world is here considered ‘disconnected’ if it is unmoored from history, which is not the same as being unprecedented. Nevertheless, this still implies tight constraints on the kinds of (post-)nuclear future that are possible, in the hard material forms of the international state system and global capitalism, for example. It follows that the pro-disarmament coalition’s best hope of effecting change is continuing to engage with and work within the institutions of the global nuclear order (while still working to build parallel ones). The disarmament project is nudged progressively forward, in accordance with counter-hegemonic

⁵⁵Pelopidas, ‘Eternity’, p. 489.

⁵⁶Mariana Budjeryn, ‘Non-proliferation and state succession: The demise of the USSR and the nuclear aftermath in Belarus, Kazakhstan, and Ukraine’, *Journal of Cold War Studies*, 24:2 [2022], pp. 46–94) shows how the USSR successor states were constrained in both their operational control over the inherited nuclear stockpiles, and in decisions over what to do with them.

⁵⁷Richard Ned Lebow, *Forbidden Fruit: Counterfactuals and International Relations* (Princeton, NJ: Princeton University Press, 2010), p. 14.

⁵⁸Benoît Pelopidas, Hebatalla Taha, and Tom Vaughan, ‘How dawn turned into dusk: Scoping and closing possible nuclear futures after the cold war’, *Journal of Strategic Studies* (2024), pp. 1–23 available at: {<https://www.tandfonline.com/doi/full/10.1080/01402390.2023.2290441>}.

⁵⁹Benoît Pelopidas and Sanne Cornelia J. Verschuren, ‘Writing IR after COVID-19: Reassessing political possibilities, good faith, and policy-relevant scholarship on climate change mitigation and nuclear disarmament’, *Global Studies Quarterly*, 3:1 (2023), pp. 8–9.

⁶⁰Ritchie and Egeland, ‘Diplomacy’, p. 125.

strategy, by exploiting 'the adjacent possible: what is accessible with the materials at hand, deployed in the pursuit of movement in the desired direction.'⁶¹

Uncertain futures: Plausibility, probability, and ideology amid planetary crisis

However, mounting existential threats (in addition to the threat of nuclear annihilation) pose challenges to our understanding of history and, with it, (im)probability.⁶² Foremost of which is the climate crisis, which may accelerate out of all human control even if the IPCC target of limiting anthropogenic warming to 1.5 degrees Celsius is met, itself an unlikely outcome.⁶³ Intersecting with this are several other interrelated political crises and 'shifting material realities'⁶⁴ which pose challenges to classical conceptions of global order.⁶⁵ Mainstream scholarship is now concerned that such developments and more pose a material challenge to the 'liberal international order', within which the hegemonic nuclear order is intimately nested.⁶⁶ Chakrabarty argues that anthropogenic climate change demonstrates that the histories of the Earth system, life and human evolution, and industrial civilisation – traditionally considered by modernist history to be separate – are conjoined. One of the following consequences is that 'the various regimes of probability that govern our everyday lives in modern economies ... now have to be supplemented by our knowledge of the radical uncertainty of the climate.'⁶⁷ The perception of risk in political and economic administration, 'aris[ing] from more human calculations of costs and their probabilities over plausible human timescales', assumes a baseline of predictability in Earth systems which is at odds with current climate science.⁶⁸

Received understandings of international relations, security, and geopolitics also rely on such a baseline and are accordingly at risk of disruption. A world of rapid warming, punctuated by unpredictable climate tipping points, throws traditional geopolitical assumptions regarding the durability of state interests, territoriality, and the future viability of sovereignty as a mode of global organisation into question.⁶⁹ The temporal policy horizons of sovereign states – which possess nuclear weapons and contribute to climate breakdown – are also disconnected from the epochal temporalities of the consequences of such actions, such as global nuclear war and global heating.⁷⁰ It follows that modes of security provision which rely on sovereign states providing military protection are inadequate to deal with existential threats to the planet, rather than the polity. 'Nuclear realists' have made this point since the mid-20th century with specific reference to nuclear weapons, concluding that the nuclear revolution undercuts the state's ability to provide security and therefore necessitates world government.⁷¹ Deudney's 'historical security materialism' theory holds

⁶¹ Roberto M. Unger quoted in William K. Carroll, 'Crisis, movements, counter-hegemony: in search of the new', *Interface: a journal for and about social movements*, 2:2 (2010), pp. 168–198 (p. 189).

⁶² Dipesh Chakrabarty, 'The climate of history: Four theses', *Critical Inquiry*, 35:2 (2009), pp. 197–222; Dipesh Chakrabarty, *The Climate of History in a Planetary Age* (Chicago: University of Chicago Press, 2021).

⁶³ Michael Le Page, 'Global warming may become unstoppable even if we stick to Paris target', *New Scientist* (6 August 2018), available at: <https://institutions.newscientist.com/article/2176006-global-warming-may-become-unstoppable-even-if-we-stick-to-paris-target/>.

⁶⁴ Daniel Deudney, 'Turbo change: Accelerating technological disruption, planetary geopolitics, and architectonic metaphors', *International Studies Review*, 20:2 (2018), pp. 223–31.

⁶⁵ Jeff D. Colgan, Jessica F. Green, and Thomas N. Hale, 'Asset revaluation and the existential politics of climate change', *International Organization*, 75:2 (2021), pp. 586–610.

⁶⁶ David Lake, Lisa L. Martin, and Thomas Risse, 'Challenges to the liberal order: Reflections on international organization', *International Organization*, 75:2 (2021), pp. 225–57.

⁶⁷ Chakrabarty, *The Climate of History*, p. 32.

⁶⁸ *Ibid.*, pp. 32–3.

⁶⁹ Simon Dalby, *Anthropocene Geopolitics: Globalization, Security, Sustainability* (Ottawa: University of Ottawa Press, 2020).

⁷⁰ I thank Danielle Young for drawing this point out. See R. B. J. Walker, 'State sovereignty and the articulation of political space/time', *Millennium: Journal of International Studies*, 20:3 (1991), pp. 445–61; Madeleine Fagan, 'On the dangers of an Anthropocene epoch: Geological time, political time and post-human politics', *Political Geography*, 70 (2019), pp. 55–63.

⁷¹ John H. Herz, 'Idealist internationalism and the security dilemma', *World Politics*, 2:2 (1950), pp. 157–80; Campbell Craig, 'The resurgent idea of world government', *Ethics & International Affairs*, 22:2 (2008), pp. 133–42.

that a fundamental contradiction exists between the material ‘means of destruction’ and the ‘mode of protection’.⁷² Although this is a timeworn argument, Sears shows that the further proliferation of anthropogenic existential threats – not only nuclear weapons, but advanced artificial intelligence (AI) capabilities and climate change too – strain existing security institutions even further, to the point that meaningful security under current arrangements may be impossible.⁷³ Obsolete ‘security ideologies’ which privilege the survival of the nation-state over the survival of humanity entrench these inadequate arrangements.⁷⁴

To compound matters, existential threats interact with one another. The prospective integration of AI into chains of nuclear decision-making increases the likelihood of both inadvertent nuclear escalation and ‘catalytic’ nuclear war, whereby interference by a third party may provoke nuclear confrontation.⁷⁵ The Nuclear Threat Initiative is similarly concerned about the digital vulnerabilities which are likely to result from technological upgrades to the United States’ nuclear command and control infrastructure.⁷⁶ Technological developments may threaten to fundamentally undermine the survivability of second-strike nuclear arsenals, heightening the threat of nuclear war even according to conventional ‘deterrence’ logic.⁷⁷ Even a regional nuclear conflict would have severe climatic consequences,⁷⁸ and it is plausible that accelerating global heating could further destabilise existing flashpoints between nuclear powers, elevating the risk of war.⁷⁹ Concerningly, in response to accelerating climatic breakdown, emerging climate geoengineering technologies such as stratospheric aerosol injection pose existential risks of their own – yet may end up being ‘governed’ according to the same flawed institutional logics which drive present-day attempts to control the spread and use of nuclear weapons.⁸⁰

There are of course multiple other types of existential threat,⁸¹ some anthropogenic, others natural, and no specific event which threatens human existence or overturns the security order is guaranteed to happen, although structural conditions might make them more plausible.⁸² Just as Earth systems ‘tipping points’ introduce a huge amount of uncertainty into thinking

⁷²Daniel Deudney, ‘Geopolitics as theory: Historical security materialism’, *European Journal of International Relations*, 6:1 (2000), pp. 77–107.

⁷³Nathan Alexander Sears, ‘International politics in the age of existential threats’, *Journal of Global Security Studies*, 6:3 (2021), pp. 1–23.

⁷⁴Sears, ‘International politics’, pp. 16–17; see also Nafeez Mosaddeq Ahmed, ‘The international relations of crisis and the crisis of international relations: From the securitisation of scarcity to the militarisation of society’, *Global Change, Peace & Security*, 23:3 (2011), pp. 335–55; Simon Dalby, ‘Firepower: Geopolitical cultures in the Anthropocene’, *Geopolitics*, 23:3 (2018), pp. 718–42.

⁷⁵James Johnson, ‘Inadvertent escalation in the age of intelligence machines: A new model for nuclear risk in the digital age’, *European Journal of International Security*, 7:3 (2021), pp. 337–59; James Johnson, ‘“Catalytic nuclear war” in the age of artificial intelligence & autonomy: Emerging military technology and escalation risk between nuclear-armed states’, *Journal of Strategic Studies* (2021), pp. 1–41, available at: <https://www.tandfonline.com/doi/full/10.1080/01402390.2020.1867541>.

⁷⁶Erin Dumbacher and Lynn Rusten, ‘NTI experts warn of inherent cyber risks associated with nuclear weapons and modernization’, Nuclear Threat Initiative (8 June 2022), available at: <https://www.nti.org/news/nti-experts-warn-of-inherent-cyber-risks-associated-with-nuclear-weapons-and-modernization/>.

⁷⁷Keir A. Lieber and Daryl G. Press, ‘The new era of counterforce: Technological change and the future of nuclear deterrence’, *International Security*, 41:4 (2017), pp. 9–49.

⁷⁸Alan Robock and Owen Brian Toon, ‘Local nuclear war, global suffering’, *Scientific American*, 302:1 (2010), pp. 74–81.

⁷⁹Asha Asokan and Ira Helfand, ‘Climate change and water scarcity will increase risk of nuclear catastrophe in South Asia’, *Bulletin of the Atomic Scientists*, 78:4 (2022), pp. 214–17; Prakash Menon, ‘The China–India–Pakistan nuclear trilemma and accidental war’, *Journal for Peace and Nuclear Disarmament*, 5:2 (2022), pp. 350–68.

⁸⁰Danielle N. Young, ‘Considering stratospheric aerosol injections beyond an environmental frame: The intelligible “emergency” techno-fix and preemptive security’, *European Journal of International Security*, 8:2 (2023), pp. 262–80.

⁸¹Nick Bostrom, ‘Existential risk prevention as global priority’, *Global Policy* 4:1 (2013), pp. 15–31; Nathan Alexander Sears, ‘Existential security: Towards a security framework for the survival of humanity’, *Global Policy*, 11:2 (2020), pp. 255–66.

⁸²Colin Wright, ‘Event or exception?: Disentangling Badiou from Schmitt, or, towards a politics of the void’, *Theory & Event*, 11:2 (2008), available at: <https://www.muse.jhu.edu/article/240327>; Lebow, *Forbidden Fruit*.

about the ongoing ecological collapse and its societal consequences, for instance,⁸³ IR theory cannot predict the occurrence or non-occurrence of a given nuclear conflict or detonation.⁸⁴ Nonetheless, unknowable events 'do not emerge out of nowhere' even if they are not determined,⁸⁵ and it is possible to anticipate at least that multiple overlapping crises and catastrophes in some form will take place over the coming years and decades, and that many of these will have implications for nuclear politics. As Aradau and van Munster point out, future unknowable events and even catastrophes 'need not necessarily be rendered as something negative but could also provide a new beginning' by 'bring[ing] out the political issues that surround the invocation of imaginaries of the future'.⁸⁶ Indeed, this 'possibility of not knowing' is necessary to preserve the radical potential of future disruption.⁸⁷

In response, however, such events, which 'cannot be known, [have] not yet taken place but may radically disrupt existing social structures', are made actionable and governable in advance by security practitioners.⁸⁸ Research shows that individual cases of disarmament are likely to be preceded by political disruption.⁸⁹ In response, state-centric security ideologies generate governmental 'regimes of plausibility' which work to domesticate uncertainty, rendering the unknown 'known' in advance and prefiguring responses aimed at sustaining business-as-usual – what Anderson calls an 'anticipatory' politics of securitising the future.⁹⁰ The most striking example of this in the nuclear realm is the governmental logic of maintaining nuclear arsenals as an overarching response to the 'general uncertainty' of the future.⁹¹ This is despite the fact that, by its own internal logic, nuclear deterrence offers little protection against the majority of security threats that states are likely to face in the 21st century, and that the future technological and climatic changes described above may well render nuclear weapons 'a liability rather than an asset'.⁹²

Although the efforts of the humanitarian coalition to exercise institutional and productive power are effective within multilateral and international settings – not only the TPNW, but more widely various bodies within the UN, the NPT, its preparatory committees, and so on – activism and scholarship is yet to fully integrate questions of radical uncertainty (and state responses to it) in nuclear politics. Indeed, some elements of the counter-hegemonic strategy in its current form reproduce nuclear exceptionalism, which entails accepting the regimes of probability and plausibility which constrain the kinds of (post-)nuclear future that are imaginable. The TPNW, for example, contains text permitting state parties to withdraw from the Treaty 'if it decides that extraordinary

⁸³R. Alexander Bentley, Eleanor J. Maddison, Patricia H. Ranner et al., 'Social tipping points and earth systems dynamics', *Frontiers in Environmental Science*, 2 (2014), pp. 1–7.

⁸⁴Benoît Pelopidas, 'The unbearable lightness of luck: Three sources of overconfidence in the manageability of nuclear crises', *European Journal of International Security*, 2:2 (2017), pp. 240–62.

⁸⁵Claudia Aradau and Rens van Munster, *Politics of Catastrophe: Genealogies of the Unknown* (London: Routledge, 2011), p. 122.

⁸⁶Aradau and van Munster, *Politics of Catastrophe*, p. 5. This parallels Gramsci's understanding of the transformative potential of the 'organic crisis', during which 'the structures and practices that constitute and reproduce a hegemonic order fall into chronic and visible disrepair, creating a new terrain of political and cultural contention, and the possibility (but only the possibility) of social transformation'. See Carroll, 'Crisis', pp. 170–1.

⁸⁷Aradau and van Munster, *Politics of Catastrophe*, p. 117.

⁸⁸*Ibid.*, p. 2.

⁸⁹Kjølvi Egeland, 'A theory of nuclear disarmament: Cases, analogies, and the role of the non-proliferation regime', *Contemporary Security Policy*, 43:1 (2022), pp. 106–133.

⁹⁰Ben Anderson, 'Preemption, precaution, preparedness: Anticipatory action and future geographies', *Progress in Human Geography*, 34:6 (2010), pp. 777–98.

⁹¹Nick Ritchie, 'Deterrence dogma? Challenging the relevance of British nuclear weapons', *International Affairs*, 85:1 (2009), pp. 81–98.

⁹²Kjølvi Egeland and Benoît Pelopidas, 'European nuclear weapons? Zombie debates and nuclear realities', *European Security*, 30:2 (2021), pp. 237–58.

events related to the subject matter of the Treaty have jeopardized the supreme interests of its country.⁹³ As Considine points out, this reifies ‘the sovereign right’ to possess nuclear weapons for the protection of state interests,⁹⁴ which reasserts both the value of nuclear weapons themselves and the wider legitimacy of the sovereign-states system which sustains them. It also projects the continued value of nuclear deterrence into the future. Relatedly, the TPNW is also explicitly nested within the NPT. Against charges that the TPNW undermines the NPT in a manner which threatens global nuclear ‘stability’,⁹⁵ its advocates routinely point out the synergies between the two instruments.⁹⁶ Per the International Campaign for the Abolition of Nuclear Weapons (ICAN), a global civil society coalition advocating TPNW adherence: ‘Both treaties are an integral and permanent part of the international nuclear non-proliferation and disarmament architecture and have the same goal at their core: a nuclear-weapon-free world.’⁹⁷ Critiques of the NPT are well rehearsed and by no means universally accepted, but if we take seriously the argument that the legitimacy of nuclear weapons is sustained in part by global racial and civilisational hierarchies, then the role of the NPT in upholding these needs to be accounted for.⁹⁸ Repeated recommittal to the NPT therefore makes it difficult to envision (post-)nuclear futures under which these hierarchies are dislodged.⁹⁹ In addition, scepticism is required as to whether the NPT and the TPNW share the goal of disarmament at all.¹⁰⁰ Because the NPT contains no time-bound obligations on the designated nuclear-weapon states (NWS) to disarm, it effectively extends ‘nuclear eternity’, by deferring the project of nuclear disarmament to an unspecified point in the far future.¹⁰¹

In summary, once we consider the disruptive potential of anthropogenic existential threats in addition to nuclear weapons, the uncertainty they generate, and the ways in which they connect to the nuclear condition, the (im)probability of a radically rearranged world is a more open question. In addition, broadening the scope of nuclear futures considered politically possible may even be a scholarly responsibility given the scale and urgency of the problem.¹⁰² This does not mean that anything is possible – it is still necessary to ‘connect’ (post-)nuclear futures to the present. It is also not intended to absolve nuclear weapons possessors from action today, or in the near-term; the aim is to reveal connections between our nuclear present and a safer, post-nuclear future, spurring progressive policies by showing that disarmament is more ‘imaginable’ than may be assumed.

In the rest of this paper, I argue that a worldmaking agenda can enable both researchers and practitioners to do just this, while expanding beyond the regimes of plausibility and probability which constrain thinkable disarmed futures, even in the context of the disarmament movement.

⁹³Rebecca Eleanor Johnson, ‘Nuclear weapons are banned! What does this mean for Britain?’, Nuclearban.scot (January 2022), p. 64, available at: <https://www.nuclearban.scot/wp-content/uploads/2022/01/TPNW-UK-AIDD-CND-report-final-21.1.2022.pdf>.

⁹⁴Considine, ‘Contests of legitimacy and value’, p. 1090.

⁹⁵For example FCO, ‘UK statement on treaty prohibiting nuclear weapons’, Foreign and Commonwealth Office (8 July 2017), available at: <https://www.gov.uk/government/news/uk-statement-on-treaty-prohibiting-nuclear-weapons>; Christopher Ford and George Perkovich, ‘Briefing on nuclear ban treaty by NSC Senior Director Christopher Ford’, Carnegie Endowment for International Peace (22 August 2017), available at: <https://carnegieendowment.org/2017/08/22/briefing-on-nuclear-ban-treaty-by-nsc-senior-director-christopher-ford-event-5675>.

⁹⁶Tomas Hajnoczi, ‘The relationship between the NPT and the TPNW’, *Journal for Peace and Nuclear Disarmament*, 3:1 (2020), pp. 87–91; John Borrie, ‘An introduction to implementing the treaty on the prohibition of nuclear weapons’, *Journal for Peace and Nuclear Disarmament*, 4:1 (2021), pp. 1–12.

⁹⁷ICAN, ‘How the TPNW complements, reinforces, and builds on the NPT’, International Campaign to Abolish Nuclear Weapons (May 2023), available at: https://assets.nationbuilder.com/ican/pages/3204/attachments/original/1679360844/Briefing_Note_on_NPT-TPNW_Complementarity.pdf?1679360844.

⁹⁸See Gusterson, *People of the Bomb*; Biswas, *Nuclear Desire*; Mathur, ‘Sly civility’.

⁹⁹Cf. Joelien Pretorius and Tom Sauer, ‘When is it legitimate to abandon the NPT? Withdrawal as a political tool to move nuclear disarmament forward’, *Contemporary Security Policy*, 43:1 (2022), pp. 161–85.

¹⁰⁰Kjølv Egeland, ‘Nuclear weapons and adversarial politics: Bursting the abolitionist “consensus”’, *Journal for Peace and Nuclear Disarmament*, 4:1 (2021), pp. 107–15.

¹⁰¹Pelopidas, ‘Eternity’.

¹⁰²Pelopidas and Verschuren, ‘Writing IR after COVID-19’.

Worldmaking is also a good fit with counter-hegemonic strategy more broadly. Prefiguration is an important element of counter-hegemony, and a politics of worldmaking can strengthen the prefigurative power of the humanitarian coalition. It can be applied as a practical tool for practitioner and activist outreach and engagement, as well as a methodological tool to help researchers understand the implicit worldmaking commitments of nuclear disarmament movements, past and present.

My prescription is prefaced with the recognition that NATO and Western militaries are already engaging in speculative scenario thinking, drawing on science fiction to domesticate uncertain strategic futures.¹⁰³ Those hoping to use worldmaking techniques to subvert hegemonic strategic rationalities already have catching up to do.

Towards post-nuclear worldmaking

There is not universal agreement on the precise definition of worldmaking in a methodological sense, but the emerging body of scholarship shares several key insights. The foundational constructivist account is offered by the analytic philosopher Nelson Goodman, who argues in short that there is not a single world, but multiple worlds existing in parallel, none of which have ontological primacy. A physical world exists but awaits us to overlay a potentially infinite range of meanings. These insights have been incorporated into constructivist IR theory, most prominently by Onuf,¹⁰⁴ and have been politically sharpened as part of the 'pluriversal' or 'worlding' agenda within decolonial IR. Goodman argues that worlds, including 'our own', are made and remade through subjective processes of 'composition and decomposition', 'weighting', 'ordering', 'deletion and supplementation', and 'deformation'.¹⁰⁵ Worldmaking is therefore a creative endeavour. As an example, Ramachandran has richly documented how 16th- and 17th-century European thinkers engaged in this kind of worldmaking, in a purposive and deliberate way. After the 'discovery' of the so-called 'New World', these worldmakers were confronted with 'a need to synthesize new global experiences into a structure that would bind individual fragments into a collective unity'.¹⁰⁶ Worldmaking here was an interpretive activity which permitted a new, coherent understanding of 'the world' as an abstract whole once pre-existing Eurocentric global imaginaries had been shattered. Masco takes a similar approach in critically discussing the role of 'radioactive world-making' in maintaining a militarised and carbonised US state.¹⁰⁷ Adom Getachew, meanwhile, offers another account of worldmaking in international history. For her, anti-colonial nationalism during the early Cold War entailed a worldmaking project which was practical as much as (if not more than) interpretive: a concrete remaking of international institutions and the international at large. Formal decolonisation and post-colonial nation-building 'was insufficient in a context where dependence also characterised the new nation's condition in the international order'.¹⁰⁸ Freedom from domination required a fundamental reconfiguration of the global economy and institutions, allowing decolonised states to become full members of a cosmopolitan international society. We can understand the institution-building efforts of the humanitarian coalition – including but not limited to the TPNW – through this conceptualisation of worldmaking: that is, an effort towards the institutional transformation of global order to make it safe for nuclear disarmament.

¹⁰³ Christopher Coker, 'Imagining the Third World War', *The RUSI Journal*, 160:6 (2015), pp. 76–7; NDC Public Affairs Office, 'NATO 2009: A graphic novel', NATO Defence College (2 October 2023), available at: <https://www.ndc.nato.int/news/news.php?icode=1872>. I thank Reviewer 2 for pointing this out.

¹⁰⁴ Nicholas Onuf, *World of Our Making: Rules and Rule in Social Theory and International Relations* (Abingdon: Routledge, 2013).

¹⁰⁵ Nelson Goodman, *Ways of Worldmaking* (Indianapolis: Hackett, 1978), pp. 7–17.

¹⁰⁶ Ayesha Ramachandran, *The Worldmakers: Global Imagining in Early Modern Europe* (Chicago: University of Chicago Press, 2015), p. 7.

¹⁰⁷ Joseph Masco, *The Future of Fallout, and Other Episodes in Radioactive World-Making* (Durham, NC: Duke University Press, 2019).

¹⁰⁸ Adom Getachew, *Worldmaking after Empire: The Rise and Fall of Self-Determination* (Princeton, NJ: Princeton University Press, 2019), p. 17.

However, I am interested here in a worldmaking project that is (1) future-oriented; (2) synoptic in its purview; and (3) ‘connective’ (i.e. serving to connect the nuclear present and post-nuclear futures, without being shackled by unnecessarily restrictive accounts of plausibility, as discussed above). How this is applied in practice will vary between practitioners, but I envision a programme of creative activity based on ‘scenario worldmaking.’ This is a developing practice in disciplines outside of IR, including management studies, human geography, and transdisciplinary futures research. IR and security studies researchers should engage in the purposive construction of disarmed futures, expanding the boundaries of possible policy options by using these imaginaries of the future to ‘trace, foreground and operationalize the mutuality of futures with the present,’¹⁰⁹ drawing on mainstream disciplinary literature on the nuclear condition in the process while aiming to transcend some of its constraints. The Future of Life Institute offers an example of such practice with its world-building competition, which asks entrants to design ‘plausible’ and ‘aspirational’ – meaning desirable, but not necessarily utopian – worlds, which incorporate highly developed AI.¹¹⁰ These worlds are ‘connected’ in the manner advocated by Pelopidas: they are stipulated to be ‘consistent with today’s actual world,’ ‘consistent with known science,’ and should ‘not rely on any implausible “miracles” to make sense,’ while reserving space for improbability.¹¹¹

I now expand on the principal characteristics that make a post-nuclear worldmaking project a good fit with both critical IR and security studies, as well as complementary with the counter-hegemonic ambitions of the humanitarian campaign for nuclear disarmament.

Towards the future

Counter-hegemonic politics (perhaps all politics, in fact) is fundamentally a ‘struggle over what the future should look like.’¹¹² Despite this, present-day disarmament scholarship has rarely engaged with generative visions of post-nuclear futures, with most researchers (quite reasonably) preferring to focus on the concrete processes and practices involved in institutionalising nuclear prohibition as a norm.¹¹³ As Davis Gibbons and Herzog conclude in a putative discussion of nuclear futures, ‘the best advocacy strategy for proponents of the [TPNW] appears to be pointing to the world’s nuclear realities.’¹¹⁴ The focus on the ‘here and now’ has undoubtedly produced significant diplomatic results, but speculative accounts of what a post-nuclear future might look like – apart from the basic condition of nuclear disarmament – remain absent.¹¹⁵ Apart from a responsible practitioner’s desire to avoid charges of utopianism, this is in part a methodological shortcoming of mainstream IR theory. As Patomäki notes, although ‘policy planning and strategies for emancipatory transformation are both directed at that which has not yet taken place,’ theorising about the social world and the international is almost always oriented towards the past, reliant on hindsight and the search for precedence.¹¹⁶ The resultant cognitive and methodological biases encourage

¹⁰⁹Joost M. Vervoort, Roy Bendor, Aisling Kelleher et al., ‘Scenarios and the art of worldmaking,’ *Futures*, 74 (2015), pp. 62–70 (p. 63).

¹¹⁰I thank Reviewer 1 for drawing this initiative to my attention.

¹¹¹Future of Life Institute, ‘World Building Contest,’ July 2022, available at: <https://worldbuild.ai/#our-finalists>.

¹¹²Nick Srnicek and Alex Williams, *Inventing the Future: Postcapitalism and a World without Work* (London: Verso, 2015) p. 100, my emphasis.

¹¹³E.g. Kjølvi Egeland, ‘Dead rubber diplomacy: What to expect from the tenth NPT review conference?’, *Medicine, Conflict and Survival*, 36:3 (2020), pp. 206–11; Nick Ritchie and Ambassador Alexander Kmentt, ‘Universalising the TPNW: Challenges and opportunities’, *Journal for Peace and Nuclear Disarmament*, 4:1 (2021), pp. 70–93; Carolina Panico, ‘Challenging war traditions: Humanitarian discourse and the nuclear prohibition treaty’, *International Affairs*, 99:3 (2023), pp. 1191–210.

¹¹⁴Rebecca Davis Gibbons and Stephen Herzog, ‘The first TPNW meeting and the future of the nuclear ban treaty’, *Arms Control Today* (September 2022), p. 16.

¹¹⁵A recent and rare vision of a post-nuclear future within disciplinary IR still proceeds from the premise of a world that has already been destroyed by nuclear war. Michal Onderco and Jeffrey W. Knopf, ‘Nuclear weapons in 2122: Disaster, stability, or disarmament?’, in Laura Horn, Ayşem Mert, and Franziska Müller (eds), *The Palgrave Handbook of Global Politics in the 22nd Century* (London: Palgrave Macmillan, 2023), pp. 107–22.

¹¹⁶Heikki Patomäki, ‘Realist ontology for Futures Studies’, *Journal of Critical Realism*, 5:1 (2006), pp. 1–31 (p. 9).

us to interpret historical events as having been overdetermined and to project this overdetermination into the future, tightly constraining our perceptions of the plausibility of alternatives.¹¹⁷ Another worrying result of this orientation from the perspective of nuclear politics is a pervasive overconfidence in humanity's ability to avoid nuclear accidents or nuclear war.¹¹⁸

This is not to argue that IR is incompatible with future-thinking or lacking in previous attempts to do so, and previous projects aimed at envisioning different global futures can inform a practice of post-nuclear worldmaking. Between the 1960s and 1990s, Saul Mendlovitz's World Order Models Project (WOMP) flourished into a pluralist academic movement whose participants constructed detailed visions of alternative world orders, aimed at bringing about global peace. WOMP produced a huge body of literature, including the journal *Alternatives*. Richard Falk, who contributed several works to WOMP, summarised the project thus:

WOMP shares with the utopian tradition both a rejection of incrementalist approaches and a search for appealing images of what alternatives to the present system of world order exist. What distinguishes WOMP, to date, is its emphasis on linking diagnosis of the present to prescription for the future through an inquiry into transition processes.¹¹⁹

WOMP not only entailed the purposive generation of alternative world orders, but also of road maps as to how they could be reached. This entailed a raft of formidable methodological challenges. Critics charged WOMP with an ahistorical and atheoretical view of global processes and seized upon its implicit Enlightenment faith that an academic elite could both generate a 'perfect' vision of global order and bring it about through appeals to rationality and education.¹²⁰ With regard to future (post-)nuclear orders, WOMP adherents put forward a diverse range of visions but recognised the interconnection of nuclear weapons and nuclear energy.

Nevertheless, in the context of renewed global upheaval and existential danger, I follow McKeil in suggesting that reworked WOMP-style worldmaking projects can be of use to a counter-hegemonic nuclear politics. Degradations in the prevailing international order (combined with the ecological and technical ruptures discussed above) are generating uncertainty and instability, yet 'predominant debates on the emerging future of global order are generally near-term in strategic analysis and great power and often US-centric, being still relatively disconnected from questions about alternative global order possibilities.'¹²¹ A 'global' post-nuclear worldmaking project, incorporating the intersectional awareness already embedded in the humanitarian disarmament movement, would be an effective way to add an aspect of futurity which is currently lacking. As one example, Hogue and Maurer aim to centre Indigenous knowledge and experience through an examination of Pacific women's anti-nuclear poetry;¹²² post-nuclear worldmaking projects must engage these subjugated forms of nuclear knowledge if they are to transcend the intellectual and geographical limitations which limited the impact of WOMP. Enduring forms of worldmaking will be democratised, bottom-up efforts which are able to conceive of radical alternatives to the status quo,¹²³ not top-down impositions.

Falk argued that nuclear abolition would entail 'the interrelated pursuit of peace, economic well-being, social and political justice, and ecological balance held together by an emergent sense of

¹¹⁷ Lebow, *Forbidden Fruit*.

¹¹⁸ Pelopidas, 'Unbearable lightness'.

¹¹⁹ Richard Falk, 'The world order models project and its critics: A reply', *International Organization*, 32:2 (1978), pp. 531–45.

¹²⁰ Harry R Targ, 'World order and futures studies reconsidered', *Alternatives*, 5:3 (1979), pp. 371–81.

¹²¹ Aaron McKeil, 'Revisiting the world order models project: A case for renewal?', *Global Policy*, 13:4 (2022), pp. 417–426 (p. 422).

¹²² Rebecca H. Hogue and Anaïs Maurer, 'Pacific women's anti-nuclear poetry: Centring Indigenous knowledges', *International Affairs*, 98:4 (2022), pp. 1267–88.

¹²³ Adom Getachew, Deborah Chasman, and Joshua Cohen, 'Editor's note', *Boston Review Forum*, 47:4 (2022), pp. 5–7.

human community and planetary identity.¹²⁴ For the purposes of post-nuclear worldmaking, while it may not always be necessary to think on such a grandly ambitious scale as WOMP, it is necessary to ask questions regarding how much needs to change *around* nuclear weapons themselves for nuclear disarmament to be feasible.

A synoptic purview

A post-nuclear worldmaking project can also be a useful counterweight to the nuclear exceptionalism which may prevail in mainstream international institutions. As discussed above, while dealing with the problem of nuclear weapons through global institutions and treaties may be effective in a technical sense, it can also encourage practitioners and researchers to view the nuclear realm as exceptional – a technological or a diplomatic problem, hived off from structures of power or areas of policy practice.¹²⁵ The intersectionality of the humanitarian movement goes some way to remedying this. However, a worldmaking perspective permits the imagination of more expansive futures ‘around’ the condition of disarmament, as well as acknowledging that present-day non-proliferation policy and nuclear disarmament activism alike may contain implicit worldmaking ambitions beyond their relatively narrow policy focus. Mackay shows, through an innovative study of the ideologies and imaginations underlying Western counter-insurgency campaigns, that bounded practices can still harbour ‘synoptic ambition’, *synoptic* here denoting a wide-ranging concern ‘not with localized change or fractional adjustment, but with a frame of reference emphasizing the whole as much as its constitutive parts.’¹²⁶ US and European counter-insurgency practices have historically aimed, in an immediate sense, at erasing local political difference and disorder, but their diagnoses and prescriptions for action entail a ‘conservative, high modern, and utopian’ worldmaking project.¹²⁷ Following Mackay’s efforts, one potentially fruitful avenue for further research is thus to examine the documents and practices of (for example) ICAN and the broader humanitarian coalition for unspoken synoptic worldmaking ambitions. A comparative study, examining the potential worldmaking content of other nuclear disarmament initiatives, could yield further useful insights.

However, the focus here is on explicit, generative worldmaking practices, which must also be synoptic in their purview. These can allow activists and researchers to critically imagine disarmed futures, working at least temporarily outside of material and structural constraints imposed by the hegemonic nuclear control order – and the even-wider structures of neoliberal capitalism which sustain it – where the humanitarian coalition is currently disadvantaged.¹²⁸ This has value beyond a pleasant thought experiment, permitting important generative thinking about issues around nuclear disarmament which may seem intractable within current institutional structures. For instance, Kim Stanley Robinson’s novel *The Ministry for the Future*, in imagining a near-future world that has belatedly but effectively responded to climate catastrophe, also alludes to far-reaching changes in the global financial system, military-strategic rationalities, and humanity’s relationship to the natural world.¹²⁹ Although Robinson’s vision of the future is not perfectly coherent, its synoptic purview encourages productive discussion about the connections between the ecological, political, strategic, and social realms, and the contradictions which arise from their interaction in Robinson’s world.¹³⁰

¹²⁴ Richard Falk, ‘Nuclear weapons proliferation as a world order problem’, *International Security*, 1:3 (1977), pp. 79–93 (p. 92).

¹²⁵ See Gabrielle Hecht, ‘Negotiating global nuclearities: Apartheid, decolonization, and the Cold War in the making of the IAEA’, *Osiris*, 21:1 (2006), pp. 25–48.

¹²⁶ Joseph Mackay, *The Counterinsurgent Imagination: A New Intellectual History* (Cambridge: Cambridge University Press, 2023), p. 18.

¹²⁷ Mackay, *Counterinsurgent Imagination*, p. 25.

¹²⁸ Ritchie and Egeland, ‘Diplomacy’.

¹²⁹ Kim Stanley Robinson, *The Ministry for the Future* (London: Hachette, 2020).

¹³⁰ For example, in Robinson’s future, nuclear weapons have been usurped as the ultimate means of global destruction by a new, high-tech weapons system, the specifics of which remain vague. This reliance on obsolescence is unsatisfying. As Young (‘Considering stratospheric aerosol injections’) points out, Robinson’s reliance on solar geoengineering as a ‘techno-fix’ is also problematic.

Applying this approach to nuclear disarmament, one thorny issue that stands out by way of example is the question of conventional weapons superiority.¹³¹ Some commentators have argued that a path towards nuclear disarmament under which the United States retains conventional preponderance will fail, because key strategic rivals will reject it.¹³² Nuclear abolition is therefore likely to require, if not some form of world federative state,¹³³ a creative rearticulation of strategic rationalities and interests. Following a generative worldmaking approach, Jackson has offered three scenarios for the adoption of 'progressive' US foreign policy which, while not dealing with nuclear weapons in any depth, would each offer significant opportunities for the reorientation of global nuclear politics.¹³⁴ Post-nuclear worldmaking, when carried out with a synoptic purview, can therefore offer a tool to situate the ultimate policy goal of nuclear abolition within radically reconfigured global strategic contexts and assess their potential favourability to nuclear disarmament.

Relatedly, while the TPNW and its advocates aim to stigmatise nuclear weapons to the end that non-nuclear states are not motivated to acquire them, they must operate within and alongside a non-proliferation regime which implicitly envisions and reifies a world in which nuclear weapons will always be – for any number of possible reasons¹³⁵ – desirable. Nuclear proliferation is thus understood through mainstream scholarship as an overdetermined and even immutable ordering dynamic of history.¹³⁶ As Pelopidas points out, popular science fiction often constructs visions of the future in which a 'cyclical temporality' is at play, wherein future societies are destined to destroy themselves with nuclear weapons but then inevitably rearm.¹³⁷ Countervailing imaginaries, by contrast, are lacking. A synoptic project of post-nuclear worldmaking invites us not only to debate the validity of assumptions regarding non-proliferation and (re)armament, but to speculatively consider the implications of future worlds in which these wider metaphysical dynamics are altered or do not apply. It is notable, for example, that nuclear weapons are discussed in science fiction, almost invariably, from the starting point of either impending or actual nuclear annihilation. Onderco and Knopf's recent intervention, while freeing itself from some of the constraints of disciplinary IR to engage in a rare post-nuclear worldmaking exercise, reproduces this device.¹³⁸ This is a missed opportunity to ask: what might a speculative vision of a post-nuclear future in which nuclear apocalypse *has not* taken place reveal about how that world works, and what about this is similar or different to our own?

Connectivity and counter-hegemony

While synoptic worldmaking exercises as described above may sound ambitious, the aim of this agenda (unlike WOMP) is not to straightforwardly design and bring about ideal, blueprinted disarmed worlds. The more modest ambition here is to show how post-nuclear worldmaking can widen the range of connections that can be drawn between our current

¹³¹ Christine Leah and Adam B. Lowther, 'Conventional arms and nuclear peace', *Strategic Studies Quarterly*, 11:1 (2017), pp. 14–24.

¹³² Andrew Futter and Benjamin Zala, 'Advanced US conventional weapons and nuclear disarmament: Why the Obama plan won't work', *The Nonproliferation Review*, 20:1 (2013), pp. 107–22.

¹³³ E.g. Campbell Craig, 'The resurgent idea of world government', *Ethics & International Affairs*, 22:2 (2008), pp. 133–42; Daniel Deudney, *Bounding Power: Republican Security Theory from the Polis to the Global Village* (Princeton, NJ: Princeton University Press, 2007).

¹³⁴ Van Jackson, 'Left of liberal internationalism: Grand strategies within progressive foreign policy thought', *Security Studies*, 31:4 (2022), pp. 553–92.

¹³⁵ E.g., Scott D. Sagan, 'Why do states build nuclear weapons? Three models in search of a bomb', *International Security*, 21:3 (1996), pp. 54–86; Etel Solingen, *Nuclear Logics: Contrasting Paths in East Asia and the Middle East* (Princeton, NJ: Princeton University Press, 2009); cf. Biswas, *Nuclear Desire*.

¹³⁶ Itty Abraham, "'Who's next?' Nuclear ambivalence and the contradictions of non-proliferation policy', *Economic and Political Weekly*, 45:43 (2010), pp. 48–56.

¹³⁷ Pelopidas, 'Eternity', p. 492. The example given is the television series *Battlestar Galactica*; Walter M. Miller Jr.'s novel *A Canticle for Liebowitz* is another.

¹³⁸ Onderco and Knopf, 'Nuclear weapons in 2122'.

world and future disarmed ones: beyond ‘our world, but without nuclear weapons’. I finally discuss the ‘connective’ nature of a post-nuclear worldmaking project and how this can complement existing counter-hegemonic strategy. The practice of generating different visions of post-nuclear futures can assist in finding ways to ‘weld the present to the future’ as part of the Gramscian war of position,¹³⁹ complementing ongoing efforts around ‘the diplomacy of resistance’, divestment campaigns, and public consciousness raising about the humanitarian impact of nuclear weapons.¹⁴⁰

The ability to temporarily inhabit future worlds via scenario worldmaking processes – ‘to experience rather than tell’ them – allows us to conduct intellectual experiments which might reveal novel connections between our available present reality(ies) and future ones.¹⁴¹ Vervoort et al. suggest a number of questions that can be productively asked ‘from within’ worlds. Asking ‘why is this world constructed like this?’, for instance, enables us to identify the core events which have brought about a given future.¹⁴² A crucial advantage of this kind of activity is that it allows us to expand the various institutional regimes of probability and plausibility which bound thinking about the future and,¹⁴³ as discussed, lock in assumptions about the future viability of nuclear-deterrence strategies against a backdrop of continued global stability. In an increasingly uncertain ecological and technological context, generative worldmaking practice can harness the productive power of what Ramirez and Selin call ‘productive ambiguity’. Indeed, while we might wish to discard ‘impossibilities’ from our thinking,¹⁴⁴ ‘the scenarios which might better help to guide action in post-normal uncertainty are those considered highly implausible and uncomfortable those outside existing mental models and framings that contest their relevance and validity’.¹⁴⁵

In other words, while there may be little space for considering the impact of ‘implausible’ or unknown future events within the institutional confines of nuclear-weapons diplomacy, disarmament advocates should permit themselves to think about what the politics of nuclear abolition might look like in various radically altered worlds. This can illuminate new connections with our present, nuclear-armed world, which may not currently be obvious. Investigating the relationships between worlds, we might ask:

In what ways may a newly created scenario world threaten present worlds? What opportunities may it bring? What new ideas? What elements of this scenario world create the most discomfort for available worlds? How does it challenge the values associated with present worlds? Which elements could help fill knowledge gaps and blind spots? What would happen if elements of this world emerge in some present worlds but not in others?¹⁴⁶

This kind of worldmaking activity further strengthens a counter-hegemonic strategy by deepening its prefigurative element. Theorists of counter-hegemony have long discussed the importance of prefiguration in the war of position: ‘the embodiment, within the ongoing political practice of a movement, of those forms of social relations, decision-making, culture, and human experience

¹³⁹ Antonio Gramsci, ‘Workers’ democracy’, trans. Michael Carley, Marxists.org (10 August 2021), available at: <https://www.marxists.org/archive/gramsci/1919/06/workers-democracy.htm>).

¹⁴⁰ Ritchie and Egeland, ‘Diplomacy’.

¹⁴¹ Vervoort et al., ‘Scenarios and the art of worldmaking’, p. 67.

¹⁴² Ibid., p. 68.

¹⁴³ Aradau and van Munster, *Politics of Catastrophe*.

¹⁴⁴ There are, however, several historic examples of assumptions of technological ‘impossibility’ being quickly proven wrong. Patomäki, ‘Realist ontology’, p. 13.

¹⁴⁵ Rafael Ramírez and Cynthia Selin, ‘Plausibility and probability in scenario planning’, *Foresight*, 16:1 (2014), pp. 54–74 (p. 67).

¹⁴⁶ Vervoort et al., ‘Scenarios and the art of worldmaking’, p. 68. The authors discuss at greater length a comprehensive list of useful questions that can be asked of and from generated future worlds.

that are the ultimate goal'.¹⁴⁷ Disagreements prevail between orthodox Marxists who see prefiguration as a step on the road to revolution and more libertarian, anarchist elements who view it as an end in itself – emphasising the importance of more autonomous and fulfilled 'revolutionary lifestyles' over future societal change.¹⁴⁸ Neither of these orientations are particularly relevant to the humanitarian coalition's contemporary disarmament activism. While the 'diplomacy of resistance' can certainly be interpreted as a prefigurative project in its construction of parallel institutions and subversive international political practice, its advocates do not claim that it incubates the inevitable post-nuclear future within the structures of nuclearism. Rather, Ritchie conceives of 'disarmament effects' taking place within a more open system of actors and networks.¹⁴⁹ Meanwhile, the persistent and inescapable global insecurity generated by nuclear-deterrence policies does not give anyone the luxury of choosing to live, prefiguratively, in a disarmed world.

Nonetheless, an element of prefiguration (or a close analogue) remains an important part of future-oriented counter-hegemonic politics. Prefiguration can encourage the 'scaling up' of initiatives beyond original sites of imagination, generate shared reserves of knowledge, encourage attitudinal change, and perhaps most importantly create 'a shared sense of purpose ... widening people's sense of what might be possible'.¹⁵⁰ Gordon, following Ernest Bloch, suggests that a politics of 'concrete utopia' can fulfil this role while transcending old debates about the proper strategic role of prefigurative politics. Concrete utopias are not plans for ideal future worlds, as seen in 19th-century utopian fiction, but are rooted in the present world and its material conditions – in other words, the future is connected to the present. 'As a result, concrete-utopian impulses correspond not to fantasy, but to hope and action.'¹⁵¹ Here, concrete utopian thinking is rooted not only in hope for a better future, but also 'anxious' and 'catastrophic' forms of hope which are responses to current conditions of planetary precarity and existential threat:

Such hope can look forward to the adoption of radical alternatives out of the urgency and necessity of a decaying world. From this there can also emerge a reading of catastrophe as a harbinger of revolutionary openings in the future.¹⁵²

Post-nuclear worldmaking, outlined here as a generative, future-oriented, and synoptic project, fits this brief. It can serve in complement with ongoing diplomatic, institutional, and activist efforts to stigmatise and devalue nuclear weapons by strengthening the connection between the present moment and future disarmed worlds, while serving as an inspiring prefigurative practice which broadens perceived horizons of possibility. It will integrate easily and productively into current counter-hegemonic strategy.

Conclusion

In this article, I have argued that imagining post-nuclear futures is a reasonable, and perhaps obligatory, response to the omnicidal danger of nuclear weapons. While the efforts of the humanitarian coalition and its 'diplomacy of resistance' are crucially important, they have not yet generated

¹⁴⁷ Carl Boggs, 'Marxism, prefigurative Communism, and the problem of workers' control', republished at Libcom.org, 2010 [1977], available at: <https://libcom.org/library/marxism-prefigurative-communism-problem-workers-control-carl-boggs>.

¹⁴⁸ Compare William K. Carroll, 'Hegemony, counter-hegemony, anti-hegemony', *Socialist Studies*, (Fall 2006), pp. 9–43, and Johanthan Matthew Smucker, 'Can prefigurative politics replace political strategy?' *Berkeley Journal of Sociology*, 58 (2014), pp. 74–82.

¹⁴⁹ Nick Ritchie, 'Inventing nuclear disarmament', *Critical Studies on Security*, 7:1 (2019), pp. 73–7.

¹⁵⁰ Craig Jeffrey and Jane Dyson, 'Geographies of the future: Prefigurative politics', *Progress in Human Geography*, 45:4 (2021), pp. 652–53.

¹⁵¹ Uri Gordon, 'Prefigurative politics between ethical practice and absent promise', *Political Studies*, 66:2 (2018), pp. 521–537 (p. 533).

¹⁵² *Ibid.*, p. 534.

alternative visions of the post-nuclear future.¹⁵³ My core contribution is to challenge the idea that future-oriented nuclear disarmament scholarship should focus only on bringing about ‘our world without nuclear weapons’.¹⁵⁴ Post-nuclear worldmaking, by inviting us to imagine nuclear disarmament in synoptic context, raises questions about this assumption. What might disarmament look like if ‘our world’ is significantly altered by an improbable but plausible climatic disaster or nuclear war? How might ‘our world without nuclear weapons’ appear from different perspectives, including subaltern ones? Is ‘our world without nuclear weapons’ a likely – or indeed, desirable – end, or might the most plausible version of a disarmed world entail far-reaching changes which render it ‘another’? These are key questions for future-facing politics of nuclear disarmament, and despite their speculative nature, they can be rigorously and systematically explored.

Existing ‘road maps’ to disarmament and archives of disarmament movements past and present can be fruitfully mined for research data when seen as creative worldmaking projects, in a similar manner as some have done with pop-cultural artefacts.¹⁵⁵ More importantly, however, scholars and activists alike should see generative post-nuclear worldmaking as a legitimate and valuable research activity, to deepen and densify connections between the present and a speculative nuclear-free future.

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¹⁵³Existing scholarship has occasionally gestured to this. See Sidney David Drell and James E. Goodby, *A World without Nuclear Weapons: End-State Issues* (Stanford, CA: Hoover Institution Press, 2009).

¹⁵⁴Ritchie, ‘Contestation’; Pelopidas, ‘Eternity’.

¹⁵⁵Robert Jacobs (ed.), *Filling the Hole in the Nuclear Future: Art and Popular Culture Respond to the Bomb* (Plymouth, MA: Lexington Books, 2010).