### 1

#### Interpretation: The affirmative may not specify a just government in which a right to strike ought to be recognized

#### “A” is an indefinite article that modifies “just government” in the res – means that you have to prove the resolution true in a VACCUM, not in a particular instance

CCC (“Articles, Determiners, and Quantifiers”, http://grammar.ccc.commnet.edu/grammar/determiners/determiners.htm#articles, Capital Community College Foundation, a nonprofit 501 c-3 organization that supports scholarships, faculty development, and curriculum innovation) LHSLA JC/SJ

The three articles — a, an, the — are a kind of adjective. The is called the definite article because it usually precedes a specific or previously mentioned noun; a and an are called indefinite articles because they are used to refer to something in a less specific manner (an unspecified count noun). These words are also listed among the noun markers or determiners because they are almost invariably followed by a noun (or something else acting as a noun). caution CAUTION! Even after you learn all the principles behind the use of these articles, you will find an abundance of situations where choosing the correct article or choosing whether to use one or not will prove chancy. Icy highways are dangerous. The icy highways are dangerous. And both are correct. The is used with specific nouns. The is required when the noun it refers to represents something that is one of a kind: The moon circles the earth. The is required when the noun it refers to represents something in the abstract: The United States has encouraged the use of the private automobile as opposed to the use of public transit. The is required when the noun it refers to represents something named earlier in the text. (See below..) If you would like help with the distinction between count and non-count nouns, please refer to Count and Non-Count Nouns. We use a before singular count-nouns that begin with consonants (a cow, a barn, a sheep); we use an before singular count-nouns that begin with vowels or vowel-like sounds (an apple, an urban blight, an open door). Words that begin with an h sound often require an a (as in a horse, a history book, a hotel), but if an h-word begins with an actual vowel sound, use an an (as in an hour, an honor). We would say a useful device and a union matter because the u of those words actually sounds like yoo (as opposed, say, to the u of an ugly incident). The same is true of a European and a Euro (because of that consonantal "Yoo" sound). We would say a once-in-a-lifetime experience or a one-time hero because the words once and one begin with a w sound (as if they were spelled wuntz and won). Merriam-Webster's Dictionary says that we can use an before an h- word that begins with an unstressed syllable. Thus, we might say an hisTORical moment, but we would say a HIStory book. Many writers would call that an affectation and prefer that we say a historical, but apparently, this choice is a matter of personal taste. For help on using articles with abbreviations and acronyms (a or an FBI agent?), see the section on Abbreviations. First and subsequent reference: When we first refer to something in written text, we often use an indefinite article to modify it. A newspaper has an obligation to seek out and tell the truth. In a subsequent reference to this newspaper, however, we will use the definite article: There are situations, however, when the newspaper must determine whether the public's safety is jeopardized by knowing the truth. Another example: "I'd like a glass of orange juice, please," John said. "I put the glass of juice on the counter already," Sheila replied. Exception: When a modifier appears between the article and the noun, the subsequent article will continue to be indefinite: "I'd like a big glass of orange juice, please," John said. "I put a big glass of juice on the counter already," Sheila replied. Generic reference: We can refer to something in a generic way by using any of the three articles. We can do the same thing by omitting the article altogether. A beagle makes a great hunting dog and family companion. An airedale is sometimes a rather skittish animal. The golden retriever is a marvelous pet for children. Irish setters are not the highly intelligent animals they used to be. The difference between the generic indefinite pronoun and the normal indefinite pronoun is that the latter refers to any of that class ("I want to buy a beagle, and any old beagle will do.") whereas the former (see beagle sentence) refers to all members of that class

#### Violation: they spec [x]

#### Standards:

#### [1] precision – the counter-interp justifies them arbitrarily doing away with random words in the resolution which decks negative ground and preparation because the aff is no longer bounded by the resolution. Independent voter for jurisdiction – the judge doesn’t have the jurisdiction to vote aff if there wasn’t a legitimate aff.

#### [2] limits – the UN says there are 195 national governments but even that’s not an agreed upon brightline – explodes limits since there are tons of independent affs plus functionally infinite combinations, all with different advantages in different political situations. Kills neg prep and debatability since there are no DAs that apply to every aff – i.e. factors that affect labor shortages or unions in the US are different than in China – means the aff is always more prepared and wins just for speccing.

#### [3] tva – just read your aff as an advantage under a whole res advocacy, solves all ur offense

#### Fairness – debate is a competitive activity that requires fairness for objective evaluation. Outweighs because it’s the only intrinsic part of debate – all other rules can be debated over but rely on some conception of fairness to be justified. Education’s a voter – terminal impact of debate

#### Drop the debater – a] deter future abuse and b] set better norms for debate.

#### Competing interps – [a] reasonability is arbitrary and encourages judge intervention since there’s no clear norm, [b] it creates a race to the top where we create the best possible norms for debate.

#### No RVIs – a] illogical, you don’t win for proving that you meet the burden of being fair, logic outweighs since it’s a prerequisite for evaluating any other argument, b] RVIs incentivize baiting theory and prepping it out which leads to maximally abusive practices

### 2

#### Interpretation: Debaters must disclose the plan text of their affirmative to the to their opponent

#### Violation: ss in the Doc

Graphical user interface, text, application, email

Description automatically generated

#### ~1~ Limits –plan text are infinitely unpredictable – they’ll always win with cheap shot affs that we can’t prep. Giving standard text preserves sufficient affirmative flexibility by allowing your warrant to be new, but also allows the 1nc a chance of engaging. Giving the advantage area doesn’t solve since different countries have different implications on DA’s and the implications of

#### ~2~ Argument quality: standard text disclosure discourages cheap shot aff’s with frings authors and shoddy solvency. If the aff isn’t inherent or easily defeated by 20 minutes of research, the case should lose. They had a month to prep – the neg is entitled to some research time to make sure the AFF is inherent, topical, and controversial. Outweighs on argument quality and innovation – kills education only portable impact and encourages unfairness

### 3

#### Permissibility and presumption negate – a. the resolution indicates the affirmative is proactive, and permissibility would deny the existence of an obligation b. Statements are more often false than true because any part can be false. This means you negate if there is no offense because the resolution is probably false.

#### The neg burden is to prove that the aff won’t logically happen in the status quo, and the aff burden is to prove that it will.

Top of Form

Bottom of Form

#### Prefer:

#### 1] Text –

#### A] Ought is “used to express logical consequence” as defined by Merriam-Webster

(<http://www.merriam-webster.com/dictionary/ought>) //Massa

#### B] Oxford Dictionary defines ought as “used to indicate something that is probable.”

<https://en.oxforddictionaries.com/definition/ought> //Massa

#### 2] Debatability – a) it focuses debates on empirics about squo trends rather than irresolvable abstract principles that’ve been argued for years B] moral framework debate is impossible.

Joyce 02 Joyce, Richard. Myth of Morality. Port Chester, NY, USA: Cambridge University Press, 2002. p 45-47.

This distinction between what is accepted from within an institution, and “stepping out” of that institution and appraising it from an exterior perspective, is close to Carnap’s distinction between internal and external questions. 15 Certain **“linguistic frameworks”** (as Carnap calls them) **bring** with them **new** terms and **ways of talking: accepting the language of “things” licenses making assertions** like “The shirt is in the cupboard”; **accepting mathematics allows one to say “There is a prime number greater than one hundred”;** accepting the language of propositions permits saying “Chicago is large is a true proposition,” etc. Internal to the framework in question, confirming or disconfirming the truth of these propositions is a trivial matter. But traditionally **philosophers have interest**ed themselves **in** the external question – **the issue of the adequacy of the framework itself:** “Do objects exist?”, “Does the world exist?”, “**Are there numbers?”,** “Are the propositions?”, etc. Carnap’s argument is that **the** external **question,** as it has been typically construed, **does not make sense. From a perspective that accepts mathematics, the answer to the question “Do numbers exist?” is just** trivially **“Yes.”** From a perspective which has not accepted mathematics, Carnap thinks, the only sensible way of construing the question is not as a theoretical question, but as a practical one: “Shall I accept the framework of mathematics?”, and this pragmatic question is to be answered by consideration of the efficiency, the fruitfulness, the usefulness,etc., of the adoption. But the (traditional) **philosopher’s questions** – “But is mathematics true?”, “Are there really numbers?” – **are pseudo-questions.** By turning traditional philosophical questions into practical questions of the form “Shall I adopt...?”, Carnap is offering a noncognitive analysis of metaphysics. Since I am claiming that we can critically inspect morality from an external perspective – that we can ask whether there are any non-institutional reasons accompanying moral injunctions – and that such questioning would not amount to a “Shall we adopt...?” query, Carnap’s position represents a threat. What arguments does Carnap offer to his conclusion? He starts with the example of the “thing language,” which involves reference to objects that exist in time and space. **To** step out of the thing language and **ask “But does the world exist?” is a mistake,** Carnap thinks, **because the very notion of “existence” is a term which belongs to the thing language, and can be understood only within that framework, “hence this concept cannot be meaningfully applied to the system itself.”** 16 Moving on to the external question “Do numbers exist?” Carnap cannot use the same argument – he cannot say that “existence” is internal to the number language and thus cannot be applied to the system as a whole. Instead he says that philosophers who ask the question do not mean material existence, but have no clear understanding of what other kind of existence might be involved, thus such questions have no cognitive content. It appears that this is the form of argument which he is willing to generalize to all further cases: **persons who dispute** whether propositions exist, **whether properties exist,** etc., do not know what they are arguing over, thus they **are not arguing over the truth of a proposition,** but over the practical value of their respective positions. Carnap adds that this is so because there is nothing that both parties would possibly count as evidence that would sway the debate one way or the other.

#### The resolution is incoherent-

#### 1] Merrian websters defines to as

https://www.merriam-webster.com/dictionary/to

to preposition Save Word To save this word, you'll need to log in. Log In \ tə, tu̇, ˈtü \ Definition of to (Entry 1 of 3) 1a—used as a function word to **indicate movement** or an action or condition suggestive of movement toward a place, person, or thing reached

#### But just governments can’t move to an obligations so rez is incoherent

#### 2] Merrian Websters defines right as

https://www.merriam-webster.com/dictionary/right

**having** the **axis perpendicular to** the **base**

#### But there is no base for strikes to be perpendicular to, so the rez does nothing

**3] Merrian websters defines Strike as** **to delete something**

https://www.merriam-webster.com/dictionary/strike

#### 4] Merrian Websters defines workers as

any of the sexually underdeveloped and usually **sterile members of a colony of social ants**, bees, wasps, or termites that perform most of the labor and protective duties of the colony

https://www.merriam-webster.com/dictionary/worker

#### 3] Zeno’s Paradox – to go anywhere, you must go halfway first, and then you must go half of the remaining distance, and half of the remaining distance, and so forth to infinity – thus, motion is impossible because it necessitates traversing an infinite number of spaces in a finite amount of time. If movement is impossible, banning LAWs isn’t a logical consequence of the rez.

**Additionally, in order to say I want to fix x problem, you must say that you want x problem to exist, since it requires the problem exist to solve, which makes any moral attempt inherently immoral. Also, either it’s the case we can predict the outcome of a situation, or we cannot. We cannot, insofar as no situation is ever replicated exactly, and even if it can, there’s no guarantee the outcome will be the same. If we can predict situations, that means everyone can, which means we will always predict each other, making a paradox of action insofar as we always attempt to predict the outcomes of each other’s actions, and will cancel out the obligations.**

### 4

#### Desire from lack projects identity which we can never fully reach which urges the political to determine which identities are legitimate. Thus, the role of the ballot is to vote for the debater with the best method of traversing the fantasy.

**Edelman 1** (Lee Edelman, No Future: Queer Theory and the Death Drive, 2004, Duke University Press, p. 7-9) SJ//DA

Politics, to put this another way, names the space in which Imaginary relations, relations that hark back to a misrecognition of the self as enjoying some originary access to presence (a presence retroactively posited and therefore lost, one might say, from the start), compete for Symbolic fulfillment, for actualization in the realm of language to which subjectification subjects us all. Only the mediation of the signifier allows us to articulate those Imaginary relations, though always at the price of introducing the distance that precludes their realization: the distance inherent in the chain of ceaseless deferrals and substitutions to which language as a system of differences necessarily gives birth. The signifier, as alienating and meaningless token of our Symbolic constitution as subjects (as token, that is, of our subjectification through subjection to the prospect of meaning); the signifier, by means of which we always inhabit the order of the Other, the order of a social and linguistic reality articulated from somewhere; the signifier, which calls us into meaning by seeming call us to ourselves: this signifier only bestows a sort of promissory identity, one with which we can never succeed in fully coinciding because we, as subjects of the signifier, can only, be signifiers ourselves, can only ever aspire to catch up to [be what] whatever it is we might signify by closing the gap that divides us and, paradoxically, makes us subjects through that act of division alone. This structural inability of the subject to merge with the self for which it sees itself as a signifier in the eyes of the Other necessitates various strategies designed to suture the subject in the space of meaning where Symbolic and Imaginary overlap. Politics names the social enactment of the subject's attempt to establish the conditions for this impossible consolidation by identifying with something outside of itself in order to enter the presence, deferred perpetually, of itself. Politics, that is, names the struggle to effect a fantasmic order of reality in which the subject's alienation would vanish into the seamlessness of identity at the endpoint of the endless chain of signifiers lived as history. If politics in the Symbolic is always therefore a politics of the Symbolic, operating in the name and in the direction of a constantly anticipated futurity, then the telos that would, in fantasy, put an end to these deferrals, the presence toward which the metonymic chain of signifiers always aims, must be recognized, nonetheless, as belonging to an Imaginary past. This means not only that politics conforms to the temporality of desire, to what we might call the inevitable historicity of desire- the successive displacements forward of nodes of attachment as figures of meaning, points of intense metaphoric investment, produced in the hope, however vain, of filling the constitutive gap in the subject that the signifier necessarily installs- but also that politics is name for the temporalization of desire, for its translation into a narrative, for its teleological determination.

#### **Politics and futurism is built on the premise that any negation of the signifier of the child is essential in order to fulfill desire from lack which deems queerness out of the political**

**Edelman 2** (Lee Edelman, No Future: Queer Theory and the Death Drive, 2004, Duke University Press, p. 10-13) SJ//DA

Politics, then, in opposing itself to the negativity of such a drive, gives us history as the continuous staging of our dream of eventual self-realization by endlessly reconstructing, in the mirror of desire, what we take to be reality itself. And it does so without letting us acknowledge that the future, to which it persistently appeals, marks the impossible place of an Imaginary past exempt from the deferrals intrinsic to the operation of the signifying chain and projected ahead as the site at which being and meaning are joined as One. In this it enacts the formal repetition distinctive of the drive while representing itself as bringing to fulfillment the narrative sequence of history and, with it, of desire, in the realization of the subject's authentic presence in the Child imagined as enjoying unmediated access to Imaginary wholeness. Small wonder that the era of the universal subject should produce as the very figure of politics, because also as the embodiment of futurity collapsing undecidably into the past, the image of the Child as we know it: the Child who becomes, in Wordsworth's phrase, but more punitively, "father of the Man." Historically constructed, as social critics and intellectual historians including Phillipe Aries, James Kincaid, and Lawrence Stone have made clear, to serve as the repository of variously sentimentalized cultural identifications, the Child has come to embody for us the telos of the social order and come to be seen as the one for whom that order is held in perpetual trust. In its coercive universalization, however, the image of the Child, not to be confused with the lived experiences of any historical children, serves to regulate political discourse-to prescribe what will count as political discourse-by compelling such discourse to accede in advance to the reality of a collective future whose figurative status we are never permitted to acknowledge or address. From Delacroix's iconic image of Liberty leading us into a brave new world of revolutionary possibility- her bare breast making each spectator the unweaned Child to whom it's held out while the boy to her left, reproducing her posture, affirms the absolute logic of reproduction itself-to the revolutionary waif in the logo that miniaturizes the "politics" of Les Mis (summed up in its anthem to futurism, the "inspirational" "One Day More"), we are no more able to conceive of a politics without a fantasy of the future than we are able to conceive of a future without the figure of the Child. That figural Child alone embodies the citizen as an ideal, entitled to claim full rights to its future share in the nation's good, though always at the cost of limiting the rights "real" citizens are allowed. For the social order exists to preserve for this universalized subject, this fantasmatic Child, a notional freedom more highly valued than the actuality of freedom itself, which might, after all, put at risk the Child to whom such a freedom falls due. Hence, whatever refuses this mandate by which our political institutions compel the collective reproduction of the Child must appear as a threat not only to the organization of a given social order but also, and far more ominously, to social order as such, insofar as it threatens the logic of futurism on which meaning always depends. So, for example, when D. James, in her novel Children of Men, imagines a future in which the human race has suffered a seemingly absolute loss of the capacity to reproduce, her narrator, Theodore Faron, not only attributes this reversal of biological fortune to the putative crisis of sexual values in late twentieth-century democracies-"Pornography and sexual violence on film, on television, in books, in life had increased and became more explicit but less and less in the West we made love and bred children," he declares-but also gives voice to the ideological truism that governs our investment in the Child as the obligatory token of futurity: "Without the hope of posterity, for our race not for ourselves, without the assurance that we being dead yet live," he later observes, "all pleasures of the mind and senses sometimes seem to me no more than pathetic and crumbling defences shored up against our ruins."12 While this allusion to Eliot's "The Waste Land" may recall another of its well-known lines, one for which we apparently have Eliot's Wife, Vivian, to thank-"What you get married for if you don't want children?"-it also brings out the function of the child as the prop of the secular theology on which our social reality rests: the secular theology that shapes at once the meaning of our collective narratives and our collective narratives of meaning. Charged, after all, with the task of assuring "that we being dead yet live," the Child, as if by nature (more precisely, as the promise of a natural transcendence of the limits of nature itself), exudes the very pathos from which the narrator of The Children of Men recoils when he comes upon it in nonreproductive "pleasures of the mind and senses." For the "pathetic" quality he projectively locates in non-generative sexual enjoyment-enjoyment that he views in the absence of futurity as empty, substitutive, pathological-exposes the fetishistic figurations of the Child that the narrator pits against it as legible in terms identical to those for which enjoyment without "hope of posterity" is peremptorily dismissed: legible, that is, as nothing more than "pathetic and crumbling defences shored up against our ruins." How better to characterize the narrative project of The Children of Men itself, which ends, as anyone not born yesterday surely expects from the start, with the renewal of our barren and dying race through the miracle of birth? After all, as Walter Wangerin Jr., reviewing the book for the New York Times, approvingly noted in a sentence delicately poised between description and performance of the novel's pro-procreative ideology: "If there is a baby, there is a future, there is redemption."13 If, however, there is no baby and, in consequence, no future, then the blame must fall on the fatal lure of sterile, narcissistic enjoyments understood as inherently destructive of meaning and therefore as responsible for the undoing of social organization, collective reality, and, inevitably, life itself.

#### anything hindering progress of the metaphorical child is subject to an ontological state of overkill

#### Stanley 11 Eric Stanley, Near Life, Queer Death: Overkill and Ontological Capture, 2011 SJ//VM

- Mbembe - “But what does it mean to do violence to what is nothing?”

**According to the autopsy** report, Travis County **medical examiner Dr.**Roberto **Bayardo cataloged at least fourteen blows to Lauryn’s head and more than sixty knife wounds to her body. The knife wounds were so deep that they almost decapitated her—a clear sign of overkill. Overkill is** a term used to indicate such **excessive violence that** it **pushes a body beyond death.**Overkill is often determined by the postmortem removal of body parts, as with the partial decapitation in the case of Lauryn Paige and the dissection of Rashawn Brazell. **The temporality of violence, the biological time when the heart stops pushing and pulling blood, yet the killing is not finished, suggests the aim is not simply the end of a specific life, but the ending of all queer life. This is the time of queer death, when the utility of violence gives way to the pleasure in the other’s mortality.** If queers, along with others, approximate nothing, then the task of ending, of killing, that which is nothing must go beyond normative times of life and death. In other words, **if Lauryn was dead after the first few stab wounds to the throat, then what do the remaining fifty wounds signify?** The legal theory that is offered to nullify the practice of overkill often functions under the name of the trans- or gay-panic defense. Both of these defense strategies argue that the murderer became so enraged after the “discovery” of either genitalia or someone’s sexuality they were forced to protect themselves from the threat of queerness. Estanislao Martinez of Fresno, California, used the trans-panic defense and received a four-year prison sentence after admittedly stabbing J. Robles, a Latina transwoman, at least twenty times with a pair of scissors. Importantly, this defense is often used, as in the cases of Robles and Paige, after the murderer has engaged in some kind of sex with the victim. **The logic of the trans-panic defense as an explanation for overkill, in its gory semiotics, offers us a way of understanding queers as the nothing of Mbembe’s query. Overkill names the technologies necessary to do away with that which is already gone. Queers** then **are the** specters of **life whose threat is so unimaginable that one is “forced,” not simply to murder, but to push them backward out of time, out of History, and into that which comes before.**

#### The alternative is to embrace the death drive – a full affirmation of queer negativity in which we reject the 1AC in favor of traversing the fantasy and realizing the structural positionality of queer identity.

**Edelman 3** (Lee Edelman, No Future: Queer Theory and the Death Drive, 2004, Duke University Press, p. 4-7) SJ//DA

“Rather than rejecting, with liberal discourse, this ascription of negativity to the queer, we might, as I argue, do better to consider accepting and even embracing it. Not in the hope of forging thereby some more perfect social order-such a hope, after all, would only reproduce the constraining mandate of futurism, just as any such order would equally occasion the negativity of the queer-but rather to refuse the insistence of hope itself as affirmation, which is always affirmation of an order whose refusal will register as unthinkable, irresponsible, inhumane. And the trump card of affirmation? Always the question: If not this, what? Always the demand to translate the insistence, the pulsive force, of negativity into some determinate stance or "position" whose determination would thus negate it: always the imperative to immure it in some stable and positive form. When I argue, then, that we might do well to attempt what is surely impossible-to withdraw our allegiance, however compulsory, from a reality based on the Ponzi scheme of reproductive futurism-I do not intend to propose some "good" that will thereby be assured. To the contrary, I mean to insist that nothing, and certainly not what we calI the "good," can ever have any assurance at all in the order of the Symbolic. Abjuring fidelity to a futurism that's always purchased at our expense, though bound, as Symbolic subjects consigned to figure the Symbolic's undoing, to the necessary contradiction of trying turn its intelligibility against itself, we might rather, figuratively, cast our vote for "none of the above," for the primacy of a constant no in response to the law of the Symbolic, which would echo that law's foundational act, its self­constituting negation. The structuring optimism of politics to which the order of meaning commits us, installing as it does the perpetual hope of reaching meaning through signification, is always, I would argue, a negation of this primal, constitutive, and negative act. And the various positivities produced in its wake by the logic of political hope depend on the mathematical illusion that negated negations might somehow escape, and not redouble, such negativity. My polemic thus stakes its fortunes on a truly hopeless wager: that taking the Symbolic's negativity to the very letter of the law, that attending to the persistence of something internal to reason that reason refuses, that turning the force of queerness against all subjects, however queer, can afford an access to the jouissance that at once defines and negates us. Or better: can expose the constancy, the inescapability, of such access to jouissance in the social order itself even if that order can access its constant access to jouissance only in the process of abjecting that constancy of access onto the queer. In contrast to what Theodor Adorno describes as the "grimness with which a man clings to himself, as to the immediately sure and substantial," the queerness of which I speak would deliberately sever us from ourselves, from the assurance, that is, of knowing ourselves and hence of knowing our "good."4 Such queerness proposes, in place of the good, something I want to call "better," though it promises, in more than one sense of the phrase, absolutely nothing. I connect this something better with Lacan's characterization of what he calls "truth," where truth does not assure happiness, or even, as Lacan makes clear, the good.5 Instead, it names only the insistent particularity of the subject, impossible fully to articulate and "tend[ing] toward the real."6 Lacan, therefore, can write of this truth: The quality that best characterizes it is that of being the true Wunsch, which was at the origin of an aberrant or atypical behavior. We encounter this Wunsch with its particular, irreducible character as a modification that presupposes no other form of normalization than that of an experience of pleasure or of pain, but of a final experience from whence it springs and is subsequently preserved in the depths of the subject in an irreducible form. The Wunsch does not have the character of a universal law but, on the contrary, of the most particular of laws-even if it is universal that this particularity is to be found in every human being.' Truth, like queerness, irreducibly linked to the "aberrant or atypical," to what chafes against "normalization," finds its value not in a good susceptible to generalization, but only in the stubborn particularity that voids every notion of a general good. The embrace of queer negativity, then,- can have no justification if justification requires it to reinforce some positive social value; its value, instead, resides in its challenge to value as defined by the social, and thus in its radical challenge to the very value of the social itself. For by figuring a refusal of the coercive belief in the paramount value of futurity, while refusing as well any backdoor hope for dialectical access to meaning, the queer dispossesses the social order of the ground on which it rests: a faith in the consistent reality of the social-and by extension, of the social subject; a faith that politics, whether of the left or of the right, implicitly affirms. Divesting such politics of its thematic trappings, bracketing the particularity of its various proposals for social organization, the queer insists that politics is always a politics of the signifier, or even of what Lacan will often refer to as "the letter." It serves to shore up a reality always unmoored by signification and lacking any guarantee. To say as much is not, of course, to deny the experiential violence that frequently troubles social reality or the apparent consistency with which it bears-and thereby bears down on-us all. It is, rather, to suggest that queerness exposes the obliquity of our relation to what we experience in and as social reality, alerting us to the fantasies structurally necessary in order to sustain it and engaging those fantasies through the figural logics, the linguistic structures, that shape them. If it aims effectively to intervene in the reproduction of such a reality-an inter­vention that may well take the form of figuring that reality's abortion­ then queer theory must always insist on its connection to the vicissi­tudes of the sign, to the tension between the signifier's collapse into the letter's cadaverous materiality and its participation in a system of refer­ence wherein it generates meaning itself. As a particular story, in other words, of why storytelling fails, one that takes both the value and the burden of that failure upon itself, queer theory, as I construe it, marks the "other" side of politics: the "side" where narrative realization and derealization overlap, where the energies of vitalization ceaselessly turn against themselves; the "side" outside all political sides, committed as they are, on every side, to futurism's unquestioned good.

### Case

#### Reject 1AR theory- A] 7-6 time skew means it’s endlessly aff biased B] I don’t have a 3nr which allows for endless extrapolation C] 1AR theory is skewed to the aff because they have a 2ar judge psychology warrant which is also a reason why they shouldn’t get 2ar weighing

#### DTA on 1AR shells - They can blow up a blippy 20 second shell to 3 min of the 2AR while I have to split my time and can’t preempt 2AR spin which necessitates judge intervention and means 1AR theory is irresolvable so you shouldn’t stake the round on it.

### Util

#### [1] Form over content, you need to win how your form of communication is good before you get an access to it, all their policy making good arguments are at most content since it presupposes that the form of communication we engage in is good

#### [2] Alt solves case, the only reason why companies abuse IP protections for products is for some notion of a better future or more money but a rejection of futurism solves back

#### [3]. Fiats illusionary, nothing happens when the judge votes aff so vote neg on presumption

#### On Pummer

1. Justifies atrocities since it says impacts only matter if you die which allows things like torture and genocide in the face of it
2. Freeze’s action since it allows a 1% risk of extinction to mean that we cant do anything
3. Non unique- extinction assumes that value to life exists in the fist place but overkill and reproductive futurism proves its inaccessible to queerpess

#### Island populations survive a nuclear winter.

Turchin and Green 18 (Alexey Turchin – Scientist for the Foundation Science for Life Extension in Moscow, Russia, Founder of Digital Immortality Now, author of several books and articles on the topics of existential risks and life extension. Brian Patrick Green – Director of technology ethics at the Markkula Center for Applied Ethics, teaches AI ethics in the Graduate School of Engineering at Santa Clara University. <MKIM> “Islands as refuges for surviving global catastrophes”. September 2018. DOA: 7/20/19. https://www.emerald.com/insight/content/doi/10.1108/FS-04-2018-0031/full/html?fullSc=1&mbSc=1&fullSc=1)

Different types of possible catastrophes suggest different scenarios for how survival could happen on an island. What is important is that the island should have properties which protect against the specific dangers of particular global catastrophic risks. Specifically, different islands will provide protection against different risks, and their natural diversity will contribute to a higher total level of protection: **Quarantined island survives pandemic** . An island could impose effective quarantine if it is sufficiently remote and simultaneously able to protect itself, possibly using military ships and air defense. **Far northern aboriginal people survive an ice age**. Many far northern people have adapted to survive in extremely cold and dangerous environments, and under the right circumstances could potentially survive the return of an ice age. However, their cultures are endangered by globalization. If these people become dependent on the products of modern civilization, such as rifles and motor boats, and lose their native survival skills, then their likelihood of surviving the collapse of the outside world would decrease. Therefore, preservation of their survival skills may be important as a defense against the risks connected with **extreme cooling**. Remote polar island with high mountains survives brief global warming of median surface temperatures, up to 50˚C. There is a theory that the climates of planets similar to the Earth could have several semi-stable temperature levels (Popp et al., 2016). If so, because of climate change, the Earth could transition to a second semi-stable state with a median global temperature of around 330 K, about 60˚C, or about 45˚C above current global mean temperatures. But even in this climate, **some regions of Earth could still be survivable for humans**, such as the Himalayan plateau at elevations above 4,000 m, but below 6,000 (where oxygen deficiency becomes a problem), or on polar islands with mountains (however, global warming affects polar regions more than equatorial regions, and northern island will experience more effects of climate change, including thawing permafrost and possible landslides because of wetter weather). In the tropics, the combination of increased humidity and temperature may increase the wet bulb temperature above 36˚C, especially on islands, where sea moisture is readily available. In such conditions, proper human perspiration becomes impossible (Sherwood and Huber, 2010), and there will likely be increased mortality and morbidity because of tropical diseases. If temperatures later returned to normal – either naturally or through climate engineering – **the rest of the Earth could be repopulated**. ‘‘Swiss Family Robinsons’’ survive on a tropical island, unnoticed by a military robot ‘‘mutiny’’. Most AI researchers ignore medium-term AI risks, which are neither near-term risks, like unemployment, nor remote risks, like AI superintelligence. But a large drone army – if one were produced – could receive a wrong command or be infected by a computer virus, leading it to attack people indiscriminately. Remote islands without robots could provide protection in this case, allowing survival until such a drone army ran out of batteries, fuel, ammunition or other supplies: Primitive tribe survives civilizational collapse. The inhabitants of **North Sentinel Island**, near the Andaman Islands in the Indian Ocean, are hostile and uncontacted. **The Sentinelese survived the 2004 Indian Ocean tsunami apparently unaffected** (Voanews, 2009), and if the rest of humanity disappear, **they might well continue their existence without change.** Tropical Island survives extreme global nuclear winter and glaciation event. Were a **nuclear**, bolide impactor or volcanic “**winter**” scenario to unfold, these islands would remain surrounded by Warm Ocean, and local volcanism or other energy sources might provide heat, energy and food. Such island refuges may have helped life on Earth survive during the **“Snowball Earth”** event in Earth’s distant past (Hoffman et al., 1998). Remote island base for project “Yellow submarine”. Some catastrophic risks such as a gamma ray burst, a global nuclear war with high radiological contamination or multiple pandemics might be best survived **underwater in nuclear submarines** (Turchin and Green, 2017). However, after a catastrophe, the submarine with survivors would eventually need a place to dock, and an island with some prepared amenities would be a reasonable starting point for rebuilding civilization. Bunker on remote island. For risks which include multiple or complex catastrophes, such as a bolide impact, extreme volcanism, tsunamis, multiple pandemics and nuclear war with radiological contamination, **island refuges could be strengthened with bunkers**. Richard Branson survived hurricane Irma on his own island in 2017 by seeking refuge in his concrete wine cellar (Clifford, 2017). Bunkers on islands would have higher survivability compared to those close to population centers, as they will be neither a military target nor as accessible to looters or unintentionally dangerous (e.g. infected) refugees. These bunkers could potentially be connected to water sources by underwater pipes, and passages could provide cooling, access and even oxygen and food sources

#### Extinction is inevitable from future technology.

**Sterling 18** Bruce Sterling, 6-1-2018, "When Nick Bostrom says “Bang”," WIRED, https://www.wired.com/beyond-the-beyond/2018/06/nick-bostrom-says-bang/

4.1 Deliberate misuse of nanotechnology In a mature form, molecular nanotechnology will enable the construction of bacterium-scale self-replicating mechanical robots that can feed on dirt or other organic matter [22-25]. Such replicators could eat up the biosphere or destroy it by other means such as by poisoning it, burning it, or blocking out sunlight. A person of malicious intent in possession of this technology might cause the extinction of intelligent life on Earth by releasing such nanobots into the environment.[9] The technology to produce a destructive nanobot seems considerably easier to develop than the technology to create an effective defense against such an attack (a global nanotech immune system, an “active shield” [23]). It is therefore likely that there will be a period of vulnerability during which this technology must be prevented from coming into the wrong hands. Yet the technology could prove hard to regulate, since it doesn’t require rare radioactive isotopes or large, easily identifiable manufacturing plants, as does production of nuclear weapons [23]. Even if effective defenses against a limited nanotech attack are developed before dangerous replicators are designed and acquired by suicidal regimes or terrorists, there will still be the danger of an arms race between states possessing nanotechnology. It has been argued [26] that molecular manufacturing would lead to both arms race instability and crisis instability, to a higher degree than was the case with nuclear weapons. Arms race instability means that there would be dominant incentives for each competitor to escalate its armaments, leading to a runaway arms race. Crisis instability means that there would be dominant incentives for striking first. Two roughly balanced rivals acquiring nanotechnology would, on this view, begin a massive buildup of armaments and weapons development programs that would continue until a crisis occurs and war breaks out, potentially causing global terminal destruction. That the arms race could have been predicted is no guarantee that an international security system will be created ahead of time to prevent this disaster from happening. The nuclear arms race between the US and the USSR was predicted but occurred nevertheless. 4.2 Nuclear holocaust[winter] The US and Russia still have huge stockpiles of nuclear weapons. But would an all-out nuclear war really exterminate humankind? Note that: (i) For there to be an existential risk it suffices that we can’t be sure that it wouldn’t. (ii) The climatic effects of a large nuclear war are not well known (there is the possibility of a nuclear winter). (iii) Future arms races between other nations cannot be ruled out and these could lead to even greater arsenals than those present at the height of the Cold War. The world’s supply of plutonium has been increasing steadily to about two thousand tons, some ten times as much as remains tied up in warheads ([9], p. 26). (iv) Even if some humans survive the short-term effects of a nuclear war, it could lead to the collapse of civilization. A human race living under stone-age conditions may or may not be more resilient to extinction than other animal species. 4.3 We’re living in a simulation and it gets shut down A case can be made that the hypothesis that we are living in a computer simulation should be given a significant probability [27]. The basic idea behind this so-called “Simulation argument” is that vast amounts of computing power may become available in the future (see e.g. [28,29]), and that it could be used, among other things, to run large numbers of fine-grained simulations of past human civilizations. Under some not-too-implausible assumptions, the result can be that almost all minds like ours are simulated minds, and that we should therefore assign a significant probability to being such computer-emulated minds rather than the (subjectively indistinguishable) minds of originally evolved creatures. And if we are, we suffer the risk that the simulation may be shut down at any time. A decision to terminate our simulation may be prompted by our actions or by exogenous factors. While to some it may seem frivolous to list such a radical or “philosophical” hypothesis next the concrete threat of nuclear holocaust, we must seek to base these evaluations on reasons rather than untutored intuition. Until a refutation appears of the argument presented in [27], it would intellectually dishonest to neglect to mention simulation-shutdown as a potential extinction mode. 4.4 Badly programmed superintelligence When we create the first superintelligent entity [28-34], we might make a mistake and give it goals that lead it to annihilate humankind, assuming its enormous intellectual advantage gives it the power to do so. For example, we could mistakenly elevate a subgoal to the status of a supergoal. We tell it to solve a mathematical problem, and it complies by turning all the matter in the solar system into a giant calculating device, in the process killing the person who asked the question. (For further analysis of this, see [35].) 4.5 Genetically engineered biological agent With the fabulous advances in genetic technology currently taking place, it may become possible for a tyrant, terrorist, or lunatic to create a doomsday virus, an organism that combines long latency with high virulence and mortality [36]. Dangerous viruses can even be spawned unintentionally, as Australian researchers recently demonstrated when they created a modified mousepox virus with 100% mortality while trying to design a contraceptive virus for mice for use in pest control [37]. While this particular virus doesn’t affect humans, it is suspected that an analogous alteration would increase the mortality of the human smallpox virus. What underscores the future hazard here is that the research was quickly published in the open scientific literature [38]. It is hard to see how information generated in open biotech research programs could be contained no matter how grave the potential danger that it poses; and the same holds for research in nanotechnology. Genetic medicine will also lead to better cures and vaccines, but there is no guarantee that defense will always keep pace with offense. (Even the accidentally created mousepox virus had a 50% mortality rate on vaccinated mice.) Eventually, worry about biological weapons may be put to rest through the development of nanomedicine, but while nanotechnology has enormous long-term potential for medicine [39] it carries its own hazards. 4.6 Accidental misuse of nanotechnology (“gray goo”) The possibility of accidents can never be completely ruled out. However, there are many ways of making sure, through responsible engineering practices, that species-destroying accidents do not occur. One could avoid using self-replication; one could make nanobots dependent on some rare feedstock chemical that doesn’t exist in the wild; one could confine them to sealed environments; one could design them in such a way that any mutation was overwhelmingly likely to cause a nanobot to completely cease to function [40]. Accidental misuse is therefore a smaller concern than malicious misuse [23,25,41]. However, the distinction between the accidental and the deliberate can become blurred. While “in principle” it seems possible to make terminal nanotechnological accidents extremely improbable, the actual circumstances may not permit this ideal level of security to be realized. Compare nanotechnology with nuclear technology. From an engineering perspective, it is of course perfectly possible to use nuclear technology only for peaceful purposes such as nuclear reactors, which have a zero chance of destroying the whole planet. Yet in practice it may be very hard to avoid nuclear technology also being used to build nuclear weapons, leading to an arms race. With large nuclear arsenals on hair-trigger alert, there is inevitably a significant risk of accidental war. The same can happen with nanotechnology: it may be pressed into serving military objectives in a way that carries unavoidable risks of serious accidents. In some situations it can even be strategically advantageous to deliberately make one’s technology or control systems risky, for example in order to make a “threat that leaves something to chance” [42]. 4.7 Something unforeseen We need a catch-all category. It would be foolish to be confident that we have already imagined and anticipated all significant risks. Future technological or scientific developments may very well reveal novel ways of destroying the world. Some foreseen hazards (hence not members of the current category) which have been excluded from the list of bangs on grounds that they seem too unlikely to cause a global terminal disaster are: solar flares, supernovae, black hole explosions or mergers, gamma-ray bursts, galactic center outbursts, supervolcanos, loss of biodiversity, buildup of air pollution, gradual loss of human fertility, and various religious doomsday scenarios. The hypothesis that we will one day become “illuminated” and commit collective suicide or stop reproducing, as supporters of VHEMT (The Voluntary Human Extinction Movement) hope [43], appears unlikely. If it really were better not to exist (as Silenus told king Midas in the Greek myth, and as Arthur Schopenhauer argued [44] although for reasons specific to his philosophical system he didn’t advocate suicide), then we should not count this scenario as an existential disaster. The assumption that it is not worse to be alive should be regarded as an implicit assumption in the definition of Bangs. Erroneous collective suicide is an existential risk albeit one whose probability seems extremely slight. (For more on the ethics of human extinction, see chapter 4 of [9].) 4.8 Physics disasters The Manhattan Project bomb-builders’ concern about an A-bomb-derived atmospheric conflagration has contemporary analogues. There have been speculations that future high-energy particle accelerator experiments may cause a breakdown of a metastable vacuum state that our part of the cosmos might be in, converting it into a “true” vacuum of lower energy density [45]. This would result in an expanding bubble of total destruction that would sweep through the galaxy and beyond at the speed of light, tearing all matter apart as it proceeds. Another conceivability is that accelerator experiments might produce negatively charged stable “strangelets” (a hypothetical form of nuclear matter) or create a mini black hole that would sink to the center of the Earth and start accreting the rest of the planet [46]. These outcomes seem to be impossible given our best current physical theories. But the reason we do the experiments is precisely that we don’t really know what will happen. A more reassuring argument is that the energy densities attained in present day accelerators are far lower than those that occur naturally in collisions between cosmic rays [46,47]. It’s possible, however, that factors other than energy density are relevant for these hypothetical processes, and that those factors will be brought together in novel ways in future experiments. The main reason for concern in the “physics disasters” category is the meta-level observation that discoveries of all sorts of weird physical phenomena are made all the time, so even if right now all the particular physics disasters we have conceived of were absurdly improbable or impossible, there could be other more realistic failure-modes waiting to be uncovered. The ones listed here are merely illustrations of the general case.

#### upward Industrial civilization wouldn’t recover.

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Imagine that the world as we know it ends tomorrow. There’s a global catastrophe: a pandemic virus, an asteroid strike, or perhaps a nuclear holocaust. The vast majority of the human race perishes. Our civilisation collapses. The post-apocalyptic survivors find themselves in a devastated world of decaying, deserted cities and roving gangs of bandits looting and taking by force. Bad as things sound, that’s not the end for humanity. We bounce back. Sooner or later, peace and order emerge again, just as they have time and again through history. Stable communities take shape. They begin the agonising process of rebuilding their technological base from scratch. But here’s the question: how far could such a society rebuild? Is there any chance, for instance, that a post-apocalyptic society could reboot a technological civilisation? Let’s make the basis of this thought experiment a little more specific. Today, we have already consumed the most easily drainable crude oil and, particularly in Britain, much of the shallowest, most readily mined deposits of coal. Fossil fuels are central to the organisation of modern industrial society, just as they were central to its development. Those, by the way, are distinct roles: even if we could somehow do without fossil fuels now (which we can’t, quite), it’s a different question whether we could have got to where we are without ever having had them. So, would a society starting over on a planet stripped of its fossil fuel deposits have the chance to progress through its own Industrial Revolution? Or to phrase it another way, what might have happened if, for whatever reason, the Earth had never acquired its extensive underground deposits of coal and oil in the first place? Would our progress necessarily have halted in the 18th century, in a pre-industrial state? It’s easy to underestimate our current dependence on fossil fuels. In everyday life, their most visible use is the petrol or diesel pumped into the vehicles that fill our roads, and the coal and natural gas which fire the power stations that electrify our modern lives. But we also rely on a range of different industrial materials, and in most cases, high temperatures are required to transform the stuff we dig out of the ground or harvest from the landscape into something useful. You can’t smelt metal, make glass, roast the ingredients of concrete, or synthesise artificial fertiliser without a lot of heat. It is fossil fuels – coal, gas and oil – that provide most of this thermal energy. In fact, the problem is even worse than that. Many of the chemicals required in bulk to run the modern world, from pesticides to plastics, derive from the diverse organic compounds in crude oil. Given the dwindling reserves of crude oil left in the world, it could be argued that the most wasteful use for this limited resource is to simply burn it. We should be carefully preserving what’s left for the vital repertoire of valuable organic compounds it offers. But my topic here is not what we should do now. Presumably everybody knows that we must transition to a low-carbon economy one way or another. No, I want to answer a question whose interest is (let’s hope) more theoretical. Is the emergence of a technologically advanced civilisation necessarily contingent on the easy availability of ancient energy? Is it possible to build an industrialised civilisation without fossil fuels? And the answer to that question is: maybe – but it would be extremely difficult. Let’s see how. We’ll start with a natural thought. Many of our alternative energy technologies are already highly developed. Solar panels, for example, represent a good option today, and are appearing more and more on the roofs of houses and businesses. It’s tempting to think that a rebooted society could simply pick up where we leave off. Why couldn’t our civilisation 2.0 just start with renewables? Well, it could, in a very limited way. If you find yourself among the survivors in a post-apocalyptic world, you could scavenge enough working solar panels to keep your lifestyle electrified for a good long while. Without moving parts, photovoltaic cells require little maintenance and are remarkably resilient. They do deteriorate over time, though, from moisture penetrating the casing and from sunlight itself degrading the high-purity silicon layers. The electricity generated by a solar panel declines by about 1 per cent every year so, after a few generations, all our hand-me-down solar panels will have degraded to the point of uselessness. Then what? New ones would be fiendishly difficult to create from scratch. Solar panels are made from thin slices of extremely pure silicon, and although the raw material is common sand, it must be processed and refined using complex and precise techniques – the same technological capabilities, more or less, that we need for modern semiconductor electronics components. These techniques took a long time to develop, and would presumably take a long time to recover. So photovoltaic solar power would not be within the capability of a society early in the industrialisation process. Perhaps, though, we were on the right track by starting with electrical power. Most of our renewable-energy technologies produce electricity. In our own historical development, it so happens that the core phenomena of electricity were discovered in the first half of the 1800s, well after the early development of steam engines. Heavy industry was already committed to combustion-based machinery, and electricity has largely assumed a subsidiary role in the organisation of our economies ever since. But could that sequence have run the other way? Is there some developmental requirement that thermal energy must come first? On the face of it, it’s not beyond the bounds of possibility that a progressing society could construct electrical generators and couple them to simple windmills and waterwheels, later progressing to wind turbines and hydroelectric dams. In a world without fossil fuels, one might envisage an electrified civilisation that largely bypasses combustion engines, building its transport infrastructure around electric trains and trams for long-distance and urban transport. I say ‘largely’. We couldn’t get round it all together. When it comes to generating the white heat demanded by modern industry, there are few good options but to burn stuff While the electric motor could perhaps replace the coal-burning steam engine for mechanical applications, society, as we’ve already seen, also relies upon thermal energy to drive the essential chemical and physical transformations it needs. How could an industrialising society produce crucial building materials such as iron and steel, brick, mortar, cement and glass without resorting to deposits of coal? You can of course create heat from electricity. We already use electric ovens and kilns. Modern arc furnaces are used for producing cast iron or recycling steel. The problem isn’t so much that electricity can’t be used to heat things, but that for meaningful industrial activity you’ve got to generate prodigious amounts of it, which is challenging using only renewable energy sources such as wind and water. An alternative is to generate high temperatures using solar power directly. Rather than relying on photovoltaic panels, concentrated solar thermal farms use giant mirrors to focus the sun’s rays onto a small spot. The heat concentrated in this way can be exploited to drive certain chemical or industrial processes, or else to raise steam and drive a generator. Even so, it is difficult (for example) to produce the very high temperatures inside an iron-smelting blast furnace using such a system. What’s more, it goes without saying that the effectiveness of concentrated solar power depends strongly on the local climate. No, when it comes to generating the white heat demanded by modern industry, there are few good options but to burn stuff. But that doesn’t mean the stuff we burn necessarily has to be fossil fuels. Let’s take a quick detour into the pre-history of modern industry. Long before the adoption of coal, charcoal was widely used for smelting metals. In many respects it is superior: charcoal burns hotter than coal and contains far fewer impurities. In fact, coal’s impurities were a major delaying factor on the Industrial Revolution. Released during combustion, they can taint the product being heated. During smelting, sulphur contaminants can soak into the molten iron, making the metal brittle and unsafe to use. It took a long time to work out how to treat coal to make it useful for many industrial applications. And, in the meantime, charcoal worked perfectly well. And then, well, we stopped using it. In retrospect, that’s a pity. When it comes from a sustainable source, charcoal burning is essentially carbon-neutral, because it doesn’t release any new carbon into the atmosphere – not that this would have been a consideration for the early industrialists. But charcoal-based industry didn’t die out altogether. In fact, it survived to flourish in Brazil. Because it has substantial iron deposits but few coalmines, Brazil is the largest charcoal producer in the world and the ninth biggest steel producer. We aren’t talking about a cottage industry here, and this makes Brazil a very encouraging example for our thought experiment. The trees used in Brazil’s charcoal industry are mainly fast-growing eucalyptus, cultivated specifically for the purpose. The traditional method for creating charcoal is to pile chopped staves of air-dried timber into a great dome-shaped mound and then cover it with turf or soil to restrict airflow as the wood smoulders. The Brazilian enterprise has scaled up this traditional craft to an industrial operation. Dried timber is stacked into squat, cylindrical kilns, built of brick or masonry and arranged in long lines so that they can be easily filled and unloaded in sequence. The largest sites can sport hundreds of such kilns. Once filled, their entrances are sealed and a fire is lit from the top. The skill in charcoal production is to allow just enough air into the interior of the kiln. There must be enough combustion heat to drive out moisture and volatiles and to pyrolyse the wood, but not so much that you are left with nothing but a pile of ashes. The kiln attendant monitors the state of the burn by carefully watching the smoke seeping out of the top, opening air holes or sealing with clay as necessary to regulate the process. Brazil shows how the raw materials of modern civilisation can be supplied without reliance on fossil fuels Good things come to those who wait, and this wood pyrolysis process can take up to a week of carefully controlled smouldering. The same basic method has been used for millennia. However, the ends to which the fuel is put are distinctly modern. Brazilian charcoal is trucked out of the forests to the country’s blast furnaces where it is used to transform ore into pig iron. This pig iron is the basic ingredient of modern mass-produced steel. The Brazilian product is exported to countries such as China and the US where it becomes cars and trucks, sinks, bathtubs, and kitchen appliances. Around two-thirds of Brazilian charcoal comes from sustainable plantations, and so this modern-day practice has been dubbed ‘green steel’. Sadly, the final third is supplied by the non-sustainable felling of primary forest. Even so, the Brazilian case does provide an example of how the raw materials of modern civilisation can be supplied without reliance on fossil fuels. Another, related option might be wood gasification. The use of wood to provide heat is as old as mankind, and yet simply burning timber only uses about a third of its energy. The rest is lost when gases and vapours released by the burning process blow away in the wind. Under the right conditions, even smoke is combustible. We don’t want to waste it. Better than simple burning, then, is to drive the thermal breakdown of the wood and collect the gases. You can see the basic principle at work for yourself just by lighting a match. The luminous flame isn’t actually touching the matchwood: it dances above, with a clear gap in between. The flame actually feeds on the hot gases given off as the wood breaks down in the heat, and the gases combust only once they mix with oxygen from the air. Matches are fascinating when you look at them closely. Wartime gasifier cars could achieve about 1.5 miles per kilogram. Today’s designs improve upon this To release these gases in a controlled way, bake some timber in a closed container. Oxygen is restricted so that the wood doesn’t simply catch fire. Its complex molecules decompose through a process known as pyrolysis, and then the hot carbonised lumps of charcoal at the bottom of the container react with the breakdown products to produce flammable gases such as hydrogen and carbon monoxide. The resultant ‘producer gas’ is a versatile fuel: it can be stored or piped for use in heating or street lights, and is also suitable for use in complex machinery such as the internal combustion engine. More than a million gasifier-powered cars across the world kept civilian transport running during the oil shortages of the Second World War. In occupied Denmark, 95 per cent of all tractors, trucks and fishing boats were powered by wood-gas generators. The energy content of about 3 kg of wood (depending on its dryness and density) is equivalent to a litre of petrol, and the fuel consumption of a gasifier-powered car is given in miles per kilogram of wood rather than miles per gallon. Wartime gasifier cars could achieve about 1.5 miles per kilogram. Today’s designs improve upon this. But you can do a lot more with wood gases than just keep your vehicle on the road. It turns out to be suitable for any of the manufacturing processes needing heat that we looked at before, such as kilns for lime, cement or bricks. Wood gas generator units could easily power agricultural or industrial equipment, or pumps. Sweden and Denmark are world leaders in their use of sustainable forests and agricultural waste for turning the steam turbines in power stations. And once the steam has been used in their ‘Combined Heat and Power’ (CHP) electricity plants, it is piped to the surrounding towns and industries to heat them, allowing such CHP stations to approach 90 per cent energy efficiency. Such plants suggest a marvellous vision of industry wholly weaned from its dependency on fossil fuel. Is that our solution, then? Could our rebooting society run on wood, supplemented with electricity from renewable sources? Maybe so, if the population was fairly small. But here’s the catch. These options all presuppose that our survivors are able to construct efficient steam turbines, CHP stations and internal combustion engines. We know how to do all that, of course – but in the event of a civilisational collapse, who is to say that the knowledge won’t be lost? And if it is, what are the chances that our descendants could reconstruct it? In our own history, the first successful application of steam engines was in pumping out coal mines. This was a setting in which fuel was already abundant, so it didn’t matter that the first, primitive designs were terribly inefficient. The increased output of coal from the mines was used to first smelt and then forge more iron. Iron components were used to construct further steam engines, which were in turn used to pump mines or drive the blast furnaces at iron foundries. And of course, steam engines were themselves employed at machine shops to construct yet more steam engines. It was only once steam engines were being built and operated that subsequent engineers were able to devise ways to increase their efficiency and shrink fuel demands. They found ways to reduce their size and weight, adapting them for applications in transport or factory machinery. In other words, there was a positive feedback loop at the very core of the industrial revolution: the production of coal, iron and steam engines were all mutually supportive. In a world without readily mined coal, would there ever be the opportunity to test profligate prototypes of steam engines, even if they could mature and become more efficient over time? How feasible is it that a society could attain a sufficient understanding of thermodynamics, metallurgy and mechanics to make the precisely interacting components of an internal combustion engine, without first cutting its teeth on much simpler external combustion engines – the separate boiler and cylinder-piston of steam engines? It took a lot of energy to develop our technologies to their present heights, and presumably it would take a lot of energy to do it again. Fossil fuels are out. That means our future society will need an awful lot of timber. An industrial revolution without coal would be, at a minimum, very difficult In a temperate climate such as the UK’s, an acre of broadleaf trees produces about four to five tonnes of biomass fuel every year. If you cultivated fast-growing kinds such as willow or miscanthus grass, you could quadruple that. The trick to maximising timber production is to employ coppicing – cultivating trees such as ash or willow that resprout from their own stump, becoming ready for harvest again in five to 15 years. This way you can ensure a sustained supply of timber and not face an energy crisis once you’ve deforested your surroundings. But here’s the thing: coppicing was already a well-developed technique in pre-industrial Britain. It couldn’t meet all of the energy requirements of the burgeoning society. The central problem is that woodland, even when it is well-managed, competes with other land uses, principally agriculture. The double-whammy of development is that, as a society’s population grows, it requires more farmland to provide enough food and also greater timber production for energy. The two needs compete for largely the same land areas. We know how this played out in our own past. From the mid-16th century, Britain responded to these factors by increasing the exploitation of its coal fields – essentially harvesting the energy of ancient forests beneath the ground without compromising its agricultural output. The same energy provided by one hectare of coppice for a year is provided by about five to 10 tonnes of coal, and it can be dug out of the ground an awful lot quicker than waiting for the woodland to regrow. It is this limitation in the supply of thermal energy that would pose the biggest problem to a society trying to industrialise without easy access to fossil fuels. This is true in our post-apocalyptic scenario, and it would be equally true in any counterfactual world that never developed fossil fuels for whatever reason. For a society to stand any chance of industrialising under such conditions, it would have to focus its efforts in certain, very favourable natural environments: not the coal-island of 18th-century Britain, but perhaps areas of Scandinavia or Canada that combine fast-flowing streams for hydroelectric power and large areas of forest that can be harvested sustainably for thermal energy. Even so, an industrial revolution without coal would be, at a minimum, very difficult. Today, use of fossil fuels is actually growing, which is worrying for a number of reasons too familiar to rehearse here. Steps towards a low-carbon economy are vital. But we should also recognise how pivotal those accumulated reservoirs of thermal energy were in getting us to where we are. Maybe we could have made it the hard way. A slow-burn progression through the stages of mechanisation, supported by a combination of renewable electricity and sustainably grown biomass, might be possible after all. Then again, it might not. We’d better hope we can secure the future of our own civilisation, because we might have scuppered the chances of any society to follow in our wake.

#### Extinction is inevitable from future technology.

**Sterling 18** Bruce Sterling, 6-1-2018, "When Nick Bostrom says “Bang”," WIRED, https://www.wired.com/beyond-the-beyond/2018/06/nick-bostrom-says-bang/

4.1 Deliberate misuse of nanotechnology In a mature form, molecular nanotechnology will enable the construction of bacterium-scale self-replicating mechanical robots that can feed on dirt or other organic matter [22-25]. Such replicators could eat up the biosphere or destroy it by other means such as by poisoning it, burning it, or blocking out sunlight. A person of malicious intent in possession of this technology might cause the extinction of intelligent life on Earth by releasing such nanobots into the environment.[9] The technology to produce a destructive nanobot seems considerably easier to develop than the technology to create an effective defense against such an attack (a global nanotech immune system, an “active shield” [23]). It is therefore likely that there will be a period of vulnerability during which this technology must be prevented from coming into the wrong hands. Yet the technology could prove hard to regulate, since it doesn’t require rare radioactive isotopes or large, easily identifiable manufacturing plants, as does production of nuclear weapons [23]. Even if effective defenses against a limited nanotech attack are developed before dangerous replicators are designed and acquired by suicidal regimes or terrorists, there will still be the danger of an arms race between states possessing nanotechnology. It has been argued [26] that molecular manufacturing would lead to both arms race instability and crisis instability, to a higher degree than was the case with nuclear weapons. Arms race instability means that there would be dominant incentives for each competitor to escalate its armaments, leading to a runaway arms race. Crisis instability means that there would be dominant incentives for striking first. Two roughly balanced rivals acquiring nanotechnology would, on this view, begin a massive buildup of armaments and weapons development programs that would continue until a crisis occurs and war breaks out, potentially causing global terminal destruction. That the arms race could have been predicted is no guarantee that an international security system will be created ahead of time to prevent this disaster from happening. The nuclear arms race between the US and the USSR was predicted but occurred nevertheless. 4.2 Nuclear holocaust[winter] The US and Russia still have huge stockpiles of nuclear weapons. But would an all-out nuclear war really exterminate humankind? Note that: (i) For there to be an existential risk it suffices that we can’t be sure that it wouldn’t. (ii) The climatic effects of a large nuclear war are not well known (there is the possibility of a nuclear winter). (iii) Future arms races between other nations cannot be ruled out and these could lead to even greater arsenals than those present at the height of the Cold War. The world’s supply of plutonium has been increasing steadily to about two thousand tons, some ten times as much as remains tied up in warheads ([9], p. 26). (iv) Even if some humans survive the short-term effects of a nuclear war, it could lead to the collapse of civilization. A human race living under stone-age conditions may or may not be more resilient to extinction than other animal species. 4.3 We’re living in a simulation and it gets shut down A case can be made that the hypothesis that we are living in a computer simulation should be given a significant probability [27]. The basic idea behind this so-called “Simulation argument” is that vast amounts of computing power may become available in the future (see e.g. [28,29]), and that it could be used, among other things, to run large numbers of fine-grained simulations of past human civilizations. Under some not-too-implausible assumptions, the result can be that almost all minds like ours are simulated minds, and that we should therefore assign a significant probability to being such computer-emulated minds rather than the (subjectively indistinguishable) minds of originally evolved creatures. And if we are, we suffer the risk that the simulation may be shut down at any time. A decision to terminate our simulation may be prompted by our actions or by exogenous factors. While to some it may seem frivolous to list such a radical or “philosophical” hypothesis next the concrete threat of nuclear holocaust, we must seek to base these evaluations on reasons rather than untutored intuition. Until a refutation appears of the argument presented in [27], it would intellectually dishonest to neglect to mention simulation-shutdown as a potential extinction mode. 4.4 Badly programmed superintelligence When we create the first superintelligent entity [28-34], we might make a mistake and give it goals that lead it to annihilate humankind, assuming its enormous intellectual advantage gives it the power to do so. For example, we could mistakenly elevate a subgoal to the status of a supergoal. We tell it to solve a mathematical problem, and it complies by turning all the matter in the solar system into a giant calculating device, in the process killing the person who asked the question. (For further analysis of this, see [35].) 4.5 Genetically engineered biological agent With the fabulous advances in genetic technology currently taking place, it may become possible for a tyrant, terrorist, or lunatic to create a doomsday virus, an organism that combines long latency with high virulence and mortality [36]. Dangerous viruses can even be spawned unintentionally, as Australian researchers recently demonstrated when they created a modified mousepox virus with 100% mortality while trying to design a contraceptive virus for mice for use in pest control [37]. While this particular virus doesn’t affect humans, it is suspected that an analogous alteration would increase the mortality of the human smallpox virus. What underscores the future hazard here is that the research was quickly published in the open scientific literature [38]. It is hard to see how information generated in open biotech research programs could be contained no matter how grave the potential danger that it poses; and the same holds for research in nanotechnology. Genetic medicine will also lead to better cures and vaccines, but there is no guarantee that defense will always keep pace with offense. (Even the accidentally created mousepox virus had a 50% mortality rate on vaccinated mice.) Eventually, worry about biological weapons may be put to rest through the development of nanomedicine, but while nanotechnology has enormous long-term potential for medicine [39] it carries its own hazards. 4.6 Accidental misuse of nanotechnology (“gray goo”) The possibility of accidents can never be completely ruled out. However, there are many ways of making sure, through responsible engineering practices, that species-destroying accidents do not occur. One could avoid using self-replication; one could make nanobots dependent on some rare feedstock chemical that doesn’t exist in the wild; one could confine them to sealed environments; one could design them in such a way that any mutation was overwhelmingly likely to cause a nanobot to completely cease to function [40]. Accidental misuse is therefore a smaller concern than malicious misuse [23,25,41]. However, the distinction between the accidental and the deliberate can become blurred. While “in principle” it seems possible to make terminal nanotechnological accidents extremely improbable, the actual circumstances may not permit this ideal level of security to be realized. Compare nanotechnology with nuclear technology. From an engineering perspective, it is of course perfectly possible to use nuclear technology only for peaceful purposes such as nuclear reactors, which have a zero chance of destroying the whole planet. Yet in practice it may be very hard to avoid nuclear technology also being used to build nuclear weapons, leading to an arms race. With large nuclear arsenals on hair-trigger alert, there is inevitably a significant risk of accidental war. The same can happen with nanotechnology: it may be pressed into serving military objectives in a way that carries unavoidable risks of serious accidents. In some situations it can even be strategically advantageous to deliberately make one’s technology or control systems risky, for example in order to make a “threat that leaves something to chance” [42]. 4.7 Something unforeseen We need a catch-all category. It would be foolish to be confident that we have already imagined and anticipated all significant risks. Future technological or scientific developments may very well reveal novel ways of destroying the world. Some foreseen hazards (hence not members of the current category) which have been excluded from the list of bangs on grounds that they seem too unlikely to cause a global terminal disaster are: solar flares, supernovae, black hole explosions or mergers, gamma-ray bursts, galactic center outbursts, supervolcanos, loss of biodiversity, buildup of air pollution, gradual loss of human fertility, and various religious doomsday scenarios. The hypothesis that we will one day become “illuminated” and commit collective suicide or stop reproducing, as supporters of VHEMT (The Voluntary Human Extinction Movement) hope [43], appears unlikely. If it really were better not to exist (as Silenus told king Midas in the Greek myth, and as Arthur Schopenhauer argued [44] although for reasons specific to his philosophical system he didn’t advocate suicide), then we should not count this scenario as an existential disaster. The assumption that it is not worse to be alive should be regarded as an implicit assumption in the definition of Bangs. Erroneous collective suicide is an existential risk albeit one whose probability seems extremely slight. (For more on the ethics of human extinction, see chapter 4 of [9].) 4.8 Physics disasters The Manhattan Project bomb-builders’ concern about an A-bomb-derived atmospheric conflagration has contemporary analogues. There have been speculations that future high-energy particle accelerator experiments may cause a breakdown of a metastable vacuum state that our part of the cosmos might be in, converting it into a “true” vacuum of lower energy density [45]. This would result in an expanding bubble of total destruction that would sweep through the galaxy and beyond at the speed of light, tearing all matter apart as it proceeds. Another conceivability is that accelerator experiments might produce negatively charged stable “strangelets” (a hypothetical form of nuclear matter) or create a mini black hole that would sink to the center of the Earth and start accreting the rest of the planet [46]. These outcomes seem to be impossible given our best current physical theories. But the reason we do the experiments is precisely that we don’t really know what will happen. A more reassuring argument is that the energy densities attained in present day accelerators are far lower than those that occur naturally in collisions between cosmic rays [46,47]. It’s possible, however, that factors other than energy density are relevant for these hypothetical processes, and that those factors will be brought together in novel ways in future experiments. The main reason for concern in the “physics disasters” category is the meta-level observation that discoveries of all sorts of weird physical phenomena are made all the time, so even if right now all the particular physics disasters we have conceived of were absurdly improbable or impossible, there could be other more realistic failure-modes waiting to be uncovered. The ones listed here are merely illustrations of the general case.

#### No extinction.

Kearny 87 [Creason. Cresson Kearny was a civil defense researcher at the Hudson Institute, a US Army Major and Legion of Merit recipient, had a degree in Civil Engineering from Princeton University, and had two degrees in Geology from Oxford University. Arnold Jagt is a systems engineer and content digitizer. (“NUCLEAR WAR SURVIVAL SKILLS” “Ch. 1: The Dangers from Nuclear Weapons: Myths and Facts”, <http://oism.org/nwss/nwss.pdf>)

* No radiation/rainout – particles decay
* Gigantic test weapons inaccurate – everyone’s stockpiles are small and have decreased vastly from 1960s and 80s to modern times so book date is irrelevant or flows our side.
* Firestorms will be incredibly rare.
* Arsenals target military bases far away from large cities
* Models show no impact to ozone, even if there is, it’s tiny difference in radiation
* Nuclear winter is discredited pseudoscience

An all-out nuclear war between Russia and the United States would be the worst catastrophe in history, a tragedy so huge it is difficult to comprehend. Even so, it would be far from the end of human life on earth. The dangers from nuclear weapons have been distorted and exaggerated, for varied reasons. These exaggerations have become demoralizing myths, believed by millions of Americans. While working with hundreds of Americans building expedient shelters and life-support equipment, I have found that many people at first see no sense in talking about details of survival skills. Those who hold exaggerated beliefs about the dangers from nuclear weapons must first be convinced that nuclear war would not inevitably be the end of them and everything worthwhile. Only after they have begun to question the truth of these myths do they become interested, under normal peacetime conditions, in acquiring nuclear war survival skills. Therefore, before giving detailed instructions for making and using survival equipment, we will examine the most harmful of the myths about nuclear war dangers, along with some of the grim facts. ° Myth: Fallout radiation from a nuclear war would poison the air and all parts of the environment. It would kill everyone. (This is the demoralizing message of On the Beach and many similar pseudoscientific books and articles.) ° Facts: When a nuclear weapon explodes near enough to the ground for its fireball to touch the ground, it forms a crater. (See Fig. 1.1.) Fig. 1.1. A surface burst. In a surface or near-surface burst, the fireball touches the ground and blasts a crater. ORNL-DWG 786264 Book Page: 12 Many thousands of tons of earth from the crater of a large explosion are pulverized into trillions of particles. These particles are contaminated by radioactive atoms produced by the nuclear explosion. Thousands of tons of the particles are carried up into a mushroom-shaped cloud, miles above the earth. These radioactive particles then fall out of the mushroom cloud, or out of the dispersing cloud of particles blown by the winds thus becoming fallout. Each contaminated particle continuously gives off invisible radiation, much like a tiny X-ray machine while in the mushroom cloud, while descending, and after having fallen to earth. The descending radioactive particles are carried by the winds like the sand and dust particles of a miles-thick sandstorm cloud except that they usually are blown at lower speeds and in many areas the particles are so far apart that no cloud is seen. The largest, heaviest fallout particles reach the ground first, in locations close to the explosion. Many smaller particles are carried by the winds for tens to thousands of miles before falling to earth. At any one place where fallout from a single explosion is being deposited on the ground in concentrations high enough to require the use of shelters, deposition will be completed within a few hours. The smallest fallout particles those tiny enough to be inhaled into a person's lungs are invisible to the naked eye. These tiny particles would fall so slowly from the four-mile or greater heights to which they would be injected by currently deployed Soviet warheads that most would remain airborne for weeks to years before reaching the ground. By that time their extremely wide dispersal and radioactive decay would make them much less dangerous. Only where such tiny particles are promptly brought to earth by rain- outs or snow-outs in scattered "hot spots," and later dried and blown about by the winds, would these invisible particles constitute a long-term and relatively minor post-attack danger. The air in properly designed fallout shelters, even those without air filters, is free of radioactive particles and safe to breathe except in a few' rare environments as will be explained later. Fortunately for all living things, the danger from fallout radiation lessens with time. The radioactive decay, as this lessening is called, is rapid at first, then gets slower and slower. The dose rate (the amount of radiation received per hour) decreases accordingly. Figure 1.2 illustrates the rapidity of the decay of radiation from fallout during the first two days after the nuclear explosion that produced it. R stands for roentgen, a measurement unit often used to measure exposure to gamma rays and X rays. Fallout meters called dosimeters measure the dose received by recording the number of R. Fallout meters called survey meters, or dose-rate meters, measure the dose rate by recording the number of R being received per hour at the time of measurement. Notice that it takes about seven times as long for the dose rate to decay from 1000 roentgens per hour (1000 R/hr) to 10 R/hr (48 hours) as to decay from 1000 R/hr to 100 R/hr (7 hours). (Only in high-fallout areas would the dose rate 1 hour after the explosion be as high as 1000 roentgens per hour.) Book Page: 13 If the dose rate 1 hour after an explosion is 1000 R/hr, it would take about 2 weeks for the dose rate to be reduced to 1 R/hr solely as a result of radioactive decay. Weathering effects will reduce the dose rate further,' for example, rain can wash fallout particles from plants and houses to lower positions on or closer to the ground. Surrounding objects would reduce the radiation dose from these low-lying particles. Figure 1.2 also illustrates the fact that at a typical location where a given amount of fallout from an explosion is deposited later than 1 hour after the explosion, the highest dose rate and the total dose received at that location are less than at a location where the same amount of fallout is deposited 1 hour after the explosion. The longer fallout particles have been airborne before reaching the ground, the less dangerous is their radiation. Within two weeks after an attack the occupants of most shelters could safely stop using them, or could work outside the shelters for an increasing number of hours each day. Exceptions would be in areas of extremely heavy fallout such as might occur downwind from important targets attacked with many weapons, especially missile sites and very large cities. To know when to come out safely, occupants either would need a reliable fallout meter to measure the changing radiation dangers, or must receive information based on measurements made nearby with a reliable instrument. The radiation dose that will kill a person varies considerably with different people. A dose of 450 R resulting from exposure of the whole body to fallout radiation is often said to be the dose that will kill about half the persons receiving it, although most studies indicate that it would take somewhat less.1 (Note: A number written after a statement refers the reader to a source listed in the Selected References that follow Appendix D.) Almost all persons confined to expedient shelters after a nuclear attack would be under stress and without clean surroundings or antibiotics to fight infections. Many also would lack adequate water and food. Under these unprecedented conditions, perhaps half the persons who received a whole-body dose of 350 R within a few days would die.2 Fortunately, the human body can repair most radiation damage if the daily radiation doses are not too large. As will be explained in Appendix B, a person who is healthy and has not been exposed in the past two weeks to a total radiation dose of more than 100 R can receive a dose of 6 R each day for at least two months without being incapacitated. Only a very small fraction of Hiroshima and Nagasaki citizens who survived radiation doses some of which were nearly fatal have suffered serious delayed effects. The reader should realize that to do essential work after a massive nuclear attack, many survivors must be willing to receive much larger radiation doses than are normally permissible. Otherwise, too many workers would stay inside shelter too much of the time, and work that would be vital to national recovery could not be done. For example, if the great majority of truckers were so fearful of receiving even non-incapacitating radiation doses that they would refuse to transport food, additional millions would die from starvation alone. ° Myth: Fallout radiation penetrates everything; there is no escaping its deadly effects. ° Facts: Some gamma radiation from fallout will penetrate the shielding materials of even an excellent shelter and reach its occupants. However, the radiation dose that the occupants of an excellent shelter would receive while inside this shelter can be reduced to a dose smaller than the average American receives during his lifetime from X rays and other radiation exposures normal in America today. The design features of such a shelter include the use of a sufficient thickness of earth or other heavy shielding material. Gamma rays are like X rays, but more penetrating. Figure 1.3 shows how rapidly gamma rays are reduced in number (but not in their ability to penetrate) by layers of packed earth. Each of the layers shown is one halving-thickness of packed earth- about 3.6 inches (9 centimeters).3 A halving- thickness is the thickness of a material which reduces by half the dose of radiation that passes through it. The actual paths of gamma rays passing through shielding materials are much more complicated, due to scattering, etc., than are the straight-line paths shown in Fig. 1.3. But when averaged out, the effectiveness of a halving-thickness of any material is approximately as shown. The denser a substance, the better it serves for shielding material. Thus, a halving-thickness of concrete is only about 2.4 inches (6.1 cm). Book Page: 14 Fig. 1.3. Illustration of shielding against fallout radiation. Note the increasingly large improvements in the attenuation (reduction) factors that are attained as each additional halving-thickness of packed earth is added. ORNL-DWG 78-18834 If additional halving-thicknesses of packed earth shielding are successively added to the five thicknesses shown in Fig. 1.3, the protection factor (PF) is successively increased from 32 to 64, to 128, to 256, to 512, to 1024, and so on. ° Myth: A heavy nuclear attack would set practically everything on fire, causing "firestorms" in cities that would exhaust the oxygen in the air. All shelter occupants would be killed by the intense heat. ° Facts: On aclear day, thermal pulses (heat radiation that travels at the speed of light) from an air burst can set fire to easily ignitable materials (such as window curtains, upholstery, dry newspaper, and dry grass) over about as large an area as is damaged by the blast. It can cause second-degree skin burns to exposed people who are as far as ten miles from a one-megaton (1 MT) explosion. (See Fig. 1.4.) (A 1-MT nuclear explosion is one that produces the same amount of energy as does one million tons of TNT.) If the weather is very clear and dry, the area of fire danger could be considerably larger. On a cloudy or smoggy day, however, particles in the air would absorb and scatter much of the heat radiation, and the area endangered by heat radiation from the fireball would be less than the area of severe blast damage. Book Page: 15 Fig. 1.4. An air burst. Thefireball does not touch the ground. No crater. An air burst produces only extremely small radioactive particles-so small that they are airborne for days to years unless brought to earth by rain or snow. Wet deposition of fallout from both surface and air bursts can result in '"hot spots" at, close to, or far from ground zero. However, such '"hot spots" from air bursts are much less dangerous than the fallout produced by the surface or near-surface bursting of the same weapons. The main dangers from an air burst are the blast effects, the thermal pulses of intense light and heat radiation, and the very penetrating initial nuclear radiation from the fireball. ORNL.DWG 78.6267 "Firestorms" could occur only when the concentration of combustible structures is very high, as in the very dense centers of a few old American cities. At rural and suburban building densities, most people in earth- covered fallout shelters would not have their lives endangered by fires. ° Myth: In theworst-hit parts of Hiroshima and Nagasaki where all buildings were demolished, everyone was killed by blast, radiation, or fire. ° Facts: InNagasaki, some people survived uninjured who were far inside tunnel shelters built for conventional air raids and located as close as one-third mile from ground zero (the point directly below the explosion). This was true even though these long, large shelters lacked blast doors and were deep inside the zone within which all buildings were destroyed. (People far inside long, large, open shelters are better protected than are those inside small, open shelters.) Fig. 1.5. Undamaged earth-covered family shelter in Nagasaki. Many earth-covered family shelters were essentially undamaged in areas where blast and fire destroyed all buildings. Figure 1.5 shows a typical earth covered, backyard family shelter with a crude wooden frame. This shelter was essentially undamaged, although less than 100 yards from ground zero at Nagasaki.4 The calculated maximum overpressure (pressure above the normal air pressure) was about 65 pounds per square inch (65 psi). Persons inside so small a shelter without a blast doorwould have been killed by blast pressure at this distance from the explosion. However, in a recent blast test,5 an earth-covered, expedient Small-Pole Shelter equipped with blast doors was undamaged at 53 psi. The pressure rise inside was slight not even enough to have damaged occupants' eardrums. If poles are available, field tests have indicated that many families can build such shelters in a few days. The great life-saving potential of blast-protective shelters has been proven in war and confirmed by blast tests and calculations. For example, the area in which the air bursting of a 1-megaton weapon would wreck a 50-psi shelter with blast doors in about 2.7 square miles. Within this roughly circular area, practically all them occupants of wrecked shelters would be killed by blast, carbon monoxide from fires, or radiation. The same blast effects would kill most people who were using basements affording 5 psi protection, over an area of about 58 square miles.6 ° Myth: Because some modern H-bombs are over 1000 times as powerful as the A-bomb that destroyed most of Hiroshima, these H-bombs are 1000 times as deadly and destructive. ° Facts: A nuclear weapon 1000 times as powerful as the one that blasted Hiroshima, if exploded under comparable conditions, produces equally serious blast damage to wood-frame houses over an area up to about 130 times as large, not 1000 times as large. Book Page: 16 For example, air bursting a 20-kiloton weapon at the optimum height to destroy most buildings will destroy or severely damage houses out to about 1.42 miles from ground zero.6 The circular area of at least severe blast damage will be about 6.33 square miles. (The explosion of a 20 kiloton weapon releases the same amount of energy as 20 thousand tons of TNT.) One thousand 20-kiloton weapons thus air burst, well separated to avoid overlap of their blast areas, would destroy or severely damage houses over areas totaling approximately 6,330 square miles. In contrast, similar air bursting of one 20- megaton weapon (equivalent in explosive power to 20 million tons of TNT) would destroy or severely damage the great majority of houses out to a distance of 16 miles from ground zero.6 The area of destruction would be about 800 square miles - not 6,330 square miles. Today few if any of Russia's huge intercontinental ballistic missiles (ICBMs) are armed with a 20-megaton warhead. Now a huge Russian ICBM, the SS-18, typically carries 10 warheads, each having a yield of 500 kilotons, each programmed to hit a separate target. See Jane's Weapon Systems, 1987-88. ° Myth: A Russian nuclear attack on the United States would completely destroy all American cities. ° Facts: As long as Soviet leaders are rational they will continue to give first priority to knocking out our weapons and other military assets that can damage Russia and kill Russians. To explode enough nuclear weapons of any size to completely destroy American cities would be an irrational waste of warheads. The Soviets can make much better use of most of the warheads that would be required to completely destroy American cities; the majority of those warheads probably already are targeted to knock out our retaliatory missiles by being surface burst or near-surface burst on their hardened silos, located far from most cities and densely populated areas. Unfortunately, many militarily significant targets - including naval vessels in port and port facilities, bombers and fighters on the ground, air base and airport facilities that can be used by bombers, Army installations, and key defense factories - are in or close to American cities. In the event of an all-out Soviet attack, most of these '"soft" targets would be destroyed by air bursts. Air bursting (see Fig. 1.4) a given weapon subjects about twice as large an area to blast effects severe enough to destroy "soft" targets as does surface bursting (see Fig. 1.1) the same weapon. Fortunately for Americans living outside blast and fire areas, air bursts produce only very tiny particles. Most of these extremely small radioactive particles remain airborne for so long that their radioactive decay and wide dispersal before reaching the ground make them much less life- endangering than the promptly deposited larger fallout particles from surface and near-surface bursts. However, if you are a survival minded American you should prepare to survive heavy fallout wherever you are. Unpredictable winds may bring fallout from unexpected directions. Or your area may be in a "hot spot" of life-endangering fallout caused by a rain-out or snow-out of both small and tiny particles from distant explosions. Or the enemy may use surface or near-surface bursts in your part of the country to crater long runways or otherwise disrupt U.S. retaliatory actions by producing heavy local fallout. Today few if any of Russia's largest intercontinental ballistic missiles (ICBMs) are armed with a 20-megaton warhead. A huge Russian ICBM, the SS-18, typically carries 10 warheads each having a yield of 500 kilotons, each programmed to hit a separate target. See "Jane's Weapon Systems. 1987-1988." However, in March 1990 CIA Director William Webster told the U.S. Senate Armed Services Committee that ".... The USSR's strategic modernization program continues unabated," and that the SS-18 Mod 5 can carry 14 to 20 nuclear warheads. The warheads are generally assumed to be smaller than those of the older SS-18s. ° Myth: So much food and water will be poisoned by fallout that people will starve and die even in fallout areas where there is enough food and water. ° Facts: If the falloutparticles do not become mixed with the parts of food that are eaten, no harm is done. Food and water in dust-tight containers are not contaminated by fallout radiation. Peeling fruits and vegetables removes essentially all fallout, as does removing the uppermost several inches of stored grain onto which fallout particles have fallen. Water from many sources -- such as deep wells and covered reservoirs, tanks, and containers -- would not be contaminated. Even water containing dissolved radioactive elements and compounds can be made safe for drinking by simply filtering it through earth, as described later in this book. ° Myth: Most of the unborn children and grandchildren of people who have been exposed to radiation from nuclear explosions will be genetically damaged will be malformed, delayed victims of nuclear war. ° Facts: The authoritative study by the National Academy of Sciences, A Thirty Year Study of the Survivors qf Hiroshima and Nagasaki, was published in 1977. It concludes that the incidence of abnormalities is no higher among children later conceived by parents who were exposed to radiation during the attacks on Hiroshima and Nagasaki than is the incidence of abnormalities among Japanese children born to un-exposed parents. This is not to say that there would be no genetic damage, nor that some fetuses subjected to large radiation doses would not be damaged. But the overwhelming evidence does show that the exaggerated fears of radiation damage to future generations are not supported by scientific findings. ° Myth: Overkill would result if all the U.S. and U.S.S.R, nuclear weapons were used meaning not only that the two superpowers have more than enough weapons to kill all of each other's people, but also that they have enough weapons to exterminate the human race. Book Page: 17 ° Facts: Statements that the U.S. and the Soviet Union have the power to kill the world's population several times over are based on misleading calculations. One such calculation is to multiply the deaths produced per kiloton exploded over Hiroshima or Nagasaki by an estimate of the number of kilotons in either side's arsenal. (A kiloton explosion is one that produces the same amount of energy as does 1000 tons of TNT.) The unstated assumption is that somehow the world's population could be gathered into circular crowds, each a few miles in diameter with a population density equal to downtown Hiroshima or Nagasaki, and then a small (Hiroshima-sized) weapon would be exploded over the center of each crowd. Other misleading calculations are based on exaggerations of the dangers from long-lasting radiation and other harmful effects of a nuclear war. ° Myth: Blindness and a disastrous increase of cancers would be the fate of survivors of a nuclear war, because the nuclear explosions would destroy so much of the protective ozone in the stratosphere that far too much ultraviolet light would reach the earth's surface. Even birds and insects would be blinded. People could not work outdoors in daytime for years without dark glasses, and would have to wear protective clothing to prevent incapacitating sunburn. Plants would be badly injured and food production greatly reduced. ° Facts: Large nuclear explosions do inject huge amounts of nitrogen oxides (gasses that destroy ozone) into the stratosphere. However, the percent of the stratospheric ozone destroyed by a given amount of nitrogen oxides has been greatly overestimated in almost all theoretical calculations and models. For example, the Soviet and U.S. atmospheric nuclear test explosions of large weapons in 1952-1962 were calculated by Foley and Ruderman to result in a reduction of more than 10 percent in total ozone. (See M. H. Foley and M. A. Ruderman, 'Stratospheric NO from Past Nuclear Explosions", Journal of Geophysics, Res. 78, 4441-4450.) Yet observations that they cited showed no reductions in ozone. Nor did ultraviolet increase. Other theoreticians calculated sizable reductions in total ozone, but interpreted the observational data to indicate either no reduction, or much smaller reductions than their calculated ones. A realistic simplified estimate of the increased ultraviolet light dangers to American survivors of a large nuclear war equates these hazards to moving from San Francisco to sea level at the equator, where the sea level incidence of skin cancers (seldom fatal) is highest- about 10 times higher than the incidence at San Francisco. Many additional thousands of American survivors might get skin cancer, but little or no increase in skin cancers might result if in the post-attack world deliberate sun tanning and going around hatless went out of fashion. Furthermore, almost all of today's warheads are smaller than those exploded in the large- weapons tests mentioned above; most would inject much smaller amounts of ozone-destroying gasses, or no gasses, into the stratosphere, where ozone deficiencies may persist for years. And nuclear weapons smaller than 500 kilotons result in increases (due to smog reactions) in upper tropospheric ozone. In a nuclear war, these increases would partially compensate for the upper-level tropospheric decreases-as explained by Julius S. Chang and Donald J. Wuebbles of Lawrence Livermore National Laboratory. ° Myth: Unsurvivable "nuclear winter" surely will follow a nuclear war. The world will be frozen if only 100 megatons (less than one percent of all nuclear weapons) are used to ignite cities. World-enveloping smoke from fires and the dust from surface bursts will prevent almost all sunlight and solar heat from reaching the earth's surface. Universal darkness for weeks! Sub-zero temperatures, even in summertime! Frozen crops, even in the jungles of South America! Worldwide famine! Whole species of animals and plants exterminated! The survival of mankind in doubt! ° Facts: Unsurvivable "nuclear winter" is a discredited theory that, since its conception in 1982, has been used to frighten additional millions into believing that trying to survive a nuclear war is a waste of effort and resources, and that only by ridding the world of almost all nuclear weapons do we have a chance of surviving. Non-propagandizing scientists recently havecalculated that the climatic and other environmental effects of even an all-out nuclear war would be much less severe than the catastrophic effects repeatedly publicized by popular astronomer Carl Sagan and his fellow activist scientists, and by all the involved Soviet scientists. Conclusions reached from these recent, realistic calculations are summarized in an article, "Nuclear Winter Reappraised", featured in the 1986 summer issue of Foreign Affairs, the prestigious quarterly of the Council on Foreign Relations. The authors, Starley L. Thompson and Stephen H. Schneider, are atmospheric scientists with the National Center for Atmospheric Research. They showed " that on scientific grounds the global apocalyptic conclusions of the initial nuclear winter hypothesis can now be relegated to a vanishing low level of probability." Book Page: 18 Their models indicate that in July (when the greatest temperature reductions would result) the average temperature in the United States would be reduced for a few days from about 70 degrees Fahrenheit to approximately 50 degrees. (In contrast, under the same conditions Carl Sagan, his associates, and the Russian scientists predicted a resulting average temperature of about 10 degrees below zero Fahrenheit, lasting for many weeks!) Persons who want to learn more about possible post-attack climatic effects also should read the Fall 1986 issue of Foreign Affairs. This issue contains a long letter from Thompson and Schneider which further demolishes the theory of catastrophic "nuclear winter." Continuing studies indicate there will be even smaller reductions in temperature than those calculated by Thompson and Schneider. Soviet propagandists promptly exploited belief in unsurvivable "nuclear winter" to increase fear of nuclear weapons and war, and to demoralize their enemies. Because raging city firestorms are needed to inject huge amounts of smoke into the stratosphere and thus, according to one discredited theory, prevent almost all solar heat from reaching the ground, the Soviets changed their descriptions of how a modern city will burn if blasted by a nuclear explosion. Figure 1.6 pictures how Russian scientists and civil defense officials realistically described - before the invention of "nuclear winter" - the burning of a city hit by a nuclear weapon. Buildings in the blasted area for miles around ground zero will be reduced to scattered rubble - mostly of concrete, steel, and other nonflammable materials - that will not burn in blazing fires. Thus in the Oak Ridge National Laboratory translation (ORNL-TR-2793) of Civil Defense. Second Edition (500,000 copies), Moscow, 1970, by Egorov, Shlyakhov, and Alabin, we read: "Fires do not occur in zones of complete destruction . . . that are characterized by an overpressure exceeding 0.5 kg/cm2 [- 7 psi]., because rubble is scattered and covers the burning structures. As a result the rubble only smolders, and fires as such do not occur." Fig. 1.6. Drawing with Caption in a Russian Civil Defense Training Film Strip. The blazing fires ignited by a surface burst are shown in standing buildings outside the miles-wide "zone of complete destruction," where the blast-hurled "rubble only smolders." Translation: [Radioactive] contamination occurs in the area of the explosion and also along the trajectory of the cloud which forms a radioactive track. Book Page: 19 Firestorms destroyed the centers of Hamburg, Dresden, and Tokyo. The old-fashioned buildings of those cities contained large amounts of flammable materials, were ignited by many thousands of small incendiaries, and burned quickly as standing structures well supplied with air. No firestorm has ever injected smoke into the stratosphere, or caused appreciable cooling below its smoke cloud. The theory that smoke from burning cities and forests and dust from nuclear explosions would cause worldwide freezing temperatures was conceived in 1982 by the German atmospheric chemist and environmentalist Paul Crutzen, and continues to be promoted by a worldwide propaganda campaign. This well funded campaign began in 1983 with televised scientific-political meetings in Cambridge and Washington featuring American and Russian scientists. A barrage of newspaper and magazine articles followed, including a scaremongering article by Carl Sagan in the October 30, 1983 issue of Parade, the Sunday tabloid read by millions. The most influential article was featured in the December 23,1983 issue of Science (the weekly magazine of the American Association for the Advancement of Science): "Nuclear winter, global consequences of multiple nuclear explosions," by five scientists, R. P. Turco, O. B. Toon, T. P. Ackerman, J. B. Pollack, and C. Sagan. Significantly, these activists listed their names to spell TTAPS, pronounced "taps," the bugle call proclaiming "lights out" or the end of a military funeral. Until 1985, non-propagandizing scientists did not begin to effectively refute the numerous errors, unrealistic assumptions, and computer modeling weakness' of the TTAPS and related "nuclear winter" hypotheses. A principal reason is that government organizations, private corporations, and most scientists generally avoid getting involved in political controversies, or making statements likely to enable antinuclear activists to accuse them of minimizing nuclear war dangers, thus undermining hopes for peace. Stephen Schneider has been called a fascist by some disarmament supporters for having written "Nuclear Winter Reappraised," according to the Rocky Mountain News of July 6, 1986. Three days later, this paper, that until recently featured accounts of unsurvivable "nuclear winter," criticized Carl Sagan and defended Thompson and Schneider in its lead editorial, "In Study of Nuclear Winter, Let Scientists Be Scientists." In a free country, truth will out - although sometimes too late to effectively counter fast-hittingpropaganda. Effective refutation of "nuclear winter" also was delayed by the prestige of politicians and of politically motivated scientists and scientific organizations endorsing the TTAPS forecast of worldwide doom. Furthermore, the weakness' in the TTAPS hypothesis could not be effectively explored until adequate Government funding was made available to cover costs of lengthy, expensive studies, including improved computer modeling of interrelated, poorly understood meteorological phenomena. Serious climatic effects from a Soviet-U.S. nuclear war cannot be completely ruled out. However, possible deaths from uncertain climatic effects are a small danger compared to the incalculable millions in many countries likely to die from starvation caused by disastrous shortages of essentials of modern agriculture sure to result from a Soviet-American nuclear war, and by the cessation of most international food shipments.