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Fall 2019

Scholar Section



Sports and Consent: Why Isn't a Tackle Assault and Battery?

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Abstract

Physical contact in sporting events pose an interesting case study for issues of consent. Tackles in both European and American football, checks in hockey, and charging/blocking in basketball: these all seem like actions that would be considered a tort or crime if done at random. However, we typically do not view anything askew with the conduct on the field, as long it remains within the norms of play. Why is that? One explanation of our nonchalantness about violent conduct on the field is that we attribute consent to the players of the game. Relying on this explanation, Peter Westen claims that sports involve constructive consent; by the act of stepping on the field and playing the game, we are justified in treating players as if they have consented. In this practice, such consent is fictitious - no actual consent need be present. While Westen is correct to note that consent is playing some role in what occurs on the field, he is mistaken about what type of consent is at play. My aim in this paper is two-fold. The first is to argue that the puzzle of assaults in sports has a straight forward explanation. The same magic that turns a trespass into a dinner party turns assault into a legal tackle: standard, prescriptive consent. In pursuit of this aim, I will explain an alternative framework to Westen's for analyzing consent in sporting events. This thus leads to the second aim, which focuses on Westen's concept of constructive consent. Building upon previous work, I look to this arena to further illustrate the dangers of viewing constructive consent as a legitimate form of consent and argue against using its framework in the context of sport.

Keywords: Consent; constructive consent; sports; assault and battery

Physical contact and injuries in sporting events pose an interesting case study for issues of consent. Most of the common sports in Western culture involve what would otherwise be considered blatant assaults¹:

¹ I use "assault" to refer to unprivileged, intentional contact. Though in many jurisdictions this is technically a battery whereas an assault is merely the threat

tackles in both European and American football, checks in hockey, and charging/blocking in basketball. These all seem like actions that would be considered a tort if done at random. However, we typically do not view anything askew with the conduct on the field, as long it remains within the norms of play. Why is that? What magic does the sports arena hold that renders the otherwise impermissible permissible?

One explanation of our nonchalantness about aggressive and violent conduct on the field is that we *attribute* consent to the players of the game. Relying on this explanation, Peter Westen initially motivates the existence of imputed consent by appeal to how we view injuries that occur in the normal course of hockey games.² Specifically, he claims that sports involve constructive consent; by the act of stepping on the field and playing the game, we are justified in treating players as if they have consented. Such consent is fictitious; we merely treat the players as if they have consented because of their other actions; no actual consent need be present for the assault to be transformed into a legal body check.

Westen is correct to note that consent is playing some role in what occurs when we look at sporting events. However, he is mistaken about what type of consent is at play. My aim in this paper is two-fold. The first focuses more squarely on why hockey players aren't charged with assault and battery after every match. My explanation of this puzzle is rather straight forward. The same magic that turns a trespass into a dinner party turns assault into a legal tackle: standard, prescriptive consent. While players aren't exactly shouting "I consent" as the opposing team skates directly towards them, prescriptive consent is still present, and we have no reason to turn to fictitious consent to explain our most common hobbies and pastimes. In pursuit of this aim, I will explain an alternative framework to Westen's for analyzing consent in sporting events. This thus leads to the second aim, which focuses on Westen's concept of constructive consent. Building upon previous work,³ I look to this arena to further illustrate the dangers of viewing constructive consent as a legitimate form of consent and argue against using its framework in the context of sport. Section I provides some legal background regarding physical contact in sports. Section II offers my account of consent in sports. And, Section III explains how, if we don't prosecute tackles as

of unprivileged intentional contact, I use "assault" because this term is more commonly used in laypersons' conversations.

² See *Logic of Consent* 2004, 269.

³ M. Beth Valentine, 2018 "Constructive Consent: A Dangerous Fiction."

batteries for other reasons, we shouldn't call this reason consent – even if we clarify that the consent is fictitious.

1: Background

Instances of sports violence between players are rarely criminally prosecuted in the US - the one possible exception being some forms of hockey violence.⁴ Consider the normal course of play in hockey, rugby, basketball, football, or soccer. At some point, one player will intentionally come into contact with another in such a way that is unpleasant for whoever they are tackling, checking, or bumping into. Yet, at most a player will get a foul. Any “punishment” they receive will be given solely within the game itself. This informal practice of not prosecuting contact within sporting games holds true even when there are bench clearing brawls and severe injuries. Looking at professional sports, consider the following examples: there were no assault charges arising from the August 12, 1984 Atlanta Braves-San Diego Padres baseball game, despite four bench-clearing brawls. Similarly, no charges arose from the 1970 fight erupting between the Kansas City Chiefs and Oakland Raiders. One of the perhaps most famous brawls – the so-called “Malice at the Palace” – did result in assault charges for Pacer players, but those arose from assaults on Piston fans and not other players. Even where brain and neck injuries occur, criminal prosecution is almost non-existent in U.S. professional sports. No charges were filed against Kermit Washington (then with the LA Lakers) for punching Rudy Tomjanovich during an on-court fight. Tomjanovich “suffered nose, jaw, and skull fractures, a brain concussion, and leakage of spinal fluid from the brain cavity” (White 1986, 1030). Though there were civil proceedings against Charles Clark for the severe neck injury he inflicted on Dale Hackbart, no criminal liability was imposed. (For the civil case, see *Hackbart v. Cincinnati Bengals, Inc.*, 601 F.2d. 516 (10th Cir. 1979).) More recently, there were not one but two instances of a football player removing the helmet of another player and then hitting that player with his own helmet in 2019 alone.⁵ However,

⁴ “Given the unique social dynamic involved in sports, criminal prosecution of sports participants for conduct that occurs with the playing of the game is rare. Most prosecutions, not surprisingly, have involved hockey games.” *State v. Guidugli*, 157 Ohio App. 3d 383, 392 (2004). (omitted internal quotation marks)

⁵ The first occurred on Aug. 15, 2019 when Chicago Bears’s Kyle Long removed the helmet of a rookie and started hitting him with it during practice. The second occurred in Nov. 2019 when Cleveland Brown’s Myles Garrett

prosecution (though not necessarily conviction) is more common in Canada. Given the similarities in Canadian and American assault statutes, we will begin our discussion of consent and sports in Canada and then move south.

The three main hockey cases in Canadian criminal law are *Regina v. Cey*, 5 WWR 169 (SK CA 1989), *Regina v. Maki*, 1 C.C.C.2d 333 (Ontario Provincial Ct. 1970), and *Regina v. Green*, 2 C.C.C.2d 442 (Ontario Provincial Ct.1970). The result of the famous fight between Ted Green of the Boston Bruins and Wayne Maki of the St. Louis Blues, the last two cases are the “starting point” of the inquiry into the relationship among consent, hockey, and assault (McCutcheon 1994, 274).⁶ Though both Maki and Green were acquitted, their cases established that criminal liability could be imposed in the sporting arena. Importantly, both judges addressed the defense of consent. *Green* held that “[t]here is no doubt that the players who enter the hockey arena consent to a great number of assaults on their person... No hockey player enters on to the ice of the National Hockey League without consenting to and without knowledge of the possibility that he is going to be hit in one of many ways once he is on that ice.” The court implied that the consent was limited, speaking only to the issue of common assault – as opposed to assault causing actual bodily harm – and describing those actions consented to as “normal risks.” *Maki* echoed this view of consent and also noted that it extended to the “risks and hazards of the sport” but not to everything that may occur on the ice. In dealing with this new area of liability, courts “articulated three tests, each phrased slightly differently, to describe permissible player conduct. Players are presumed to consent to conduct ‘incidental to the sport,’ conduct ‘inherent in and reasonably incidental to the normal playing of the game,’ and conduct ‘closely related to the play’” (White 1986, 1039). Each test was a way of establishing the scope of the consent the courts attribute to players.

Cey engages with this framework and directly addresses consent in the context of sporting activity.

removed the helmet of an opposing player during an NFL game. As of Nov. 20th, 2019 no criminal charges have been brought against either.

⁶ White also notes that, while later Canadian courts rarely cite precedent, “when they do...they rely on *Maki* and *Green* and overlook later cases” (1986, 1037). *Cey* was decided after the publication of White’s piece but remains an important appellate decision in understanding the implied consent doctrine.

It is clear that in agreeing to play the game a hockey player consents to some forms of intentional bodily contact and to the risk of injury therefrom. Those forms sanctioned by the rules are the clearest example. Other forms, denounced by the rules but falling within the accepted standards by which the game is played, may also come within the scope of the consent.

It is equally clear that there are some actions which can take place in the course of a sporting conflict that are so violent it would be perverse to find that anyone taking part in a sporting activity had impliedly consented to subject himself to them. *Cey*

The Court wrestles with where to draw the line between those actions which are consented to and those that are not. It notes that, though consent is ordinarily subjective, “there cannot be as many different consents as there are players on the ice.” *Cey*. The standard for consent in these contexts must thus be objective and uniform. This standard is relativized to the conditions of the game, taking account of age, league, skill, etc. “The conditions under which the game in question is played, the nature of the act which forms the subject matter of the charge, the extent of the force employed, the degree of risk of injury, and the probabilities of serious harm” are also relevant criteria for determining if implied consent covers an action or if the act is “so violent and inherently dangerous as to have been excluded from the implied consent.” *Cey*. This framework transforms many of the contacts in recreational activities and sports into lawful actions while limiting the scope of consent based on the circumstances of game participated in.

This specific consent doctrine found in Canada is acknowledged by courts in the U.S.⁷ It was adopted in the Model Penal Code prior to the Canadian cases discussed above in 1962; Section 2.11(2) of the Code holds that consent is an absolute defense to bodily harm if “the conduct and the harm are a reasonably foreseeable hazard of joint participation in a lawful athletic competition or competitive sport ...” *State v. Shelley* references this section in holding that the proper inquiry in determining if

⁷ For example, see *State v. Floyd*, 466 N.W.2d 919, 922 (Iowa App.1990); *People v. Freer*, N.Y.S.2d 976, 979 (1976); *State v. Shelley*, 85 Wash. App. 24 (1997); and *Guidugli*.

an agent consented to contact is “whether the conduct of defendant constituted foreseeable behavior in the play of the game.” *Shelley* 85 Wash. App at 31. Unsurprisingly, it held that a punch did not pass the test. Courts in Iowa, Ohio, and New York have followed Washington in holding that foreseeability is a requirement in attributing consent and that punches, in these cases thrown after play had stopped, were not consented to.⁸

The *Floyd* opinion is of particular interest since Iowa addresses voluntary participation in sports explicitly in its assault statute. The law states that an act is not an assault “[i]f the person... and such other person, are voluntary participants in a sport, social or other activity, not in itself criminal, and such act is a reasonably foreseeable incident of such sport or activity...” IOWA CODE ANN. § 708.1(3)(a). The other exception to assault listed in the section is if the act is done by a school employee breaking up a fight on school grounds or during a school function. Though “consent” seems like an odd concept to read into the second exception, the court discusses the first exception in the language of consent and even refers to it as the consent defense (*Floyd* 466 N.W. 2d at 922).

In response to a particularly violent span of years in the 70’s, legislative action was initiated on the federal level. The House of Representatives introduced a Sports Violence Act in 1980 and again in 1981 that, if passed, would have criminalized the use of “excessive physical force.” It defined excessive physical force as force that:

(A) has no reasonable relationship to the competitive goals of the sport; [...and]

(C) could not be reasonably foreseen, or was not consented to, by the injured person, as a normal hazard of such person's involvement in such sports ...

H.R. 7903, 96th Cong., 2d Sess. 115 (1980), Sports Violence Act (b)(1)(A), (C)

Depending on how the document is interpreted, consent is either an appositive to what is reasonably foreseen or a separate thing which serves the same statutory purpose as a hazard being reasonably foreseen. If it is an appositive, then consent – in some form – is always involved in (C). Action that is not reasonably foreseen simply is action that hasn’t been

⁸ See footnote 5 for the list of cases.

consented to. The appositive interpretation seems to be more grammatically correct, but, at a minimum, a hazard's commonness in play would have been functionally equivalent to consent to a hazard. Though never enacted, the bill does shed light on how legislatures were conceiving of this issue and echoes the approach previously discussed at the state level.

The terrain for civil liability of sports injuries is less unified, as one would expect in the common law. Historically, courts were reluctant to impose civil liability for injuries arising in the course of consensual recreational activities. *Kuehner v. Green*, 436 So.2d 78, 81 (Fla. 1983) (Boyd, J., concurring).⁹ Though that reluctance has continued in some regard, courts now no longer look upon "friendly, mutual combat" in quite the same way. In general, modern courts can use one of three distinct standards in adjudicating recovery for injuries received during sports and games: (1) intentional tort, *i.e.*, assault and battery; (2) willful or reckless misconduct; and (3) negligence. *Marchetti v. Kalish*, 53 Ohio St. 3d 95, 96 (1990).

Most courts allow recovery under the first and second standards. However, these courts differ as to the reasons they give for why that standard is right. Some courts insert explicit consent language into their analysis, holding those actions that violate rules designed for the safety of the players or that are intentionally inflicted to cause injury are grounds for a cause of action.¹⁰ Those following this approach are bedfellows with the Restatement (Second) of Torts, which holds that participating in a game "manifests a willingness to submit to such bodily contacts...as are permitted by its rules or usages" (§50 Apparent Consent, Comment b). In contrast, some courts eschew the Restatement framework. Instead of focusing on if the players consented to the conduct in question, they appear

⁹ For an example of such a historical case, see *McAdams v. Windham*, 208 Ala. 492, 493 (1922): "It is a general rule of law that a blow thus inflicted in a friendly, mutual combat-a mere sporting contest-is not unlawfully inflicted... Harm suffered by consent is not, in general, the basis of a civil action."

¹⁰ See *Gauvin v. Clark*, 404 Mass. 450, 454 (1989): "Players, when they engage in sport, agree to undergo some physical contacts which could amount to assault and battery absent the players' consent"; and, *Overall v. Kadella*, 138 Mich.App. 351, 357 (1984): "Participation in a game involves a manifestation of consent to those bodily contacts which are permitted by the rules of the game."

to engage in a more explicit balancing of social values.¹¹ This weighing of values seeks to enable athletic competition to thrive free from fear of litigation while still being conducted in a civil manner.

To make matters slightly murkier for a consent analysis, the courts that engage in explicit social balancing often speak in terms of “assumption of risk.”¹² Assumption of risk is a common law doctrine that operates as a defense to nonintentional torts. Roughly put, if a risk is a foreseeable part of the activity engaged in, and the agent voluntarily and knowingly engaged in the activity, then the agent assumes the risk and cannot recover for it. Common law holds that the assumption negates any duty owed by others to the assumers – a magic similar to that worked by consent. Yet, it is unclear whether the common law views the negation of duty as based on consent – in any of its forms. Though the *Second Restatement* uses consent language to speak of the defense, there are – depending on how one counts and categorizes – between two and four types of assumption of risk with more and less plausible ties to consent. In

¹¹ See *Nabozny v. Barnhill*, 31 Ill.App.3d 212, 215 (1975): “This court believes that the law should not place unreasonable burdens on the free and vigorous participation in sports by our youth. However...some of the restraints of civilization must accompany every athlete onto the playing field. One of the educational benefits of organized athletic competition to our youth is the development of discipline and self-control.” Note that the term consent does not appear in the opinion. See also *Marchetti*, 53 Ohio St. 3d at 99 (rejecting the Model Penal Code approach): “Thus, our goal is to strike a balance between encouraging vigorous and free participation in recreational or sports activities, while ensuring the safety of the players”; *Ross v. Clouser*, 637 S.W.2d 11, 14 (Mo. 1982): “Fear of civil liability stemming from negligent acts occurring in an athletic event could curtail the proper fervor with which the game should be played and discourage individual participation, yet it must be recognized that reasonable controls should exist to protect the players and the game. Balancing these seemingly opposite interests, we conclude that a player’s reckless disregard for the safety of his fellow participants cannot be tolerated.”; and *Kabella v Bouschelle*, 672 P.2d 290, 294 (N.M. Ct. App. 1983): “Nevertheless we think for reasons of public policy the [recklessness] standard of care... is applicable to cases in this jurisdiction involving tort claims between participants in athletic activities normally involving physical contact. Vigorous and active participation in sporting events should not be chilled by the threat of litigation.”

¹² See *Pfenning v. Lineman* 402 for a list of cases which rely on assumption of risk in addressing sports injury cases, the most recent of which is *Anand v. Kapoor* (2010).

many jurisdictions, this doctrine has been subsumed under a comparative fault analysis, which is governed more by fairness norms than those related to consent. The fact that this discussion occurs only in civil cases and not in criminal cases adds a further dimension to the analysis of these cases. Given these complexities, I won't engage with cases involving assumption of risk and sports directly, but I do think these cases can be accommodated into one of the frameworks below.

2: Sports and Prescriptive Consent

I argue that, if consent is involved in sports, it is – or should be – prescriptive consent. By “prescriptive consent,” I mean consent as we normally think of it. Though prescriptive consent need not be always be explicitly, verbally expressed, it does always require a consent-giver, a consent-receiver, and some action or omission consented to. Because of how consent is linked to autonomy, giving consent alters the moral landscape between the consent-giver and consent-receiver as it relates to the action or omission. Though there may still be other moral reasons in play that would prevent the receiver from performing the action,¹³ valid, transformative consent (which I will just refer to as consent from now on) removes at least one reason not to do the action: namely, that it would violate the consent-giver's autonomy. Consent thus transforms the duties and obligations owed between people involved in the consent, generally making a host of otherwise impermissible actions permitted.¹⁴

My argument that consent should be involved in sports is straightforward and rests upon the moral magic consent is commonly believed to have. When we think of what makes violently tackling another permissible, our list of options are short. There is self-defense, defense of others, a possible lesser-evils justification, and consent. None but the last could possibly be applicable in a normal game of football. The player isn't

¹³ For example, imagine I give you consent to take and use my old freezer so you can place extra ice cream in it. However, my old freezer isn't energy efficient and is leaking chemicals harmful to the environment. So, while my consent would make your taking and use of my freezer not theft, it still wouldn't make it all things considered permissible.

¹⁴ In what follows, I rely on an account of consent that is neutral with regards to whether consent is purely a mental state or is a communicative act (or requires both!). I avoid this by assuming that any consent mentioned in the theory portion of the paper is valid, unless stated otherwise. The reader can then read into “valid” whichever conditions their favorite theory of prescriptive consent imposes.

tackling the receiver because he is defending himself or another from the opposing player. Similarly, the player isn't tackling the receiver to get him out of the path of a lethal run-away trolley. Consent is all that is left that can explain why the player doesn't do anything wrong when tackling another.

The next task, then, is to show how prescriptive consent can operate in sporting events. Prescriptive consent is involved in sports in one of two ways. The first way is by giving standard prescriptive consent to the "assaults" themselves. Players may explicitly consent to being tackled, checked, etc. They can do by signing a form indicating their consent to these behaviors, as is common in community leagues. More informally, players may discuss what forms of behavior are allowed and which actions are prohibited prior to the start of the game, consenting at the end once an agreement of what is "fair game" is reached. Alternatively, they may give their tacit consent. Tacit consent occurs when individuals indirectly communicate their consent, for example by tossing a scarf at a roommate when they ask to borrow it. Though I haven't stated "yes, I can consent to you borrowing my property," I have conveyed consent through other means. In sports, we can see this occurring in most levels of play. By removing their gloves and giving a nod at the other player, the "enforcers" on opposing hockey teams can communicate their consent to brawl. In either the tacit or explicit case, however, this interaction involves nothing more than consent as we normally conceive of it.

The second way is by explicitly or tacitly consenting to play the game, thereby giving prescriptive consent to all the elements that make up the game, including tackles, checks, etc. Such consent can be communicated, for example, through verbal agreement ("ok, I'll play basketball with you), signed waiver forms, or indirectly through our actions (joining the line of scrimmage). I will call this type of prescriptive consent "constitutive consent." Constitutive consent expresses the principle that if an agent consents to Φ , then she consents to all constitutive elements of Φ . For example, if I give valid consent to my physician to perform an appendectomy, then I have thereby given her consent to make an incision in my body and remove my appendix. I propose a similar assessment for sports. A sport consists of the rules which govern it, the legal moves performed, and, to some extent, the normal fouls that occur during play. To consent to play football, then, is to consent to being governed by rules of the game and to consent to the moves allowed by those rules and the conventions of the game. Under this analysis, tackling

is just a part of the package a player consents to when she consents to play football. As the court noted in *State v. Guidugli* “when the victim consents to participating in a particular sport, he or she then consents by the *very nature of the sport* to certain acts of aggressive contact.” (italics added)

Such an approach might be said to have four flaws. First, this analysis may not cover contacts which occur outside the conventions of the game. Yet, this article began by noting how prosecution rarely occurs for bench-clearing brawls or fights in professional games. Here, I readily admit that, if a defense is to be given for why prosecution did not occur in those cases, the defense should make no reference to consenting to play the game. Perhaps consent was conveyed tacitly to fight, separate from the game. Or, perhaps what occurred really was both morally and legally impermissible, and the failure to prosecute represents either a miscarriage of justice or is reflective of some legitimate reason for prosecutorial discretion. I view it as a strength of my view, however, that it doesn't permit such wanton attacks or creates a realm in which assault-like behavior can be conducted safe from prosecution. By directing our focus solely on actual prescriptive consent, instead of consent we attribute to the players to actions that occur on the field, we can more clearly analyze cases like “Malice in the Palace” in the appropriate normative terms.

Second, the constitutive consent framework runs into the same problem that some frameworks proposed by the courts did. Namely, how do we figure out what is constitutive to a sport?¹⁵ By engaging in soccer, I surely do not constructively “consent” to *anything* that may happen on the field, such as being attacked with a chainsaw. Yet, slide tackles do seem fair game. Here, the puzzle shifts. The question isn't why a tackle isn't a criminal offense but instead is how we determine what the game is. Though a long digression about the metaphysics of games would seem amiss in a paper about consent, I mention only briefly that the truth conditions for statements relating to games and rules of play are intersubjective; they make essential reference to what we, as a society, have decided and believe about the game. A foul ball in baseball is a foul ball simply because that is what we decided it to be. If we come to accept fist-fights as part of hockey (as many do, particularly in certain leagues), then it becomes part of the game. For a hockey player to complain about taking a punch to the shoulder pads, then, would become as nonsensical as

¹⁵ This objection obviously does not apply to cases where we consent directly to the tackle, check, etc.

an appendectomy patient complaining about the incision *provided both consented to the larger package deal*. To consent to an appendectomy is just to consent to an incision; so too with hockey. As those who participate in the game change the views about what is normal, so too will what we consent to when we agree to play change. However, this is just a fact about how social conventions work and is something that would be present whenever we consent to a social construct; it isn't a problem unique to the framework I'm suggesting we use for consent to physical contact in sports.¹⁶

Third, one might object that what one consents to when one agrees to play to football isn't to the tackles directly but instead to the *risk* of tackles.

¹⁷ It is, of course, theoretically possible to play a game of football without ever making physical contact with another player. It is admittedly rather unlikely, but still, nonetheless, it could happen. When consenting to play the game, the player thus consents to the risk of tackles, checks, and related assault-like activity instead of directly to the conduct itself. However, such consent is still normatively transformative. Return to the appendectomy case. By consenting to this procedure, I consent to an incision and a removal of the offending organ. Certain risks are part of the procedure as well and equally covered by my consent, for example, a .5% risk of internal bleeding. Though this is distinct from consenting directly to internal bleeding, the end result is that, should the .5% chance come to fruition, the doctor has not wronged me because I gave her consent to perform the surgery.

¹⁶ The foreseeability test found in H.R. 7903 and cases like *State v. Shelley* are a practical way of testing whether conduct is a part of the game. If a reasonable person couldn't foresee the opposing team chasing me with a chainsaw, then that is fairly good evidence that being chased with a chainsaw isn't part of the game. However, foreseeability can lead us astray. For example, if I play against a team that is known to bring knives to a soccer match, getting stabbed might be foreseeable. However, this is the wrong kind of foreseeability because it is based on predictions about the conduct of particular people and not about the general conduct of players in the game.

¹⁷ The language commonly used to describe assumption of risk most closely resembles the language of consent to risks, and so cases involving this doctrine might be most easily placed in this category. However, some assumption of risk cases may also find a home under the constitutive consent analysis. For example, see *Bundschu v. Naffah*: "a defendant owes no duty to protect a plaintiff against certain risks that are so inherent in an activity that they cannot be eliminated" (1221).

While there are those who speak as if informed consent is simply consent to risks,¹⁸ I suspect this way of speaking is simply short hand for speaking of consent to risky behavior. Recall the structure of consent: we have a consent-giver, a consent-receiver, and a thing consented to. This thing consented to – the object of consent – must be something that can violate rights and obligations. Imposing a risk can violate rights, but the mere risk itself – absent a person imposing it – cannot. If this is accurate, then we are once again left with a form of prescriptive consent. The players consent to other players imposing the risk of certain kinds of physical contact, or perhaps they consent to other players trying to impose physical contact. Either way, the mystery of assaults and sports is still solved.

Fourth, one could claim that this framework does not apply to a large segment of sporting events: those that involve children.¹⁹ Tackle football is still common in middle and high school games, and even little leagues that prohibit tackling or checking still have some physical contact. According to this objection, children and even some teenagers cannot give consent. Since they cannot give consent, the physical contact is still assault. A standard approach to consent involving children is to claim that parents can give consent on behalf of their children. However, it might seem morally problematic that parents are consenting, on behalf of their children, to contacts which can result in serious injury.

While an entire paper could be written on the issue of parental consent, I focus my response here on three rejoinders and two reminder. The first reminder is this: consent is given to activities that are within the norms of the game; things which are outside of this – such as a middle-school fist-fight – are beyond the scope of consent. Second, recall also that assault requires intentional contact. Given factors such as the level of skill and coordination that are present in younger players, we should be sure to exclude any contact that arises because of accidents or unintentional conduct from this analysis. Accidents, regardless of whether they occur on the field or off, cannot be assault. Of the remaining responses, the first doesn't rely on parental consent at all, and the last assumes it is a legitimate normative practice. I ask the reader's indulgence in my assumption regarding the last, since it would be too lengthy of a task to offer a defense of this practice here.

¹⁸ For example, see Joffe and Troug 2010, 350, Westen 2004, 271, Shuck 1994, 902, and Feinberg 1986, 278.

¹⁹ My thanks to an anonymous reviewer for bringing this concern to my attention.

First, even if consent is not present, the same reasons which prohibit children giving consent might also prohibit children being liable to criminal prosecution. Second, while I think parental consent is needed in most of these cases, particularly in the more formalized games, I don't think we should ignore the possibility that even elementary school age children can give some levels of consent. A child can give consent to another to use a toy, they can refuse consent to give grandma a hug, and they can come to agreements among themselves about rules for their own games. All of these indicate some ability to exercise their autonomy. Granted, in some cases they may not fully understand what they are consenting to and so consent in those cases should not be normatively controlling, but the range of normal physical contact in sports seems to be something that they would be familiar with.²⁰ As we move up the age brackets, this understanding normally increases, rendering the consent even more normatively relevant. While this "consent" is not always sufficient, we shouldn't completely erase the voice of those most directly involved.

Third, parents give consent on behalf of their children to actions which carry physical risk in other contexts. Consider these two cases: (1) a parent consents on behalf of their child to a tonsillectomy; (2) a parent consents on behalf of their child to having their ears pierced (the child has expressed a desire to have this done for months). In both cases, the parent consents to an action that carries with it risks; even a simple ear piercing can get infected. We tend not to object to such things because the benefits seem to justify the cost and because we recognize a certain sphere of parental authority. With sports, however, something similar can be said. There are benefits to playing sports; if parents judge them worth the risk, then to the extent we allow their consent to be normatively transformative in cases (1) and (2), we ought to view consent to sports to be normatively transformative as well.

The proposed framework of understanding how consent operates, then, covers the host of behaviors that initially raised concern while also seeming to reflect a wide swath of actual practices. Particularly in non-professional yet still organized sporting leagues, consent forms are extremely common. Tacit consent also appears to be present when players engage in the game. Whether the first or second framework is most

²⁰ At this point another reminder about consent might be helpful. When I consent to an action, I do not need to all the consequences of that action in order for my consent to be normatively transformative.

plausible will, I think, depend on the context. Sometimes, in pick-up and other informal games, the consent is given to specific actions (no-tackle football, only light checking, etc.). However, other times consent is given just to playing the game.

This analysis of consent in sports also gives the most straightforward reading of the cases and statutes invoking consent. Language of “agree[ing] to undergo some physical contacts,” or of participation as being “a manifestation of consent” makes the most sense when prescriptive consent is involved (*Gauvin v. Clark*; *Marchetti v. Kalish*). Unlike some other terms, agreement and manifestation seem to indicate that actual consent is involved, even if it is conveyed through actions instead of verbal communication. While, as the next section illustrates, this isn’t the only way to explain the mystery of tackles and assaults, it is a viable framework that is already commonly implemented and is normatively respectable.

3: Sports and Constructive Consent

Given that we can use prescriptive consent to explain contact sports, there seems to be no need to resort to constructive consent. However, even though I do not think the consent involved in athletic events is constructive consent, for the sake of this section I will grant this characterization. By doing so, I aim to show that even if I am wrong about the consent involved here, my conclusions regarding the dangers of constructive “consent” still stand. Specifically, I will show that constructive consent is not necessary for sports to exist and that what grounds our imputations of consent *when we assume that no prescriptive consent is present* are values other than autonomy.

Constructive consent occurs when we impute consent to Φ because the agent did Ψ . Constructive consent isn’t prescriptive consent and can even be present when the agent is actively expressing a denial of consent to the action. Using a moralized revision of Westen’s definition, I define the practice as follows:

Constructive Consent: Based upon S’s prescriptive acquiescence to something else it is permissible to treat S

as if she prescriptively consents to the conduct that is at issue.²¹

Though fictitious, the practice of constructive consent arises in both law and life. Here is an example: most states have implied consent laws relating to blood alcohol concentration [BAC] testing. In virtue of driving on the roads, the state treats you as if you have consented to having your BAC tested. Because you are treated as if you have consented, no warrant is needed, nor does the state require one of the standard exceptions to warrantless searches. The consent is treated as present even if the agent expresses a lack of consent. Westen argues that this practice should still be called “consent” because it enhances autonomy. I disagree, arguing that such practices allow us to hide the cost of policies in terms of autonomy violations by clothing in consent-language. Instead of presenting a possible wolf in sheep’s clothing, I argue that we should explicitly weighing these costs with the other values to be achieved. While I presented this argument more thoroughly in prior work,²² I want to now address this topic in the context of sports, which is where Westen began his analysis of constructive consent.

If constructive consent is involved in sports, then the practice illustrates that consent to the object of constructive consent is not necessary for the practice’s existence. For example, before participating in an athletic event, the players could expressly consent to whatever contact they desire to consent to – whether that be any contact closely related to the play, anything except for specifically prescribed conduct, or only light contact. They could negotiate different “consent packages” for different positions or even choose to play with more individualized consent packages. Far from being a hindrance to the game, this practice already exists: “enforcers” may be willing to take a larger amount of rough play than other players (whereas goalies are rarely “fair game” for fights), and the more specific form of individualization seems common in pick-up games where a player is recovering from an injury. If this is too burdensome, then there is always the constitutive consent framework, where all that is needed is consent to play the game. Imputing consent, then, is not necessary for engaging in the social activity.

²¹ See Westen 2004, 271. I have replaced “the law treats” with “it is permissible to treat” for reasons mentioned above.

²² “Constructive Consent: A dangerous fiction” 2018.

This observation is important because Westen holds that constructive consent is grounded in autonomy because it allows an agent to engage in an activity that can only exist with the imposition of the “consented” to action. In other words, by allowing players to play sports, the imputation of consent expands the options agents can autonomously choose from. It thereby enhances autonomy and serves the same purpose as prescriptive consent. However, since the player could engage in sports without utilizing the fiction of constructive consent, the question then arises what justifies the imputation of consent.

Often, the justification for treating players as if they had consented relies on policy concerns.²³ Evaluators – both legal and lay – hold that sporting events have some social value.²⁴ To the extent that the physical harm is related to or inherent in the activity, it is something that simply must be endured. Civil courts in particular frame their concern about litigation not in terms of limiting autonomy but in terms of “chill[ing] the vigor of athletic competition.” *Gauvin*, 404 Mass. at 454. Courts engage in a balancing act when determining if “consent” should be imputed: “Fear of civil liability stemming from negligent acts occurring in an athletic event could curtail the proper fervor with which the game should be played and discourage individual participation, yet it must be recognized that reasonable controls should exist to protect the players.” *Ross v. Clouser*, 637 S.W.2d at 14. Because of the social value of sports and recreational competitions, courts impute consent to players for the contacts necessary or incidental to play so long as such contacts are not an affront to society’s safety standards.

If we look to our own imputations of consent in these athletic cases, I would wager that they are driven by two concerns. The first comprises the policy reasons discussed above. The second arises from fairness concerns, specifically fairness/equality among players. Player A cannot, *ceteris paribus*, make a claim that Player B not injure her when A retains the permission to injure B. To play football but not consent to being touched gives a player a large, unfair advantage. Unless a player’s pleas

²³ If we think that prescriptive consent is present, then the remarks of the court can be interpreted as explaining why this consent is given legal force (not all consent is given such force).

²⁴ For example, in justifying its support of the *Restatement (Second) of Torts* Section 50, the court in *Shelley* relies on “the social judgment that permits the contest to flourish” and society’s choice “to foster sports competitions.” *Shelley* 85 Wash. App. at 30.

of “don’t touch!” are motivated by injury, other players generally will give no heed to the “withdrawal” of consent. The audience most likely will support this decision, making reference to equality – all players (of the same position) should be treated equally and so be equally subject to be tackled when they have the ball.

However, these reasons make no direct reference the “consenter’s” autonomy, and the practice doesn’t promote autonomy in the same way prescriptive consent does. Thus, even if physical contact in sports should be viewed as constructive consent, instead of a species of prescriptive or informed consent, it cannot be of any help to the defender of constructive consent’s consent-ness. We then must weigh these other policy concerns – concerns of fairness and the chilling effect of litigation – *against* the possible violations of autonomy. We cannot – even if we choose to treat the players as if they consent – ignore the fact that they very well may not have. In other words, as a society, we ought to either make sure prescriptive consent is present or make the call whether preceding in its absence is worth the full cost, including the cost of the violation of players’ rights and autonomy. To merely “attribute” consent to those on the field unacceptably hides this cost, allowing us to pass over the hard work of ensuring consent is present or explicitly evaluating the relevant policy concerns and the value of sports.

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Bless the Fog of War: How Panopticon Will Lose the War in Metropolis

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Abstract

The global trend of urbanization increases the probability of future, armed conflict taking place in urban areas, especially in densely populated megacities. To meet the challenges in the urban environment, the military commander requires situational awareness to mitigate the associated risks. Exponential technological advances in autonomous systems, sensing, computing power, big data analysis, and artificial intelligence will enable a fuller and more persistent understanding, coupled with the ability to respond with military force to evolving threats. These developments are equivalent to lifting the fog of war. While providing a significant military advantage, the secondary effects caused by the full transparency disintegrate the societal basis underneath. The loss of social fabric aggravates the conflict; applying full situational awareness will contribute to destabilization and renders any attempt to conflict resolution futile. Despite tremendous tactical and operational advantages, lifting the fog of war will make resolving conflicts more difficult in the future.

Keywords: Metropolis, Panopticon, Autonomy, Drones, Swarm, Fog of War, Psychology, Smart City, Future Conflict, Artificial Intelligence, Functional Service, Ethics, Emerging Technology

Introduction

The global trend of urbanization is going to continue, creating large and densely populated areas: *Metropolis*. These megacities are susceptible to crisis, making *Metropolis* the most likely environment for future conflict. Organizing security or combat operations in the urban environment is highly challenging. The proximity to the civilian population and the complex, multidimensional conditions increase the risk of one's own casualties, friendly fire, and collateral damage. For future armed conflicts, the megacity is simultaneously the battleground, the adversary's hideout, the staging and resting area for own troops, the home of civilians, and the action area for humanitarian efforts. The proximity of various social

groups increases the likelihood of fragmentation within the warring parties, “it is the very compression of geography that will provide optimal circumstances for new and dangerous ideologies.”¹

Metropolis was the name of Fritz Lang’s eponymous movie from 1927 portraying a dystopian city. Lang’s vision described multiple different environments merging, ranging from futuristic skyscraper-landscapes in the center and above ground through depressing, endless and bland suburbs for the working class to the dark underworld made of subways and sewage pipes, the machine room² of *Metropolis*. The name *Metropolis* has become a symbol for modern mega-urban population centers, or megacities. Urbanization – the permanent relocation of individuals from a rural environment into urban centers – was a dominant trend over the last decades. From 1950 to today, the worldwide urban population increased from 29.7% to approximately 55%,³ or in total numbers tripled from 1.25 billion people to 3.7 billion. The trend of urbanization is projected to continue,⁴ possibly even increase due to other effects such as a scarcity of natural resources and desertification. By 2050, more than 67% of the world’s population will live in urban areas - a total of 6.3 billion people.⁵ As author Robert D. Kaplan wrote, “the megacity will be at the heart of twenty-first-century geography...Almost all urban growth in the future will be in developing countries, specifically in Asia and Africa.”⁶

Megacities have a number of important features. High population density characterizes mega-urban population centers, ranging from 1,700 (New York City, USA) to 50,000 (Dhaka, Bangladesh) inhabitants per square kilometer. While areas considered to be megacities today contain between 20 million to 40 million inhabitants, the latter numbers are expected to grow up to 100 million inhabitants by 2050. The majority of these megacities are located at the coastline. Megacities are the hub for economy, politics, food distribution and wealth, as well as simultaneously being at the center of crime, violence, and conflict. Mega-urban areas will likely replace the nation-state as global actors until the end of the century.

Metropolis is the most probable battleground for future conflict. As author Peter Singer forecasts:

the future of warfare lies in the streets, the sewers, high-rise buildings, industrial parks, and the sprawl of houses, shacks, and shelters that form the broken cities of the world...These *megaslums* house literally millions of young, urban poor, where the losers of globalization and the new warriors are concentrated together in shanties and high-rises. Adding fuel to the fire are

*the diverse religious, ethnic, and political movements competing for the souls of the new urban poor...Cities are the new hotspots for conflict.*⁷

As a consequence, any modernization efforts in military organizations incorporating future demands must focus on *Metropolis* when drafting requirements, developing new doctrine and standards, and procuring systems.

Most modern armed forces are not preparing for the new hotspots because they dread fighting in an urban environment. The urban environment negates the effects of overwhelming force, makes the necessary distinction between combatant and non-combatant almost impossible, provokes civilian casualties, provides hiding places, food, and medical care – all the more reason for an asymmetrically fighting enemy to choose *Metropolis* to fight back against an advanced enemy.

Situational awareness is the key in the military commander's challenge to mitigate the risks to his troops and the civilian population, to fulfill his mission, and to adhere to the Law of Armed Conflict. Situational awareness requires the merging of available intelligence material, the exploitation of new sources, increasing the density of available sensors, and the overlaying with the operational picture provided by the troops on the ground. To achieve an understanding of the combined information, the commander must analyze and compare the data, recognize developing trends and changes, and apply military effects, e.g., the use of force or redirect his efforts.

Technological developments can support the commander in this challenge. The exponential development of autonomous systems, artificial intelligence and digitalization will lead to the ability for universal, persistent surveillance, especially in urban environments. The rapid development of drones highlights the possibility of using autonomous systems in the urban battlespace. For example, drones and autonomous systems could provide an essential advantage in the urban environment. However, cities present significant challenges regarding navigation, communication and drone density per cubic mile. Due to the merging of very different environments, a multitude of flexible systems will be needed to gain situational awareness. They will need to act mostly autonomous, exchanging information among them, deciding on tasking issues and solving sustainment issues.

The U.S. Air Force released a Strategic Enterprise Vision, that:

discusses a macro-level, forward-leaning approach ... focusing on general considerations for the future operating environment,

missions, and capabilities ... Unmanned systems raise new issues of artificial intelligence (AI), communications, autonomy, interoperability, propulsion and power, and manned/unmanned (MUM) teaming that will challenge current test and evaluation capabilities and methods.⁸

To enhance this vision, all services should use *Metropolis*-like scenarios for the planning and testing of their future autonomous systems. All requirements, as various roadmaps⁹ describe them, can be found in urban environments, sometimes even extreme versions of those requirements.

In a military context, technological advances will help lift the fog of war. The use of artificial intelligence will automate and filter the vast amount of data, and algorithms will automate many pre-planned responses. The distilling and merging of information allows humans to process the data but also continue to push the human *outside of the loop*. Combined with the ability to immediately act through remote weapon platforms, full situational awareness bestows godlike abilities: all-knowing, but not forgiving. While providing a significant military advantage, even a limited application of that surveillance capability will have secondary effects on the targeted population. The psychological impact of a full loss of privacy has detrimental effects on societal cohesion. While technological advances will provide the military commander with the ability to lift the fog of war in the urban environment, the prolonged full application of the ability will result in a loss of legitimacy and public support. Full surveillance inadvertently destroys the social fabric of the targeted society and denies any long-term strategic successes for the applying party. These conditions are harmful to winning or resolving conflicts.

1: Will the fog of war be lifted?

Over the last decade, armed forces worldwide have integrated drones into their capability set. Their unique ability to conduct the “dull, dirty, or dangerous” tasks¹⁰ made drones a valuable addition, allowing the removal of soldiers from the battlefield and the risks associated with armed conflict. Today, drones are available for any environment, from high-altitude and low-altitude drones, land and water surface drones to the subsurface environment. They can operate under various conditions, indoor and outdoor. They are equipped with various modes of operations, from remote-operated robots to fully autonomous vehicles, including various stages of semi-autonomy. Human control also varies, from the concept of humans-in-the-loop to humans-on-the-loop; and advances in artificial intelligence makes

the concept of the human-outside-the-loop a close reality. Drones will be available in many sizes, from large platforms to microscopic machines. Drones can complete varying degrees of tasks, from simple, narrow operations to complex, broad solutions. While some systems are only capable of a single task (e.g., explosive ordnance disposal robots), other drones incorporate a variety of interdependent functions (e.g., airborne intelligence, surveillance, and strike platforms). Some drones operate as a single, integrated machine, whereas others require a network of supporting hardware, and newer concepts envision drones operating as a system of drones, i.e., a swarm.

The wide variety of available technical solutions caused an explosion of competing terminology. The distinction between the different systems is relevant, however, this paper uses a simplified terminology as it intends to portray a high-level strategic overview of an all-domain, functional system-of-systems approach of drones in *Metropolis* as well as the second-order effects. The term *drone* is used to describe any single unmanned technical system, independent of the environment, level of autonomy, or method of control. *Drone* applies to large unmanned vehicles such as the high-altitude, long-endurance systems (e.g., RQ-4 Global Hawk or MQ-4 Triton) as well as a single drone in a swarm.

The term *drone system* is used to describe an encapsulated functional unit. Within the scope of this paper, a *drone* can also be virtual, describing an autonomous software agent. A *drone system* can consist of a single drone, or a drone with the required hardware to operate it, or a full swarm of individual drones. The system-of-systems approach in this paper is then used to describe the necessary combination of various *drone systems* for operational purposes. Each *drone system* fulfills one or more *functions* within the system-of-systems. The proposed approach also includes and integrates functions delivered by virtual drone systems as well as functions that humans deliver. This approach allows the seamless integration of sensing, evaluation, prediction, decision, and control.

Military units deploying different drones face the challenge of needing to train tactical procedures with the available systems. As the majority of military drones operates with a strict man-in-the-loop, or at least man-on-the-loop control, soldiers experience difficulties handling the different remote interfaces. The lack of network integration of tactical drones requires a significant amount of human interaction to merge the obtained data into a common operational picture for situational awareness. These challenges limit the number of drones that can be employed by a military unit in the field. The methods in which military organizations currently employ drones is not in line with Moore's law, thus limiting the exploitation of

technological advances and value of being able to increase the density of drones in an operating area.

To maximize the benefit of drones in the theater of military operations, armed forces will have to adapt their approach to designing, procuring, and using drones. A new perspective is especially relevant in *Metropolis*. Without change, the *fog of war* in *Metropolis* will most likely not be lifted. This section explores a new approach to understanding the synergetic potential that drones can provide in a holistic system-of-systems approach.

1.1: Domains

Metropolis contains representations of all domains. Drones will be required to use the air environment, the ground or the sea. Cyber adds another, virtual domain, which will be discussed later in this essay. In an urban environment, the domains overlap far more and in smaller geographical spaces, creating variations of the classical domains and microcosms – both are demanding and challenging. The sea environment, for example, has areas with *blue water*¹¹, confined and shallow water, harbor and industrial waterways, marinas, rivers, canals, locks, lakes, drains, pipes, and entire sewage systems that autonomous systems can and should be using. Buildings, traffic lights, power lines, amongst other things, obstruct and restrict the air environment. Also, the ground environment spans from underground to the 300th floor of skyscrapers and includes air vents, service ducts, and cable canals. Autonomous systems will have to run, walk, crawl, and climb to get around *Metropolis*. Furthermore, the overlapping zones between the different domains are more prominent than in a rural environment. Drones that can use more than one domain will have a significant advantage.

Despite being more challenging, *Metropolis* organically offers a significant number of solutions. If autonomous systems want to prevail in a human-made environment, they have to learn how to use those solutions. Systems being able to utilize subways or elevators will have an advantage. If the network of autonomous systems learns how to manipulate *Metropolis* for its use, for example by using cyber means to operate a lock or switch traffic signals, it will dominate the urban battlespace.

1.2: Functions

When the computer transitioned from mainframe computers to desktop computers at the office and home, software programs were written as monolithic products. Running on a basic operating system, the monolithic software contained the majority of the functions. Every software

implemented its internal user authentication, password protection, encryption or file formats. Even higher-level network protocols were part of the software. Interoperability between two different programs at runtime was challenging to achieve. Programmers for word processors had to implement encryption routines, or could not offer that functionality to their clients. Game developers directly accessed the hardware to speed up their display routines, causing portability issues with the introduction of new hardware. Every software installed on a system exponentially increased software vulnerabilities. The monolithic, stove-piped approach led to software competing over resources, compromising the overall system security. Despite the continuous improvement of individual programs, synergy was not achieved.

Over time, software developers began to realize that the monolithic approach to software could not be continued. Computer scientists developed an alternative approach permitting specialization of software – an approach called service-oriented design. One service, for example, would provide user authentication for all programs on a system. If data needed to be encrypted, programs could pass the data to another specialized service. Software designed in a service-oriented approach was able to incorporate new functionality by utilizing those specialized services quickly. If a service had a bug, only one service needed updating instead of every monolithic software. New software could offer its functionality as a service for other programs to use. The interaction of software as services created synergetic effects on a system. The crucial requirement for the service-oriented approach to be successful was the definition of standardized interfaces – essentially defining a standard protocol for the interaction of software. Today, the service-oriented approach is backed by the worldwide accessibility of services through the Internet. The omniscient presence of Google Maps in most navigation applications and websites serves as evidence of this practice.

Analyzing the current autonomous systems in operation and the *Unmanned System Roadmaps* outlined by the various branches of the United States Armed Forces, the current situation in drone development is very similar to software development prior to a service-oriented approach. The roadmaps¹² describe several envisioned capabilities very broadly. Understandably, they focus on Intelligence, Surveillance and Reconnaissance (ISR) in the short-term, outlining a perceived need for transport (e.g., Medical Evacuation) or strike capabilities. These required *capabilities* can be translated into functions that autonomous systems should deliver. Since the roadmaps fail to describe an overall context of

how the autonomous systems will be used, the roadmaps encourage the development of stove-piped, monolithic autonomous systems. Without the designer of a drone knowing which capabilities his drone can reach back to, for example in a system-of-systems approach, he will need to implement everything his drone needs. Drones will become more complex in design, and new functionality is difficult to implement. Within the current stove-piped, domain-specific approach, drones will be unable to interact with one another, resulting in no synergetic effects between them.

Take, for example, Intelligence, Surveillance, and Reconnaissance (ISR). The sheer number of available (raw-data) sensors continues to increase, anything from imagery, optical, IR, laser-imaging, acoustic, seismic, radio-magnetic to the measurement of gas-concentrations and magnetic field can already be deployed. In the future, sensors may be able to pick up brainwaves, chemical reactions of human skin or utilize the existing sensor-networks in a smart city. With the availability of more computing power in a compact format, drones become increasingly able to pre-process raw-data directly (*Intelligence on the Edge*). However, in order to generate actionable intelligence, more than one sensor input is usually required. In a system-of-systems approach, a simple acoustic drone capable of analyzing a human verbal interaction is triggered by a potentially critical keyword. If able to reach back to other functions in the system-of-systems, that drone can request a re-task of other sensors to augment the current situation with visual means. Multiple inputs from various small sensing devices in the swarm – or a large singular drone with multiple sensor inputs – are combined, merged, fused, and augmented automatically. If the human conversation moves to an inaccessible area, mechanical drones or cyber means could be requested to open doors and follow the humans physically for a continuation of the eavesdropping. Command nodes could inform a human supervisor and balance the available resources according to the overall tasking.

When being examined in the context of a dense urban environment, one capability, or function, unfolds into a multitude of implied functions. It becomes clear that the seemingly simple function of ISR is, in fact, a combination of a multitude of unspecified *micro*-functions. Without a clear vision of the overall system-of-systems and defined interfaces, the company designing the drone must implement every single one of those micro-functions into its system or discard the functionality.

Additionally, the existing roadmaps describe *properties* that individual unmanned systems should have, e.g., U.S. Air Force Headquarters, *RPA Vector* , lists requirements such as adverse-weather-capabilities,

integration into Command and Control architectures and communication networks as well as survivability. Each of these requirements can have implications for specialized functions within the overall autonomous system.

For example, to implement adverse-weather capability into an autonomous system, it is not enough for it to merely withstand a Sea State 7 or to be able to fly in wind conditions up to 50 miles per hour. Future systems have to have a capability to monitor weather parameters, predict local weather conditions, assess the possible impact on the environment around them and themselves and develop a strategy of how to survive those conditions (e.g. seek shelter, power-down, stay submerged). For a swarm that could mean that there have to be several entities only responsible for *weather-watching and -warning*, or that entities able to contribute will do so. However, the swarm also has to know if those weather-capable drones are malfunctioning or missing. Otherwise, all systems could be surprised by adverse weather conditions. The swarm has to be aware of its current status and predict its resilience.

The two examples of depicting the implied functions for ISR or adverse-weather-capability show that the field of functions is not well defined yet. It is necessary to apply lessons from the service-oriented approach of computer science and develop a holistic vision for a system-of-systems. That vision cannot be driven by an individual branch of the Armed Forces but must incorporate all domains. If not explicitly specified, the *micro*-functions required for the broader idea will be implicitly implemented by each vendor independently, resulting in an unpredictable behavior when multiple autonomous systems are combined. Moreover, *Metropolis* provides the ideal testing ground again for the interaction between the different autonomous system functions.

1.3: Swarming Metropolis

Understanding the multitude and the overlapping of domains in *Metropolis* and seeing that a variety of different functions is going to be required leads to the assumption that multiple drone systems are going to be used. Considering the sheer scale that this has to take place in, it is also realistic that not only the individual entities, e.g. drones, have to be autonomous, but that the cooperation between the entities has to be fully automated too. In order to swarm in *Metropolis*, we need a collaborating system-of-systems.

1.3.1: Distributed sensor systems

When designing a system, there is always the challenge of whether it

should have many capabilities included—making it more complex, expensive and extensive—or whether it should have a limited number of capabilities—making it possibly vulnerable and less flexible. Each side has its strengths and weaknesses. Especially in the early adoption of new technology this decision is challenging to make. The integration of commercially available systems and the application of a spiral development approach has to be taken into consideration.

The proposed approach of specifying micro-functions across the overall integrated system-of-systems enables the integration of large, complex autonomous systems with small function-specific drones and even swarms of drones. Distributing functions across multiple platforms could lead to a more resilient system. Drones only fulfilling simple functions are cheaper to build and deploy, but require more coordination within the swarm. When combined, these systems can specify what kind of functions they can fulfill and which dependencies in the swarm they rely on.

Parts of the functions will not be integrated into individual systems but exist as virtual functions in a computer system. Those virtual functions are computationally expensive. Those virtual functions deal with command and control, intelligence analysis, weather forecasting, tasking, or route planning.

1.3.2: Phasing the deployment

As a crisis unfolds in an urban area, autonomous systems will be deployed in a staged approach. Some sensors are always in place (mostly in the cyber domain, e.g. CCTV- cameras, Internet-of-Things nodes, Smart-City Networks), but access to them may have to be reaffirmed. There may be ultimate endurance or sleeper drones which are deployed years prior and remain dormant and that have to be activated. Local representatives, e.g. diplomatic missions, can be utilized to deploy autonomous systems or communication relays. The majority of the effort will have to be deployed from further away. Depending on the drone size, systems can be moved autonomously, embarked in larger systems (manned or autonomous) or through logistical chains. This concept brings new life to pre-staging concepts, e.g. through the use of large pre-positioned underwater autonomous vehicles that have a variety of smaller drones inside, ready to stealthily deploy from *Metropolis'* harbor.

Finally, numerous autonomous systems directly support the warfighter. These systems would be brought in with the troops on the ground and re-supplied through logistical chains. Usage of logistical chains would also be needed to reach a saturation level of autonomous systems, as an urban environment will most likely require a much higher density of autonomous

systems per square mile to provide full situational awareness.

1.3.3: Exploiting Smart Cities – Tapping into the cyber realm (IoT)

Various experiments have already demonstrated that drones can extend the reach of cyberwarfare. Equipped with Bluetooth and Wireless Local Area Networks (WLAN), their mobility allows them to overcome the dimension of space and employ malware in close proximity to target systems. Even when target networks are behind firewalls or separated from the World Wide Web, drones open an access to a broader range of potential security weaknesses. In the future, drones could also be used to directly access network cables or use their mobility to gain hardware access, for example by inserting themselves into USB-ports of target computers.

With the rise of the Internet of Things (IoT),¹³ there is an increase in the number of devices connected to the Internet. The density of devices increases exponentially, especially in urban environments. Apart from all the personal devices like smartphones, wearables (e.g. Smartwatches, Fitness-Bands) and smart home devices, many cities are connecting their infrastructure to the web. From power grids to water supply and traffic lights, smart buildings and smart cities are going to be a key component of *Metropolis*. Each additional sensor or actor connected increases the attack surface. If properly applied, Cyber effects could turn the smart city into a practical advantage, exploiting the data from the sensors and operating the connected actors.

In order to fully exploit the advantages from such cyber access, the cyber effects have to be part of the autonomous system-of-systems. The drones operating in the urban environment must be able to request certain street lights to turn on in certain circumstances or for an escalator to stop. If the smart cities infrastructure becomes part of the overall system, drones could use elevators to access every level of a building or utilize water pipes to navigate through the sewers. If drones want to succeed in utilizing *Metropolis'* capabilities, the intention of an interconnected system must include the cyber domain.

1.3.4: Leeching off *Metropolis'* resources

Even for the future conflicts in *Metropolis*, the logistic support of own troops will continue to be the central challenge. Resupplying and maintaining troops through the luxury of large compounds is challenged by a competitive environment. The majority of the forces operating in an urban environment will have to rely on movement as a critical function to keep them alive. High mobility restricts the logistic footprint, although drone

development in the area of pack bots and drone delivery will enhance the options to supply on the move.

When deploying large numbers of autonomous systems into an urban environment, there will be limited possibilities to apply a centralized resupply for them. However, the urban environment offers unique opportunities to utilize its resources. Drones could tap into *Metropolis*' communication systems and open a gateway communication channel for other systems and friendly troops operating in the vicinity. Other systems could access electrical power lines, outlets or distributing stations and function as a charging station for other autonomous systems nearby. In the far future, self-deploying additive manufacturing stations combined the automated tool stations could distribute themselves throughout the city and function as a maintenance and repair facility for friendly drone systems. Those manufacturing stations could also produce additional required autonomous systems to compensate for attrition or enhance overall capability.

Using *Metropolis*' resources will require specialized autonomous systems, which will function as a force enabler for other drones. Because of a potentially smaller size, those systems could help overcome the logistical limitations of fighting in *Metropolis*, even when deployed in large number. Through their organic mobility and interconnectedness with the overall autonomous system-of-systems, they would not only support other drones but the troops on the ground as well.

1.3.5: Humanitarian aid

The use of autonomous systems has value for military operations in the urban environment. However, the development of drones, or swarms of drones, enables applications beyond combat operations. The area of humanitarian aid and disaster relief offers an excellent example for the employment of similar systems in a different context. Drones can be applied to chart the damage, assist in search and rescue efforts, serve as an interim communication network, repair the infrastructure, distribute supplies, locating contaminated areas, determine the levels of toxic or hazardous spillages, and distribute supplies to inaccessible areas.

1.4: Intelligence on the edge: Big Data and Artificial Intelligence as an enabler for Metropolis

Today, autonomous technology and sensor networks have increasingly removed direct human interaction in dull, dirty, or dangerous tasks. Unmanned autonomous vehicles are replacing the surveillance pilot in

contested airspace and Explosive Ordnance Disposal soldiers from the direct blast radius of improvised explosive devices. Data processing of surveillance pictures and signal recordings assists the intelligence community in evaluating excessive amounts of raw data in short timeframes, enabling analysts to produce actionable intelligence in office buildings far away from the battle space, while maintaining real-time tactical support to the commander in the field. The technological transformation in military organizations augments and accelerates existing processes and procedures. While the proposed transition to a distributed sensor network will leverage further synergies, this approach merely outlines an evolutionary development of existing capabilities.

However, the combination of a system-of-systems of sensors and actors with embedded data processing technologies may lead to the emergence of a new, disruptive capability and a significant advantage on the battlefield. With increasing miniaturization of computing power comes the ability to implement initial data analysis functionality and autonomous communication capabilities even in small drone and sensor systems. Camera drones will be able not only to provide a raw data stream to the remote operator but conduct an initial analysis of the observed scene. Facial recognition algorithms enable the drone to prioritize the importance of observed targets and decide for itself which target to follow. Voice profiling could enable the same prioritization for drones equipped with microphones. Drones which are eavesdropping on communication cables may analyze the network traffic and decide whether their current position provides valuable intelligence or whether the drone should move to a different, potentially more decisive network node.

The ability to employ drones capable of conducting an initial analysis of the observed data and prioritize their follow-on tasking is often referred to as *Intelligence on the edge*.¹⁴ This ability does not replace the necessity to conduct a thorough data analysis with enhanced computing power at remote locations of the network, most likely to be augmented by human interaction. However, the pre-prioritization significantly enhances the system-of-systems overall ability to prevail in a contested and degraded environment, reduces the necessary communication volume, and provides unprecedented flexibility in reassigning taskings. Reaction times to emerging targets and changes decrease, and the resilience of the network to react to partial outages increases significantly. The distributed presence of artificial intelligence in the network allows an immediate reaction to unexpected threats. If, for example, the adversary was able to successfully engage one drone with a new combination of electronic warfare measures, the analysis

of the incident and potential countermeasures could be distributed to all other systems within the network in real-time. The enemy would only have one chance of employing a new tactic against the system-of-systems before the entire system has adapted to the challenge, defying a repetition of the new form of attack against any other part of the system.

A self-prioritizing and distributed intelligence would benefit from a flexible networked structure; in other words, to fully exploit the benefits of a system-of-systems it should not operate within the limits of military structures. As drones and systems will outnumber the human soldiers on the battlefield, and since human soldiers should be integrated as sensors and actors into the system-of-systems approach, armed forces may have to relinquish traditional military hierarchies to enable a self-organizing networked approach within the system-of-systems.¹⁵

Another difficult aspect concerns the question of human control. As autonomous and remote systems increase in numbers and are equipped with potentially distributed artificial intelligence, direct human control becomes a bottleneck significantly impacting the combat effectiveness of the overall system-of-systems. Experimental units which are testing the employment of autonomous systems and developing new doctrine regarding the integration of these systems on the battlefield are already overwhelmed with the need to handle multiple remote controls and evaluate data from various sources. The human ability to process all available information is increasingly the limiting factor of combat effectiveness.¹⁶ To overcome this shortfall, military planners envision to place the human *outside the loop*, effectively conducting *command by veto* at least for decisions involving the use of force.

1.5: Observations

Metropolis is the critical area of future conflict. Drone systems should be designed to operate in this environment. To succeed in this environment, large amounts of drone systems will be required. Direct human control of such a large number of systems is not feasible; the majority of the actions must be conducted autonomously. This requires systems to talk to each other, share information and collaboratively explore, prioritize, share and execute tasks without human interaction. The United States' current approach promotes stove-piped development, prohibiting the required scalability and interconnection for future development. Systems must be built with inherent *system-of-systems* capabilities; a set of specific functions as well as an interoperability protocol must be developed.

Lifting the fog of war is a question of *when* not *if*. How will that impact the psyche of the people under the military of political commander's

responsibility? In other words, we need to shift the focus of the underlying question from *could we do it* to *should we do it*. If the decision is made to invest into this new capability, the immediate follow-on question must be: what are potential risks and ethical consequences?

2: What impact does full transparency have?

2.1: Panopticon

In a series of letters, British philosopher Jeremy Bentham outlined a new form of correctional facility, which – due to its circular architectural design – would put every prisoner under constant surveillance from a central “inspector’s lodge”.¹⁷ While the inspector, or guard, would be able to see anything occurring in the prisoner’s cells, the design of Bentham’s *Panopticon* would not allow prisoners to know whom the guard was actively monitoring at a certain point in time. The design of the *Panopticon* reflects Bentham’s vision that “at every instant, seeing reason to believe as much, and not being able to satisfy himself to the contrary, [the prisoner] should conceive himself to be” under surveillance.¹⁸ Bentham initially focused on the safety inside prisons, but he later expanded the applicability to other facilities, such as mental asylums, workplaces, poor houses, and schools.

French philosopher, author, and professor Michael Foucault expanded on *Panopticon* by applying the concept to societies at large. He viewed Bentham’s idea as a potential government mechanism to exert strict control and extreme separation. He foresaw that:

the crowd, a compact mass, a locus of multiple exchanges, individualities merging together, a collective effect, is abolished and replaced by a collection of separated individualities. From the point of view of the guardian, it is replaced by a multiplicity that can be numbered and supervised.¹⁹

Foucault further proposed to exchange the role of the guardian with a machine, “for it automatizes and disindividualizes power.”²⁰ If every human in society had a virtual equivalent in a machine-controlled *Panopticon*, subjected to the potentially constant automatized surveillance to the same degree, the subtle coercion would lead to changed behavior in the individual. With transparency of the machine’s architecture and democratic control of the disciplinary measures, Foucault’s enhancement of *Panopticon* would not be a tyranny but an effective and light execution of pure democratic power.

However, in order to exploit the potentially positive aspects from *Panopticon*, the system has to be a closed system, where everyone is under the same observation and shares the same level of access, a system where power is not unevenly shifted to one side. Foucault stresses that the society must be in the role of observers themselves, able to execute control over who is controlling them. Without a closed system, *Panopticon* would empower the observers and take rights away from the *inmates*. When comparing it to today's social media use, the established *Panopticon* is extremely one-sided. While *Panopticon* is being erected, the one-sided character of the current architecture will create an unbalanced approach, permitting *Panopticon* leverage against society; transparency of the mind will allow one-sided "power of mind over mind,"²¹ transforming *Panopticon* into glass cells with one-sided mirrors.

With a closed system, where *inmates* are in a position to observe their observers, Foucault anticipates no danger of *Panopticon* being abused by an autocracy. If everyone in a society is transparent, the abuse of power in *Panopticon* would not be possible. In his utopia, Foucault assumes that the power of transparency and observation coerce individuals from committing *wrongful acts*, but he also outlines the necessity to act swiftly on observed infractions. A *Panopticon* could enable a rise of the utilitarian approach, as the actions of each individual, and subsequently the associated value in accordance with societal norms, is transparent to the entire group. Violations against society's rules could be met by force, even if that behavior would cause an additional violation of the given rules. In closed systems, a significant danger exists such that violent mobs combined with a group-oriented *self-justified vigilantes* would emerge. In open systems, where *inmates* have no option of supervision over their observers, *Panopticon* combined with authority to the use of force, would almost automatically lead to a form of autocracy or totalitarianism.

Foucault does not discuss another underlying assumption that is required for establishing a *Panopticon*. In order for complete transparency to lead to better behavior and coercing individuals to follow the established guidelines, the legal systems would have to be perfect and the underlying moral framework commonly shared by everyone. Even under those assumptions, it is still unclear how *Panopticon* as a closed system would deal with ethical ambiguities. As change is a constant factor in our societies, the envisioned closed *Panopticon* system would be exposed to new outside conditions, whether those be technologic, economic, or environmental in nature. History shows that a small number of individuals usually drive change in the beginning. It is difficult to imagine how a Panoptical system

would allow the necessary moral reforms or changes in the honor code. It is very likely that a closed, transparent system would immediately suppress change. A Panoptic society may be less resilient to changes due to a systemic suppression of necessary adoptions.

Foucault also assumes that an automated *Panopticon* has no power in itself. This assumption cannot be applied automatically to a *Panopticon* made feasible through purely technological means. Through the necessity to develop and implement algorithms, the power lies with the programmers and software architects. To ensure the transparency of the architecture and the democratic control over the disciplinary measures it is necessary to follow an open source software and hardware approach. It also implies that a *Panopticon* should never be privately owned.

2.2: *The right to privacy*

Columbian author and Nobel Prize winner Gabriel García Márquez observed that “all human beings have three lives: public, private, and secret.”²² His observations are aligned with psychoanalytical theory, which distinguished three types of personalities.²³ Márquez’s secret personality aligns with the *inner personality*, containing characteristics we do not want others to see. The private and public portions of Márquez’s model can be compared to varying degrees of the *public* personality, pieces of one’s inner self which the individual grooms for outward display. Depending on whether a person interacts with people close to him (private) or with larger audiences (public), people tend to offer different insights to their secret lives. Psychology adds a third personality, the *attributed* personality, which comprises of other people’s perspective. The attributed personality is a composition of impressions, actions, and reputations as filtered through the bias, stereotypes, and expectation of a third person.²⁴

All three personalities are interlinked. While an individual influences his public personality through his decisions, choosing which character traits he wants to keep private and which ones to display publicly, that decision will also shape his attributed personality. At the same time, the interactions within the social sphere will be aimed at a person’s attributed personality. Depending on the individual’s ability of self-reflection, every person is caught in a continuous re-evaluation loop, observing the interactions with others and making necessary adjustments to his public personality. Those adjustments then alter his inner personality over the long run in a process of life-long learning and personal development.

If individuals, and the entire society around them, are exposed to constant surveillance, assessment, and disciplinary measures through an

automated *Panopticon*, the natural feedback loop shaping the three personalities will be influenced by the standards implemented in the automation process. As there is a specific notion that constant, omnipotent surveillance infringes the privacy of individuals, it is important to concentrate on the idea of privacy and the limits thereof. Privacy is deeply linked to the general understanding of *rights* and *freedom*, where an individual's choices should not be impeded upon by others. German philosopher Immanuel Kant distinguished *negative* and *positive rights*. Negative rights are individual rights that impose a *negative* duty on others, e.g. the right of freedom imposing the duty on others not to interfere with us. Positive rights are *positive* in the sense that they claim for each person the positive assistance of others in fulfilling basic constituents of human well-being like health and education.²⁵ Kant saw a necessary balance between the positive and negative rights as a basis for a functioning, just society, culminating in one formulation of his categorical imperative: "Act only according to that maxim whereby you can, at the same time, will that it should become a universal law."²⁶

Having an inner personality and choosing which parts to display publicly is a *positive* right. Being able to hide parts of a personality would qualify as a *negative* right, and should be granted to individuals within a society.²⁷ Using surveillance to uncover parts of a hidden character would then qualify as a violation of individual rights. Such a violation of rights has become the accepted standard in cases where there is reasonable evidence suggesting that a particular person may be a threat to society – to the greater good. These intrusions into the privacy of people were hard to justify in democracies, as separate court orders were generally needed, and used to be resource intensive. These hurdles kept the violations of privacy comparatively minimal; bureaucratic and technical impediments constraint governments from applying them across an entire population – even in autocracies. To protect the available resources, targets had to be prioritized, allowing the general public to hide in an anonymous mass.

The introduction of new technologies, namely artificial intelligence, big data analytics, and ubiquitous sensing, now enables governments to apply surveillance to society at large. This development may invert the utilitarian approach entirely. Introducing smarter, faster ways of collecting taxes, conducting elections online, being able to compare living standards with live data and across the entire country benefits mostly everyone. At the same time, everyone is threatened, as her personal data becomes a potential target to be exploited. Many people argue; that they have nothing to hide, and wonder who would be interested in them. However, big data

allows the mining of available data so profoundly that it will likely find something exploitable about everyone. Blackmailing becomes available over large groups of people, and it will be very personal. In essence, big data, combined with AI, is beneficial, useful to the majority while only harmful to a minority, but because everyone could be in this minority, and because the minority could change in an instant, everyone is threatened as well. This is the way that big data reverses the utilitarian approach.

2.3: *Psychological implications*

As governments are incentivized to build an automated *Panopticon*, it is relevant to look at the psychological effects on an individual under constant surveillance. First, transparency has direct effects on individuals. When examining cases of identity theft, it became clear that these crimes:

cause significant anxiety...Two weeks after learning of the identity theft, victims experienced irritability, anger, fear, anxiety and frustration, sleep deprivation, nervousness, loss of appetite, weight changes, and headaches. Twenty-six weeks later, emotional responses turned to severe distress and desperation. These are little different from the psychological trauma of ordinary burglary and non-violent home invasion.”²⁸

Obviously, there is a significant difference in falling victim to a crime and being submitted to constant surveillance. But there are similarities which make the observed physiological and psychological effects applicable to an automated *Panopticon*. The observed symptoms were unrelated to the actual exploitation of the identity theft; the mere knowledge that it could be used against the individuals was sufficient. The fear of potential consequences exists in both cases. Surveillance has similar effects even when not directly targeted at a particular individual. Political scientist Kathleen Vogel et al. have observed that “the lack of control over our own security and our reliance on surveillance technologies rather than other people to keep us safe has meant that feelings of insecurity have risen over recent years.”²⁹ Simultaneously, *Panopticon* requires a mechanism to punish divergent behavior in order to be effective, and the military application of surveillance in Metropolis would also require the means to act on the information generated. The individual transparency through surveillance and the uncertainty of potential repercussions are identical in cases of victims to cybercrime and inmates of *Panopticon*. While victims of identity theft can mitigate the potential fallout, e.g., by changing banking

and social media accounts, inmates of *Panopticon* have no opportunity to flee, potentially aggravating the long-term impacts to their health.

In addition to the direct impact of a loss of privacy, there are second-order effects. Harvard professor of law Charles Fried argues that privacy is not just a value in itself, but the foundation for “respect, love, friendship and trust...without privacy they are simply inconceivable.”³⁰ Impeding privacy renders these core concepts without relevance, undermining the morality of a society. Fried’s definition of privacy as “the control we have over information about ourselves”³¹ becomes endangered.

American philosopher James Rachels proposes a similar definition, stating that privacy is “our ability to control who has access to us and to information about us,”³² and an automated *Panopticon* would circumvent this control. Love and friendship would no longer be a voluntary relinquishment of the inner personality. Personal choices of relationships, which are currently at the core of a society, become obsolete. Full transparency of the inner personality changes the paradigm of societal fabric, as any perception of trust could be immediately validated. When there is no margin for error, there is no need for trust.

In addition to the impacts on the ability to build relations, a lack of privacy also impacts individual freedom. People used to be willing to share unconventional, unpopular thoughts with a close group of trusted individuals. The individual choice of sharing perceptions cemented the relationship without requiring approval. The ominous presence of constant surveillance by a third party limits the potential for creative thought and accelerates the disappearance of close relationships. Charles Fried warned in 1968 that “to be deprived of this control not only over what we do but over who we are is the ultimate assault on liberty, personality, and self-respect.”³³ The initial effects can be seen in China’s Social Credit system.³⁴ Individuals are not only ranked and valued in accordance with their own actions, e.g., whether they have paid their taxes and behaved in accordance with the law, but their score is also based on the individuals they interact with. Citizens are rewarded for avoiding people with divergent political opinions or punished for interactions with them. The way the Chinese system is designed, it provides the state with a coercive mechanism to isolate dissidents within a society. Through surveillance, China is able to minimize the spread of seditious ideas before they can establish a *base area*³⁵ by coercing the population from supporting dissidents—even in times of *liquid societies*.³⁶

Surveillance and monitoring undermines an individual’s ability to enter relationships of trust and impedes dignity and self-respect.³⁷ Without

control over the target audience, any revelation of an inner personality trait could be visible to the entire world.³⁸ People would have to restrict their close personal relationships to a form of interaction which would resemble interactions with distant acquaintances, their mother-in-law, or their future employer. Automated *Panopticon* has the ability to transform, or in a worst case scenario disintegrate, the social fabric of our societies. As the morality of a society changes and voluntary relationships become an unnecessary risk, there are two obvious and concurrent developments. Firstly, individuals isolate or withdraw themselves from the societal context, as there are no more emotional rewards or incentives to become engaged in relationships. Secondly, a new, artificial social fabric replaces traditional relationship models. James C. Scott describes the same effect when describing the informal life of a public space:

The formal public institutions of order function successfully only when they are undergirded by this rich, informal public life. An urban space where the police are the sole agents of order is a very dangerous place...The sum of each casual, public contact at a local level...is a feeling for the public identity of people, a web of public respect and trust, and a resource in time of personal or neighborhood need. The absence of this trust is a disaster to a city street. Its cultivation cannot be institutionalized. And above all, *it implies no private communities.*³⁹

2.4: Exponential growth of liquid societies

Both developments have been described by Polish philosopher Zygmunt Baumann in his theory on *liquid societies*.⁴⁰ He describes new forms of social interactions that are digital and confined within groups of specific interest. However obscure and remote individual opinions or areas of interest are, global connectivity empowers anyone to seek, and find, like-minded people. Individuals are free to choose their topics of interests, most importantly, they can choose to opt out of the whole range of critical topics. This further limits the identification with traditional political parties, as parties have to cover broad spectrums of subjects. The alienation and perceived opacity between the society at large and the policy makers contributes to the overall loss of trust in institutions and supports the uprising of insurrectionist movements, such as nationalist parties or socio-civic movements. Most nationalist groups declare that they are speaking for the majority of the people, utilizing the widening gap between the

social and political layer to further their cause.⁴¹

Despite the adverse effects of volatility of current interest and continuous segregation of populations into smaller interest groups,⁴² globalization promotes strong support for individualization. Polls of younger generations show the trend of individualization, the trend towards societies of self-centered, introverted individuals with “a reluctance to join groups and follow their rules” yet loosely connected around specific interests, will continue to increase.⁴³ Even without constant surveillance, modern societies undergo a process of *individualization* driven by workforce mobility and urbanization. Kaplan describes the effects of “Loneliness [as] a particular characteristic of urban existence, in which strangers are many and true friends and family relatively few.”⁴⁴ The implied disintegration of societies through individualization can put the significance of the nation-state as a societal concept in question.⁴⁵ The generation of individualization also shows a profound identification with libertarian values.⁴⁶ The combination of a declining role of the nation-state and a stronger identification with individual values changes the character of political systems, increasingly replacing governments as the proponents of visions with the networked individual. Liberal and conservative ideas spread amongst the population, and democratic values are likely to become individualized rather than state-centric.

This transformation is demanding, as thousands of individual voices are harder to unite under a common political agenda. It would limit public support and divert legitimacy and power from established structures.⁴⁷ This “autocracy of everyone,” or “omnicracy,” will challenge the importance of the nation-state concept, whether democratically ruled or under the power of an autocrat.⁴⁸ As governments become increasingly unable to formulate unifying visions, nation-states may become mere administrative bureaucracies.⁴⁹ While Baumann’s liquid societies are created by a technology-enabled voluntary movement, the development could be exponentially accelerated through the loss of privacy and the associated destruction of social relationships.

2.5: *Observations*

Establishing persistent surveillance in an urban environment with a high granularity of observations down to an individual level severely impedes personal privacy. A surrounding where the fog of war has been lifted and where the commander has the ability to exploit actionable intelligence constantly affects personal relationships, leading to an

undermining of trust at the lowest societal level. Without adequate and established measures to protect privacy, a societal exchange may cease to exist. *Panopticon* in *Metropolis* may lead to emotional stress, a change in the moral rule-set of the targeted society, and a disintegration of the nation-state. Persistent surveillance may offer unprecedented abilities during a conflict or crisis but also creates risks. As the new surveillance capability begins to be fielded, the military commander and the political level have to consider the potential second-order effects because *Panopticon* can destroy the basis for any post-conflict operation.

3: Intelligence in a theater of operations – Responsibilities for Military Leaders

The vision of having to fight in *Metropolis* challenges many current assumptions. Considering the enormous amount of drone systems required to achieve situational awareness renders the concept of a man-in-the-loop for each individual drone unachievable. Even the consideration of a man-on-the-loop needs to be elevated from a drone or a drone system towards the overall system-of-systems approach. It also requires the implementation of ethical decision-making functions as part of the system-of-systems solution.⁵⁰

On his way to having situational awareness in *Metropolis*, the military commander faces three challenges. Firstly, he needs to incorporate the system-of-systems approach to gain the ability. Secondly, he needs to be able to operate in an environment in which the fog of war is lifted – or at least dissipated. As any technological advance is likely to cause counter-reactions by the potential adversary, the military commander needs to prepare his troops to face a similar exposure that he himself has created. Finally, the military commander needs to be able to balance the application of his ability to lift the fog of war and minimize the impact on the target population.

3.1: Lifting the fog of war

As a potential system-of-systems approach to the use of drones matures, the commander in the field still has to consider various local aspects of the employment of such a system. These considerations range from battlefield management aspects over the integration of coalition partners to the effects of a potentially degraded environment. In addition to the more technical challenges described in the following paragraphs, there are cultural and societal aspects the commander needs to consider. The increasing displacement of soldiers with drones has significant effects on the local populace. While the consequences are relevant in any theater, the

importance increases in densely populated areas. The role of a human face for perceived security and social connection plays an important role in the competition for *hearts and minds*. Any theater employment strategy for a drone system-of-systems has to balance the risks for individual soldiers against the benefits of human interaction.

3.1.1: Rethinking fighting doctrine

Drones and autonomous systems are mostly used to enhance the current way of fighting. While some changes in priority have taken place, e.g., preferring a drone strike over other means of war to prevent putting soldiers into danger, few fighting doctrines have changed. Fighting in an urban environment itself requires different approaches and tactics. Doing this jointly has been left mostly unexplored. Fighting in a *Metropolis* without any possibility of establishing a secure base in the close vicinity is currently considered a nightmare. Also, fighting side-by-side with a system of drones is a new, uncharted territory. All these unknowns combined allow rethinking and reshaping of the general idea of urban combat. Doctrine needs to determine the future role of human soldiers on the urban battlefield and the relationship or cooperation between humans and autonomous systems. The combination of human strengths with the capabilities of autonomous systems is the key to mastering *Metropolis*. Drones can support a zero-boot-print posture, but addressing concerns of battlespace division is crucial. The abilities of humans should be mapped to *micro*-functions as well to continue the logic of a set of available functions. Integrating human functions as part of the system-of-systems – thus making the human soldier an additional sensor and actor in the battlefield – is a promising approach for seamless integration. This allows autonomous systems to integrate human soldiers into their interactivity on the battlefield, using humans to open doors or engage an adversary. Depending on the legal framework, the function of using lethal force could only be assigned to human actors on the battlefield. This decision framework will evolve in the future as artificial intelligence becomes more reliable in decision making. The legal framework will be shaped by these new capabilities.

These questions can only be answered by establishing a vision, and then developing technological as well as doctrinal solutions by utilizing *Metropolis* as the testing and prototyping environment.

3.1.2: Open platform exchange

The concept of open platform is being advertised by a large number of vendors today. However, in order to reach a collaborative system of

autonomous systems, the open platform idea must be taken from pure hardware and command and control systems and be applied to all building blocks. While the efforts of hardware exchangeability must be continued, the open platform concept for all aspects of the software must be driven forward. The idea of defining *micro-functions* as an equivalent of micro-services known in the IT-world is a basis, but a future exchange protocol and software concept will have to be defined additionally. Seeing the speed of technological advance, any attempt to develop a complete list of possible functions or exchange protocols is bound to fail. Hence, a progressive, sequential spiral development approach will have to be applied. The military should be the driver behind these initiatives.

3.1.3: Data communication, navigation, and position

Metropolis offers multiple organic information networks that can be utilized. The introduction of modern mobile data exchange standards will further enhance the possibilities to share large amounts of data. Despite the technological advances, bandwidth will continue to be a scarce resource. Armed forces must prepare to fight in limited, contested, and even denied communication environments. The availability of space assets for positioning and communication is by no means guaranteed. The requirements and the design of autonomous systems must already foresee those factors. If designed properly, an autonomous system-of-systems could span its internal communication network, making use of distributed, highly meshed near-field communication networks to exchange information.

With an increasing number of active autonomous sensors on the battlespace, more data becomes available. Advances in computing power allow for pre-processing onboard autonomous systems, but intelligence branches will still be interested in the raw data for post-action analysis. Hence, smart prioritizing algorithms must provide the proper situational awareness of the available bandwidth and conduct load balancing.

Satellite based positioning and navigation have inherent limitations in the urban environment. Preparing for a contested or denied battlespace further underlines the need for alternative navigation measures. The availability of a large number of autonomous systems permits the system-of-systems to construct an internal mapping of the environment. Specialized and dedicated autonomous systems could provide beacon points for orientation and reference. Visual object identification and mapping further expand the options available for indoor and outdoor navigation without an overarching global reference system.

3.1.4: Mutual interference

A substantial task within a system of autonomous systems will be the avoidance of mutual interference. The apparent cases include the coordination of movement, especially in the air environment, and the avoidance of friendly fires. However, each micro-function comes with its own potential for mutual interference. For example, before a drone capable of jamming applies its capabilities, the system of autonomous systems will have to conduct a risk assessment of possible effects. Are there other drones conducting a higher prioritized task which are vulnerable to jamming? Is a vital communication taking place that should not be interrupted? Are human warfighters operating in the area who need to be warned? What are the potential consequences if the drone is not allowed to conduct its jamming?

Significant portions of mutual interference avoidance should be automatized. However, when examining risk-based assessment, especially when combined with the use of force, this will require human decision making. Mutual interference and the Use of Force are areas where human-machine-interaction will have to be shaped. When augmented by reinforced machine learning, those interactions can be used to train the system of autonomous systems to the specific circumstances of the current battlespace.

3.1.5: Lifecycle management

While discussing the different domains in which autonomous systems are going to be used and the various functions which they could be delivering, it seemed that there is a significant need for diversity amongst future autonomous systems. From a lifecycle management perspective, diversity is to be avoided as much as possible to keep the costs down. Hence, a categorization model as proposed earlier should help to bring order to the chaos by mapping the diversity into a limited number of dimensions. This will aid in identifying possibilities for common approaches, e.g. the use of a singular platform for multiple domains and functions.

3.1.6: Designing the transition

The overall idea of an interconnected swarm with highly specialized autonomous systems working side by side with general use drones and commercially available systems will take several years to develop. It is vital to promulgate a vision, including starting to develop interoperability standards, to steer the military and commercial development in the right direction. There is a policy balance to strike between hedging the diversity without limiting future creativity.

3.2: Fighting in a transparent battlefield

Technological advances are likely to be flanked by proliferation. It has to be assumed that various conflict parties possess some degree of technical capability to create their own situational awareness and to attack, degrade, or disrupt the commander's technical solutions. In addition, the commander has to expect neutral third parties, e.g., the international media and non-governmental organizations, operating in the theater, monitoring and reporting the actions of the warring parties. These factors lead to further considerations required by the commander.

3.2.1: Protection of own capabilities

The growing requirement to employ drone systems in theater of operations expands the attack surface. When thousands of autonomous systems interact in an urban environment, attrition is an unavoidable factor. Whether caused by system malfunctions, interaction with the static environment or dynamically engaged by various actors in the battlespace, drones will be lost. Any part of the overall system-of-systems is a potential attack-surface, especially if it falls into the hands of an adversary or tech-savvy, profit-oriented individual. Even impaired systems provide insights into the architecture and its components; every drone that finds its way into the hands of an adversary gives away part of the operational security.

Communication and protocols, the software behind a swarm-like behavior that is essential for sharing situational awareness, can be intercepted by means of electronic or cyber warfare. The basic specifications of the applied protocols in themselves can provide insights into the basic design and structure of the overall system. Eavesdropping on the communication can impede the operational security of a swarm. If the communication protocol of the swarm is known, an adversary could attempt to integrate his autonomous systems into a swarm. Opponents could even create virtual drone systems that give the swarm operators the impression of having capabilities available in the swarm that are not there in reality. An adversary can also attack a drone system with the aim of obtaining the same level of situational awareness. Access to one's own situational awareness has to be strictly controlled, as exploitation, modification, or disruption of the underlying information will lead to partial blindness and wrong decisions.

The world of computer science knows these problems well. The protocols of the Internet are publically specified, and malicious systems are integrated into the network every day. Communication between networks and

nodes is continuously monitored, while parts of one's network may be penetrated and abused for the adversary's purposes.⁵¹ The current development in the domain of drones resembles the early steps of the Internet's development; security was not considered during the design phase. Initially, malicious activities from the inside were unthinkable. The mistakes during the early design phase are still being repaired, and they should not be repeated in the domain of autonomous systems. There are many solutions available from the computer science world which apply to drones and swarms of drones.

Situational awareness requires obtaining and processing huge amounts of data. Algorithms, such as big data analytics, image and voice recognition, as well as artificial intelligence are required to gain the competitive advantage. The reliance on software contains a significant risk, as increasing trust in autonomous systems and decision preparation systems may lead to factual blindness or the inability to make decisions in ambiguous situations. The software tends to become a sovereign over human decisions.⁵² Even when a human is involved in the decision, the system tends to hide the uncertainty of the given recommendation. There is a mathematical component to the reliance on autonomous systems. Every system has a built-in error rate, or degree of imperfection. Often this is stated as a standard deviation from the expected behavior, or *sigma*, and denoted by the Greek letter σ . This deviation does not only exist in the autonomous system's electronic, mechanical, and optical components, but also in the transmission paths and evaluation algorithms. This is especially true with evaluation algorithms working with stochastic models or neural networks that never reach a binary decision. When given a task, the models will calculate probabilities and usually choose the most likely result. If such an autonomous system is given a task to determine a classification of a contact, it could reach to conclusion that the contact is FRIEND with a probability of 25% and HOSTILE with a probability of 44% (and possibly UNKNOWN with 31%). The autonomous system will hence classify the contact as HOSTILE, and in most cases not even tell the operator about the probability with which the conclusion was reached.

While engineers and software developers are constantly working on decreasing the σ , the cooperation between different subsystems within an autonomous systems can lead to a multiplication of their σ . The engineer is aware of this, the operator usually is not. But he should understand the problem of standard deviation and probability-based predictions. The operator bases his decisions on the available information. Hence, autonomous systems must have an indication of the quality, e.g. the σ , attached to it. Otherwise the operator in charge of either making the decision or

supervising the system has incomplete information and is bound to make wrong, and even unethical, decisions.

Soldiers, whether a drone operator or special forces on the ground, may have to base their decision of use lethal force on an algorithm's target discrimination and selection. It is vital for the commander to have full transparency over the involved software and components and to be able to fully reconstruct the system's decisions.

Increasing reliance on a system-of-systems may also decrease the armed forces' ability to operate in a degraded environment. If successfully employed, the synergistic effects of the proposed approach may deliver such a significant military advantage that the opponent reverts to drastic measures to asymmetrically counter this situational awareness capability. Any employed drone system must hence either be hardened, e.g., against the effects of an electromagnetic pulse, or – more promising – redundancy must be a design factor for the overall system-of-systems approach. In either case, forces are likely to encounter a partial or fully degraded environment for certain periods. Procedural resilience in the tactical concepts will remain a key requirement for fighting in *Metropolis*.

Drones operating in an area will not originate from a single country or actor. Apart from the apparent drone presence of the adversary, there will be civilian drones as well. Anyone from delivery companies to news stations will be operating in the contested environment. Coalition partners will rely on their own autonomous systems to support their warfighters. These factors require a flexible drone network configuration in order to utilize supplementary drone systems.

Integrating drones from partner nations will require interoperability. Communication and command protocols need to be aligned. When operating with an interoperable but unfamiliar drone system, one's drones need to understand the limitations and functions of those systems. Within the system-of-systems, clear assignment of responsibilities must exist to allow drones to accept new mission assignments or react to observations or warnings originating from a drone that a friendly nation operates.

3.2.2: Countering the adversary's capabilities

As drone technology and artificial intelligence are not expensive tools to acquire, the military commander will very likely confront an adversary that is able to match or exceed his own capability for situational awareness. Operating against an enemy with superior intelligence (and other capabilities) is no new terrain. Methods to counter information dominance broadly exist under the term *Command and Control warfare* (C²-warfare)

as:

the military application of information warfare. It comprises and links operations security, military deception, psychological operations, electronic warfare, and physical destruction, all supported by intelligence, to influence, degrade, deny information to, or destroy adversary command and control capabilities while protecting one's command and control against such actions.⁵³

The various methods of C²-warfare were very successfully applied by western militaries up until the end of the Cold War. Dubbed “soft-kill” measures, they were integral parts in the struggle against a near-peer competitor. Soft-kill measures were never popular, as they required permanent self-control across entire military organizations yet their success could not be directly measured. On the opposing end, “hard-kill” – describing the kinetic engagement of an actual threat – promised an immediate feedback on the effectiveness and did not require constant nagging of required self-discipline. Command and Control warfare is comparable to the annoyance of cybersecurity, e.g., the requirement to regularly change passwords and the restrictions of the organization's firewall, whereas the military “hard-kill” measure compares to the conduct of own cyberattacks. Both sides, hard-kill and soft-kill, cyber-security and cyber-attacks, are required and relevant for an overall mission success. But when lacking a credible threat – which is able and willing to test your defenses – the individual and organizational willingness to invest strict self-control for soft-kill measures wanes. It is high time to re-invest in Command and Control warfare across the military organization, both to meet the increasing drone threat as well as for the cyber domain.

Apart from the procedural and organizational aspects of Command and Control warfare, there are many functions in the C²-warfare portfolio that can and should be implemented into the proposed system-of-systems approach. Counter-drone systems should not be stand-alone, but the ability to detect, disrupt, and engage hostile systems should be understood as merely another function of one's own drone system-of-systems. Electronic warfare and hard-kill components tailored towards the threat of hostile drones can be fully integrated, shortening the response times due to intelligent threat balancing within the drone systems.

While the existing framework of Command and Control warfare provides a starting point to counter an adversary's modern drone capabilities, there are unique nuances that make drones a different

challenge. As drones become an ubiquitous sensor and actor on the battlefield, traditional principles of war, namely *surprise* or *concentration of force*, will have to be reinterpreted.⁵⁴ Long-proven concepts, such as *air superiority* or even *front line*, will be too simplistic to grasp the new reality.

Most worryingly, soldiers will no longer be able to cover their identities through uniformity. Author Phillip Zimbardo highlights the importance of the uniform for a successful warrior:

A key ingredient in transforming ordinarily non-aggressive young men into warriors who can kill on command is to change how they look...As they acquire anonymity, they lose their usual internal focus of compassion and concern for others. When the war is over, the warriors can return to their peaceful status, encouraged by removing their uniform, taking off the mask, and resuming their former facade.⁵⁵

The permanent presence of the media in conflict theaters, the availability of smartphones on the battlefield, and the procurement of high-resolution cameras in military drones have made modern day combat very transparent. Paired with extensive use of social media amongst members of western armed forces and the opportunities of big data analysis, faces of soldiers in the field can be recognized and matched to a name within a matter of minutes. Zombardo's "main ingredient" for a successful warrior is disappearing. While media presence and transparency will limit unethical behavior through personal accountability, it also increases the personal risk for the soldiers fighting legitimately; and the risk for their families. The same reasons also continue to impact liberal democracies' ability to fight a war.

The preparations for acting under unprecedented levels of transparency have to begin long before soldiers deploy into the theater of operations, if not before they join the military. Retaining, or regaining, authority over the amount of information published about oneself on social media is relevant. The adversary is working under the same conditions. He deals with the same risk, the danger of the identities of his soldiers being exploited. The camouflage face paint of the 21st century will not be used to blend into the environment, but to confuse facial recognition algorithms. The most valuable soldiers of the future will be those who never had a social media account and grew up in small farming communities with no CCTV. Sadly, these areas are steadily disappearing.

3.2.3: Acting under constant transparency

Transparency will not only be available to the military commander and the adversary. The population of the urban environment will use cameras, smartphones, drones, and communication systems to increase the transparency. Social media and media presence in the theater have already become constant factors in modern conflicts.⁵⁶ The term *strategic corporal* originates from the increasing role of the media on the battlefield over the last years. The actions, or inactions, of one particular soldier can spike world interest for a short time, leading to potentially strategic effects for his or her government.

Transparency on the battlefield has significantly contributed to individual accountability. When the first *little green men* appeared in Eastern Ukraine, an international effort utilizing local smartphone photography and media pictures produced cross matches with pictures of Russian soldiers. The international community benefitted from the transparency of the battlefield and made Russia's deniability less credible. To this day, volunteers continue to contribute in evaluating pictures to identify Russian troop movements, the origin of military vehicles, and validate the truthfulness of official news reports in an effort to fight dishonesty in the information war.

In Libya, warring factions were able to rally on-line, real-time intelligence support. Volunteers from around the globe assisted the local effort by providing time-critical analysis of live camera feeds, recommending attack vectors tailored to a specific weapon system to a commander in the field. The transparency of the battlefield can make a conflict truly global, a phenomenon that British author and journalist David Patrikarakos describes as "virtual mass enlistment".⁵⁷ This virtual – but critical – support is not limited to the cyber domain. Especially in the drone environment, there are many scenarios imaginable where global communities may support the cause of a local warring party by procuring or operating a drone and evaluating data coming from it. While larger governments may need computing power and advanced artificial intelligence, smaller adversaries may compensate by activating a large group of virtual supporters, the "fan base".⁵⁸

In future conflicts, the transparency of the battlefield is a reality that the military commander has to deal with. Transparency can greatly enhance the credibility of his own actions, but he has to be prepared to counter any misinformation or disinformation campaign, any *fake-news* story, quickly. While soldiers may not be used to operating under such an overarching transparency, other governmental organizations have been gathering experiences and perfecting their operational procedures for years. Police forces have known the benefits and potential agony of a working

environment under constant surveillance by the public. These organizations have responded by increasing their own transparency, introducing mechanisms such as vehicle and body cams, clear identifications on the uniform, transparent procedures of securing evidence, and internal, as well as external, auditing mechanisms.

It is clear to see that soldiers and police forces do not operate under the same legal framework, and that the Law of Armed Conflict may provide the soldier with significantly different authorities to act. However, when examining the future conflict in *Metropolis*, those legal boundaries will not always be quite as clear. In addition, while a soldier's action may have been lawful, the government and the military commander may still need to contain potential strategic damage caused by the publication of related smartphone videos. Transparency is key to providing one's own side of the story. Armed forces may be required to apply similar transparency measures that police forces use to further their effort in retaining legitimacy. The transparent battlefield of the future will make clear markings of the uniform and body cams necessary for soldiers.

3.3: *Limiting the detrimental effects of Panopticon*

Understanding how the commander can employ a full surveillance of *Metropolis* and how he can protect his own troops against surveillance efforts of other parties, it is time to leave the technical questions aside and consider the ethical aspect, the question whether he *should* unleash *Panopticon*. Understanding that exposure to a full loss of privacy can have detrimental psychological effects on the individual, his or her ability to engage in personal relations, and on the social fabric in general, there is much at stake. Apart from having a legal responsibility under the Law of Armed Conflict for the civilian population in his area of operation, the military commander sets himself up for failure if he ignores the psychological effects. Taking the possibility of societal disintegration into account, full surveillance capability can result in losing the competition for the *hearts and minds*.

The ethical responsibility for the commander is, of course, not an easy, binary decision. On one end of the spectrum are scenarios that require the commander to fully utilize his situational awareness even if the privacy of the individual is violated. These scenarios could include situations with high numbers of civilian casualties over prolonged periods, and security cannot be established due to a lack of situational awareness. This could be in a highly degraded security environment, where civilians are entrapped between a multitude of warring parties. A military commander leading an

intervention force tasked to protect the civilians would need to use his capability for surveillance to the fullest amount possible to achieve this mission. Using every drone system available in an attempt to improve the situation for the majority of innocent civilians in order to avoid additional killing seems to be his deontological obligation backed by a basic utilitarian logic.

Similar conditions apply in a humanitarian disaster situation where the distribution of rescue efforts and aid has to be decided. Again, this is a situation that lacks situational awareness to immediately lessen the suffering of human beings. Again, the commander seems to have a moral obligation to utilize his drones to establish an operational picture as quickly as possible to direct aid workers to collapsed buildings, helping those potentially still trapped under the rubble. Privacy of individual bystanders may be violated in the process, but the saving of human lives is a higher priority and time critical.

On the other end of the ethical spectrum are scenarios that prohibit commanders to use any of his drone systems for the sake of upholding privacy of individuals under his responsibility. These scenarios have been an inspiration to dystopian science fiction, most prominently George Orwell's *1984*. What these scenarios have in common is the fact that situational awareness is used – intentionally or inadvertently – to inflict harm on the individuals being surveilled.

There are two extremes. In one case, surveillance seems ethically obligatory, whereas in the other case, surveillance seems ethically impermissible.⁵⁹ In between these two opposing ends of the spectrum are many shades of grey. How much freedom of thought should extremists be allowed in a conflict scenario? Should open source information be exploited without restriction? What should the triggers for flagging suspicious or wrongful behavior be? What constitutes suspicious behavior? The high density of individuals living in *Metropolis* make the application of surveillance guidelines even more difficult, because a differentiation between different warring groups, families, religious beliefs, and cultural origins can differ from apartment block to apartment block.⁶⁰

With the increasing use of drones and drone systems, the line between surveillance and targeting fades. Targeting boards have introduced a procedural mechanism for evaluating every option before engaging a target. The example of the targeting process must be increasingly applied to the surveillance side as well. The aim of such a surveillance board would not be to conduct load balancing over one's own surveillance capabilities, but to

consciously decide which surveillance targets are ethically legitimate. Positioned at a high level within the staffs' hierarchy, and accompanied both by lawyers and ethicists, the surveillance board should evaluate every benefit of a proposed surveillance action, and it must be able limit its own power in the lifting of the fog of war. The board must question whether a data point or surveillance result can be achieved by different, less intrusive means, or whether that data point is even necessary. Surveillance cannot continue unrestricted, under certain conditions even terror suspects may potentially deserve a safe haven. What initially seems like an unnecessary risk, may contribute to an overall stability of the region by not destroying the social fabric.

There are additional measures that should be taken to increase legitimacy. Gaining transparency and trust with the local population is relevant to minimize the long-term detrimental effects of surveillance. Trusted, locally elected individuals or the political leadership of the target society must be involved in the surveillance process. These mechanisms of local involvement would not only increase transparency, but also help in the identification of potential bias in artificial intelligence networks.⁶¹ In the phases of conflict termination and the preparation to return political power and security responsibility to the local population, the inclusion of local judicial and political leadership in the surveillance process does not only increase transparency but becomes mandatory. As the data was collected on their population, part of minimizing the detrimental effects of *Panopticon* lies in the ability of the targeted population to process history on their own terms. The collected data and the taken decisions must be handed over to the regional players. It must be their decision to use that data in court, to publicize it, to use it in forgiveness workshops, or to delete this data.

Advances in drone technology and processing capabilities lift surveillance out of its passive position. Actionable intelligence can be collected on everyone within a society simultaneously. The decision to collect intelligence has more impact than ever before, and must be treated by the commander in this way. Full surveillance may lift the fog of war, but the detrimental effects associated with it rarely justify the full application of the new capability. Transparency of the decision and its consequences are key to uphold the social fabric, and the military commander must be willing to destroy all the data collected in times of crisis to ensure the long-term success.

4: Domestic surveillance – responsibilities for political leaders

As societies produce more data every day and computer scientists

improve the methods of big data analysis, *Panopticon* is increasingly becoming a reality even without military drone systems being employed. In preparation for potential future conflicts and for safeguarding the society and political system against malevolent foreign influence today, political leaders are faced with relevant decisions to increase society's resilience against a one-sided version of *Panopticon*.

This section examines three different perspectives for domestic political leaders that will be significant when lifting the fog of war and establishing *Panopticon*. Firstly, the ability to employ a *Panopticon* on a foreign battlefield will imply changes in the political implications for the decision to go to war. Secondly, the impact of surveillance on the domestic population needs to be outlined and balancing approaches recommended. Finally, considerations for limiting a foreign actor's influence through the leveraging of a domestic *Panopticon* will be discussed.

4.1: From Panopticon to ethically obligatory war

While the military strive for a technological advantage is historically not a new phenomenon, there have been organizational, societal, and political drivers to increase this trend. Organizationally, armed forces in democratic societies have an urgent requirement to replace manpower on the battlefield. The decrease in soldiers is coupled with the shift from conscription to volunteer forces that many countries have experienced. The relative decrease in military budgets in comparison to increasing wages in the civilian sector, especially for highly specialized personnel, further highlights the military's necessity to replace soldiers with technology. Societally, democracies seem less willing to sacrifice human life for limited objectives, thus further increasing the tendency to utilize technology for the *dirty, dull, and dangerous* tasks. In return, the organizational and societal trends pressure the political level to rely on the technological edge in order to maintain the lethality and readiness of their armed forces. There is further amplification from the economic dimension, as the military-industrial complex sees significant potential for monetary gains from the development and fielding of complex, advanced technological solutions. It seems vastly more profitable to deliver state-of-the-art drone systems than to build rifles. Technological dominance has become a vicious circle, driven by military organizations, society, corporations, and politicians, as seemingly the only solution to maintain superiority.⁶²

If politicians are able to employ military force for political gains without having to risk the lives of soldiers, waging war becomes an increasingly attractive option. Lifting the fog of war through constant,

persistent surveillance could deliver the building block for a truly *just war*.⁶³ A system-of-systems, the *Panopticon* of the battlefield, would provide permanent information on the *probability of success* and *proportionality* for any military action. If coupled with artificial intelligence evaluating the received information, the system-of-systems could also analyze if a planned military action would be considered a *last resort*. Lifting the fog of war would potentially provide politicians with more incentive to choose the military option.

Having a full and unbiased situational awareness before deciding to go to war has further implications. The ability to know the actual physical strength and status of morale could defy Clausewitz' assumption that "war is the realm of uncertainty; three quarters of the factors on which action in war is based are wrapped in a fog of greater or lesser uncertainty... War is the realm of chance."⁶⁴ Through the system-of-systems approach, chance remains a factor, but both the likelihood as well as the impact are increasingly marginalized. The second implication builds upon the increasing marginalization of uncertainty in war. If the outcome of a conflict becomes more predictable, the *just war* theory may have to be evolved to incorporate conflicts where armed conflict is not only ethically permissible but obligatory. The new case of ethically obligatory involvement in war has been abused in the past, but new technology moves the category into the realm of the possible. Obligatory involvement may play an increasingly significant role, especially for militarily dominant states. Finally, lifting the fog of war would lead to the necessity to re-evaluate the majority of the principles of war completely. It is unreasonable to believe that the traditional understanding of core principles, such as *surprise* or *concentration of force*, would remain unchanged under the new paradigm.⁶⁵

Politicians have to be aware that full situational awareness on a battlefield may lower a general willingness to go to war, reduces the factor of chance during the war, and may result in ethically obligatory declarations of war in the future.

4.2: *Lack of privacy untangling social structures*

While the drive for a more transparent society, with standardized individuals and predictable "resistance from its subjects,"⁶⁶ is more prevalent in autocratic societies, the trends generally exist in democracies as well. Amongst the proponents for *Panopticon* are the state's bureaucracy, the security apparatus, the political level, and large corporations. The better a composition of a society is known, and the more

current the available information is, the easier it is for administrations to apportion the ideal amount of tax, for the security apparatus to control volatile resistance with limited resources, for corporations to individualize market segments with maximum profit, and for the political level to personalize political engagement to obtain optimized election results.

Any government in control of a functioning domestic *Panopticon* can maximize the shaping and exploitation of the society without running the risk of revolutions. Politicians may start believing that revolutions are becoming extinct in technocratic societies because each individual's boiling point can be precisely determined, allowing an early adoption of pressure relieving measures, e.g., by temporarily providing a tailored help, or isolation of that individual, e.g., by restricting the travel options or revoking internet access. China's newly established *Social Credit Score* exemplifies the scalability and principle of such a controlling system.⁶⁷

The incentives to create the one-sided *Panopticon* at home are strong. Yet, the same side effects that can occur in a targeted civilian population of *Metropolis* during a military lifting of the fog of war are likely to occur under constant surveillance at home. Historical examples of the effects of surveillance in autocratic societies show that any form of spying causes various effects from mistrust to the forming of shadow societies. Even though the means employed, for example by the *Staatssicherheit* in the German Democratic Republic (East Germany), were not as capable as today's methods of surveillance are, the effects were statistically relevant.⁶⁸

As governments consider increasing their domestic surveillance for security purposes or their data collection to lower the cost of bureaucracy, Vogel reminds the decision maker that:

Questions need be asked about how and by whom surveillance and security systems should be regulated and how these systems shift the dynamics and exercise of power. Tensions also arise over regulation and the needs of intelligence-led operations across many domains, such as the security of urban spaces and the sharing of viruses and public health information systems.⁶⁹

In essence, politicians will have to rebalance effectiveness with privacy, as effectiveness increasingly relies on the transparency of individuals. Over-emphasizing effectiveness could result in a destruction of informal human interaction required to form a society, which, in term could negate the current concept of a nation-state itself. Over-emphasizing privacy, on the other hand, could lead to incalculable security risks dormant in a society and a

dampened economic growth. While the European Union is currently favoring the privacy of its citizens, the U.S. seems to follow the other end of the spectrum.⁷⁰

Of course, constant surveillance could lead to effects in which the individuals of a society voluntarily pursue a lawful life, because they know that non-permissive behavior will be punished. Voluntary submission is the cornerstone of Foucault's interpretation of *Panopticon*. Using *Panopticon* for complete transparency with the aim to lead to better behavior and coercing individuals to follow the established guidelines, the legal systems would have to be perfect and the underlying moral framework commonly shared by everyone. However, the thought of coercion through a general, largescale system currently fails to reflect the significant societal and individual differences. Foucault's vision requires smaller groups of individuals with commonalities; or in Scott's analysis, "the more static, standardized, and uniform a population or social space is, the more legible it is, and the more amenable it is to the techniques of state officials."⁷¹ Achieving coercion through *Panopticon* appears not to be a scalable approach.

Furthermore, it is unclear how *Panopticon* as a closed system would deal with ethical disambiguities. As change is a constant factor in societies, the envisioned closed *Panopticon* system would be exposed to new outside conditions, whether those be technologic, economic, or environmental in nature. History shows that a small number of individuals usually drives change in the beginning. It is difficult to imagine how a *Panoptical* system would allow the necessary moral reforms or changes of the honor code. As society changes and adopts, this change needs to transgress into a *Panopticon*, but it is very likely that a closed, transparent system would immediately suppress change. In the very long run, a lack of privacy and constant surveillance could impact survival and breeding within the human species, potentially altering natural selection towards a more obedient, submissive type of human.⁷² The danger of such a transition would influence individuality, initiative, and invention for generations to come.

Panopticon is neither scalable nor resilient, and any attempt to establish it is harmful to the underlying informal relationships between individuals.

4.3: Domestic *Panopticon* assisting foreign influence

Currently, most implementations of surveillance systems are either utilizing resources over Cyberspace, e.g., IP-Webcams, WiFi-Networks, or are purely based on cloud-solutions, e.g., social networks and e-Governance. Every bit of information that a government collects about its

citizens, or allows others to collect, is likely to be available to potential adversaries. The probability of information getting into the wrong hands increases as the information is maintained over longer periods. Any information about the population is relevant to the adversary, as he can increase his understanding of the structure of a society, helping him single out influential, relevant, or sympathetic individuals. The tools employed by a friendly government help the adversary build a *Panopticon*. As the future of conflict will not be limited to the exchange of hostilities on a geographically confined battlefield, the adversary will constantly be using cyberspace to target the society in *Metropolis*, the population in host-nations supporting military efforts, one's society, and the international community. The persistence of information operations and propaganda campaigns to influence democratic elections have already demonstrated the potential to customize influential information to individuals.⁷³

As governments take steps to implement *Panopticon* or tolerate the construction of a privately owned surveillance apparatus, e.g., social networks, those measures increase the attack surface of the population. Many states have recognized the inherent threat and are ramping up their cybersecurity measures, but every defense has weaknesses. Every step also increases the dependency of governments, military organizations, or private citizens on cyberspace, but the vulnerabilities self-generated by the increasing dependency are beyond the scope of the paper. However, every decision to move government services or corporate inventory online also generates more transparency about the population. Installing security cameras which are capable of facial recognition in a city to bolster security has significant advantages for the police and other security agencies. However, as no system is impenetrable, it also provides an excellent information feed for criminal organizations and adversaries about the movement of individuals in the city. There is a relevant example from the military world, where, in May 2010, Israel stopped a Turkish led maritime convoy attempting to break the blockade of Gaza and supposedly deliver humanitarian goods to the conflict zone. During the operation, which was carried out by Israeli special forces, the personnel accompanying the aid convoy actively resisted the Israeli intervention. After one activist managed to wrestle a gun from a soldier and started shooting, the Israeli soldiers responded in force, killing ten activists. From the video footage of the ships, Turkey was able to identify the majority of the involved Israeli soldiers and made their identities public.

In order to limit the detrimental effects of *Panopticon* domestically, politicians should restrict the transparency of their own populations by

following three general recommendations: (1) they should prohibit the storing of private data where the risks outweigh the gains, (2) they should limit the time the amount of data that can be stored and how long it may be stored, and (3) they should pursue their obligation to educate society about the importance of data privacy. These steps, taken in combination, would enhance resilience against surveillance.

The first recommendation, carefully choosing if the collection and storing of a particular data point are necessary in the first place, targets the implicit assumption that digitizing everything and everyone automatically results in a potential gain. Economically, it can be hugely cost-saving if data on a person is readily available across a large corporate network. But, there is a darker side to this story. In 2017, the WannaCry-ransomware attacks impacted British hospitals and caused a fallback to emergency treatment⁷⁴ and caused the cancellation of 19,000 appointments.⁷⁵ Furthermore, while credit-card data was the most valuable data point that cyber criminals sought a decade ago, this data is traded for meager prices on the Dark Web today. Illegally obtained medical data of individuals, on the other hand, is worth many times their credit card data. There is a similar interest in credit scores, insurance histories, or geographic movement profiles. A data breach in a fitness app revealed the locations of several military bases around the globe.⁷⁶ The number of related incidents is likely to increase exponentially as the collection of data on individuals continues. Politicians should carefully consider whether the collection of geolocations with a granularity of multiple data points per minute entails a benefit that is worth allowing corporations to continue with this practice.

The second recommendation is better known as the *right to forget* and is crucial to restoring trust across our society. Of course, trust is a complex concept primarily based on social interaction and experience. As the amount of social interaction decreases over generations,⁷⁷ experience becomes more critical in building trust. However, in parts trust also depends on our ability to forget, or selectively and unconsciously ignore previous experience. In today's societies, governmental intelligence services, news outlets, and data-driven industry do not forget anymore. For example, through the digital tools available, politicians are easily reminded of their past promises, positions, and scandals, thereby not allowing them to move on and adapt to new circumstances. To rebuild trust in our institutions and across society, the storage of personal data, and even news articles and pictures, should be limited. Governments should not only impose such a rule on others but include their intelligence services in the obligation to forget.

The final recommendation aims at the government's responsibility to

properly educate the population in the use of the Internet and social media. The responsibility cannot be delegated to the Internet giants themselves. Societies have to be aware of the risks of sharing private data, online fraud, and constant tracking. Educating and protecting a resilient civic community can counter the malicious influence of foreign organizations. The government must develop a *Duck-and-Cover* training for cyberspace.

These three recommendations restrict the uncontrolled growth of *Panopticon* in our societies, leaving less transparency for adversaries to exploit. In essence, these recommendations implement what Charles Fried already suggested in 1968 when attempting to bolster privacy:

The delineation of standards must be left to a political and social process the results of which will accord with justice if two conditions are met: (1) the process itself is just, that is the interests of all are fairly represented; and (2) the outcome of the process protects basic dignity and provides moral capital for personal relations in the form of absolute title to at least some information about oneself.⁷⁸

Conclusion

Lifting the fog of war of *Metropolis* – generating a full situational awareness in an urban battlefield – will be technically feasible. To achieve this capability, a revised, function-based system-of-systems approach is required, linking redundant capabilities across all domains and various platforms. Future systems can utilize existing infrastructure from the smart city and permit a new concept of integration of human capabilities. The exponential speed of this development will ultimately put the human *outside the loop* to maintain combat effectiveness, emphasizing the early need to integrate ethical decision making into the autonomous parts of the system-of-systems.

With the employment of full situational awareness in an urban environment, paired with the ability to act on any observed incidents, provide the local commander with godlike abilities of control. This *Orwellian* capability creates a one-sided *Panopticon*, leaving the targeted population paralyzed and without privacy. Being left with little choice to fight back, distrust and fear will disrupt the informal life and damage the social fabric. Employing *Panopticon* without consideration may deny the commander the ability to win the *hearts and minds* because there are no more hearts and minds to win. Lifting the fog of war deprives the commander of the ability to win the war.

The commander should strive to gain the technological advantage of being able to lift the fog of war through a system-of-systems. There are cases in which he has the moral obligation to employ this capability, at least within limited timeframes. Concurrently, military organizations have to establish doctrines that allow them to exploit the technological advantage and provide control mechanisms to gradually reduce the application of *Panopticon* as the intensity of the conflict can be brought under control. Eventually, the military commander has to accept that even the enemy may deserve a space in which he has privacy as a trade-off for prolonged security. The ability to control the *fog of war* presents new challenges, at times it is useful to lift it fully to provide security, at other times total transparency is detrimental to stability.

The ability to lift the fog of war impacts the political level as well. Government leaders will be more inclined to go to war. Planners will perceive war as more predictable and less as a game of chance within the context of *Panopticon*. Implicit in this thinking lies the emergence of a new form of responsibility to protect: the moral obligation and imperative to go to war if the commander has full situational awareness. At the same time, politicians have to avoid inadvertently building a *Panopticon* at home, as this would also impact the fabric of the domestic society and enable a potential adversary to abuse the transparency of the society. Data privacy plays an integral role in the preservation of the required opaqueness of individuals. The perceived great power competition between the U.S. and China provides a relevant example. As the competition takes place across all dimensions of power, both nations may be inclined to revoke any ethical restrictions on research and any privacy issues in the information domain while hardening domestic surveillance in the name of security. Governments would want to give up moral and social boundaries of their economic systems and lessen the restrictions on the widespread collection and use of personal data. These trends, in turn, would encourage the growth of a one-sided *Panopticon*, which in turn may untangle the social fabric of society. Before actually getting to a great power competition, the government may lose its society, fully untying Clausewitz' trinity of state, society, and military. "The total failure of submission is always evil – for a group, for an institution, for a society as for an individual."⁷⁹ It is not the competitor, but the dedication to the competition, which could bring a nation to its knees.

There are costs associated with *Panopticon* related to individuality, society and warfare. These costs can be further explored in future research aimed at addressing questions raised during the course of this study.

Namely, how will *Panopticon* shape the future security environment? Will the automated *Panopticon* favor Psychopaths?⁸⁰ Will the constant daily exposure to technology dull our cultures sensitivity to the effects of universal surveillance? This research has demonstrated that there are some benefits to lifting the fog of war. However, the question remains how individuals maintain their ability to think critically if systems shape their decision making? How dependent can an eavesdropper be on surveillance, and will he be able to decide in uncertainty? How will civilizations progress and develop if all information is homogeneous and unable to be deciphered independently to generate innovative thought and invention?

In conclusion, this study has advanced the thinking regarding the related issues involved in applying *Panopticon* to the fog of war. The question for the future remains, what kind of future do we humans want?¹

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Community Section



Gordan Kahl and Apocalyptic Violence

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Abstract

Violent acts, including mass shootings, has become such standard fare in the media that they no longer draw the attention nor cause the horror that they used to. Instead they are noted, thoughts and prayers are offered as rote, and then society's and the media's attention moves on to something else.

Professor Helgeland sketches out an incident from a time in which such rare activities shocked and appalled the community because of their violent, anti-social element. What he writes here can serve as a primer for much of the mayhem facing the United States today.

Keywords: apocalyptic violence, religious extremism

Late Sunday afternoon TV news shows in February 1984 were interrupted across the region with news of a shooting of Federal Marshalls just outside of Medina, North Dakota. Viewers were warned to be on the lookout for Gordon Kahl. The message from law enforcement was, "Do not try to apprehend, only inform the authorities as to the location of the sighting." Police pulled over a number of Kahl look-alikes who were driving cars similar to the one he was known to possess. North Dakota had never experienced such a thorough manhunt.

The day passed without any encounter. Authorities concluded that Kahl had left the state for shelter in Texas where others of the same ideology were known to reside. In fact, he had traveled as far as Arkansas to shelter with those who shared his perspectives on government. The authorities were informed to be on the look-out.

The whole series of events came to an end with another shoot-out in Arkansas. A deputy sheriff discovered where Kahl was hiding. He rashly went in and they ended up shooting each other simultaneously. That was not the important thing about the Kahl saga; rather it was the apocalyptic

spirit that was the background to all this mayhem. These themes ultimately arise from the book of Revelation.

It is about the coming end of the world and the de-construction of evil. Historically the church in the Roman Empire underwent persecution. In Revelation the symbol of evil was the city of Rome called the new Babylon. From there satanic forces spread out over the world to accomplish nefarious attacks on all that was good. These assaults would accumulate until the world would come to an end. With the coming end of the world God would take His own to be with Him forever. Evil people go elsewhere to eternal punishment. Evil institutions would be blotted out – Rome, Army, Empire, Emperor. Christians however, will be saved and treated to eternal life.

While in this world, Christians see the payment of taxes as a tribute to the beast (Rome). Such payment symbolizes obedience to the evil powers. Gordon Kahl and his comrades were mostly about tax protest that Sunday afternoon in Medina when the Federal Marshals began the intrusion into their meeting. The consequence was the deaths of several Federal Marshalls, as well as the flight of Kahl and his sons.

All of the opponents of Kahl fit the form of evil as found in the book of Revelation. We know that Kahl was clearly influenced by apocalyptic thought. While on the run he explained the whole situation in a letter to the *Fargo Forum*; this letter was an explanation based almost entirely on themes from Revelation. Those who are under the spell of apocalyptic thought Washington DC as analogous to ancient Rome.

The similarities from the book of Revelation serve to give a “spiritually justified sanction” to what Kahl and his friends in the *posse comitatus* were doing, such as the shooting of Federal Marshalls and standing against the government to avoid paying taxes.

A number of recent significant violent events in the United States can be laid at the door of apocalyptic inspiration. The bombing of the Oklahoma Federal building and the burning of the David Koresh compound in Waco, Texas are two spectacular examples of apocalyptic violence. Great damage results from this kind of thinking.

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Abstract

This essay explores the notion of “designer babies” and the ethical questions surrounding it. It explains what a designer baby is and the methods used to create one, with emphasis on the CRISPR-Cas method. A concerted effort is made to evaluate the morality of creating designer babies from within the ethical systems of Immanuel Kant and John Stuart Mill. This is done by creating a three-part methodology consisting of the what, the why, and the how. Although it is shown that a specific instance of creating genetically modified designer babies can be immoral, the practical embodiment given to posed objections – a complete, world-wide, moratorium on the creation of genetically modified designer babies – is looked at and refuted along with the associated supposition that the practice is immoral.

Keywords: Designer babies, future generations, CRISPR, IVF, genetic modifications

Life offers individuals many important choices, but few are arguably as impactful as the decision to have a child. Much thought and consideration will be put into questions of when, with who, where, and even how to have a child. But until recently, a question of *what* wouldn't even be a sensible one to ask in association with having a child. However, humanity may be approaching an era where there could be several questions of what. Soon, a potential parent might answer what height, what hair color, what level of intelligence, or even what senses their child will have. Humanity could soon arrive at an era of genetically-modified “designer babies.”

This essay explores the notion of “designer babies” and the ethical questions surrounding it. It explains what a designer baby is and the methods used to create one, with emphasis on the CRISPR-Cas method. Three categories of possible uses for designing babies are delineated; namely, “therapy” or disease prevention, “enhancement,” and intentional

manifestation of a “disability,” with much of the discussion focused on enhancement. A concerted effort is made to evaluate the morality of creating designer babies from within the ethical systems of Immanuel Kant and John Stuart Mill. This is done by creating a three-part methodology consisting of *the what*, *the why*, and *the how*. Popular objections to designer baby creation are explained and divided into the three categories of safety, unnaturalness, and eugenics. Although it is shown that a specific instance of creating genetically modified designer babies can be immoral, the practical embodiment given to posed objections – a complete, world-wide, moratorium on the creation of genetically modified designer babies – is looked at and refuted along with the associated supposition that the practice is immoral.

So, what are designer babies? According to an article in the journal *Obstetrics, Gynaecology and Reproductive Medicine*:

designer babies are babies originated from embryos created by in-vitro fertilization (IVF) and selected because of the presence or absence of particular genes or a baby created by genetic interventions into pre-implantation embryos in the attempt to influence the traits the resulting children will have (Pang and Ho 2016).

Simply put, this means that a designer baby is created by either hand-picking an embryo with desired genes, or actually manipulating the genes of an embryo. The first method is how all designer babies have been created thus far, excluding two examples that will be discussed below. The process, as explained by Dr. Gregory Stock, consists of taking a six to eight cell embryo, produced via *in vitro* fertilization, teasing out one of the cells and running a genetic test on that cell. Depending on the result of that test you either implant that embryo or you discard it. Stock refers to this process simply as “embryo screening” (Stock 2003). Although historically criticized, this method of creating a designer baby has become well accepted. This embryo screening method lacks the controversy that surrounds the second method of designer baby creation, for two main reasons. The first reason being that almost all of the designer babies made this way “are created with an aim to prevent inheriting genetic defects through the selection of ‘disease-free’ embryos by preimplantation genetic diagnosis (PGD)” (Pang and Ho 2016). This procedure is generally viewed as a type of *therapy*, and therapeutic procedures are rarely judged as being

immoral. The second reason is that humans do not have a hand in actually writing the genetic code of the embryos; they merely decide which one to propagate. This seems like a much more passive, and natural, method of creating a designer baby than the alternative method of active genetic intervention. It is seemingly this lack of an intelligent designer, the term designer baby often implies, that tends to exclude it from the current designer baby debate.

What typically comes to mind, when thinking about designer babies, is not merely hand picking a genetically disease free, but otherwise “normal” embryo. *Designer* baby implies an active ability to *design* a child. Or rather, to choose the traits of a child. This is exactly the capabilities the use of clustered regularly interspaced short palindromic repeats (CRISPR) and their associated (Cas) proteins (the CRISPR-Cas system) promises to offer. The CRISPR-Cas system offers the ability to intentionally edit genomes with specificity (Brokowski, Pollack and Pollack 2015).

Basically, there's a protein that acts like a scissors and cuts the DNA, and there's an RNA molecule that directs the scissors to any point on the genome you want. The result is basically a word processor for genes. You can take an entire gene out, put one in, or even edit just a single letter within a gene. And you can do it in nearly any species (Kahn 2016).

What science journalist Jennifer Kahn is explaining in the quotation above is that, with the help of CRISPR, humans can pick and choose what genes to proliferate, cull, or edit in almost any animal, including humans. If it is known what phenotype is expressed from which genes, it should be possible to create a person with hand-picked traits. This is absolutely astonishing in both an exciting and terrifying way.

One objection that has often been posited by Christians and others to assisted reproduction technology (ART) may ultimately be avoidable with the CRISPR-Cas technique. Although a regular and generally accepted practice, preimplantation genetic diagnosis (PGD) does involve one particularly objectionable process, to some: the annihilation of human embryos. The normal process of PGD includes the destruction of embryos with problematic genes (American Pregnancy Association 2019). For some Christians, the understanding that the sixth of God’s commandments

prohibits the murder of innocent persons of any age, combined with the belief that human embryos are people, makes any destruction of human embryos unethical (Sas and Lawrenz 2017). With the CRISPR-Cas method of genetic modification, in theory, there would be a need for the creation of only one embryo. Any problematic genes could simply be fixed, leaving none to be destroyed (Sas and Lawrenz 2017). Embryo destruction is very important to some, but this essay, in the words of Leon Kass, is not about “the old crude power to kill the creature made in God’s image, but the new science-based power to remake him after our own fantasies” (Kass 2003, 10).

Thus far, this essay has only directly discussed a therapeutic use for these technologies, the creation and propagation of genetically disease-free embryos. However, CRISPR-Cas procedures have nearly boundless potential to go far beyond therapy, to the realm of enhancement, and even disablement. This is no mere semantic irrelevancy either, when it comes to morality. Leon Kass, former chairman of the President’s Council on Bioethics, draws attention, specifically, to the distinction between “therapy” and “enhancement.” Therapy is “the treatment of individuals with known diseases or disabilities” (Kass 2003, 12). Whereas enhancement is “the directed uses of biotechnical power to alter, by direct intervention, not diseased processes but the ‘normal’ workings of the human body and psyche” (12). We should know these because there are moral distinctions attached to these terms; because currently, “therapy is always ethically fine” while enhancement is “ethically suspect” (13). Kass even specifically identifies gene therapy as ethically fine in 2003, nine years before CRISPR (Kass 2003, 13; Kahn 2016). This is just one of many confirmations of the popular sentiment that medicine, which cures ills and enables the disabled, is good. Biomedicine is not exempted from this. It is not until biomedicine gives way to bioengineering that people start to raise eyebrows; where the barrier between the two lies already appears fuzzy. Within the coming decades or sooner, it may not even be distinguishable.

It is interesting that Kass’s definition of enhancement does not include a value claim. He did not say enhancement is to alter human processes in the aim of making them *better*, but to merely alter by direct intervention. This is the problematic nature of a word like enhancement. People assume an implied value claim, without actually knowing what is meant to be expressed. Kass approaches this himself by asking if enhancement means “‘more’ or ‘better,’ and if ‘better,’ by what

standards?” (Kass 2003, 13). It’s important to note that by delineating between the terms therapy and enhancement in the first place, they seem to be framed as opposite to each other. This is problematic because consequently, “if ‘enhancement’ is defined in opposition to ‘therapy,’ one faces further difficulties with the definitions of ‘healthy’ and ‘impaired,’ ‘normal’ and ‘abnormal’” (13).

It is exactly this kind of ambiguity that lead to a famous controversy relatively early in the designer baby era. In 2002, the story broke that Sharon Duchesneau and Candy McCullough, an American couple who are both deaf, deliberately created a deaf child (Savulescu 2002; Teather 2002). This garnered outrage from people who claim intentionally creating a *disabled* child is immoral. Duchesneau and McCullough, however, “don’t see deafness as a disability. They see being deaf as defining their cultural identity” (Savulescu 2002). This begs the question, what constitutes a “disability,” and who gets to determine this? For the many who would say deafness is a disability, it would seem within the bounds of morally permissible therapy to eliminate it. But does the apparent truth of that statement delegitimize its opposite? By way of being morally permissible to eliminate such a trait, is it then impermissible to proliferate it? How about passively allow it? This becomes very tricky to answer, when some find it to be valuable while others find it to be detrimental.

Thankfully, there is no need for all of the labels discussed above to be strictly defined for this essay to proceed. Although terms such as therapy, enhancement, and disability are not arbitrary and can be useful in the designer baby discussion, one can assess the morality of designer baby creation without them being strictly defined. A thing that is good, is good regardless of what someone might call it. The same goes for bad and neutral things as well. So, what does make a thing good or bad? Unfortunately, there is not a universally accepted answer to this question. If someone were to ask a dozen people on the street, they would likely get a dozen different answers. The same goes for philosophers. Poll a dozen ethicists at random, and the chances of getting the same answer out of all of them is practically nonexistent. That said, there are a handful of well known, and well-respected ethical theories from famous philosophers throughout history. Two of these esteemed philosophers are John Stuart Mill and Immanuel Kant. Not only are Mill and Kant arguably two of the most outstanding philosophers of the 18th and 19th centuries, they both proffered well-formed ethical systems. This is important, because it is

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from within these systems, supplemented and challenged by additional input, that designer baby creation will be evaluated.

In order for an ethical system to be of use, it needs to lay out three things. This essay will call them *the what*, *the why*, and *the how*. *The what* refers to the object of moral evaluation. This quite literally means what it says; the object of moral evaluation is that which is actually being judged. *The why* is an ethical system's ultimate good – this is what causes well-being. If there is something that is intrinsically good, this is it. An intrinsic good is valuable not because it brings about something in its wake, but because it is valuable in its own right. This does not mean *the why* is necessarily the only good, but all other goods are such because they lead to the ultimate good. These other goods are called instrumental goods and are valuable because of the good things they can bring about. They are good for something; they are not good in their own right (Johnston 2019a). Lastly, *the how*, is the method or tool one should use to exercise their moral judgement. This may be a single guiding principle or set of instructions. Some can be confusingly complex, but the ones further presented are easily graspable.

First, the explanation of *the what*, *the why*, and *the how* of John Stuart Mill. Mill has the most straight forward answers to these categories, and will hopefully be easy to understand. For Mill, *the what* is an action's consequences. *The why* is happiness. "By happiness is intended pleasure and the absence of pain" (Mill 2001, 7). And *the how* is the "*greatest happiness principle*." Which "holds that actions are right in proportion as they tend to promote happiness; wrong as they tend to produce the reverse of happiness" (7). One should note also that "the standard is not the agent's own greatest happiness, but the greatest amount of happiness altogether" (11). Thus, in order for the action to be praiseworthy, the action must bring about the most happiness or least misery to the most people, as its consequence (Johnston 2019b).

Next, *the what*, in Kant's system of ethics, is an action's *maxim*. Maxims are a complex concept in Kantian ethics, but a concise way to explain it is that a maxim is the principle of action one gives themselves when they are about to do something. Maxims are what one is about to do and why they are about to do it (Johnston 2019b). For Kant, a *good will* is *the why*. The easiest way to explain a good will is to wed it to a word Kant often used himself, duty. This sense of duty, inherent in Kant's good will, must direct one's maxim (for it to be a good maxim). Thus, in order for said maxim to have moral worth it must have this form – I am about to do

what is morally required, and I am doing it because it is morally required; the maxim must be motivated by duty (Johnston 2019b). *The how*, for Kant, is especially important because, in practicality, it informs us of *the why*. To further explain; *the how* is called the *categorical imperative*. The categorical imperative technically has four different formulations. Kant claimed all of the formulations were just restatements of the same imperative. Two of these will be described, here – The Formulation of Humanity as an End and The Formulation of Universality. The Formulation of Humanity as an End tells one to act in such a way that they treat humanity, whether in their own person or in the person of another, always at the same time as an end and never simply as a means. This means one cannot treat a person as having conditional value. A person always has value, unconditionally. This includes oneself. Someone could practically ask: “Am I using this person solely for what he or she is providing, and nothing more?” The Formulation of Universality tells everyone to act only according to that maxim whereby they can at the same time will that it should become a universal law. People should act as if the maxim of their actions were to become, through their will, a universal law of nature. One could practically ask themselves: “If everyone held this maxim, could my goal still be achieved?” Kant doesn’t want people to consider if the world would be “better” or “worse,” only if it could rationally function.

So, what are the objections that have been put forth against designer baby creation? Although there are many objections, they can be analyzed in three main categories; the questionable safety of designer baby creation, that designer baby creation is unnatural or dehumanizing, and that designer baby creation has potential for eugenics.

Objection to designer baby creation based on safety concerns is one of the most prominent. Much of this concern stems from the unpredictability of the future consequences of developing technology, namely CRISPR. There is little remaining safety concern in regard to preimplantation genetic diagnosis (PGD) use. Although much of the beauty of the CRISPR-Cas system is that it can be very precise, “engineering nucleases [is] not perfect and may cause problems like off-target editing” (Pang and Ho 2016). This is problematic because any mistakes may not be noticeable until the phenotype is expressed, after the child is born. Some genetic diseases don’t manifest for years or decades, within which time millions more babies may be made with the same mistake. Not only is each individual genetically-modified child affected by the decision to use CRISPR, but so will all the generations to follow,

since germline DNA modifications are *heritable* (Knoepfler 2015). Some of the unpredictable consequences might not even appear until generations further down the line. Although this sounds scary, if these tools are so powerful, couldn't it just be fixed then? Perhaps, but one would need to know there was a problem to fix. Such a problem might not be discovered until it's too late. For example, Pang and Ho explained, "genetic mosaicism has been observed in genome-edited zygotes, and PGD screening fail[ed] to detect successful or off-target mutations in the edited-embryo..." (Pang and Ho 2016). Some people find this uncertainty intolerable, such as biomedical scientist Paul Knoepfler. He even goes so far as to say, "...we need a moratorium. We have to ban this. We should not allow creating genetically modified people, because it's just too dangerous and too unpredictable" (Knoepfler 2015). His concern is that once people start genetically modifying humans, it'll be the start of a slide down a slippery slope nobody can predict. Thus, it mustn't even be allowed to begin.

But what if it has begun already? On November 26, 2018, Chinese scientist He Jiankui announced that he had used the CRISPR-Cas9 genome-editing technique to cripple or disable the CCR5 gene in two human embryos. He then implanted those embryos, generating a pregnancy and the birth of twin girls, who are called Lulu and Nana. The CCR5 gene encodes a protein that some common strains of the Human Immunodeficiency Virus (HIV) use to infect white blood cells. Jiankui claims he did this to protect girls from HIV infection (Normile 2018; Cyranoski 2018a; Cyranoski and Ledford 2018).

This invoked immediate and intense outrage from every corner of the globe. To decide whether this outrage was warranted, the situation will be approached with the ethical systems explained previously starting with Kant. If Jiankui's claim is true, then his aim was to protect these girls from the danger of HIV infection. So, his maxim, *the what*, would have been to use CRISPR-Cas9 genome-editing technology to edit the CCR5 gene in these embryos so the children born from them will have protection against HIV. Did he act with a good will from duty, *the why*? Only he can say that. But one can check if duty would have informed him to perform this act, at all. Will his maxim pass the two formulations of the categorical imperative, *the how*? In a world where it was a universal law that everyone gene-edit embryos to protect said embryos from HIV, would it still be rationally possible for Jiankui to do so? Yes; even if everyone else did the same thing, it wouldn't make it impossible for him to do it. Did he treat

every human being as an end and never merely as a means? Maybe. If his claimed motives were not genuine, then it seems immediately apparent that he did use a human as merely a means. Even when judging him by the exact maxim he claimed to have been operating by, he failed to fulfil The Formulation of Humanity as an End. He did not birth these twins himself. He implanted the embryos he edited into a human woman to grow them for him. Artificial wombs are still not a reality; thus, he needed a real *human* womb *to use*. The categorical imperative requires he consider all persons in the generation of his maxim. If he used Lulu and Nana's mother as a tool to achieve his goal he was not acting with a good will, and thus his maxim could not be motivated by duty, informed by the categorical imperative. This seemingly being the case, he acted on a maxim that was immoral.

Unlike Kant, for whom consequences are meaningless, *the what* for Mill, is an action's consequences. Thus, one must take a look at what actually came from Jiankui's actions. As this is done, one must search for *the why*, happiness. One should do this using the greatest happiness principle, *the how*. Did Jiankui's action bring about the most happiness or least misery to the most people, as its consequence? The happiness of those directly involved in and closest to an action are disproportionately affected by it, when compared to those further removed from it. So, Jiankui will be examined first. He has been the subject of unrelenting ridicule since the day he made his announcement. He was also fired from the university where he worked and may face criminal charges (Cyranoski 2018b). Thus, it can be figured he has brought significantly more misery to his own life than pleasure. As for Lulu, Nana, and their mother, they will have to live in anonymity for many years, if not for the rest of their lives. He damaged the reputation of the entirety of Chinese science, potentially hamstringing the work and careers of countless conscientious scientists in China, which is certainly unpleasant for them (Cyranoski and Ledford 2018). There are definitely other consequences from Jiankui's action, in addition to these. But even this short analysis shows it was an immoral act by Mill's standard as well.

Just because Jiankui's story is the only CRISPR-baby story to date, doesn't mean it will remain that way. There are many more and different objections to genetic modification being used to make designer babies than just concerns over safety. The second category holds objections based on the idea that designer babies are unnatural, their creation is dehumanizing, and thus should be avoided. Quite a bit of this seems to be based in the

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idea of hubris, the concept that some ambitions are off-limits and will backfire if pursued (Bostrom 2005). It is often thought that it is not the place of humans to “play God”. Perhaps humans are even breaking the first of God’s ten commandments by elevating themselves from the created to the new creators; making themselves gods (Sas and Lawrenz 2017). What if humans begin enhancing their offspring until they aren’t even the same species anymore? This seems outlandish, but as futurist Juan Enriquez claims, the world might already be witnessing “evolution in real-time” merely from humans’ ability to congregate into homogeneous groups like never before (Enriquez 2012). Perhaps people, endowed by some sanctity in nature, feel a sense of obligation not to compete with or subvert it. Especially in today’s world, where the word natural is stamped on every possible item it can be, as a badge of purity or wellness. Wherever it originated from, there is an idea that to be “more human,” people need to be more natural, and thus natural is good and “unnatural” is bad. Genetic engineering and creating CRISPR babies are often identified as exactly this kind of bad unnaturalness.

It seems however, that maybe it is in *human nature* to become unnatural. Nick Bostrom, of Oxford University, has this to say; “the human desire to acquire new capacities is as ancient as our species itself. We have always sought to expand the boundaries of our existence, be it socially, geographically, or mentally. There is a tendency in at least some individuals always to search for a way around every obstacle and limitation to human life and happiness” (Bostrom 2005). Without an innate ambition to advance oneself, and improve upon their own condition and the human condition proper, humans would never be where they are today. Now one would admit that humans today would be better off had past people not tamed and bent nature to their will. Humans have already been taking evolution into their hands for thousands of years. Dr. Enriquez makes this point by highlighting things that are simple yet blatant examples of human controlled unnatural selection.

Few things on Earth are less natural than a cornfield. You will never, under any scenario, walk through a virgin forest and see the same plant growing in orderly rows at the same time, nothing else living there. When you do a cornfield, you’re selecting what lives and what dies. And you’re doing that through unnatural selection. It’s the same with a wheat field, it’s the same with a rice field. It’s the same with a city, it’s the same with a suburb. In fact, half the surface of Earth has been unnaturally engineered so that what lives and what dies there is what we want, which is the reason

why you don't have grizzly bears walking through downtown Manhattan (Enriquez 2015) Gregory Stock, Director of the Program on Science, Technology and Society at UCLA, was convinced in 2003 that humanity will use any methods they have, including genetic modification, to upgrade human existence. "We're human. That's what we do. We use our technology to improve our lives" (Stock 2003). This, is undeniably true.

That said, even if it is "just in our nature" to improve, that doesn't mean every way done so is ethical. This is nowhere clearer than in the realm of eugenics. None too difficultly could CRISPR find a home in this sinful realm. Of all the objections one can put forward against designer baby creation, its potential to be used in a eugenic manner is the strongest. Robert Pollack, of Columbia University, put it bluntly: "this opening to germline modification is, simply put, the opening of a return to the agenda of eugenics: the positive selection of "good" versions of the human genome and the weeding out of "bad" versions, not just for the health of an individual, but for the future of the species" (Pollack 2015). Using extreme sounding and ominous phrases like "for the future of the species" might sound like outlandish overkill. However, this extreme language is applicable and appropriate when talking about "gene drives". A gene drive is a tool that can *guarantee* a particular gene will be inherited. The way Jennifer Kahn explained it in her speech, *Gene Editing Can Now Change an Entire Species – Forever*, is to think of a gene drive as a kind of "perpetual motion machine for genetics" (Kahn 2016). Kahn explains that a gene drive makes a heterozygous trait homozygous, something that biologically shouldn't even be possible, as it violates Mendelian genetics. What does this mean? Well, typically "when a male and female mate, their baby inherits half of its DNA from each parent" (Kahn 2016). If one parent has gene aa, and the other parent has gene aB, the babies should come out with four permutations aa, aB, aA, Ba. But if parent aB has a gene drive, all the offspring will have gene aB. This is can be done because a CRISPR gene drive not only cuts and pastes a new gene in, it copies and pastes itself as well (Kahn 2016). This "not only guarantees that a trait will get passed on, but if it's used in the germline cells, it will automatically copy and paste your new gene into both chromosomes of every single individual" (Kahn 2016).

The eugenic potential of CRISPR-Cas technology is outstanding with natural heredity operating. But tack on a legitimate guarantee that a chosen gene will not only be passed on, but passed on "relentlessly until it is in every single individual in the population" (Kahn 2016), and one would get

a Social Darwinist's dream! Imagine if the Nazis had this "modern superpower" to change, what Dr. Enriquez calls humans' "lifecode" (Enriquez 2015). Promoting "racial hygiene" would have been a matter of literal 'medical treatment' with a CRISPR gene drive and, providing so called "preventive medicine for the 'German germ plasm,'" could have been just that; a matter of 'medicine' (Brokowski, Pollack and Pollack 2015). Instead of controlling which people were legally allowed to reproduce together, once they had their CRISPR gene drive in enough people, they could have just waited a generation. Of course, the Nazis were not the only state actors to have eugenic aspirations throughout history. "France, Brazil, Denmark, Britain, Russia, and the United States also enacted eugenic laws" (Brokowski, Pollack and Pollack 2015).

Consider, for instance, the 1927 Supreme Court case *Buck v. Bell*. Carrie Buck was considered a feebleminded woman and as a result was institutionalized in a state psychiatric facility. Her condition purportedly had been in her family for three generations, and she was to be the first person subjected to mandatory sterilization under Virginia law. Hence, the validity of the Virginia statute permitting sterilization of the mentally ill for eugenic purposes was in question before the Court... Associate Justice Oliver Wendell Holmes famously upheld the law, infamously arguing, "The principle that sustains compulsory vaccination is broad enough to cover cutting the Fallopian tubes. Three generations of imbeciles are enough" (Brokowski, Pollack and Pollack 2015).

State justification for this law was that it served public health. This may seem preposterous and cruel to most people today. But it apparently wasn't preposterous then. If use of CRISPR germline editing were adopted to fulfil similar "public health needs," acts later understood to be abhorrent, could be enacted today with long-lasting, far-reaching consequences.

State actors need not be involved for designer babies made with CRISPR to change the social landscape. Private individuals and companies will take advantage of CRISPR technology as well. This leads to an often-asked question. What about the people who can't afford it? The sentiment behind this, when elaborated upon, is normally along the lines of what is suggested in the article *Cutting Eugenics Out of CRISPR-Cas9*.

Those in higher income brackets will have access to methods of creating ‘designer’ children, leaving to the fates the genetics of those with more modest means. This risks the creation of a de facto tiered biological class system, perhaps resulting in even greater inequalities than those existing based on race (Brokowski, Pollack and Pollack 2015).

This tends to be the fallback “canned” response to the suggestion that designing your babies, with enhancements, is probably a good idea. Perhaps it is a testament to a genuine egalitarian attitude engrained to the core of those asked, or maybe they are scared that they want to say yes to a question they think they should say no to. Wouldn’t it be good for *your child* to be stronger, faster, smarter, and healthier? Would someone opt out of that opportunity if it were offered to *them*? This is almost unfailingly met with descriptive images of Aldous Huxley’s *Brave New World*, instead of a genuine answer. Perhaps this is the only easy way to frame *better as bad*. That’s not to say the potential for CRISPR-created designer babies to exacerbate social stratification is not a concern, is certainly is, and a popular one at that.

But, do any of these extensive objections to the creation of designer babies, even of CRISPR-Cas9 germline genome-modified designer babies, warrant the moratorium reputable individuals such as Robert Pollack, Paul Knoepfler, and others are calling for? No. Knoepfler is calling for this ban based on the unpredictability of genetically modifying people. This is just illogical reasoning in action. If something is scary because it is too unknown, making it illegal to do empirical research on it is a poor why to learn more about it. Although they don’t recommend genetic modification as a routine clinical procedure, Pang and Ho remind us that “the ‘slippery slope’ argument has been used against the development of new assisted reproductive technology such as IVF and PGD when they were being developed but now are all well accepted in many parts of the world” (Pang and Ho 2016). Pollack on the other hand fears a eugenic future, saying he doesn’t think “anything short of a complete and total ban on human germline modification will do” (Pollack 2015). Gregory Stock would have an appropriate response to this fear. Stock said, “people can try and ban these things. They undoubtedly will. They have. But ultimately all this is going to do is just shift development

elsewhere. It's going to drive these things from view" (Stock 2003). This is ironic for Pollack if he is concerned about increasing social stratification. Because, as Stock continues to say, "it's going to reserve the technology for the wealthy because they are in the best position to circumvent any of these sorts of laws" (Stock 2003). This is true; CRISPR-Cas9 germline gene-modification will continue to push forward, whether in the shadows, or in plain view. The possibilities are too wonderful to hold back.

Nor *should* humanity hold back. Earlier analysis showed that the only act of using human germline genetic modification to create designer babies, thus far, was immoral. However, that does not mean all possible acts of using human germline genetic modification, with techniques such as CRISPR, are or will be immoral. In fact, it's quite the opposite. Throughout this research, there has been a clear pattern; the focus of this technology is to improve people. It is true that the debate over what a term like "enhancement" means continues. But this is ultimately irrelevant. The people involved in the research, the development, and the possible application of the techniques and technologies used to create designer babies, including CRISPR germline genome-modification, are trying to make people, and by extension humanity – *better*. With this in mind, it cannot be condemned. No one should support a moratorium on it, nor is it immoral. The ethical systems of Immanuel Kant, and John Stuart Mill, will support this.

This will be shown using the methods described earlier. To assess the act of creating a designer baby using the CRISPR-Cas germline genome-modification technique, the essay will continue in the situation of designing a child. As previously stated, *the what* for Kant is an action's *maxim*. The maxim in this situation is to use CRISPR-Cas germline genome-modification technology to create a designer baby, because doing so will bring into existence a person who will improve the world. *The why* for Kant is a *good will*, in accordance with duty. The *categorical imperative*, which is *the how* for Kant, informs one's duty. The categorical imperative has two formulations, that this essay will consider. First, can this goal be rationally achieved if this maxim were to be a universal law of nature? It can be. If all people were to act on this maxim, any individual person would still be able to. This maxim fulfils the Formulation of Universality. Second, is one using any person merely as a means, and not at the same time an end, to achieve their goal? They are not. In this situation they are respecting the dignity of every human being involved;

no person is merely a tool. This maxim fulfils the Formulation of Humanity as an End. In this situation, one would be acting in accordance with duty; their maxim is motivated by a good will. Thus, their maxim is moral – it is good, by Kantian ethics.

As may have been noticed, no one was charged with using the baby's mother as a means, like with He Jiankui. This is because the situation was assessed as if the person was in the position of creating their own designer baby; their son or daughter. This will become a very common scenario when this technology moves forward, and is thus an appropriate model to assess. This person would be sure that the mother of their child is also benefiting and not only being used as a tool. Whereas the mother of the twins Jiankui created was a functional piece of a science experiment.

Now to assess the act of someone, who is not the mother, creating their own designer baby using the CRISPR-Cas germline genome-modification technique, with the method laid out for Mill's ethical system. *The what* for Mill is an action's *consequences*. *The why* for Mill is *happiness*, defined as pleasure and the absence of pain. And for Mill, *the how* is the *greatest happiness principle*, which requires that for an action to be praiseworthy the action must bring about the most happiness or least misery to the most people, as its consequence. This action is not being assessed retrospectively; thus, foreseeable consequences will be considered. An action's consequences have the greatest effect on those who are closest to it, especially those who are directly involved. Someone directly involved will foreseeably be brought immense pleasure as a consequence of creating their own designer child. The mother of the designer child will also be directly involved, and she will also foreseeably be brought immense pleasure. The rest of the person's family would be intimately involved, though not directly, and they would foreseeably be brought moderate pleasure, at minimum they would foreseeably be brought slight pleasure. Further removed, but still foreseeably affected, would be the person's friends, and the friends of the child's mother. Here some might be able to foresee slight pain brought to the friends as a consequence of creating the designer baby, due to a possible lack of attention afforded them. However, at this level of removal from direct involvement, the ability to reliably foresee the pleasure or pain resulting from this action is waning. In theory, one might try to foresee the pleasure or pain the designer baby would bring to those he or she interacts with as he or she lives his or her life. This would very quickly reach a point of diminishing return however, and at some point, the actor in this situation

would no longer be obligated to continue considering mere unfounded conjecture. After this consideration, it can be calculated that creating a designer child brings significantly more pleasure to the most people, as its foreseeable consequence. Thus, it is a good action, by Mill's ethics.

This begs the question of why the pain of an entire country's scientists was discussed when evaluating He Jiankui, but the situation above didn't address anyone further than the person's friends. This is partly to do with the nature of Mill's ethics (and more broadly, all consequentialisms). It is possible to assess the actual consequences of Jiankui's action, and thus identify the real effects it had on whom. Using Mill's ethical system to judge future actions is less exact. For example, were I to consider creating a designer baby, there would be no reason for me to expect that creating a designer baby would have a morally relevant effect on all American fathers, though in actuality it may. This could only be known and judged after the fact.

Now it has been exhibited that creating a genetically modified designer baby can rightfully be evaluated as moral. Thus, there should not be a moratorium on it, reaffirming what was said before. However, it was also shown that the specific act of He Jiankui creating genetically modified designer babies can be immoral. Thus, each act of creating a genetically modified designer baby must be evaluated individually, and not all instances as a collective.

In conclusion, this essay explained what a designer baby is and the methods used to create one, with emphasis on the CRISPR-Cas method for its ability to permanently edit heritable germline genes. Three categories of possible uses for designing babies; namely, "therapy" or disease prevention, "enhancement," and intentional manifestation of a "disability" were differentiated, highlighting the real-world example of Sharon Duchesneau and Candy McCullough's decision to deliberately have a deaf child. The popular objections to designer baby creation, which were divided into the three categories of safety, unnaturalness, and eugenics were explained. The possibility for eugenics, including a CRISPR gene drive's ability to make heterozygous traits homozygous, was emphasized. Despite these objections, there was a concerted effort made to evaluate the morality of creating designer babies from within the ethical systems of Immanuel Kant and John Stuart Mill. This was done by creating a three-part methodology consisting of *the what*, *the why*, and *the how*. The practical embodiment many give to their ethical objection was addressed – a complete, world-wide, moratorium on the creation of

genetically-modified designer babies. It was denied that there should be a moratorium, and denied that creating genetically modified designer babies is always immoral. However, it was also shown that a specific instance of creating genetically modified designer babies can be immoral. Thus, each act of creating a genetically modified designer baby must be evaluated individually, and not all instances as a collective. The future of genetic enhancement will be shaped by the decisions we make now. When our descendants look back these decisions, I want them to look back and *thank us*.

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What Does Gettier Believe?

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Abstract

The question of what defines knowledge and how knowledge is ascertained is important when discussing nearly any subject in which assertions are made. In modern epistemology, the standard definition of knowledge is justified, true belief, or a belief one holds, has good reason to hold, and actually conforms to reality. In 1963, Edward Gettier published a paper throwing this definition into question by giving two examples that fit the standard definition but should not be considered knowledge. In this paper, I break down Gettier's second example into its propositional components, what they mean, and then show that the Gettier's example does not actually meet the standard definition of knowledge.

Keywords: Propositional Logic, Epistemology, Gettier, Justified True Belief, Knowledge

In "*Is Justified True Belief Knowledge?*," Edward Gettier puts forth two cases which he claims meet the requirements for knowledge's standard definition justified true belief (JTB). I will show that in his second case Gettier lacks justification and belief in the truth. I will then discuss his misunderstanding of the implications of his first case, which raises questions of proper justification rather than an example of JTB that is not knowledge

In Gettier's second case, he describes a scenario involving a character named Smith with two friends, Jones and Brown. Smith has seen Jones driving a Ford truck, giving rides in the same truck, and Smith heard that it is Jones' truck. All this can be summed up into a collective proposition A: A being evidence that implies the further proposition B that Jones owns a Ford truck. In addition to this, Smith does not know the location of Brown, who could be in one of many places around the world. While Gettier lists a few potential locations the most relevant that he uses is Brown being in Barcelona, which I will refer to as proposition C.

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Putting these three statements together, Gettier creates the argument that since proposition A implies B, he is justified in believing that B or C is true. In other words, he believes that Jones owns a Ford truck or Brown is in Barcelona. In propositional terms, this is represented as:

$$[(A \Rightarrow B) \Rightarrow (B \vee C)]$$

After creating this argument, Gettier shows the flaw in the situation. It is revealed that in reality Jones does not own a Ford truck but merely rents it, meaning B is false. At the same time, though Smith is unaware of it, Brown is actually in Barcelona. As Gettier explains, in this case he is justified in believing (BVC), and it turns out to be true, meeting the requirements for JTB, and yet it seems to lack an intuitive requirement for knowledge. The reason this proposed JTB does not make intuitive sense is because Smith lacks an actual belief in and justification for his “belief” that would merit the JTB required to claim knowledge.

Before continuing I will explain an important characteristic of belief in relation to exclusive disjunctive statements, or statements between two propositions in which only one of the two can be true at a time for the statement itself to be true. Suppose I had been indoors unaware of the outside world for an extended period of time, and then made the statement “it is either raining (Proposition D) or it is not raining (D’s negation $\neg D$).” In propositional terms, this is represented as the statement:

$$D \oplus \neg D$$

Having said this, what belief do I hold about the weather? The statement itself is a tautology that will always be true, but it seems that I hold no actual belief about whether it is raining or not. If I were to then go outside and see that it is raining, I would no longer believe my previous statement and would instead believe only D. Based on this, it is fair to say that belief in an exclusive disjunction between a proposition and its negation is a lack of belief in either of its component propositions, and instead a belief in a trivial tautology.

Would this same level of triviality apply to an exclusive disjunction between two distinct propositions? Suppose I were to create another proposition E that states that it is nighttime outside, and then stated

that I believe that it is either raining or nighttime, but not both, or proposition:

$$D \oplus E$$

Since only one at a time can be true, it being true would necessitate the other being false, so this proposition can be further expanded to:

$$[(D \wedge \neg E) \oplus (E \wedge \neg D)]$$

Now I still do not seem to hold any beliefs on the actual state of the weather. The statement itself is no longer a tautology, as it is possible for it to be clear and sunny outside or raining during the night, in either case the statement is false, but it can also be rainy during the day or clear at night, both of which would make the statement true. In order to justify a belief in this statement being true I would be required to show that it is raining and daytime or that it is clear and nighttime. However, in proving one I would disprove the other and would be unable to claim a belief in it. In this way, one cannot believe in an exclusive disjunction between distinct propositions in the same manner as an exclusive disjunction between one proposition and its negation. In the latter case proving one side automatically disproves the other. In the former case one must not only prove one proposition true but also disprove the other. In either case, stating the exclusive disjunction lacks a meaningful belief of any sort, and cannot satisfy the belief requirement for which JTB calls for in regards to the individual propositions.

What does this have to do with Gettier's case? He uses an inclusive disjunction rather than an exclusive one, which may seem dissimilar to what I have discussed. However, when one considers what an inclusive disjunction means, and what it means to believe in it, an inclusive disjunction can be rewritten using exclusive disjunctions. Using Gettier's example, (BVC) can be rewritten as:

$$\{[(BVC) \Leftrightarrow (B \wedge C)] \oplus [(B \wedge \neg C) \oplus (C \wedge \neg B)]\}$$

In English, this means that in order for (BVC) to be true, either both must be true, B must be true and C is false, or C must be true and B is false. In Gettier's case, the reality is that C is true and B is false, which makes

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(BVC) true by virtue of $(C \wedge \neg B)$ being true and the other two stated possibilities false. However, Smith is not justified in a belief in (BVC). As shown earlier, if Smith is to justify his statement as more than an assertion of a possibility, he must justify one side of the exclusive disjunction and disprove the other side. Smith cannot justify a belief in $(B \wedge C)$ because to do so would require justification for believing C, which he lacks. It may be easier instead to first prove the other side of the disjunction. Since he lacks reason to believe C, $(C \wedge \neg B)$ cannot be justified, which leaves only $(B \wedge \neg C)$. This is the closest Smith comes to justification, as he has evidence to believe B. However, at this point he also needs to justify a disbelief in C. Gettier puts forth no evidence that Brown is not in Barcelona, so Smith cannot bring the justification to disbelieve that he is, which further means he cannot justify a belief in $(B \wedge \neg C)$. Since he lacks justification for any of the component propositions of (BVC), he cannot claim to know that it is true, since he lacks justification. Smith must instead hold a trivial belief on Brown's possible location, meaning he is only justified in believing $[B \wedge (C \oplus \neg C)]$.

With Smith's belief in B, a belief in (BVC) can be shown to be equivalent to $[B \wedge (C \oplus \neg C)]$, however this will ultimately still fall short of knowledge. Since Smith believes B to be true, he must believe that $(C \wedge \neg B)$ is false. Revising the exclusive disjunction form of (BVC) to account for this, we find that:

$$\{(B \wedge C) \oplus [(B \wedge \neg C) \oplus (\cancel{C \wedge \neg B})]\} \Rightarrow [(B \wedge C) \oplus (B \wedge \neg C)]$$

Since B will be true in both cases, the disjunction depends upon whether C is true or not, so:

$$[(B \wedge C) \oplus (B \wedge \neg C)] \Leftrightarrow [B \wedge (C \oplus \neg C)]$$

What this means is that Smith is only justified in parts of (BVC), namely the parts that say nothing of the truth of C. Since Smith cannot hold a proper belief in the truth of C, whether C is true or false cannot be considered knowledge on Smith's part as he cannot meet the belief requirement. As we later learn, since B is ultimately false, Smith's belief

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in (BVC) is wrong, and the only part of the statement that is true Smith lacks any justification or real belief in. Smith's, and by extension Gettier's, error in case 2 of "*Is Justified True Belief Knowledge?*" comes about due to a misunderstanding or misuse of inclusive disjunctions.

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Fall 2019

Student Section



*Why Racist and Sexist Terms Are Keeping Us
in the Past*

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Abstract

Racist and sexist terms are still prevalent today. Many people argue it is okay for the subject of those terms to use them. Racist or sexist terms, however, should not be used under any circumstance, even by a person who is the subject of those terms.

Keywords: Language, in-group, out-group, racist, sexist

Racist and sexist terms have been around for many, many years and still continue to be prevalent today. Many people argue it is okay for the subject of those terms to use them, while others think those terms should not be used at all. Sexist and racist terms were brought about to imply something very negative and cruel, to create a negative emotion; therefore, there is no good reason as to why they should ever be used. I will support this by stating well known racist and sexist terms and why they have a negative connotation to them. I will give examples of times both when they were used in the past, as well as times they are used now. I will also provide examples of the negative results of using these words and why it is inappropriate for anyone to use them.

Sexist terms are terms that work to imply the notion that one sex is somehow superior to another. It is discrimination, stereotyping, and prejudice which are also words used when describing racist terms. Following that thought, racist terms are terms that a person uses against someone or a group they are discriminating against, or being prejudice against. Just like sexist terms, racist terms are used against a race or races that someone sees as less superior to their own. People who discriminate and are prejudice against other people or another group of people for being

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different than themselves are often egocentric. This is a characteristic or ideology a person has that allows them to think of only themselves, disregarding others feelings or emotions. Words have so much meaning, people put (in this case) their hateful emotions against a group of people or an individual and it is this action that gives a word its meaning and power. The context and feelings behind it are what make it hateful. Therefore, sexist and racist terms should not be used by anyone because they have such hateful suppressed meanings and feelings behind them; feelings and meanings that have existed for years and years.

If we lived in a world where we considered the power behind the words we used and how they affect people we would be living in a lot better world. People now have somewhat accepted these words and decided they don't really have as much power behind them. While in some cases I can see that point I still believe it is wrong to use them. Growing up I was always taught what words were not okay to say. Most people were told not to say the "N word", and it was so frowned upon it even got short-tended to be referenced as the "N word" just so people teaching not to say it wouldn't have to say it. That alone shows how much power is behind that word.

As far as sexist terms go, it is more of a new topic of debate. It has only been a recent thing of people trying to not generalize certain sexes to jobs and so forth. For example, you used to hear "stewardess" but now you are supposed to say "flight attendant". The longer we get used to using more non-sex specific terms the easier it will become and less of a touchy topic it will be.

As previously mentioned, many sexist terms are still used today, however, a lot of people don't really recognize them to be sexist. Some do and simply don't care because they have been around for so long it is like any other word in the English language. This is another problem with hateful or discriminatory terms, they become generalized when they shouldn't. People say "policemen" more often then they will say "police" because when we were in elementary school we learned "policemen" just like "firemen". I don't think this is at fault of us as a population but more so something we have been taught over the years. Back in the older generations those types of jobs were mostly held by men so they gave the

name to who was allowed at that time to hold those positions. They had no way of knowing all those years ago that women would also be taking part in some of these mostly men-based careers. This is why sexism is being looked at more closely than ever. Women are starting to be like “Hey, we live in a male dominant world in a lot of ways”. The fact that the word “women” literally has the word “men” in it is a perfect example. Back in the older generations, men were seen to be superior to women, women were seen as helpless and in need of saving. Today we recognize this is not necessarily the case.

Women empowerment has become a big thing, especially within the last few years. Women are finding their voices and using them, and taking control over things they want to see changed. This is new for our world to see because for so long this was not the case. It makes sense that women would want to see these changes. We are not any less than men, we all bring different things to the table. When it comes to the career stuff it matters a lot to women that they are included because we can do the job just as well as a man can and we want the job to be a gender-neutral name to imply that. Times have changed and it is time that we all start to use the right terms and stop being sexist. In my opinion the word “women” does not need to change. Yes, it has the word men in it but we have used the term “women” forever and at this point we know what it means. I can understand the few points in why some women want it changed but I would not call that an urgent matter personally.

When it comes down to it sexist terms should just be avoided as best as possible because they are diminishing women by saying we are less than any man is. Back in the day, men made it this way because that was how they thought of women. Obviously, there are things men can’t do that women can. For an example child birth, and it can go *vice versa*, too. But the point is anything that is trying to make men seem or sound more superior is not okay and shouldn’t be used by either sex.

I want to talk a little about sexist terms for men now because it is not just women who fall into this discriminatory category. Sexist terms for men can be but aren’t limited to, “Be a man,” or even something like “He has a man bun.” Not only are terms like this implying being a woman or having a woman’s trait is a bad thing, but it is saying men cannot show

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certain emotions or be into certain styles. This is stereotyping what all men and women should be like, act like, dress like, and so on. Doing any of those things makes negative connotations that only one gender can express these things when in fact we are all just humans with different genetic make-up. Sexism falls closely in line with gender rules and roles. These are the rules and roles that society has attributed to one's sex in order to define someone as that sex. This can be a tricky concept because while there are certain qualities often linked to a particular sex, they do not solely pertain to that sex alone.

It has been taught for a long time now that there are certain words that you do not say because they have such evil or vile meaning to them. It is my belief that even if you are the subject of the word being used that you still should not use the word. Yet, if you are to use it, being the subject gives better justification. However, I still stick with my belief that no one should use the terms because they are offensive and in no way have ever been used to mean anything nice.

I want to talk about the "N word" first because I feel it is most well known and most discussed over whether or not it is okay to use. The "N word" was developed and used back when discrimination, segregation, and slavery were prevalent. The "N word" only means a black person or dark-skinned person. However, people used it in such a negative way and in a way that was meant to be hateful, which is now how that term is viewed to be. This ties back into the fact that words have so much power to them. They really are just a word until meaning is attributed to it. And again, that meaning is what makes it wrong to use. Since this word in particular has so much hate and evilness to it that under no circumstances should it need to be used. We have plenty of other terms and words in the English language that I can't understand why that word would need to be used when referring to a dark-skinned or black person. This word has been used in the past and still is used in some instances. Unfortunately, it is used to make someone feel inferior, to make someone feel hated. Not even people of that race can use that word without implying it as being negative simply because it has been used negatively for so long.

In some circumstances, people use the "N word" in rap songs, or even just casually. I would say the word is often times used more by people of

black color or dark-skinned folks over white folks because when most white folks say it, it still holds that power. For this reason, it is best to just all together have everyone avoid it. To some people it is still a very sensitive word that draws out a lot of emotions and that is rightfully so. This is not the only racist term used now days as well as in the past. Many other cultures and races have been subject to evil and vile words. There is the term “ape” which is also referring to black people, referring to the horrible and no longer used theories of tying blacks’ looks to chimpanzees. There is the term “brownie”, which refers to a brown-skinned person. The term “cracker” refers to a white person or a poor white person. There are hateful terms for all cultures, and none of them are okay. It is a list that goes on and on with all of them at the time being developed as an insult. For these reasons it is important to always remember how these terms came about, who was using them, and what was their intention for using it was. In continuing to use these terms it encourages the development of new ones. As mentioned earlier, making these terms appear to be common through things like music fosters the development of new ones. In using these already negative terms, even in non-negative situations it makes it appear to be “okay” for some people. It could make children think it is okay because they heard it in a song. It can make people come up with new ones because they are under the impression it is “cool” because the rappers do it.

I can understand why someone may try and argue that by using these terms it is making them less powerful, especially in the situations of the subject using them in relations to themselves or their own race. However, the negative stigma is always going to surround these words and the power will always be there because there is an emotional tie. Once something has an emotion connected with it, it is very hard to break that off. For example, when someone says World War II most people think of the Holocaust and the horrors that the Jews faced. They think of all the pain and suffering of that time and years later it is still just as sensitive and will always continue to be. It is our duty to not use these terms and let them be past terms showing that there is growth from those negative days when there was all this hate, segregation, abuse, and belittling going on.

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One of the important things to mention here that goes with the subject of racism and racist terms is colorblindness. Colorblindness is when someone says ‘they don’t see color’. Bernard Boxill discusses that people who say they do not see color do not see the person at all. This is different from people not using racist terms because by not using a racist term you are not, not acknowledging the past or the persons color you are simply just implying you don’t see them as being less superior or in those negative views. The point Boxill was making is that you shouldn’t be color-blind and take away the identity of a person of color. In saying this, I believe we can put an end to using racist comments, slurs, and terms and make for all that negativity to no longer be a part of our vocabulary.

At the end of the day I believe that using racist or sexist terms will always make some people feel discriminated against or belittled. By not using these words it will make a more peaceful world where everyone feels capable and accepted. Not using racist slurs or terms will not make up for the past, but it will show a growth in the future.

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Erceg was born in Iowa City, Iowa but has lived in seven different states and two different countries. She thinks that having moved around a lot made her very adaptable and open to the many different cultures and experiences the world has to offer. Erceg was lucky enough at a very young age to begin to travel around the world and get to see and do things that most people don’t get the opportunity to experience.

Erceg hopes one day to open up her own animal sanctuary where she takes in neglected and abused farm and household animals. In a perfect world she wants everyone and every creature to feel accepted, appreciated, and be as equals. Erceg hopes in her career path she is able to positively affect animals lives as much as they have done for her.



Biocentrism – Who Should Win the Clash?

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Abstract:

Biocentrism argues that all organisms have intrinsic value and should be treated as equals. This becomes difficult when ethicists start debating who in the environment should be benefited while the other is harmed. I firmly stand by the biocentric viewpoint in terms of the equality all parties in the natural world share; however, there are certain exceptions to this rule based on a hierarchy of intrinsic values based on the situation. There are times in which humans should take precedence, and there are other times when this precedency needs to be reciprocated with animals.

Keywords: Biocentrism, environmental ethics, intrinsic value

Biocentrism is one of the leading moral principles in environmental ethics and establishes that all organisms have intrinsic value and should be treated as equals. This becomes difficult when ethicists start debating who in the environment should be benefited while the other is harmed. Many believe that the beneficiary should be the human race since mankind is such a superior entity in the environment, while the natural world is too far behind this development. I firmly stand by the biocentric viewpoint in terms of the equality all parties in the natural world share; however, I think there are certain exceptions to this rule and believe humans have some dominance over other creatures. This dominance is characterized with a hierarchy of intrinsic values. While I think every living thing on the planet has intrinsic value, there is a hierarchical method of classifying this worth based on the situation. There are times in which humans should take precedence, and there are other times when this precedency needs to be reciprocated with animals.

Let us begin with what it means to embody a biocentric understanding of environmental ethics. There are many elements that contribute to the overall well-being of the natural world, and like a

machine, the environment cannot do without one of these working parts. As understood by many, all living things require basic necessities, and I have broken them down to three key provisions: adequate nourishment, shelter, and security. I do not believe anyone can name an organism that does not need all of these components. Plants, crustaceans, insects, mammals, and many others take into consideration how they will live a sustainable lifestyle in their environment, and biocentrism bestows upon them the freedom to do so. Humans have seemed to take on an anthropocentric understanding of their existence and have exploited the Earth of its resources with egoism and a sense of superiority driving this idea forward. However, since humans are just another component to the overall workings of the planet, I believe this egotistical nature is inappropriately exaggerated in most circumstances. All organisms are intrinsically valuable, and in order to develop the argument as to who gets priority in some situations, this needs to be further explained. I will start by clarifying the intrinsic value of the human race.

An intrinsically valuable entity is something that we value for its own sake and is worth pursuing, or in this case, protecting. Many impart this status on the organisms that are able to think rationally and follow values, whether they are societal or personal. Going through the list of flora and fauna found on Earth, humans are the only animals that are able to achieve such a high cognitive ability. As I stated before, there is an exceedingly concentrated amount of selfishness when it comes to the human consumption of resources and treating the world like an instrumental good. However, it would be disingenuous for me to neglect mentioning how vital it is for the human species to do things such as building structures, raising and killing livestock, and drilling for oil. These practices are what maintain the dominant species and are arguably necessary for the longevity of the human race. Mankind has grown so advanced that the ways of life that worked for the hunter-gatherer communities would work for us today. We would not be able to feed as much people as we do if we were to dismantle the livestock industry, and we also would not be able to have transportation, electricity, or much of our technology without oil. With just these two examples, all three of the basic needs for living things are met. Ideally, mankind would not need such invasive methods of survival; however, the species has grown so far from its prehistoric days that it is now necessary to do so.

There are a few species of fish, plants, and even other mammals that end up becoming an invasive species by entering an environment they do

not belong in. This could be compared to the human race's frequent destruction of ecosystems; however, it is never going to be remotely close to the substantial abuse of the Earth caused by human negligence and gluttony. By looking at this situation as a biocentric it is critical to understand that, while mankind is more or less moral and rational, humans should not be considered the sole proprietors of intrinsic value.

Animals, fish, insects, and everything in between are all important aspects to the overall well-being of the environment. They have goals and instinctual drives that propel their existence and allow their species to thrive. While these are not as high on the cognitive scale as compared to humans, and for some not even close, there are still uncanny similarities between mankind's goals for survival and the rest of the environment's ambitions. We all make an effort to protect our young, ensure there is sufficient supplies of food and water, and even seek out safe places to establish communities. If these qualities are shared among all living things, then this distinction connects all biospheres together and creates a relationship between man and beast that is arguably important for the welfare of the environment. It also mandates the inclusion of animals in the realm of organisms that embody intrinsic value.

However, this value is ranked based on the needs of the two parties involved at the time. If, for instance, it came down to someone hunting lions in order to get an impressive trophy, then the human is in the wrong and should allow the animal to live. The hunter is impeding on the livelihood of the innocent creature and using its existence as an instrumental good that allows him to boast about his kill. On the other hand, if the lion was healthy and were to attack a non-threatening individual, then that person has a right to defend himself and kill the animal if the situation required him to do so. Essentially, everyone has intrinsic value; however, the properties that rank it revolve around the idea that whoever is fulfilling a basic need, takes precedence in the situation. For the first example, the hunter is taking the lion's basic need of survival away, and in the second example the survival of the individual trumps the lion's instinctual drive to protect itself from a peaceful being.

Now, in order to frame the main argument as to who gets precedence in various situations, I will discuss the desires and interests of both the natural world and the human world. The biological domain that envelops the entire world is not always seen as something that could conceive any aspirations or known attractions to anything in particular. On the contrary, as stated before, the main goal for any living thing is to survive – including

humans. If there were a wolf on the brink of starvation, they would do whatever is in their power to find and kill another living thing to sustain itself. They would typically attempt to kill the feeble and helpless creatures, which in some cases may be small children or even their own kind. Humans would have a big problem if it came down to a wild animal killing a person, but quite ironically there are cases in which humans do the same thing. Back in the 1800s, during a harsh and frigid winter, the Donner party resorted to cannibalism in order to survive. There are stark similarities between these two situations, but the obvious one has to do with both parties wanting to survive at all costs. It also highlights the fact that humans and animals are not as different from each other as many perceive them to be. One could go as far to say that survival for any living organism is a need that requires attention and respect.

Taking it a step further, there are even differences in interests and desires among sentient and non-sentient creatures. Being sentient is a classification of an organism that means they are able to feel pleasure and pain, thus striving to gain pleasure and avoid pain. Right away, crustaceans, plants, and insects are removed from the picture. While it is critical for humans as highly advanced organisms to do whatever we can to protect them, they will no longer be considered as potential agents in receiving environmental precedence in any situation. The creatures who are sentient in nature then range from domestic animals, wild animals like various mammals, birds, and fish; all the way to include the human race. Pleasure is one of the most sought after feelings in the world. A sufficient lifestyle, security, and shelter have been mentioned before; however, they are excellent examples to describe hedonistic desires that biocentrism states all living things deserve. Furthermore, biocentrism also solidifies the fact that these basic pleasures sought after by all living things are also needs that require attention if the flora and fauna of the world are to survive for many more centuries to come. I will, however, acknowledge the fact that there are certain circumstances when desires, interests, and even needs can be different between mankind and its counterpart.

After discussing the reciprocated needs, interests, and desires between moral and non-moral entities, it is important to expand on how they are also different. Animals, as discussed before, are intrinsically valuable creatures that feel pain and desires survival just like any human would; however, due to their underdeveloped cognitive capacity to make rational decisions and process information, the fauna of the world act instinctually rather than intentionally. Since this is the case, there are some

circumstances in which a human should take precedence over an animal, and there are other cases where this is turned around and animals should have dominance over mankind.

All living, sentient beings have basic interests, but what separates humans from other creatures is our capacity to mentally process and desire peripheral needs and desires. It is pertinent to this argument to state that the latter does not require immediate attention, since everyone has the capacity to survive on a simple level of resources. If one were to go above and beyond the basic need for survival and desire a bigger house or an exotic pet of some kind, than those would be considered peripheral needs that have the potential to impede on another animal's aspiration to live a sufficient lifestyle and achieve overall well-being. Since this is the case, mankind needs to understand that other living things will have precedence over humans.

Another situation that could be considered is hunting for sport or for commercial purposes where high numbers of whatever is being sold is required. Granted hunting may bring happiness and pleasure to whoever is partaking in the activity, but that happiness is hindering on another organism's welfare and undermining its intrinsic value. Therefore, the animal's life takes priority and should be respected as another sentient creature deserving an equal chance to live a sufficient lifestyle, as expressed by the biocentric viewpoint of environmental ethics.

On the other hand, there are many circumstances in which humans require primacy over their non-perceptive counterparts. Animal testing is one of the more popular examples when explaining this situation, and rightly so. Much of our present-day medical capabilities, as well as our understanding of the complexities of human anatomy, derive from the extensive research done on animals. The controversy lies along the border of deciding whether or not to experiment on innocent creatures versus doing the same thing on humans, whom many believe are far more superior than the rats and pigs typically sacrificed for scientific purposes. Most argue this is the case because unlike humans, animals have a drastically different cognitive capacity along with a nonexistent moral compass. In addition, non-rational beings are typically conceived as instrumental goods that are dispensable in all regards, why would we risk the life of another human when we could test a potentially deadly drug on a non-human animal? Unlike a mouse, it is morally unacceptable to euthanize a human if something were to go awry. The scientific realm of knowledge has also been greatly expanded through the use of animal test

subjects. Despite the fact that it is difficult to see an animal go through such an arduous process in order for us to learn more about medicine, no one would be able to watch her loved go through the same thing. Consequently, we use animals, so humans do not have to suffer unnecessarily.

While the earlier argument focused on the universal intrinsic value of all living things, I believe there is a hierarchy of value, thus placing the human race at the top and granting the species top priority in all circumstances. In order to develop this further, I will start by explaining the reasoning behind layering the values and why it is pertinent to the situation to do it this way. Like I stated previously, all sentient organisms on the planet are intrinsically valued because they are living things with interests and desires. However, that is only a baseline and life offers more advanced pleasures and desires. Yes, animals have needs, desires, and interests that are similar to mankind's; however, it is in the basic sense. Animals are unable to process many of the intrinsic values like happiness, knowledge, or success that are generally comprehended by humans. This then makes humans more intrinsically valuable and thus are the superior agents on Earth. Finally, one of the most important points to describe this is the fact that humans are the only beings on Earth that have the ability to rationalize and obtain morality. Like what was stated before, non-cognitive animals act instinctually, even highly intelligent animals like dolphins and primates seem to lack the capabilities to stop and think of the best possible solution to their problems. Due to this drastic difference in cognitive capacity, non-rational organisms are potential subjects to be a sacrifice in every situation.

I believe this argument still follows the integrity of biocentrism because it takes into consideration the intrinsic value of every organism. While various organisms like elephants, monkeys, fish, humans and so on may not be on the same level in terms of value, they all still deserve an equal opportunity to live a sufficient lifestyle. One may confuse the hierarchy of intrinsic value with anthropocentrism, which states that humans are the only beings in nature with intrinsic value; however, that is not the case. There is room in the biocentric realm of understanding to accept that there are certain organisms that have simply developed a more advanced understanding of the world and what it offers. This does not mean the well-being of the Earth should be neglected. Humans are the only organisms on the planet to reverse the damage that has been done, and

because of this, the focus needs to be placed on protecting mankind if the Earth has any chance at being restored.

Contrary to the previous development regarding the desires, interests, and needs of animals and humans, those experienced by humans are far more superior and matter more overall. Animals lack the emotions and do not process situations the same way humans do. With that being said, using a variation of the famous trolley example, if there was a situation where there was a dog on the tracks or a trolley full of people barreling towards a cliff, who should be saved? The complexity of human life validates that the dog should be sacrificed, and the person who has to make the decision should turn the train towards the animal rather than let the people perish. Any one of those people could, in the future, create a cure for cancer, develop a formula to stop childhood hunger, or even solve the climate change crisis that is greatly affecting life on the planet. There is too much riding on the decision as to whether or not to save the people or the dog, and no matter how badly one feels sacrificing the non-human animal's life, it needs to be done in order to save a dozen human lives. True, the dog's interests may be focused on surviving at all costs, but the people are also thinking the same thing. The trifling argument for the equal treatment between humans and animals seems to neglect the fact that human superiority is simply a force of nature. Ancestors of *Homo sapiens* did not choose their evolutionary path; that was decided for them. It was nature that allowed humans to develop their brains and create distinct, rational thoughts, interests, and desires. The needs also grew to be more complex as the species began to heavily populate the Earth. Animals on the other hand have been left behind, but that does not mean we need to admit ourselves to their lower level competency. People need to save their own kind and take everyone's needs, aspirations, and appeals seriously because of their potential to advance human knowledge.

Case in point, the human race should win any clash when it is up against an animal. Mankind is far more superior, possesses the advanced technology to improve life on the planet, and has the utmost cognitive ability to produce beliefs based on rational and moral thought processes. Our intrinsic value far exceeds other animals and is the reason people need to be protected at all costs. Every living thing requires the opportunity to live sufficiently, safely, and have a roof over their heads; however, the success of the human race depends on the vast amounts of resources that it takes in order to fulfill these needs and desires. Large corporate farming industries for instance, are crucial human enterprises that, even though

sacrifices the lives of cattle, feeds large populations around the world. Opponents of this explanation would argue this is not a need but rather a want that is unnecessary for human survival. To make this distinction, one would have to understand what a need and a want are. A need is a requirement for an individual's survival, and a want is more of a luxury that is unnecessary for someone's personal subsistence. Going along with the example of large corporate farming, it is a shame that it has come to this, but as said before, it is necessary for it to be done to ensure people around the world are fed. The same thing can be said about industries partaking in large-scale hunting endeavors, it is all for the advancement of human livelihood. People who are threatened by an animal should also sacrifice the animal to aid in protecting their well-being and fulfilling their desire to survive. If a mountain lion was threatening a farmer's livestock or getting too close to his home, then they are obligated to defend themselves and their family by killing that animal – even if the mountain lion was starving and looking for something to eat. However, if it was this easy to forgo the intrinsic value of nature and all of its inhabitants, then humans are retreating from their moral endeavors and depriving another living thing the right to life.

Looking at the environment with a biocentric viewpoint stipulates the significance of all living things in the environment; however, I understand this as including only sentient creatures. With that said, the importance of an organism's basic needs, interests, and desires are considered to be equally dispersed among every pleasure-seeking animal. There is no superior being in nature and there is no special treatment when it comes to deciding who lives and who perishes in various situations. It is important to note that intrinsic value is essentially created by the environment itself. Humans are the only creatures on Earth that are able to understand morality, and since morality can only be conceived by a living thing than it is safe to say, without nature, morality would not exist. That also brings me to the conclusion that the intrinsic value of all organisms is also a product of the environment. Humans did not create happiness, health, or safety, these are only elements in the world that were revealed through evolution and human advancement. These were present before the modern-day human, and many animals are able to desire them as well.

With that being said, all sentient creatures on Earth have intrinsic value. There is no hierarchy of value to bestow importance on any one creature, and there certainly is not an organism that lacks any kind of intrinsic value. The only thing that is vital in order to ensure that this

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remains fluid throughout the environment is for people to understand both humans and animals have basic needs that require immediate attention following their desires and interests. Again, the chief desire for all organisms on planet Earth, sentient or not, is survival. The right to live a sustainable lifestyle is embedded in the natural order of things which is then translated into the basic need for food, water, shelter, and security that all living things want for themselves. If these things are made available one way or another, then the desire to persist in the environment is satisfied. Additionally, every intrinsically valuable being strives for pleasure and tries to avoid pain at all costs. People, dogs, cats, birds, wolves, and everything else all share this interest. Humans should take this into consideration and realize that there should never be a situation in which one oversteps the boundaries and destroys more than what is necessary. Granted there are circumstances in which the sacrifice of an animal is necessary; however, there is a limit as to how far one should go.

It is important for this argument to address the fact that humans are indeed animals themselves, simply a small faction in a slew of diverse and complex beings. People seem to forget this is the case and fail to consider the hypocrisy that takes place on a day to day basis when we say it is immoral to kill another human being. Since humans are animals, that moral opinion should then include animals as well. There are so many things that could happen in nature where it can become difficult to validate the actions of whoever is involved – man or beast. Tying that back into the question at hand regarding precedence in nature, the answer is that it should be a reciprocated endeavor. I believe there are situations where it is necessary to sacrifice the desires and interests of a human or an animal.

The environment is such a complicated unit of miscellaneous organisms that are all important for the overall well-being of the planet. There are times in which it is required for animals to perish in order to protect their human counterparts. Cattle ranching for instance is an important enterprise that feeds millions of people every day; however, it is at the expense of the cows' lives. The animals did not have a choice in the matter and are technically being held against their will. But if it is for ensuring people have food to eat, then it is a necessary evil. The same thing could be said about saving an animal's life. While it may not be as extensive as sacrificing one's life for an animal, humans are able to utilize their naturally large mental capacities and exploit their technology and knowledge of the world in order to protect the lives of innocent creatures.

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The amount of animal lives being expended due to mankind's overconsumption of resources is inexcusable and demands a change in heart. Yes, there is no rational thought process that a non-moral being goes through on a daily basis; however, they are living beings, like humans, that demand just as much precedence in the natural world. There is a lot of give and take with such a complicated system of environmental communities on Earth, and they are all important. Everyone desires survival, and everyone should have the opportunity to achieve that.

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Scheuer credits her growth as an individual to the remarkable faculty and organizations she has interacted with after the two short years she has been at NDSU. Most importantly, however, her family has encouraged her to stand up for what she believes in and use her experiences to make the world a better place. Born and raised in Bismarck, North Dakota, Faith hopes to stay in the area after all of her schooling is complete.

